Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

❖ SPORT AND PERFORMANCE

PERSONALITY INFLUENCE OF THE FOOTBALLER IN THE ACHIEVEMENT OF THE FOOTBALL GAME

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Abstract

The personality of the football player contributes in decisive mode to him affirmation in the football of great performance and it cans to manifest a strong influence over the display of the football game.

Purpose: The aim of the research activity consists in to find the effective solutions concerning the affirmations of the footballers, through the utilisation of the specific methods and techniques of psycho-sociologistical training.

Methods and procedures: For to achieve what we proposed through the aim of the research, we used the next methods: the method of the observation; the experimental method; the statistical methods; the method of the discussion.

Results: The aplication at players of the methods of knowledge of the personality improves the strokes of personality, of motivation, temper, specific but and general thinking.

Discusions: The questions of the psychological test constitute important locate points in the establishment of the strategy of improvement concerning the personality.

Conclusions: The implication of the coach in the improvement of the personality strokes of the footballer contributes to the sporting performance.

Key words: neurosis; aggressivity; low spirits; irritability; oneself control.

Introduction

All the specialists agree with the characteristics concerning the personality of the football player, as the firmness, combativity, perseverence, tranquil, possession of oneself must be permanently educate through special trainings and games constituted. An adequate physical preparation, for example, will grow the efficiency of the attack and defence actions expressed through aggressive spirit and intention of combat, but and through the dosage of the effort through the achievement of the economic game which will push the team from attack in the opposite half on the short road and with minimum individual or collective effort (T.O., Bompa, 2002).A football team is a group with aim, in which the personality of each membre is at alike of important, while the result is not something else than theresult of the efforts of each from the players (M. Giacomini, 2009).

Purpose. The purpose of each activity of research consists in to find efficacy solutions concerning the affirmation of the players, through the utilisation of the specific methods and technics pf psycho-sociological training. He included in special mode discusions before achieved with the players, in the time and after the development of the trainings and official contests.The hypothesis of the research is the next: we suppose that the active involving of the coach in to improve the problems concerninf the personality of the players will conduct at the growth of the efficiency for the preparation of the preadolescents and teenagers footballers.

Research methods and procedures

In the view of the achievement of this research, we used the next research methods: the observation method, the experimental method, the method of the discussion, the statistical method, the method of the graphical representations. As methods of knowledge concerning the personality of the football players we used two kinds of methods: clinical method (the observation, the discussion, the biographycal method – the anamnesis) and psychometrical methods or experimental (the experiment, the test and the questionnnaire). The experimental team is constitute from the young footballers who belong to F.C. Otelul Galati and are borned in 1993, coach Rogea Mitică. The witness team is constitute from the young players who belong to F.C. Dunărea Galati and are borned in 1993, coach Balaban Sorin. We mention that the players from the two groups, both the experimental team and the witness team, started to practise the football play from at 8-9 years, and they passed through more much phases of selection, so, we can say the the experiment was applied of the best players of them age. Through the next personality test applied we reflected: the neurosis, the aggressivity, the depresion,

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Received 10.03.2011 / Accepted 22.04.2011

the iritability, the sociabily, the oneself possession, the extravertit, the introvertit, the masculine and the womanly (H. Siewert, 2001).

Table 1 The personality test

No.	QUESTION	SCORE
1.	Do you make often reproach concerning at the behaviour on you have him?	1..2…3…4…5…6
2.	Do you believe that it spend more many for the social asistance ?	1..2…3…4…5…6
3.	Do you believe that through questions with general character it cans give an arranged estimate ?	1..2…3…4…5…6
4.	Do you have often concerns face of the failures ?	1..2…3…4…5…6
5.	Dou you feel untired and incomparable?	1..2…3…4…5…6
6.	Do you feel in mood to you subjugate of the strict discipline ?	1..2…3…4…5…6
7.	Do you can express the feelings face of the others ?	1..2…3…4…5…6
8.	Do you have sometimes the fear face of the personal aggressivity?	1..2…3…4…5…6
9.	Do you have often involvings in disputes concerning the justice ?	1..2…3…4…5…6
10.	Are there little persons for you who can be in fact dears ?	1..2…3…4…5…6
11.	Do you have tracemotions when you must play in the front side of the numerous public ?	1..2…3…4…5…6
12.	Do you have difficulties to recognize the guilty ?	1..2…3…4…5…6
13.	Do you have protests when for a product you must give more money than you know how much it costs ?	1..2…3…4…5…6
14.	Do you can speak frank with others about your intimate life ?	1..2…3…4…5…6
15.	Do you have sometimes the impression that the world stealthily sees you for as than it speaks you on at back ?	1..2…3…4…5…6
16.	Do you thinks that it's correct that the people must to fight for make career ?	1..2…3…4…5…6
17.	Are you a jealous person ?	1..2…3…4…5…6
18.	Do you have distinct habits, such as to gnaw the nails or the extremities of pencils ?	1..2…3…4…5…6
19.	Do you have sometimes pains of head, migrene migraines ?	1..2…3…4…5…6
20.	Do you have timidity face of the people crowd ?	1..2…3…4…5…6
21.	Do you give way sometimes only for to avoid the conflictual situations ?	1..2…3…4…5…6
22.	Do you speak at partyies with more world ?	1..2…3…4…5…6
23.	Are you involve in little accidents ?	1..2…3…4…5…6
24.	Do you feel irritation and hesitation when you take a decisive decision ?	1..2…3…4…5…6
25.	Do you often look for a change in your relations with the membres of the family ?	1..2…3…4…5…6
26.	Do you know more persons who are your opponents and who want to make you displeasure ?	1..2…3…4…5…6
27.	Do you can stimulate the good mood of the partners when they are angry ?	1..2…3…4…5…6
28.	Do you believe that the illness ensurings are expensive ?	1..2…3…4…5…6
29.	Do you listen with pleasure the counsels of the others ?	1..2…3…4…5…6
30.	Do you feel more good in the reserve position, than when you are in field ?	1..2…3…4…5…6

31.	Are you often preoccupy about personal sexuality ?	1..2…3…4…5…6
32.	Do you believe that you have sufficient personal trust for to tolerate a defeat ?	1..2…3…4…5…6
33.	Do you have often the same anxieties ?	1..2…3…4…5…6
34.	Do you respect with strictness certain behaviour rules ?	1..2…3…4…5…6
35.	Do you make movement excepting the hours of training ?	1..2…3…4…5…6
36.	Do you think that the others consider that you are unpredictable ?	1..2…3…4…5…6
37.	Are you an impulsive person ?	1..2…3…4…5…6
38.	Do you involve with pleasure in discussions ?	1..2…3…4…5…6
39.	Do you feel often abandoned by the persons from around ?	1..2…3…4…5…6
40.	Do you think that the friends betray your trust ?	1..2…3…4…5…6
41.	Do you have angers because there are noises ?	1..2…3…4…5…6
42.	Do you have often pains for the reason of the indigestion ?	1..2…3…4…5…6
43.	Are you rather negligently ?	1..2…3…4…5…6
44.	Do you sometimes treat roughly on the others ?	1..2…3…4…5…6
45.	Do you have often the thought that you can to die unexpectedly ?	1..2…3…4…5…6
46.	Do you have the inclination for to get together things about which you think that they can be useful ever ?	1..2…3…4…5…6
47.	Do you have concerns for politics ?	1..2…3…4…5…6
48.	Are you sometimes terrible of jealous ?	1..2…3…4…5…6
49.	Are you always in a good mood ?	1..2…3…4…5…6
50.	Do you think that your life has a sense ?	1..2…3…4…5…6
51.	Do you accept criticisms concerning your personality ?	1..2…3…4…5…6
52.	Do you have concerns about the good of the public ?	1..2…3…4…5…6
53.	Do you found easy something for to make when you are alone ?	1..2…3…4…5…6
54.	Do you have often concerns about one and the same thought ?	1..2…3…4…5…6
55.	Are you easy nerves concerning the unimportant facts ?	1..2…3…4…5…6
56.	Do you wish to relish the sorts of foof in place of to finish as more fast the meal ?	1..2…3…4…5…6
57.	Do you say frankly the opinions ?	1..2…3…4…5…6
58.	Do you have criticisms sometimes about the attitude of the colleagues?	1..2…3…4…5…6
59.	Do you think that you are considered by the persons from around as a presumptuous person ?	1..2…3…4…5…6
60.	Do you think that you are un polite when you speak at telephone ?	1..2…3…4…5…6
61.	Do you feel more good when you listen the sentiment music ?	1..2…3…4…5…6
62.	Do you think that the red light is adapted for the dynamic activities ?	1..2…3…4…5…6
63.	Do you accept the wishs of the family sooner that personal wishs ?	1..2…3…4…5…6
64.	Are you happy when you obtain what you want from at the others in the situation when you are sentimentally ?	1..2…3…4…5…6
65.	Do you can kill in need for to defend you ?	1..2…3…4…5…6
66.	Do you look with admiration at the nice persons ?	1..2…3…4…5…6
67.	Do you offer importance of the fact for to be always correct dressed ?	1..2…3…4…5…6

68.	Are you active fun of any sporting team ?	1..2…3…4…5…6
69.	Do you have concerns that you don't can pay the debts ?	1..2…3…4…5…6
70.	Do you come out from house with pleasure ?	1..2…3…4…5…6
71.	Do you like the children ?	1..2…3…4…5…6
72.	Do you have cares for long time when you listen bad news ?	1..2…3…4…5…6
73.	Do you like to be at least at one time chief ?	1..2…3…4…5…6
74.	Do you have attraction concerning the affirmed players ?	1..2…3…4…5…6
75.	Do you have a healthy sleep ?	1..2…3…4…5…6
76.	Don't you can tolerate on the indolent or irritating persons ?	1..2…3…4…5…6
77.	Do you pass under silence the suffered aggressions instead to denounce them ?	1..2…3…4…5…6
78.	Do you whish to be enroled as voluntary if the contry cans be attacked ?	1..2…3…4…5…6
79.	Is there in your life unpleasant thinks on which you don't whish knowed ?	1..2…3…4…5…6
80.	Do you meet sooner with good disposition each day from life ?	1..2…3…4…5…6
81.	Do you think that the sincerity cans contribute to a atmosphere of more good life ?	1..2…3…4…5…6
82.	Are you angry as effect of the crowd ?	1..2…3…4…5…6
83.	Do you smoke ?	1..2…3…4…5…6
84.	Do you sometimes think that you can more good conduct more on the persons from around than others ?	1..2…3…4…5…6
85.	Do you feel good when you are at home ?	1..2…3…4…5…6
86.	Do you like to be considered sooner as a satisfied by oneself person and with trust in personal forces ?	1..2…3…4…5…6
87.	Do you like the others company when you come out from house ?	1..2…3…4…5…6
88.	Do you have the stamps, articles from press concerning a certain theme ?	1..2…3…4…5…6
89.	Do you have the impression when you listen the speach of the coach that he speak direct with you ?	1..2…3…4…5…6
90.	Do you whish to buy a car by instalments ?	1..2…3…4…5…6

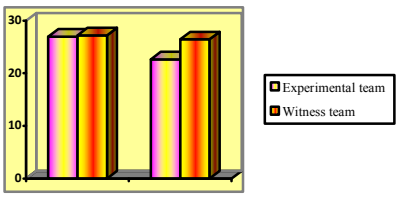
In this personality test, each question had indicated six possibilies of answer, for intensities in a graduated growth, marked so: 1 = as of little; 2 = in a certain measure; 3 = more much yes than no; 4 = probably that it's yes; 5 = I hope that it's yes ; 6 = certainly that it's yes.

Results

1. Neurosis

Table 2. The statistical indicators for neurosis

The statistical indicators	The experimental team		The witness team	
	T_1	T_2	T_1	T_2
The arithmetical average	26,94	22,63	27,19	26,44
The standard deviation	4,75	4,43	5,00	5,16
Maximum	39	33	40	40
Minimum	24	19	21	20
Amplitude	15	14	19	20
Coefficient of variation	17,63	19,58	18,39	19,52



Type 1. Neurosis - the levels of the arithmetical averages at the initial and final tests

Table 3. The difference between tests – neurosis

Team	T_1	T_2	D_{21}	D_{21}(%)
The experimental team	26,94	22,63	-4,31	-16,00
The witness team	27,19	26,44	-0,75	-2,76

At the experimental team it registers a subtraction with 16% (4,31 points) face of the initial test. At the witness team, at the final test, it registers a subtraction with 2,76% (0,75 points) face of the initial test.The both teams are relative homogenous, because the coefficient of variation has values between 10-20%.

Table 4. The difference between the arithmetical averages of the teams – neurosis

The team and the differences	T_1	T_2
The experimental team	26,94	22,63
The witness team	27,19	26,44
Experiment - witness	-0,25	-3,81
(Experiment - witness) (%)	-0,92	-14,41

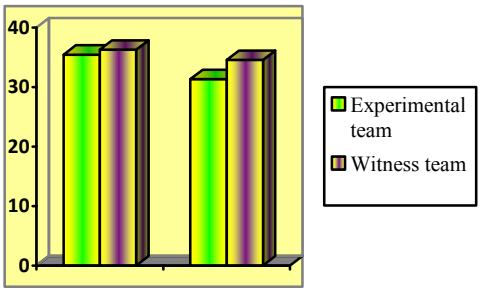
At the initial test, the level of the arithmetical average at the experimental team is with 0,92 % (0,25 points) more little than the aritmetical average of the witness team.

At the final test, the value of the arithmetical average at the experimental team is with 14,41 % (3,81 points) more little than the average of the witness team (Drăgan, A., 2009).

2. Aggressivity

Table 5. The statistical indicators for aggressivity

The statistical indicators	The experimental team		The witness team	
	T_1	T_2	T_1	T_2
The arithmetical average	35,44	31,31	36,25	34,56
The standard deviation	5,14	4,71	4,82	4,21
Maximum	42	38	44	40
Minimum	26	22	30	28
Amplitude	16	16	14	12
Coefficient of variation	14,50	15,04	13,30	12,18



Type 2. Aggressivity - the levels of the arithmetical averages at the initial and final tests

Table 6. The difference between tests – aggressivity

Team	T_1	T_2	D_{21}	D_{21}(%)
The experimental team	35,44	31,31	-4,13	-11,65
The witness team	36,25	34,56	-1,69	-4,66

At the experimental team, at the final test, it registers a subtraction with 11,65 % (4,13 points) face of the initial test.At the witness team, at the final test, it registers a subtraction with 4,66 % (1,69 points) face of the initial test.We observe that the both teams are relative homogenous, because the coefficient of variation has values between 10-20%.

Table 7. The difference between the arithmetical averages of the teams – aggressivity

The team and the differences	T_1	T_2
The experimental team	35,44	31,31
The witness team	36,25	34,56
Experiment - witness	-0,81	-3,25
(Experiment - witness) (%)	-2,23	-9,40

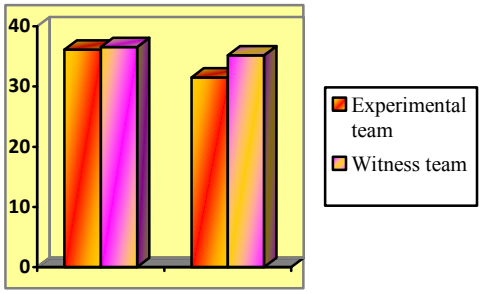
At the initial test, the arithmetical average at the experimental team is with 2,23 % (0,81 points) more little than the average level of the witness team.

At the final test, the arithmetical average at the experimental team is with 9,4 % (3,25 points) more little than the average of the witness team.

3. Depresion

Table 8. The statistical indicators for depresion

The statistical indicators	The experimental team		The witness team	
	T_1	T_2	T_1	T_2
The arithmetical average	36,13	31,50	36,56	35,19
The standard deviation	5,14	5,42	4,37	4,45
Maximum	42	39	43	42
Minimum	26	21	26	25
Amplitude	16	18	17	17
Coefficient of variation	14,23	17,21	11,95	12,65



Type 3. Depresion - the levels of the arithmetical averages at the initial and final tests

Table 9. The difference between tests – depresion

Team	T_1	T_2	D_{21}	D_{21}(%)
The experimental team	36,13	31,50	-4,63	-12,81
The witness team	36,56	35,19	-1,37	-3,75

At the final test applied at the experimental team it registers a subtraction with 12,81 % (4,63 points) face of the initial test. At the witness team, at the final test, it observes a subtraction with 3,75 % (1,37 points) face of the initial test.The both groups are homogenous, because the coefficient of variation has values between 10-20%.

Table 10. The difference between the arithmetical averages of the teams – depresion

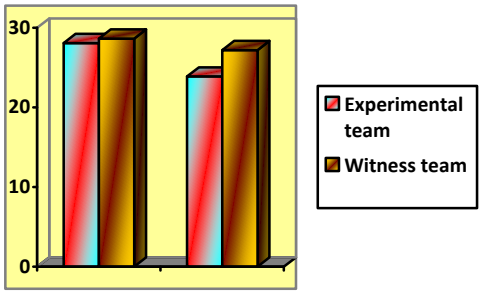
The team and the differences	T_1	T_2
The experimental team	36,13	31,50
The witness team	36,56	35,19
Experiment - witness	-0,43	-3,69
(Experiment - witness) (%)	-1,18	-10,49

At the initial test, the arithmetical average at the experimental team is with 1,18 % (0,43 points) more little than the average of the witness team. Also, at the final test, the arithmetical average at the experimental team is with 10,49 % (3,69 points) more little face of the aritmetical level of the witness team.

4. Irritability

Table 11. The statistical indicators for irritability

The statistical indicators	The experimental team		The witness team	
	T_1	T_2	T_1	T_2
The arithmetical average	28,06	23,88	28,63	27,19
The standard deviation	5,41	4,73	4,40	4,31
Maximum	35	31	41	40
Minimum	21	18	24	23
Amplitude	14	13	17	17
Coefficient of variation	19,28	19,81	15,37	15,85



Type 4. Irritabilty - the levels of the arithmetical averages at the initial and final tests

Table 12. The difference between tests – irritability

Team	T_1	T_2	D_{21}	D_{21}(%)
The experimental team	28,06	23,88	-4,18	-14,90
The witness team	28,63	27,19	-1,44	-5,03

At the experimental team, at the final test, it registers a subtraction of 14,9 % (4,18 points) face of the initial test.At the witness team, at the final test, we observe a subtraction with 5,03 % (1,44 points) face of the initial test.

The both teams are relativ homogenous, because the coefficient of variation has values between 10-20 %.

Table 13. The difference between the arithmetical averages of the teams – irritability

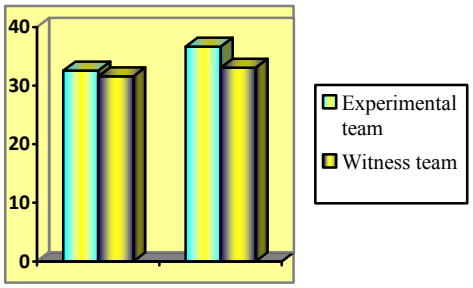
The team and the differences	T_1	T_2
The experimental team	28,06	23,88
The witness team	28,63	27,19
Experiment - witness	-0,57	-3,31
(Experiment - witness) (%)	-1,99	-12,17

The initial level concerning the arithmetical average of the experimental team is with 1,99 % (0,57 points) more little than the average of the witness team.At the final test, the value of the arithmetical average at the experimental team is with 12,17 % (3,31 points) more little face of the aritmetical average achieved by the witness team.

5. Sociability

Table 14. The statistical indicators for sociability

The statistical indicators	The experimental team		The witness team	
	T_1	T_2	T_1	T_2
The arithmetical average	32,56	36,63	31,56	33,06
The standard deviation	5,78	6,01	3,44	3,36
Maximum	42	45	36	37
Minimum	22	25	25	26
Amplitude	20	20	11	11
Coefficient of variation	17,75	16,41	10,90	10,16



Type 5. Sociability - the levels of the arithmetical averages at the initial and final tests

Table 15. The difference between tests – sociability

Team	T_1	T_2	D_{21}	D_{21}(%)
The experimental team	32,56	36,63	4,07	12,50
The witness team	31,56	33,06	1,50	4,75

At the experimental team, we observe at the final test that it registers a growth with 12,5 % (4,07 points) face of the initial test. Also, at the final test concerning the witness team it registers a growth with 4,75 % (1,5 points) face of the initial trial.The both groups are relativ homogenous, as effect of the fact that the coefficient of variation has the values between 10-20 %.

Table 16. The difference between the arithmetical averages of the teams – sociability

The team and the differences	T_1	T_2
The experimental team	32,56	36,63
The witness team	31,56	33,06
Experiment - witness	1,00	3,57
(Experiment - witness) (%)	3,17	10,80

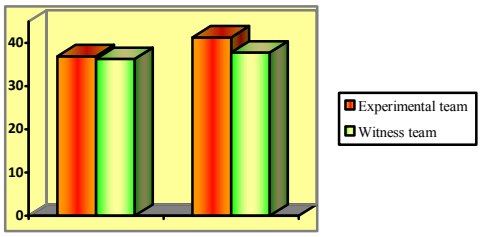
At the initial trial, the value of the aritmetical average at the experimental team is with 3,17 % (1 point) more great than the level of the average concerning the witness team.

At the final test, the arithmetical average at the experimental group is with 10,8 % (3,57 points) more great than the average of the witness team.

6. Oneself control

Table 17. The statistical indicators for oneself control

The statistical indicators	The experimental team		The witness team	
	T_1	T_2	T_1	T_2
The arithmetical average	36,94	41,31	36,31	37,81
The standard deviation	5,04	5,39	3,81	4,00
Maximum	43	48	40	42
Minimum	28	32	29	30
Amplitude	15	16	11	12
Coefficient of variation	13,64	13,05	10,49	10,58



Type 6. Oneself control - the levels of the arithmetical averages at the initial and final tests

Table 18. The difference between tests – oneself control

Team	T_1	T_2	D_{21}	D_{21}(%)
The experimental team	36,94	41,31	4,37	11,83
The witness team	36,31	37,81	1,50	4,13

At the experimental team, at the final test, it registers a growth with 11,83 % (4,37 points) face of the initial test.

At the final test achieved at the witness team we observe a growth with 4,13 % (1,5 points) face of the initial test.

Also, both the experimental team and the witness team are relativ homogenous, because the coefficient of variation has values between 10-20%.

Table 19. The difference between the arithmetical averages of the teams – oneself control

The team and the differences	T_1	T_2
The experimental team	36,94	41,31
The witness team	36,31	37,81
Experiment - witness	0,63	3,50
(Experiment - witness) (%)	1,74	9,26

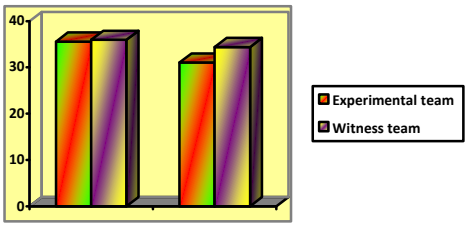
It observes that at the initial test, the level of the arithmetical average achieved at the experimental group is with 1,74 % (0,63 points) more great than the value of the average of the witness team.

At the final test, the value of the aritmetical average measured at the experimetal team is with 9,26 % (3,5 points) more great than the level of the arithmetical average achieved at the witness team.

7. Extravert - introvert

Table 20. The statistical indicators for extravert-introvert

The statistical indicators	The experimental team		The witness team	
	T_1	T_2	T_1	T_2
The arithmetical average	35,56	31,06	35,94	34,38
The standard deviation	5,09	4,96	4,17	4,15
Maximum	42	39	42	41
Minimum	23	19	28	26
Amplitude	19	20	14	15
Coefficient of variation	14,31	15,97	11,60	12,07



Type 7. Extravert – introvert - the levels of the arithmetical averages at the initial and final tests

Table 21. The difference between tests – extravert – introvert

Team	T_1	T_2	D_{21}	D_{21}(%)
The experimental team	35,56	31,06	-4,50	-12,65
The witness team	35,94	34,38	-1,56	-4,34

At the final test achieved at the experimental team it registers a subtraction with 12,65 % (4,5 ponits) face of the initial test. At the witness team, we observe at the final test a subtraction with 4,34 % (1,56 points) face of the initial test.Also, the both groups are homogenous as effect of the fact that the coefficient of variation has the values between 10-20 %.

Table 22. The difference between the arithmetical averages of the teams – extravert - introvert

The team and the differences	T_1	T_2
The experimental team	35,56	31,06
The witness team	35,94	34,38
Experiment - witness	-0,38	-3,32
(Experiment - witness) (%)	-1,06	-9,66

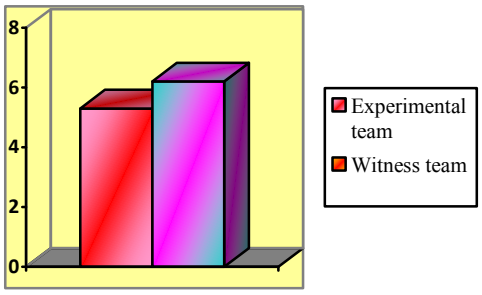
At the initial test applied at the experimental team, the level of the arithmetical average is with 1,06 % (0,38 points) more little than the value of the

arithmetical average of the witness team. At the final test, the value of the arithmetical average at the experimental team is with 9,66 % (3,32 points) more little than the level of the arithmetical average measured at the witness team.

8. Masculine – womanly

Table 23. The statistical indicators for masculine - womanly

The statistical indicators	The experimental team		The witness team	
	T_1	T_2	T_1	T_2
The arithmetical average	35,50	30,13	35,81	33,50
The standard deviation	5,72	5,35	3,76	3,72
Maximum	45	39	41	38
Minimum	23	19	31	28
Amplitude	22	20	10	10
Coefficient of variation	16,11	17,76	10,50	11,10



Type 8. Masculine – womanly - the levels of the arithmetical averages at the initial and final tests

Table 24. The difference between tests – masculine - womanly

Team	T_1	T_2	D_{21}	D_{21}(%)
The experimental team	35,50	30,13	-5,37	-15,13
The witness team	35,81	33,50	-2,31	-6,45

At the experimental team, at the final test it observs a subtraction with 15,13 % (5,37 points) face of the initial trial. At the witness team, at the final test it registers a subtraction with 6,45 % (2,31 points) face of the initial test.Also, the boths teams are homogenous because the coefficient of variation has the value between 10-20 %.

Table 25. The difference between the arithmetical averages of the teams – masculine - womanly

The team and the differences	T_1	T_2
The experimental team	35,50	30,13
The witness team	35,81	33,50
Experiment - witness	-0,31	-3,37
(Experiment - witness) (%)	-0,87	-10,06

At the initial test, the value of the arithmetical average measured at the experimental team is with 0,87 % (0,31 points) more little than the value of the average of the witness team.At the final test, the level of the arithmetical average achieved at the experimental team is with 10,06 % (3,37 points) more little than the level of the average of the witness team.

Discussion

This research reflects the fact that the personality of the football player contributes in a decisive mode to him affirmation in the football of high performance.The questions of the test constitute important points for to locate and to establish the strategy of improvement of the personality. We can say that to apply at the players the methods of knowledge of the personality it means to improve the strokes of personality, of motivation, temper, specific thinking, but and general thinking (Ploiesteanu, C., 2005).

Conclusions

The involving of the coach in to improve the personality strokes of the footballer contributes at the improvement of the sporting performances, but and the school performances.We propose the efficacy interweaving of the technics of training with the elements of physical preparation according to the age of the footballers.The selection of the footballers musts to be more much centred round on the elements of the physical preparation.Also, we propose as each coach to achieve still at the age of the selection, psychilogical record cards which can to help him in to obtain from time performances.

References

BOMPA T.,O., 2002, *Periodisation – the theory and the methodology of the training,* Publishing House EX PONTO, C.N.F.P.A., Bucharest, 37-40.

GIACOMINI, M., 2009, *The technical guide for the schools of football*, Italia, 135-141.

PLOIESTEANU, C., 2005, *Lecture of base,* Academica Publishing House, Galati, 78-89.

SIEWERT, H., 2001, *Personality tests*, Publishing House Gema Press, Bucharest, 82-96.

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

THE INVESTIGATION OF STRESS AND AGGRESSION LEVELS IN HEARING-IMPAIRED SPORTSMEN AGED BETWEEN 18-25 YEARS OLD

EMIRE ÖZAKATAR KAYA[1], ŞANAL MUSTAFA[2]

ABSTRACT

Purpose: The purpose of this study is to investigate levels of stress and aggression in hearing-impaired athletes aged between 18-25 years old.

Method: 50 hearing impaired sportsmen playing in different sport clubs in Izmir and 50 non-sportsmen involved the study voluntarily. 3 parted questionnaires were applied to the subjects. First, second and third sections consisted of questions on demographic characteristics, the stress scale and aggression scale consisted of 10 and 34 expressions, respectively.Obtained data recorded by package program. In order to test the research hypotheses, regression analysis and t test were applied.

Result: A positive linear relationship was found with levels of aggression and ages of the sportsmen whereas no significant correlation between stress levels and ages found. There were no significant differences between age and levels of stress and aggression in both sportsmen and non-sportsmen groups. Although significant relationship between gender and aggression and stress found in hearing-impaired sportsmen and non-sportsmen, boys showed more aggressive behavior than girls. No relation found between levels of aggression and stress in the hearing-impaired sportsmen who do team and individual sports. No significant relationship found between hearings-impaired sportsmen and non-sportsmen groups in terms of levels of aggression and stress.

Conclusion: As a result, hearing-impaired individuals to be rehabilitated through sports and must be kept from violence, aggression and concept of stress. Particularly, disabled members should be encouraged to participate in sports.

Key Words: Hearing loss, Stress, Aggression.

Introduction

There are individual differences among all people in the world. Body type, cultural, social, economic, psychological and developmental characteristics with other living creatures in nature, with the difference arising with factions within their own class is anentity with different characteristics (M. Akandere, 1993,17).

Partially or completely due to lack of sensitivity of hearing in learning to speak, because of the use of language and communication difficulties negatively affected an individual's educational performance and social status of compliance.

Hearing to take place, to be sound, the sound the human ear is perceived as present within the boundaries of the frequency and severity, the organ recipient to perceive the sound to the ear so the sound reaches the ear of the hearing center in the brain structures through unhindered, this center should be interpreted correctly detected (E. Belgin, 1995, 12)

Stress is not easy to define, describing today's most complex concepts in a more favored one. Definition of stress is the number of investigator. Selye (1976) stress, in short, "the body of any pressure on him, can not be a specific response," defined as. Besides, a little bit of stress as well as being useful in everyday life is also stated that necessary, also not possible to fully stress the individual, and it expressed that there is stress everywhere but not at the end of human life would be added to. (E. Göçet, 2006, 33-34).

Stress is a mental process, or sadness, anxiety, depression is not like the moods. This means that if there is a physical and a physiological response to stress brings occur. Accordingly, a state of physiological stress and
worry, anxiety, depression, or is not blocking. These mental states, may be the initiator for the physiological response, but he does not stress (I. Çakır, 2006, 29). Stress, strain, and to adapt the processes occurring within the complex, emotional, behavioral responses and physiological reactions to these connections is the name given (Z. Baltaş, 2000,133).

Mental structure of the external factor of any person in fear, anxiety, excitement, sadness gives birth, these states are also stress (N. Öner, 1989, 12).

Aggression, a behavior has existed since the day that there are human beings. Aggression, Anger, hostility, competition, frustration, fear and harm caused by such situations, to stop him, him or herself to be a barrier intended to protect the physical, verbal or symbolic behavior of all kinds. Target of aggression as well as other people, institutions, as well as the physical environment or the depression itself may be the person (S. Budak, 2000, 65-66).

It is known that sports is an important factor

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Received 03.02.2011 / Accepted 25.04.2011

for societies to keep healthy, Thanks to sport, it is known that societies live a comfortable and a good life away from the stress and tension. How the stress and aggressiveness level of hearing-impaired athletes and to what extend the effect of sport reflects on it led us to this study.

Human is bio-cultural and social entity. Hearing obstacle bears a social characteristic by affecting not only the person but also the environment and the family the person lives in. Hearing is the basic element of language and talking and these are interbedded with each other in real life.

Any disorder in this mechanism handicaps learning of language and talking by natural ways and makes gainining of communication skills tough (Ş. Bilir, S. Bal, 1995; D. Cüceloğlu, 1987).

Hearing-obstacle is being negatively affected of person's educational performance and social status badly because of the partially or wholly loss in the hearing sensibility, and the difficulty in speaking, use of language and intercommunication effect.

For the happening of the hearing; it should be that there is a sound, and that the frequency and the range of the sound is perceptible for the human ear, that there is a sound receiver organ- that is ear-, that the sound passes through the ear without facing any obstacles and reach the hearing centre and that it is perceived and commented correctly (E. Belgin, 1995).

Steadman's Medical Dictionary stress is described as the reaction of body against harmful and various abnormal situations that disrupts the balance of the body's normal psychological equilibrium ; as a persistence that body resists against to any action that is externally applied; as a psychological stimulus that's effective in emergence of tension and disequilibrium of a person (M.A. Şimşek, 2005).

Aggression is generally used to demonstrate individual's behaviors which is done to damage. In this context, components such as "to harm, hurt," or "intent, purpose," function as the key words for conceptualization of offensive conducts . Because person who acts aggressively harms or disturbs others with nasty stimulant. Although Hurtful, injurious behaviors take place in the center of the definitions about aggressiveness, it may not always be performed in order to harm. Individuals can apply to aggression for many reasons except harming others. Such as liberty acquisition, acquisition of status, controlling other people, establishing authority and having success are some of these aims (Y. Kurtyılmaz, 2005).

This study was done to investigate the aggression and stress levels of the hearing-impaired athletes and determine the role of sport in this effect.

Method

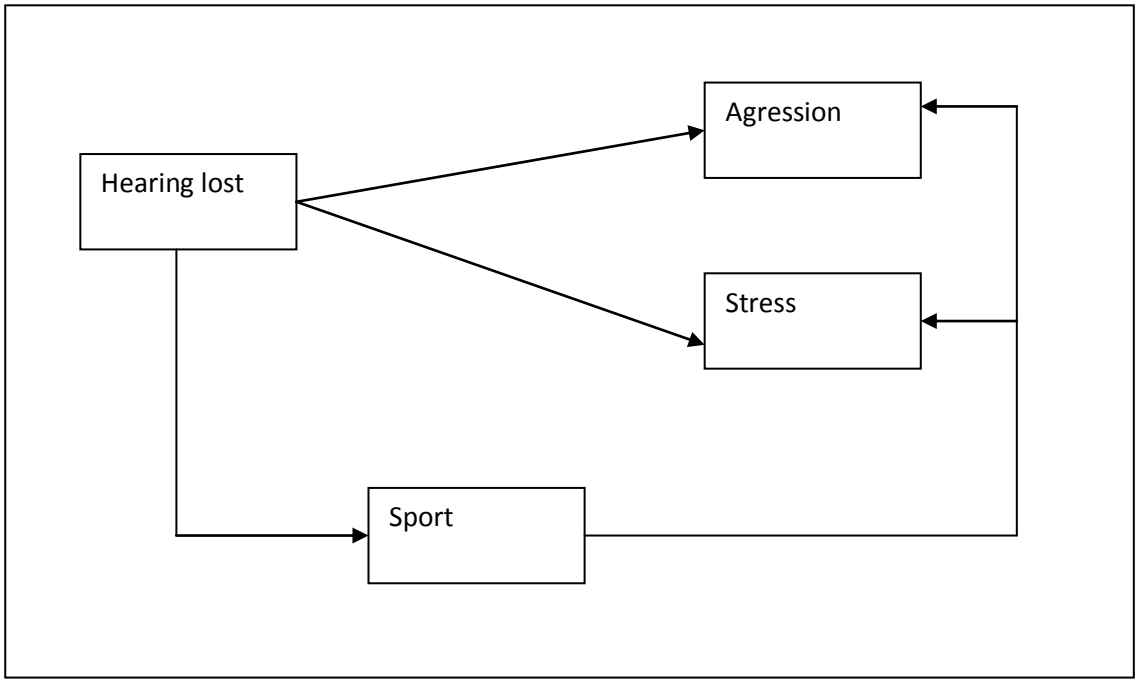
In accordance with the information contained in the theoretical part of the study, a survey form (Annex-1 Annex-2, Appendix-3) was prepared. Applied questionnaire consists of three parts. In the first section, there are demographic characteristics of athletes (age, experience, gender, education, sport branch). In the second part, there is a stress scale, which was used at Z. Odabaşı's (2006) " stress on work life" and is formed by 10 statements to determine the level of stress. These statements prepared according to 5 Likert scale, and ordered as a "never = 1, rarely = 2, occasional = 3, frequently = 4, very often = 5". As s result of "item analysis" that was done in the research in order to improve the reliability of the scale 5 expressions became out of evaluation (Z. Odabaşı, 2006).

Finally, in the third part, there is an aggression scale, occurs of 34 expressions developed by Buss and Perry (1992) , used by Y. Yalçın (2009) for his master thesis named " The effect of sport satisfaction on level of sportsmen's stress and aggression: An application to determine the role of trainer's gender in Antalya" to determine the scale of the aggression. These expression prepared according to 5-Likert scale and ordered as a " beneath at all = 1, very little suitable = 2, reasonable = 3, very suitable=4, pat = 5"

After getting required authorization via individual interviews with hearing impaired athletes and others who are not athletes, poll forms were applied. For the research; totally 100 questionnaires were given out. The questionnaire forms were given to either the team coaches and school teachers and they were wanted them to give these questionnaires out to their hearing impaired athletes and hearing impaired non-athletes or the athletes themselves and they were wanted to fill the forms on their own and then 100 of questionnaires were evaluated. The research data obtained were loaded to computer program and every analysis was scoped out by using this program. In order to test the research hypotheses, regression analysis and test were applied.

Reliability analyses of the scales that were used in the study were done and the stress scale's Cronbach's alpha value was determined as 0746 and aggression scale's Cronbach's alpha value was determined as 0,933. As the reliability level of scales was found as acceptable, it was passed to findings section.

Model of Research



Results

The average age of hearing impaired athletes and athletes who participated in the study was respectively determined as 20.62 ± 2.514 and 3.46 ± 4.30.

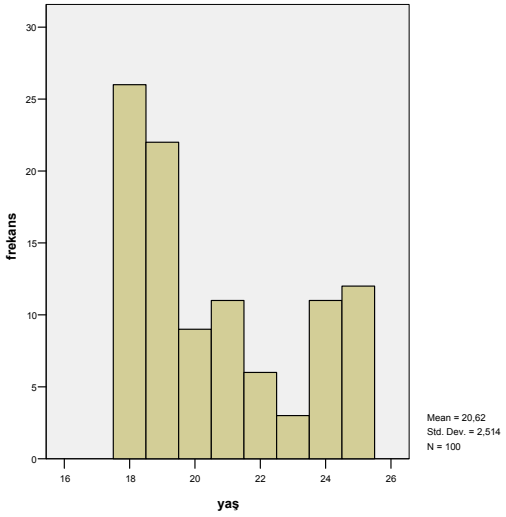


Table 3.1. The distribution of participants by sex

Athletes' gender	Frequency	%
Men	64	64
Women	36	36
Total	100	100

64 participants out of 100 were male and 36 participant's out of 100 were female. According to this, it is seen that most of the participants were men in this study.

Table: 3. 2. The distribution of participants by level of education

Athlete's studying status	Frequency	%
Primary education	6	6
High school	50	50
University	44	44
Total	100	100

When the education levels of the participants are examined, it can be understood from the chart that 6 out of 100 went to primary school, 50 out of 100 went to high school, and 44 out of 100 went to university. It can be understood from the chart above that the participant are mostly high school educated.

Table 3. 3. The distribution of participants athletes according to branches

Sports branches	Frequency	%
Individual sports	16	32
Team sports	34	68
Total	50	100

When you look at the distribution of athletes according to their branches, you see that 16 of them do individual sports and 34 of them do team sports. According to this , a large part of the participated athletes takes place in the team sports.

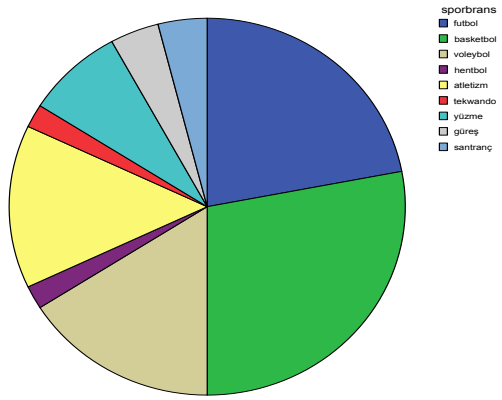


Table 3.4. The table about the range of aggression level between group of impaired athletes who do sports and group of impaired people who do not do sports

	Mean± SD		p
Athletes	2,31±0,60		
Nonathletes	2,79±0,77		
		3,431	0,001*

*** p<0.05**

A significant difference of which degree is 0.001 was found between the aggression levels of the impaired group which do sports and the impaired group which do not do sport ($p<0.05$). T test was applied because there were only two groups to be compared in order to determine the differences. This difference arises from that the aggression level of impaired athletes is lower than the impaired non-athletes. From this aspect, it is seen that sport plays an important role in reducing the aggression level of impaired people.

Table 3.5. Sport disability groups who do not do sports with disabled groups on the t-test table of the differences between stress levels

	Mean± SD	t	Level of significance
Athletes	2,77±0,66		
Nonathletes	2,66±0,61		
		-0,838	0,404

T test was used as there are only two groups to be compared in order to find the differences. No significant difference was found between impaired athletes and impaired non-athletes. (p>0.05).

Discussion And Conclusion

The average age of participant athletes was found as 20,62±2,514 and their average sport age was found as 3,46±4,30. When you look at the education levels of participants, you see that their educational rates are 6 primary, 50 high school and 44 university. When you look at the distribution of athletes according to their branches, you see that 16 of them do individual sports and 34 of them do team sports. According to this , a large part of the participated athletes takes place in the team sports

The rates of athletes participated in this study are , %22 football, %28 basketball, %16 volleyball, %2handball, %14 athletics, %2 Taekwando, %8 swimming, % 4 wrestling, %4 chess.

A significant difference was found between the aggression levels of the impaired group which do sports and the impaired group which do not do sport because sport is a social activity which enables the young to join dynamic social environments, it has an important role in the socialization of the person. When you take in to consider that in modern societies, the sport is mostly a collective activity, through sports activities people who do sports enter into social relations with various human groups. Sports provide individual to interact mutually by getting rid of his own narrow world and getting across with the other person who has different believes, ideas in different ambience

From this aspect, it can be said that sport has an important role in establishing and , improving new friendships, in supporting social cohesion, in regaining the impaired people and in reducing the aggression level (A. Yetim, 2005).

A significant relation was not found between impaired athletes and impaired non-athletes. Sport disability group and the sedentary group, there was a significant association between stress levels. Stress is a phenomenon that is impossible to avoid in daily life. Mediocrity stress can be seen in each person (E. Gün, 2006). Many of the studies in literature show that sportive activities are done to get rid of the stress which is the age's disease (Z. Pehlivan, 2009; Ş. Çoğalgil, N.F. Kishali, 2002). It is thought that the reason why there is not a significant relation in stress levels in this study is that although the participant do sports willingly they live a impaired life.

References

AKANDERE, M., 1993, *17-22 Yaş Kız Grubu Sporcuların Esnekliklerinin Geliştirilmesinde Statik ve Dinamik Gerdirme Egzersizlerinin Etkisi,* Yüksek Lisans Tezi, S.Ü. Sağlık Bilimleri Enstitüsü Beden Eğitimi ve Spor Anabilim Dalı, Konya.

BALTAŞ, Z, 2000, *Sağlık Psikolojisi*, RemziKitapevi, İstanbul.

BELGİN, E., 1995, *İşitme Engelli Öğrencilerin İlkokul Öğretmenlerine Yaklaşım Prensipleri*, Unıcef Türk Temsilciliği Ankara.

BİLİR, Ş., BAL, S., 1995, *"Anaokuluna Devam Eden 5-7 Yaş Grubundaki İleri Derecede İşitme Özürlü ve 3-6 Yaş Grubundaki Normal İşiten Çocukların Entegrasyonunda Oyun İçindeki"* Sosyal İletişim Davranışlarının İncelenmesi Sağlık Dergisi 67: 26-40.

BUDAK, S., 2000, *"Psikoloji Sözlüğü"* Bilim Ve Sanat Yayınları, Ankara.

CÜCELOĞLU, D., 1987, *İnsan İnsana*, Altın Kitaplar Yayınevi İstanbul.

ÇAKIR, İ., 2006, Polislerin İş Stresi Ve Bazı Değişkenlere Göre Stresle Başa Çıkma Tarzlarının Karşılaştırılması, Yayınlanmış Yüksek Lisans Tezi, Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü Eğitim Bilimleri Anabilim Dalı, Adana.

ÇOĞALGİL, Ş., KİSHALİ, N.F., 2002, *"Spor Yapan Ve Yapmayan Üniversite Öğrencilerinin Fiziksel ve Fizyolojik Özelliklerinin Karşılaştırılması".* Beden Eğitimi ve Spor Bilimleri Dergisi Cilt 4 Sayı l3 s:18-21

GÖÇET, E., 2006, Üniversite Öğrencilerin Duygusal Zeka Düzeyleri İle Stresle Başa Çıkma Tutumları Arasındaki İlişki, Yayınlanmış Yüksek Lisans Tezi, Sakarya Üniversitesi Sosyal Bilimler Enstitüsü Eğitim Bilimleri Anabilim Dalı.

GÜN, E., 2006, *Spor Yapanlarda Ve Spor Yapmayan Ergenlerde Benlik Saygısı.* Yüksek Lisans Tezi Çukurova Üniversitesi Sağlık Bilimleri Enstitüsü Beden Eğitimi ve Spor Anabilim Dalı, Adana.

KURTYILMAZ, Y., 2005, *Öğretmen Adaylarının Saldırganlık Düzeyleri İle Akademik Başarıları İletişim Ve Problem Çözme Becerileri Arasındaki İlişkiler,* Yayınlanmış Yüksek Lisans Tezi, Anadolu Üniversitesi Eğitim Bilimleri Enstitüsü Eğitim Bilimleri Anabilim Dalı,Eskişehir.

ODABAŞI Z., 2006, *Çalışma Yaşamında Stres*, Yayınlanmış Yüksek Lisans Tezi, Marmara Üniversitesi Sosyal Bilimler Enstitüsü Çalışma Ekonomisi ve Endüstri İlişkileri Anabilim Dalı, İstanbul.

ÖNER, N., 1989, *"Stres Ve Dini İnanç,* Türkiye Diyanet Vakfı Yayınları, Ankara.

PEHLİVAN, Z., 2009, *"Spora Katılan Çocuklara Yönelik Ailelerin Beklentileri,Çocuklarda Gözlenen Davranış Değişimleri Ve Spora Katılımın Önündeki Engeller",* SPORMETRE Beden Eğitimi ve Spor Bilimleri Dergisi, 2009, VII (2) 69-76.

YALÇIN, Y., 2009, *Spor Tatmininin Sporcuların Stres ve Saldırganlık Düzeyleri Üzerindeki Etkisi: Antrenör Cinsiyetinin Rolünü Belirlemeye Yönelik Antalya İlinde Bir Uygulama,* Yayınlanmamış Yüksek Lisans Tezi, Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Spor Yöneticiliği Anabilim Dalı, Kayseri.

ŞİMŞEK, M.A., 2005, *Stres Yönetimi Programının Bursa İlinde Sanayi Alanında Çalışan Personelin Stres Düzeyine Etkisi,* Yayınlanmış Yüksek Lisans Tezi, Uludağ Üniversitesi Sosyal Bilimler Enstitüsü Eğitim Bilimleri Anabilim Dalı, Bursa.

YETİM, A., 2005, *Sosyoloji ve Spor*. Topkar Matbaacılık, Trabzon.

EFFECTS OF COMPLEX TRAINING ON CERTAIN PHYSICAL VARIABLES AND PERFORMANCE LEVEL OF LANDING IN FLOOR EXERCISE

GHAIDAA A. MOHAMED[1]

Abstract
The main purpose of this study was to examine the effects of 12 – week of complex training on strength, power of legs and leaping ability in young gymnasts. Two groups, an experimental group consisting of (7) elite gymnasts, and control group consisting of (4) elite gymnasts. Using the pre-and post tests. Results showed improvement in both of strength, power and leaping ability for the experimental group comparing with the control groups.
Key words. complex training, leaping, elite gymnasts.

Introduction

The most important and crucial part of a gymnastics routine is the dismount, since it provides the final impression for its evaluation to the judges, and also signifies the termination of the exercise.

Training of the gymnast rightly occupies the majority of time involvement in the sport of gymnastics. Long gone are the days when coaches believed resistance exercises only added unnecessary bulk to the athlete, hindering their ability to execute skill. Gymnasts train tirelessly to perfect their skill and technique. But technique can only be applied within the limits of an athlete's strength, making its development equally important. So, Strength training has become an essential component in a gymnastics training program. As a rule, most gymnasts do not do much, if any, traditional strength training. The bodyweight training in the gym is generally sufficient for creating the strength needed for the sport.

Strength is an attribute often associated with superior performance in sport. C. Bret et al., 2002, M.H. Stone et al., 2003, Several of the characteristics associated with strength (e.g. peak force, rate of force development (RFD), velocity, and power generating capacity) have been identified as underlying mechanisms related to sports performance; particularly in the vertical jump. U. Wisloff et al., 2004, R.F. Reiser et al., 2006, According to several authors, success in sport depends upon the development of strength as well as power both of which contribute to vertical jump performance. D. Baker, 1996, M.D. Peterson, et al., 2006.

Previously, W.P. Ebben, P.B. Watts, 1998, reviewed the complex training literature and described the effectiveness of combining weight training and Plyometrics. These authors offered suggestions for designing complex training programs.

A number of studies demonstrate the effectiveness of plyometrics compared to non exercising control groups. J.B. Blakey et al., 1987, O. Diallo et al., 2001, other studies demonstrate an enhancement of motor performance associated with plyometric training combined with Weight training or the superiority of plyometrics, compared to other methods of training K. Adams et al., 1991, E.J. McLaughlin, 2001, J.F. Vossen et al., 2000. The evidence indicates that the combination weight training and plyometrics are effective.

Children have become increasingly involved in athletic training at younger ages, especially those competiting in female gymnastics. To learn and perform the complex gymnastics skills and to reach the top level of performance in gymnastics, it is obvious that girls have to begin intensive training at very young age. (J. Kums et al., 2005)

The use of strength training in younger athletes is still controversial. The controversy focuses on three areas: Are children capable of making significant strength gains and increases in muscle mass in response to resistive strength training? Do

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Received 06.03.2011 / Accepted 12.05.2011

these gains in strength improve athletic performance or increase the resistance of the child's tissue to injury? Do children have an unacceptable risk of injury from resistive strength? Training that negates any potential benefits from the technique? (J.M. Lyle, 1990)

Hence, the purpose of this study was to examine the effects of 12 – week of complex training on strength, power of legs and performance level in elite gymnasts.

Material and Methods

Experimental Approach to the Problem

Two groups (experimental and control) performed a pre and posttraining designed intervention in which Vertical Jump Test (VJ), Seated Medicine Ball Throw (SMBT) , leg strength (LS) back strength (BS) by dynamometer , Dynamic strength test (DST) and Performance levels of landing in floor exercise (LFE) were recorded. The experimental group (EG) (10 young gymnasts) trained 1 hour per day 3 times a week on complex training besides the gymnasts training for twelve week. The control group (10 young gymnasts) continued their normal training, while the experimental group completed a complex training program to see whether this type of training modality would have a positive or negative or no effect on (VJ), (SMBT), (LS) and (PLL).

Samples

The sample consisted of 20 young gymnasts (11 ± 1.36 years old; 135 ± 4 cm height; and 31 ± 5 kg weight), , members of the Sporting Club. Training experience of all the participants ranged from 4 to 6 years. Subject's parents and coaches were required to read and complete a health questionnaire and informed consent document; there was no history of injuries, diabetes or recent surgery.

Training Protocol

The 12-week in-season training program consisted of a set of resistance exercises followed by a series of plyometric exercises. All sets of the weights exercise with a recovery of 60 seconds/set. This is followed by a three minute rest before performing all sets of the matched plyometric exercise with a recovery of 90 second/set. Load intensity was ranged between 50-60% .The complex training program is described in Table 1.

Testing Procedures

Subjects were assessed before and after a 12-week of complex training program All measurements were taken one week before and after training at the same time of day. Tests followed a general warm-up that consisted of running, calisthenics, and stretching.

Vertical Jump Test (VJ): The subject stands side on to a wall and reaches up with the hand closest to the wall. Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. This is called the standing reach height. The athlete then stands away from the wall, and leaps vertically as high as possible using both arms and legs to assist in projecting the body upwards. Attempt to touch the wall at the highest point of the jump. The difference in distance between the standing reach height and the jump height is the score. The best of three attempts is recorded

Seated Medicine Ball Throw (SMBT): The subject sits with their back to a wall, on a mat facing the area to which the ball is to be thrown, and with the feet extended and slightly apart. The ball is held with the hands on the side and slightly behind the center. The ball is brought to the chest, and then thrown vigorously out as far as possible. The back should remain in contact with the wall at all times. Three attempts are allowed. The distance from the wall to where the ball lands are recorded. The measurement is recorded to the nearest 10 cm. The best result of three throws is used.

Static strength test (LS) (BS)

A Takei leg and back dynamometer was used to measure the static leg strength. The subjects stood on the dynamometer platform and crouched to the desired leg bend position, while strapped around the waist to the dynamometer. At a prescribed time they exerted a maximum force straight upward by extending their legs. They kept their backs straight, head erect and chest high. 3 trials were allowed to the subjects and the best score was taken. Subjects had a rest between the trials (Jensen & Fisher).

Dynamic strength test (DST)

A barbell and free weights were used to measure dynamic strength. A suitable starting weight, close to, but below the subject's estimated maximum lifting capacity was selected. If one repetition was completed, the experimenter added weight to the barbell until the subject reached his maximum capacity. Both legs were tested.

The weight increments were usually 5, 2 and 1kg during the period of measurement.

Performance levels of landing in floor exercise, Floor exercise routines last up to 90 seconds. The routine is containing 8 landing. Evaluation the Performance levels of landing by a committee contains 3 judges, the judge was assessed from 1 to 10 degree, consider that allowed to take one step back into a lunge without a deduction when the younger performed the skill .

Statistical analysis

All statistical analyses were calculated by the SPSS statistical package. The results are reported as means and standard deviations (SD). Differences between two groups were reported as mean difference ±95% confidence intervals (meandiff ± 95% CI).Student's t-test for independent samples was used to determine the differences in fitness parameters between the two groups. The $p<0.05$ was considered as statistically significant.

Results:

Table 1. Complex training protocol.

Complex	Exercise	Reps	Rest/Set
Complex 1	**Squats**	3 × 12RM	60 seconds
	Vertical Jumps	3 × 10	90 seconds
Complex 2	**Bench Press**	3 × 12RM	60 seconds
	Medicine ball chest pass	3 × 10	90 seconds
Complex 3	**Barbell Lunge**	3 × 12RM	60 seconds
	Step Jumps	3 × 10	90 seconds
Complex 4	**Lat Pull down**	3 × 12RM	60 seconds
	Medicine ball overhead pass	3 × 10	90 seconds
Complex 5	**Abdominal crunches**	3 × 12RM	60 seconds
	Medicine ball sit up and throw	3 × 10	90 seconds
Complex 6	**Decline press**	3 × 12RM	60 seconds
	Zigzag drill	3 × 10	90 seconds

Table 2. Shows Mean, sum of rank and Z score in (VJ), (SMBT), (LS) and (PLL) for the Experimental and control groups. The Z- score showed a significant change between pre-and post training scores for all variables n both groups ($P \leq 0.05$)

Table 2.Mean, sum of rank and Z score in (VJ), (SMBT), (LS) and (PLL) for the Experimental and control groups

Variables	Experimental					Control				
	Difference		mean rank	Sum of ranks	Z	Difference		mean rank	Sum of ranks	Z
	Dir.	Nu.				Dir.	Nu.			
VJ	-	0	0	0	-2.14*	-	0	0	0	-2.24*
	+	7	3.5	21		+	4	3.5	21	
	=	0				=	0			
SMBT	-	0	0	0	-2.25*	-	0	0	0	-2.26*
	+	7	3.5	21		+	4	3.5	21	
	=	0				=	0			
LS	-	0	0	0	-2.218*	-	0	0	0	-2.214*
	+	7	3.5	21		+	4	3.5	21	
	=	0				=	0			
PLL	-	0	0	0	-2.229*	-	0	0	0	-2.20*
	+	7	3.5	21		+	4	3.5	21	
	=	0				=	0			

Table 3. Shows Mean, sum of rank and U score in (VJ), (SMBT), (LS) and (PLL) between posttests for the Experimental and control groups. The U- score showed a significant change between post training scores for all variables in both groups ($P \leq 0.05$) for Experimental group.

Table 3.Mean, sum of rank and U score in ((VJ), (SMBT), (LS) and (PLL) between post tests for the Experimental and control groups

Variables	Experimental group		Control group		U
	mean rank	Sum of ranks	mean rank	Sum of ranks	
VJ	6.33	53	4.17	24	5.00*
SMBT	8	55	4	22	3.00*
LS	9.33	56	3.42	22	2.00*
PLL	8.42	56.5	3.21	21.5	0.35*

Discussion

The main findings from this study were the significant Increases in the height of (VJ), the distance of the (SLJ), (SMBT), and in Performance levels of leaping, which proved the Complex training efficacy.

Complex Training studies have produced increases in neural drive (IRFD) associated with adaptations in contractile strength of skeletal muscle. (P. Agaard et al., 2002) Higher EMG activity was discovered in the hamstring muscles during depth jumping indicates that more fast-twitch fibres were being recruited, which in time could have provided more propulsive power. This fact may have contributed to the increments observed in the present study.It is postulated that the resistance exercise will have a performance enhancing effect on the plyometric activity. (W.P. Ebben, P.B. Watts, 1998)

Furthermore, athletes that are found to be more explosive, which may be strongly related to their nervous system capabilities, are often found to possess high levels of strength. (M.H. Stone et al., 2004) Thus, maximum strength appears to be an important underlying factor that influences of jumping. M.H. Stone et al. 2003, M.D. Peterson, et al., 2006, Though not directly measured in the current investigation previous literature indicates additional considerations must be given to mechanisms involving a shorter amoritization phase10, producing larger forces over the course of the jump9, and simply being able to better overcome the additional load. (M.H. Stone et al., 2003) M.D. Peterson, et al. (2006) It is possible that maximum strength levels influence these mechanisms in a positive manner

Another explanation, the muscles were involved in a very rapid switch from the eccentric phase to the concentric phase (Stretch-shortening cycle). This SSC decreases the time of the amortization phase that in turn allows for greater than normal power production. (A. Hamza, 2008). According to R. Rahimi, Behpur, 2005 In the SSC the muscles undergo transition energy (from eccentric to concentric muscle action), so that to train and enhance this transition phase requires a complex training, such as the programs used in this study.

Thereby, weight training increases muscular strength and plyometric training exploits the SSC; therefore, the strength acquired by the weight training protocols will be used in this cycle (SSC) to produce a more forceful concentric muscle action and increase anaerobic power. The results of this study showed that complex training has a more significant effect.

These results are in accordance with previous studies that have been shown as being equally effective. K. Adams et al. 1991, G. Ioannis et al. (2000). Resulting in increased power output, and increased efficiency of the SSC behavior. Enhanced of leaping performance level.

Research has found the complex training can be beneficial to athletic performance A.K. Evans et al (2000). T.M. Comyns. et al.(2007) . While the opposite has also been reported. P. Jones, A. Lees, (2003).

According to A. Hamza, (2008) suggested that a greater muscular power may be related to a more effective and contributing to the improvement in the lung technique for fencers.

Practical Applications

Upper and lower body explosivity levels of young gymnasts can be improved with a combined program of plyometrics and resistance training. These power level improvements are usually seen as essential in gymnastics performance. The use of complex Training which contain of both resistance and plyometric training in the same workout is an adequate strategy of training process organization, having highly positive effects on practice of leaping.

References:

AAGAARD, P., SIMONSEN, E.B., ANDERSEN, J.L., MAGNUSSON, P., DYHRE-POULSEN, P., 2002, *Increased rate of force development and neural drive of human skeletal muscle following resistance training.* J Appl Physiol ;93:1318-26.

ADAMS, K., O'SHEA, J.P., O'SHEA, K.L. AND CLIMSTEIN, M., 1992, *The effect of six weeks of squat, plyometric and squat-plyometric training on power production.* Journal of Applied Sports Science Research 6(1), 36-41.

BAKER, D., 1996, *Improving vertical jump performance through general, special, and specific strength training: A brief review.* Journal of Strength and Conditioning Research ; 10: 131-136.

BLAKEY, J.B., SOUTHARD, D., 1987, *The combined effect of weight training and plyometrics on dynamic leg strength and leg power.* Journal of Applied Sports Science Research 1, 14-16.

BRET, C., RAHMANI, A., DUFOUR, A.B., MESSONNIER, L., LACOUR, J.R., 2002, *Leg strength and stiffness as ability factors in 100 m sprint running.* J Sports Med Phys Fitness ; 42:274-81.

COMYNS, T.M., HARRISON, A.J., HENNESEY, L.K. AND JENSEN, R., 2007, *Identifying the optimal resistive load for complex training in male rugby players.* Sports Biomechanics 6, 59-70.

DIALLO, O., DORE, E., DUCHE, P., VAN PRAAGH, E., 2001, *Effects of plyometric training followed by a reduced training programme on physical performance in prepubescent soccer players.* Journal of Sports Medicine and Physical Fitness 41(3), 342-348.

EBBEN, W.P., WATTS, P.B., 1998, *A review of combined weight training and plyometric training modes: Complex training.* Strength and Conditioning. 20(5),18-27.

EVANS, A.K., HODGKINS, T.D., DURHAM, M.P., BERNING, J.M., ADAMS, K.J., 2000, *The acute effects of a 5RM bench press on power output.* Medicine and Science in Sport and Exercise 32(5), S311.

HAMZA, A., 2008, *Effect of complex training on SOD gene expression, certain physical variables and performance level of lung and flech for young fencers.* Unpublished PhD thesis .Faculty of Physical Education .Zagazig University.

IOANNIS, G., FATOUROS, ATHANASIOS, Z.J., LEONTSINI, D., KYRIAKOS, T., AGGELOUSIS, N., KOSTOPOULOS, N., BUCKENMEYER, P., 2000, *Evaluation of Plyometric Exercise Training, Weight Training, and Their Combination on Vertical Jumping Performance and Leg Strength*. J. Strength Cond. Res., 14(4), 470–476.

JONES, P., LEES, A., 2003, *A biomechanical analysis of the acute effects of complex training using lower limb exercises.* Journal of Strength and Conditioning Research 17, 694-700.

KUMS, J., ERELINE, H., GAPEYEVA, M., PÄÄSUKE, 2005, *Vertical jumping performance in young rhythmic gymnasts.* Biology of Sport, Vol. 22 No.3.

LYLE, J., MICHELI, 1990, *Strength training.* Human kinetics.

MCLAUGHLIN, E.J., 2001, *A comparison between two training programs and their effects on fatigue rates in women.* Journal of Strength Conditioning Research .15(1), 25-29.

PETERSON, M.D., ALVAR, B.A., RHEA, M.R., 2006, *The contribution of maximal force production to explosive movement among young collegiate athletes.* J Strength Cond Res; 20:867-73.

RAHIMI, R., BEHPUR, N., 2005, *The effects of plyometric, weight and plyometric-weight training on anaerobic power and muscular strength.* J. Physical Education and Sport, 3 (1), 81 – 91.

REISER, R.F., ROCHEFORD, E.C., ARMSTRONG, C.J., 2006, *Building a better understanding of basic mechanical principles through analysis of the vertical jump.* Strength and Conditioning Journal 28: 70-80.

STONE, M.H., O'BRYANT, H.S., MCCOY, L., COGLIANESE, R., LEHMKUHL, M., SCHILLING, B., 2003, *Power and maximum strength relationships during performance of dynamic and static weighted jumps.* J Strength Cond Res ;17:140-7.

VOSSEN, J.F., KRAMER, J.F., BURKE, D.G., VOSSEN, D.P., 2000, *Comparison of dynamic push-up training and plyometric push-up training on upper body power and strength.* Journal of Strength Conditioning Research 14(3), 248-253.

WISLOFF, U., CASTAGNA, C., HELGERUD, J., JONES, R., HOFF, J., 2004, *Strong correlation of maximal squat strength with sprint performance and vertical jump height in elite soccer players.* Br J Sports Med ; 38:285-8.

THE EFFECTS OF ACUTE INHALED SALBUTAMOL ON POWER OUTPUT AND BLOOD LACTATE CONCENTRATION IN NONASTHMATIC ELITE KUNG FU ATHLETES

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Abstract

Objective: The purpose of this study was to investigate the effects of inhaled Salbutamol on power output and blood lactate concentration in kung fu athletes. **Methods:** Seven elite Iranian kung fu athletes (age: 18.28±0.69 yr; height: 184.00±1.73 cm; weight: 69.84±7.78 kg; BMI: 23.25±1.45 $kg.m^{-2}$) with no history of asthma were participated in this study. Subjects performed a RAST test with and without salbutamol ingestion (400 µg) in a random, double blind, crossover design. Blood samples were collected at before test and at the end of the test. An independent t test was used to evaluate the differences in subjects characteristics between groups ($p<0.05$). **Results and Conclusion:** There were no difference in peak power, mean power, fatigue index and blood lactate concentration with Salbutamol compared with placebo ($p \square 0.05$). In conclusion, administering a single inhaled (400 µg) of the β_2-adrenergic agonist Salbutamol to healthy, elite anaerobic trained male athletes has no ergogenic effect. Further studies are necessary to clarify the mechanisms involved.

Key words: Salbutamol, Anaerobic performance, RAST test, Ergogenic effect.

Introduction

The $ß_2$-agonists such as Salbutamol are used, not only by asthmatic athletes to prevent exercise induced asthma, but also by non-asthmatic athletes as a potentially ergogenic agent. In sport many athletes use $ß_2$-agonists during sports competitions, claiming they need the treatment to prevent EIA (C. Goubault , M.C. Perault , E. Leleu et al. 2001). There are several investigations dealing with the effects of Salbutamol on performance as an ergogenic aid. M.A. van Baak , L.H. Mayer, R.E. Kempinski, F. Hartgens (2000) studied the effect of Salbutamol on muscle strength and endurance performance in nonasthmatic men. They reported that oral Salbutamol appears to be an effective

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Received 15.01.2011 / Accepted 20.04.2011

ergogenic aid in nonasthmatic individuals not experiencing adverse side effects. K. Collomp, B. Le Panse, H. Portier (2005) investigated the effects of acute Salbutamol intake during a Wingate test. They reported that Salbutamol intake at a therapeutic dosage seemed to improve peak and mean power output in short-term supramaximal exercise, but further investigation of the mechanisms involved is needed. K. Collomp, R. Candau, F. Lasne, Z. Labsy, C. Préfaut, De Ceaurriz J (2000) in another study investigated the effects of short-term oral Salbutamol administration on exercise endurance and metabolism. They reported that compared with rest, exercise resulted in a significant increase in GH, cortisol, testosterone, T3, FFAs, and lactate and a decrease in C peptide after both treatments with higher exercise FFA levels and exhaustion GH concentrations after Salbutamol ($P < 0.05$). C. Goubault , M. C. Perault , E. Leleu et al (2001) studied effects of inhaled Salbutamol in exercising non-asthmatic athletes. They reported that inhaled Salbutamol, even in a high dose, did not have a significant effect on endurance performance in non-asthmatic athletes, although the bronchodilating effect of the drug at the beginning of exercise may have improved respiratory adaptation. K.F. Andersen, I.L. Kanstrup (2009) studied the effects of acute oral administration of 4 mg Salbutamol on exercise performance in non-asthmatic elite athletes and reported that after administering a single oral therapeutic dose (4 mg) of the β_2-adrenergic agonist Salbutamol to healthy, elite endurance trained male athletes, acute ergogenic effects were shown in terms of a reduced extent of EIAH as well as an increment in time to exhaustion during a constant-load test, which indicated a meaningful performance-enhancing effect in a race situation. I.B. Stewart, J.M. Labreche, Mckenzie, D.C (2002) indicated that acute formoterol administration has no ergogenic effect in nonasthmatic athletes. B.C. Sporer, A.W. Sheel, D.C. McKenzie (2008) studied the dose response of inhaled Salbutamol on exercise performance and urine concentrations. They reported that there was no significant effect of dose on completion time, mean power, or mean heart rate. S.L. McDowell, S.J. Fleck, W.W. Storms (1997) investigated the effects of salmeterol on power output in nonasthmatic athletes. They reported that there were no significant differences ($p>0.05$) between the placebo and salmeterol trials for peak power output, total work performed during the 30-second test, percent fatigue, and time to peak power. J.F. Signorile, T.A. Kaplan, B. Applegate, A.C. Perry (1992) studied the effects of acute inhalation of the bronchodilator, albuterol on power output and reported significant ergogenic effect of the bronchodilator on short-term power output independent of impact on respiratory smooth muscle, with no effect on cardiac response.

Anaerobic power is important in anaerobic sports such as kung fu and wrestling. Having high level of anaerobic power helps to these athletes for perform explosive techniques. Lactate increased during the sport has a negative effect on enzymes function and glycolysis process in energy production. Materials that can be used to increase power production and reduce lactate concentration can be improved performance in anaerobic sports. In often studied have been investigated the effects of Salbutamol intake on endurance performance and few study have been done on anaerobic power. Although in these studies subjects weren't of anaerobic sports (K. Collomp, B. Le Panse, H. Portier, 2005, B.C. Sporer, A.W. Sheel, D.C. McKenzie, 2008, I.B. Stewart, J.M. Labreche, D.C. Mckenzie, 2002, J.F. Signorile, T.A. Kaplan, B. Applegate, A.C. Perry, 1992). Also, because of prevalence use of $ß_2$-agonists such as Salbutamol in many athlete (such as Kung fu athlete) without knowledge of real effects of this drugs, the purpose of this study was to investigate the effects of acute inhaled Salbutamol on power output and blood lactate concentration in nonasthmatic elite kung fu athletes.

Methods

Subjects

Seven kung fu athletes with no history of asthma were recruited from the Kurdistan clubs and served as subjects in this study. They all had at least 5 years training experience and were top kung fu athletes of Iran competitors in national competitions. None were smokers and none had a history of atopy or of asthma or other cardio respiratory disorders. Before participating, subjects' parents were informed of the potential risks and gave their written informed consent to participate their children in this study, which was consistent with the human subject policy of the Guilan research center.

Testing procedures

Crossover design was used in this study. Approximately 10 minutes before the testing, the subjects took either 400 µg inhaled administered Salbutamol or placebo (no active medication) (I.B. Stewart, J.M. Labreche, D.C. Mckenzie, 2002). Anaerobic power was measured by the RAST test. The Running-based Anaerobic Sprint Test (RAST) was developed at the University of Wolverhampton (United Kingdom) to test an athlete's anaerobic performance. RAST is similar to the Wingate Anaerobic 30 cycle Test (WANT) in that it provides measurements of power and fatigue index. This test was chosen primarily due to its validity and reliability in relation to the Wingate test and also, because this test requires minimal equipment and training of the assessors and because of its specialty for field based anaerobic activities that are of a repetitive nature. It is easy to perform, provides scores that are easily reproduced and can be used to successfully estimate anaerobic capacity (E. Zacharogiannis, G. Paradisis, S. Tziortzis, 2004). In order to carry out a correct and precise testing process, the subjects stood 70 cm in the back of the starting line (on each side) and the apparatus would let the timer start after the subject passed in front of the first photocell. It was also decided that if in any of the cases

the subject's best record was achieved after the second repetition, the test process should be finished and the subject was allowed to have another opportunity to participate in the test. To avoid these unwanted cases, subjects were asked to do each repetition at maximum power and avoid dividing energy between the six repetitions. Also, in order to increase the subjects' motivation, the record of each repetition was announced loudly and there were special rewards for three individuals who could achieve the best record, in addition to the payment in consideration of all the participants (E. Zacharogiannis, G. Paradisis, S. Tziortzis, 2004). Blood samples were collected from unpreferred hand mid-fingertips two times (1) immediately prior to the RAST test (pre-lac), (2) five minutes after the RAST test (5lac) (K.H. Letafatkar, M.H. Alizadeh, M.R. Kordi, 2009). For the purpose of estimating blood lactate concentration using a lactate analyzer (Lactate Scout-SensLab-Germany).

Statistical methods

All descriptive data are expressed as means ± SD. An independent t test was used to evaluate the differences in subjects characteristics between groups ($p<0.05$). Statistical analysis was conducted using SPSS 16.0 for Windows.

Results

Subjects' data and body composition are shown in Table 1. Results are shown in Table 2 and Table 3. None of the subjects experienced side-effects of any kind. (table 1)

Regarding the RAST test (Table 2), there were no statistically significant changes between Salbutamol and placebo in peak power ($P = 0.30$), mean power ($P = 0.79$) and fatigue index ($P=0.96$). Lactate plasma concentration of the subjects, as well as power parameters were also unchanged ($P = 0.64$) (Table 2).

Discussion and Conclusion

This is the first study to report the acute effects on performance in elite athletes of anaerobic sports without asthma after a single, inhaled administered therapeutic dose of Salbutamol.

It is well documented that inhaled β_2-adrenergic agonists, despite the dosage or the medication involved, do not have any performance enhancing effects in healthy subjects (B.C. Sporer, A.W. Sheel, D.C. McKenzie, 2008, C. Goubault, M.C. Perault, E. Leleu E. et al 2001, W.H. Meeuwisse, D.C. Mckenzie, S.R. Hopkins, 1992). But, some studies have demonstrated a statistically significant effect of a single inhaled therapeutic dose of Salbutamol (K. Collomp, B. Le Panse, Portier H, 2005, K. Collomp, R. Candau, F. Lasne, Z. Labsy, C. Préfaut, De Ceaurriz J, 2000, M.A. van Baak, L.H. Mayer, R.E. Kempinski, F. Hartgens, 2000, J.F. Signorile, T.A. Kaplan, B. Applegate, A.C. Perry, 1992).

Many studies have previously shown an improvement performance in healthy male athletes after administered Salbutamol, but the subjects were not highly trained (K. Collomp, B. Le Panse, Portier H, 2005, K. Collomp, R. Candau, F. Lasne, Z. Labsy, C. Préfaut, De Ceaurriz J, 2000, K.F. Andersen, I.L. Kanstrup, 2009, J.F. Signorile, T.A. Kaplan, B. Applegate., A.C. Perry (1992) and M.A. van Baak , L.H. Mayer, R.E. Kempinski, F. Hartgens, 2000).

Theoretically, it is unlikely that the bronchodilatory action of Salbutamol and other β_2-agonists has an ergogenic effect in healthy non-athletes, because bronchoconstriction is not a performance limiting factor (K.F. Andersen, I.L. Kanstrup, 2009).

The differences of mean power, peak power between groups after administration of Salbutamol was not significant. This result is in agreement with S.L. McDowell, S.J. Fleck, W.W. Storms (1997) who reported that there were no significant differences ($p > 0.05$) between the placebo and salmeterol trials for peak power output, total work performed during the 30-second test, percent fatigue, and time to peak power.

This result also, is in agreement with I.B. Stewart, J.M. Labreche, D.C. Mckenzie, (2002). But this result does not correspond with K. Collomp, B. Le Panse, H. Portier (2005) who reported that Salbutamol intake at a therapeutic dosage seemed to improve peak and mean power output in short-term supramaximal exercise.

The present study also does not corresponds with the results of M.A. van Baak, L.H. Mayer, R.E. Kempinski F. Hartgens (2000), K. Collomp, R. Candau, F. Lasne, Z. Labsy, C. Préfaut, De Ceaurriz J (2000) and K.F. Andersen, I.L. Kanstrup (2009) which suggested that Salbutamol appears to be an effective ergogenic aid in nonasthmatic individuals. This result maybe is because of test's protocol, subject's age (young vs. adult), subjects' experience (elite vs. novice) and nature of subjects' sports (anaerobic vs. aerobic sports). Also Signorile JF, Kaplan TA, B. Applegate, A.C. Perry (1992) reported a significant improvement in peak power in recreational athletes (positive result of an acute inhaled).

Subsequent studies measuring anaerobic power output in elite endurance athletes (W.H. Meeuwisse, D.C. Mckenzie, S.R. Hopkins, Rpad J.D, 1992, I.B. Stewart, J.M. Labreche, Mckenzie, D.C, 2002), including the present, have failed to identify any significant effect. When comparing therapeutic doses, formoterol has a similar maximum bronchodilatory effect, but the duration of the effect is approximately

double that of salbutamol (E. Y. Dermon, Pauwels R. A, 1992, A. Wallin, T. Sandstrom, Rosehall L, 1993, I.B. Stewart, J.M. Labreche, D.C. Mckenzie, 2002). Despite the dosage or the medication involved, acute, inhaled administration of $ß_2$-agonists has been shown repeatedly to have no aerobic or anaerobic performance-enhancing effect in a population of elite athletes (W.H. Meeuwisse, D.C. Mckenzie, Hopkins S.R, 1992, K. Larsson, Hjemdahl P, 1989, M. Sandsund, M. Sue-Chu, R. E. Reinertsen, J. Helgerud, B. Holand, L. Bjermer, 2000, I.B. Stewart, J.M. Labreche, Mckenzie, D.C, 2002). It is unlikely that the bronchodilatory action of $ß_2$-agonists has an ergogenic effect, because in nonasthmatics bronchodilation is not a performance-limiting factor (I.B. Stewart, J.M. Labreche, D.C. Mckenzie, 2002).

The high level of rest blood lactate concentration in subjects (15-19 mmol/l) is due to exposed them in competition season (2 - 12 mmol/l in other studies). Transient increase of lactate levels (lactatemia) with or without metabolic acidosis has been seldom reported as a complication of ß-adrenergic agents administered during an asthma attack or for preterm labor therapy (G. Stratakos, J. Kalomenidis, C. Routsi, S. Papiris, C. Roussos, 2003). G. Rodrigo and C. Rodrigo (2005) reported that high lactate concentrations can develop during the first hours of inhaled beta agonist treatment. Although, this increase is may be due to subjects' trying to generate higher power. But, on the other hand with increase anaerobic power of subjects, lactate production decreases. However, we did not find any statistically significant changes in blood lactate concentration.This result does not correspond with other studies, who have found increased blood lactate concentration after administration of Salbutamol during exercise (G. Rodrigo and C. Rodrigo 2005). This result is due to that subjects in these studies weren't elite athletes. This result is in agreement with K.F. Andersen, I.L. Kanstrup (2009) who showed no statistically significant differences between the two testing conditions. After he RAST test, lactate had little increased. This may be because the lower increase of lactate in elite and trained subject.In conclusion, administering a single inhaled (400 µg) of the β_2-adrenergic agonist Salbutamol to healthy, elite anaerobic trained male athletes has no ergogenic effect. Further studies are necessary to clarify the mechanisms involved.

Acknowledgements

We like to thank Mr. Naser Mafakheri and Mr. Pedram Cheraghi (coaches) and Mr. Hadi Rohani (statistical adviser) for their cooperation in this study.

References

ANDERSEN, K.F., KANSTRUP, I.L., 2009, *Effects of acute oral administration of 4 mg Salbutamol on exercise performance in non-asthmatic elite athletes*. JEPonline. 12(1): 36-49.

ARAZI, H; ASGHARI, E; LOTFI, N, 2009, *The effect of a single session of preparatory and specific exercises in kung fu athletes on some hematological variables*. J of Sport and Exercise Physiology. 2 (1): 235-240.

COLLOMP, K., LE PANSE B., PORTIER, H., 2005, *Effects of Acute Salbutamol Intake During a Wingate Test. Int J Sports Med*. 26: 513-517.

DERMON, E.Y., PAUWELS, R.A., 1992, *Time course and duration of bronchodilating effect of inhaled formoterol, a potent and long acting sympathomimetic*. *Thorax*. 47: 30-33.

GOUBAULT, C., PERAULT, M.C., LELEU, E., BOUQUET, S., LEGROS, P., VANDEL, B., DENJEAN, A., 2001, *Effects of inhaled Salbutamol in exercising non-asthmatic athletes*. Thorax. Sep; 56(9):675-679.

HODGES, A.N.H., LYNN, B.M., KOEHLE, M.S., MCKENZIE, D.C., 2005, *Effects of inhaled bronchodilators and corticosteroids on exercise induced arterial hypoxaemia in trained male athletes*. Br J Sports Med. 39:917-920.

HOPKINS, W.G., SCHABORT, E.J., Hawley, J.A., 2001, *Reliability of power in physical performance tests*. Sports Med. 31(3):211-34.

LARSSON, K., HJEMDAHLE, P., 1989, *Cardiovascular and hypokalaemic effects of inhaled salbutamol, fenoterol, and isoprenaline*. Thorax. 44:767-768

COLLOMP, K., CANDAU, R., LANSE, F., LABSY, Z., PREFAUT, C., DE CEAURRIZ, J., 2000, *Effects of short-term oral Salbutamol administration on exercise endurance and metabolism.* J Appl Physiol. 89: 430-436.

LE PANSE B., COLLOMP, K., PORTIER H. A.M. LECOP, C. JAFFRE, H. BEAUPIED, O. Richard, L. BENHAMOU, J. De CEAURRIZ, D. COURTEIX., 2005, *Effects of short term salbutamol ingestion during a Wingate test.* Int J Sports Med. 26:518 523.

LETAFATKAR, K.H; ALIZADEH, M.H; KORDI, M.R., 2009, *The effect of exhausting exercise induced fatigue on the double-leg balance of elite male athletes.* Journal of Social Sciences. 5 (4): 445-451.

LUND, T., PEDERSEN, L., LARSSEN, B., BACKER V., 2009, *Prevalence of asthma-like symptoms, asthma and its treatment in elite athletes.* Scand J Med Sci Sports. 19:174-178.

MCDOWELL, S.L., FLECK, S.J., STORMS, W.W., 1997, *The effects of salmeterol on power output in nonasthmatic athletes.* J Allergy Clin Immunol. 99(4):443-

MCKENZIE, D.C., RHODES, E.C., STIRLING, D.R., WILEY, J.P., DUNWOODY, D.W.,

FILSINGER, I.B., JANG, F., STENS, A., 1983, *Salbutamol and treadmill performance in non-atopic athletes*. Med Sci Sports Exerc. 15(6):520-522.

MEEUWISSE, W.H., MCKENZIE, D.C., HOPKINS, S.R., ROAD, D.J., 1992, *The effect of salbutamol on performance in elite nonasthmatic athletes*. Med. Sci. Sports. Exerc. 24:1161-1166.

RODRIGO, G., RODRIGO, C., 2005, *Elevated plasma lactate level associated with high dose inhaled albuterol therapy in acute severe asthma*. Emerg Med J. 22(6): 404-408.

SANDSUND, M., SUE-CHU, M., REINERTSEN, R.E., HELGERUD, J., HOLAND, B., BJERMER, L., 2000, *Treatment with inhaled beta 2-agonists or oral leukotriene antagonists do not enhance physical performance in nonasthmatic highly trained athletes exposed to -15°C*. J. Thermal Biol. 25:181-185.

SIGNORILE, J.F., KAPLAN, T.A., APPLEGATE, B., PERRY, A.C., 1992, *Effects of Short-Term Salbutamol Ingestion During a Wingate Tes*t. Med Sci Sports Exerc.24 (6): 638-642.

SPORER, B.C., SHEEL, A.W., MCKENZIE, D.C., 2008, *Dose Response of Inhaled Salbutamol on Exercise Performance and Urine Concentrations.* Med Sci Sports Exerc. 40 (1): 149-157.

STEWART, I.B., LABRECHE, J.M., MCKENZIE, D.C., 2002, *Acute formoterol administration has no ergogenic effect in nonasthmatic athletes*. Medicine & Science in Sports & Exercise: 34 (2): 213-217.

STRATAKOS, G., KALOMENIDIS, J., ROUTSI, C., PAPIRIS, S., ROUSSOS, C., 2002, *Transient Lactic Acidosis as a Side Effect of Inhaled Salbutamol*. Chest. 122: 385-386.

VAN BAAK, M.A., MAYER, L.H., KEMPINSKI, R.E., HARTGENS, F., 2000, *Effect of Salbutamol on muscle strength and endurance performance in nonasthmatic men*. Med Sci Sports Exerc. 32(7): 1300-1306.

WALLIN, A., SANDSTROM, T., ROSEHALL, L., 1993, *Time course and duration of bronchodilatation with formoterol dry powder in patients with stable asthma*. Thorax. 48:611-614.

ZACHAROGIANNIS, E., Paradisis, G., Tziortzis, S., 2004, an evaluation of tests of anaerobic power and capacity. Med. Sci. Sports Exerc. 36: 116.

MODIFYING SPORT COACHING TO MEET WOMEN'S INSTRUCTIONAL NEEDS: A CASE STUDY OF FEMALE GOLF PROFESSIONALS

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Abstract

Research Objectives: To examine the views of female golf professionals with the goal of developing a better understanding of female golfers' instructional needs.

Methods and Procedures: Open-ended qualitative interviews of ten female golf professionals were used to examine the female professionals' views on female golfers' instructional needs. Responses were analyzed using content analysis.

Results: Female professionals believe women's instructional needs may be different from men's instructional needs. They describe these differences and provide advice for the golf industry on how to meet women's instructional needs.

Conclusions: Sport coaches should take into consideration the instructional needs of both genders. In traditionally male sports such as golf, this is not always achieved. This study examines issues related to female golfers' instructional needs in an attempt to improve the way golf is taught to women, which may in turn assist instructors in other traditionally male sports.

Key Words: Women, Female, Golf, Instruction, Sport .

Introduction

In many traditionally male sports, when it comes to developing instructional programs for potential participants, women are often an afterthought. This may inhibit participation by women, perpetuating the image of the sport as a male domain. It is widely known that golf since its inception has been an overwhelmingly male domain, and in many western nations today fewer than one third of golfers are female (National Golf Foundation, 2010; Australia Golf Industry Council, 2009; European Golf Association, 2010; Royal Canadian Golf Association, 2006). However, the benefits of attracting more female participants-particularly the economic benefits of increasing participation during times of financial

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Received 20.02.2011 / Accepted 5.05.2011

challenge- has been noted by several industry analysts (National Golf Course Owners Association, 2010).

In the United States, approximately fifty percent of those trying the sport of golf over the past decade have been women, yet the percentage of regular participants who are female has remained stagnant at between twenty and twenty-five percent (National Golf Foundation, 2010). While women may be interested in learning more about the sport, once introduced to the sport they appear to lose that interest. The retention rate for female golfers is only 33%, as compared with a 54% retention rate among male golfers (PGA, 2010a).It is important for the golf industry to address why there is such a high attrition rate among females. One approach is to examine golf instruction, which is one of the first ways many women are introduced to the sport (National Golf Foundation, 2007). The body of research and literature devoted to teaching female golfers is smaller than the body of research and literature devoted to teaching male golfers. This study attempted to reduce this research gap and will hopefully provide useful information to the golf industry on how to increase the retention rate among female golfers. This case study could also serve as useful background information for those wishing to enhance the gender integration of other male-dominated sports.

Existing literature suggests that there are two main avenues of adapting sport coaching to meet women's instructional needs- physiological adaptations and psychological adaptations. The effect of physiological differences on sport technique has been documented in a number of sports such as soccer (R.H. Brophy et al., 2010; S.C. Landry et. al., 2007; C. Pollard, S. Sigward, C. Powers, 2007; G. Shan, 2009; S.M. Sigward, C.M. Powers, 2005), hockey (K. Gilenstam, et al., 2008), volleyball (C. Koch, M. Tilp, 2009), tennis (M. Crespo, B. Pluim, M. Reid, 2001) steeplechase (I. Hunter, B. Lindsay, K. Andersen, 2008), baseball (Y. Chu et al., 2009) and sprinting (F. Billaut, K. Smith, 2009).

Specifically pertaining to golf, several scientific studies over the past decade have indicated there are kinematic differences between the golf swings of men and women (C.I. Egret et al., 2006; J.B. Foster, 2007, 2009; S. Horan, 2008; S.A. Horan et al., 2010; J. McCroy et al., 2003; N. Zheng et al., 2008). These scientific studies support years of claims made by experienced female golf professionals in their published works (J. Horn, 1999; C. Reid, S. Eubanks, 2003; V. Saunders, 1975, 2000; D. Steinbach, 2001; K. Whitworth, 1990). Both the researchers and the female golf professionals agree that women have a tendency to use more rotational movement in their hips and shoulders, and generate longer swings than their male counterparts. In golf as well as in the other sports studied, these differences are primarily related to the basic anatomical premise that men are physically different than women: therefore, the way men and women move their bodies during these particular sports is different. It has also been noted that female sports injury patterns may be different from male sports injury patterns. For example, females are more prone to injury in the Anterior Cruciate Ligament, or ACL, than are males (Ambegaonkar et al., 2008; American College of Sports Medicine, 2003; J. Croissant, E. Schmit, 2007; D. Fischer, 2006). Even when men and women are playing the same sport, their injury patterns may differ. For example, female professional golfers are twice as likely as male professional golfers to injure their left wrist while male golfers are much more prone to lower back injuries than are female golfers. (Golf Medicine, 2008a, 2008b; L. Foster, 2004; A. McHardy, H. Pollard, K. Luo, 2006). Literature on psychological adaptations is plentiful. It exists in general sport studies literature (D. Anderson, A. Dixon, 2009; K.J. DeBoer, 2004; T.W. Miller et al., 2008; J. MacLean, S. Hamm, 2008; N.W. Sherman, 2002; C. Silby, 2000) as well as in the fields of education (M. Gurian, 2003; G. Keri, 2002; C.H. Lacey et al., 1998; T. Laird, A. Garver, A. Niskode, 2007; A.F. Grasha, 1994; D.B. Kardia, M.C. Wright, 2004; M. Philbin et al., 1995; E. Wehrwein, H. **Lujan, S. DiCarlo,** 2007; S.A. Basow, 2010) and psychology (D. Saucier, C. Ehresman, 2010). If such findings are indeed transferrable to golf, it may suggest that when instructing women, golf professionals and coaches should emphasize developing a personal connection with the student, building the student's confidence, and maintaining active verbal communication. In fact, it is these very things that golf industry surveys have suggested after large-scale studies of female golfers in a number of countries. (Australia Golf Industry Council, 2009; Comperio Research, 2005; B. Murphy, D. Holland, 2006; National Golf Foundation, 2005, 2007, 2010; H. Oldenhove, 2008; Royal Canadian Golf Association, 2006 and N. Berkley, 1999 and 2003). Other psychological differences uncovered in these surveys that could potentially impact golf instruction include: women may be more interested in participating for fun and social reasons and less focused on their score, and due to the pressures of being minorities in a primarily male environment may need more positive reinforcement. For example, Murphy and Holland (2006) surveyed 1198 girls and women in the state of Victoria, Australia, as part of a report commissioned by Golf Victoria, the state's governing body of golf. The participants were asked why they continued to enjoy golf. The most common responses were because it was social (84%), healthy (78%), fun (68%), and relaxing (58%). In the United Kingdom a A Comperio Research (2005) study of 1202 female golfers found that the top motivations for continuing to play were the social aspect of the game and getting fresh air. Competition and challenge were lower on the list. While there exists quite a bit of literature supporting the concept that a one-size fits all approach to golf instruction may not be an appropriate method of meeting the instructional needs of women, women continue to be an afterthought in the golf industry, and their instructional needs

continue to be overlooked. This is why it is important to further examine the issue of female golfers' instructional needs, and more specifically to examine the issue from a perspective that has rarely been done before: that of female golf professionals. In the United States, fewer than four percent of golf professionals are women (PGA, 2010b). While the scientific studies of physical swing differences and the marketing surveys of female golfers are useful and have been examined in this literature review, to get a more complete understanding of the issue, an analysis of female professionals' views was needed. As both experts in their field and minorities in their sport and in their profession, female golf professionals may be in a unique position to help the rest of the golf industry better understand the instructional needs of female golfers. Capturing this perspective is important, because LPGA professionals can provide insight that may not be obtained from scientific studies, research by non-golf professionals, or even male golf professionals. The perspective of LPGA golf instructors is unique and it is hoped that this study of their perspective will help address the existing literature gap.

Methods and Procedures

This study formed part of the author's doctoral dissertation research and involved qualitative open-ended interviews of ten Ladies' Professional Golf Association (LPGA) golf teaching professionals. The impetus for this study was a previous online survey in June of 2010 by the author (using SurveyMonkey) of 100 members of the LPGA Teaching and Club Professional Division. In the online survey, the participants were asked questions about gender-related physical and psychological differences in golf instruction. The results of the online survey, to be published in the *International Journal of Sport and Society*, indicated that a large majority of the LPGA golf professionals surveyed adopted different teaching techniques when working with beginning female golfers than they did with male golfers. This percentage fell slightly when dealing with intermediate golfers and significantly when dealing with advanced female golfers (Table 1) The results of the online survey were significant enough to warrant further study, as the author was interested in delving more deeply into the topics suggested by the LPGA professionals in the survey. As a result, the current study, which commissioned in-depth open-ended qualitative interviews of LPGA professionals, was developed. The research questions for the study were as follows:

- Q1: What are the perceptions of female golf professionals in terms of what the golf industry could do to improve the way golf is taught to women?
- Q2: What are ways in which female golf professionals teach their average female students differently than their male students when it comes to physical swing technique?
- Q3: What are ways in which female golf professionals teach their average female students differently than their male students when it comes to lesson atmosphere and psychology?

Research participants were all members of the Ladies Professional Golf Association (LPGA) Teaching and Club Professional Division. This organization has over 1300 members and is the oldest currently existing women's professional sporting organization in the world, having been established in 1959 as an outgrowth of the LPGA tour. While LPGA Tour players are primarily professional competitors and rarely teach, Teaching and Club Professionals are primarily teachers and coaches and may only occasionally play professionally. The participants ranged in age from their early thirties to their mid sixties, and were geographically diverse, hailing from six US states and one foreign country. The study was pre-tested using two pilot test interviews, for a total of twelve total participants. The interview protocol was approved by Northcentral University's Institutional Review Board as part of the researcher's doctoral program. All twelve participants were given an Informed Consent Form and were assured anonymity. Participants were chosen from a pool of volunteers who had become aware of the researcher's study and had offered to be interviewed. The average number of years the twelve participants had been playing golf was over 32 years, with the average number of years of experience teaching golf being over 18 years. Participants were also asked to indicate what percentage of their students have been women. Responses ranged from 50 to 80 percent, indicating that these women all teach significantly more female students than the industry average for golf professionals. Many of the participants have also been recognized for their golf instructional abilities, with several having been ranked among America's top 50 female golf instructors by either Golf Digest or the LPGA, or serving as instructors and/or evaluators for the LPGA's National Education Program, which teaches the curriculum for aspiring LPGA professionals. As a group, these women are truly the experts in their field.

The two pilot interviews were conducted in person in order to better allow for feedback and participant-interviewer interaction. Nine of the ten subsequent interviews were conducted over the phone, with one being conducted using Skype at the participant's request due to the participant's location in a foreign country. All interviews were recorded using a digital recording device and transcribed. Interviews ranged in duration from twelve minutes to forty-eight minutes. During the pilot interviews, the questions were structured. However, it was felt that the specificity of the questions resulted in the participants giving shorter answers and was not encouraging the respondents to address their first thoughts. Therefore, the ten subsequent interviews were only semi-

structured, with three main questions being asked of the respondents and then follow up questions being asked depending on the participants' answers. Following transcription, the data was analyzed using content analysis in three different stages. First, the researcher searched for and analyzed themes that emerged as a result of repeatedly being referenced by multiple participants. Secondly, the data was analyzed by a second independent trained coder, and finally, the interviews were analyzed using the Atlas computerized software program for qualitative analysis. Codes were not predetermined in advance for the analysis: coding was done post-hoc. According to Creswell (2009), it is more common in the social sciences to allow codes to emerge during the data collection phase. This is in line with the exploratory design of this study, whereby open-ended questions are used to investigate perceptions.

It was through this process of analysis of themes that a description of female golf professionals' views on teaching female golfers was constructed, in order to develop what Moustakas refers to in his description of phenomenological content analysis as "a composite description of the meanings and essences of the experience, representing the group as a whole." (Moustakas, 1994, p.121) The primary limitation of this study was a small number of participants.

Results.

The content analysis revealed certain main themes (Table 2), grouped by the research question each theme answered. With regard to Research Question 1, what the golf industry could do to improve women's golf instruction, many of the respondents noted that the high attrition rate among female golfers might not be as related to instructional issues as to the golf environment in general. Responses relating to the golf industry in general included: golf taking too much time to play and consequently not being manageable for women with children and/or careers; golf courses not being designed or set up with women in mind; not having enough equipment options for women, and the golf industry as a whole not taking women seriously as consumers, in response to which many suggested that it will ultimately be economics that helps to change the unequal treatment of women. As women become more economically powerful, the participants noted, the golf industry will have to specifically target them if the industry is to survive in uncertain economic times. From a broad instructional standpoint, the respondents also noted that golf facilities should hire more female pros, because female golfers may be more comfortable with a female pro; introducing male PGA pros to the concepts that are taught to LPGA pros, in order to make male instructors more aware of gender issues in golf instruction; and ensuring the availability of opportunities for participation that are particularly appealing to women-such as social and league play- and then making it easy for women to be introduced to and included in these opportunities. Examples of responses to the first research question included: "women need to feel like they're more welcome in the facilities", "forget the disrespect- its more than that- it's a business decision. If you want golf to survive you can't disregard half the population", "it takes time, it takes training, and I think the women get more training in the teaching", "I think that if they take a clinic on how to give women lessons from a woman pro- that should almost be a PGA requirement for males- the guys don't know because they were never taught", "I think female teachers tend to be very successful working with beginning women because many may be more comfortable learning from a woman", With regard to the second research question relating to physical technique, the main theme that emerged was working with the individuals to help them find the unique swing that works for them, rather than having every student imitate model PGA Tour players. Several other themes emerged, some of which were closely related. For example, using fewer technical terms and teaching in a less mechanical way was one theme, but at the same time many participants noted that it was more important for women to have the proper technique, because they often lacked the physical strength to be successful without proper technique. Many noted that women may not be as strong as men, but that they might use their flexibility to their advantage. They also noted that women's hips move differently and that those women with large breasts may need to adjust their setup position accordingly. A final theme in this area was often accompanied by the caveat of it being relevant only to women who did not have an athletic background- that different cues may need to be used when working with women without athletic backgrounds, since analogies to other sports would be meaningless to these women. The participants noted that it was important not to assume anything. Several referenced how male instructors may tell a female to swing her arms as if she is throwing a ball, without realizing that some women have never learned how to properly throw a ball. These women, the participants noted, need to be specifically taught how to execute the movements, or need to be instructed using cues from areas other than sport. By far the most often-cited theme in the area of instructional technique was ensuring that women are introduced to playing golf on the golf course, rather than just practicing the technical aspects of the swing on the driving range. Examples of responses to the second research question included: "too many instructors get tied up in the mechanics and not in how the student wants to play the game", "a lot of our teaching is way too mechanical and complicated and that applies really to everybody but I think even more so to women", "introduce them to the golf course as much as you can", "to get ladies to play, you need to create a situation where in your instruction you're getting them comfortable on the golf course".Finally, the third research question addressed the psychological aspect of gender issues in golf instruction. The main themes that emerged were: women in general want golf to be more

social and more fun; women want to be treated with respect, not looked down upon; it is important to always be positive- to praise and celebrate small victories; and to work with women to address and deal with the fear and anxiety they may experience as women in a primarily male environment that may at times be unwelcoming or intimidating. It was for this third research question that one overarching conclusion could be drawn, as every respondent emphasized the importance of conducting an initial interview with the student, in order to make the lesson more personal by developing rapport with the student, learning about her goals and her background, and understanding her motivation for learning and playing golf. It was this lack of personal rapport, the participants believed, that was one of the main reasons why women who took golf lessons did not continue with the sport. Examples of responses to the third research question included: "treat people the way you want to be treated","one negative thought takes ten positive thoughts to get rid of", "always praise people, even on bad shots- point out something they did right", "the opening interview you have with a student is, I think, crucial. It's going to give you an idea of the person's athletic ability, their experience in sports in general-that will let you know whether or not you can talk to them in certain ways.","figuring out their personality and what makes them tick is super important", "it's not the athletic woman we lose, it's the average women who could enjoy this game and who want to be taught in a way that gives them self-worth, self-confidence",

"women are very social so I think we need to find ways to introduce them to other women playing golf", "some of the men instructors don't understand that from a woman's perspective and her concerns- in the golf world we are kind of like a second-class citizen in the sense that we need to perform better to achieve the same level. We do feel the pressure for achievement and we need to help [our female students] overcome that, address that"

Discussion

The themes that emerged from this study reinforce many of the findings addressed in the existing literature. The results indicate that the LPGA professionals interviewed are very much in tune with the concerns of their female students- concerns that golf industry reports have frequently referenced about female golfers feeling unwelcome and believing that they are not taken seriously as golf consumers.

According to a recent National Golf Course Owners Association (2010) report, a third of current female golfers said women are "treated as second class citizens at the golf course" (p. 70). A survey of recreational female golfers by L. McGinnis and J.W. Gentry (2006) revealed that negative interactions with golf facility personnel and with male golfers was one of the primary reasons limiting the participation of current golfers. Negative interactions included golf professionals and facility staff ignoring women completely or addressing comments only to their male companions or playing partners (expecting the men to answer and make decisions for the women); golf course marshals singling out and repeatedly following the women's groups in anticipation of the women playing slowly; starters insisting that even professional female players play from the forward tees, and negative or threatening non-verbal cues from other patrons (male golfers). According to a recent industry survey by Golf Datatech (2010), one of the main factors inhibiting play by women was that almost a third of the 1,000 female golfers surveyed considered the average golf course to be a very male oriented place. The National Golf Foundation (2007) found even more emphatic results, with more than half of the female golfers surveyed reporting feeling intimidated.With regard to physical technique, a surprising number of professionals noted that while there may be a few differences between men and women when it comes to strength and flexibility, many of the modifications they used when teaching golf were not gender-specific but were always geared to the body type and athleticism of the individual golfer. All of the participants indicated that they did not teach their students using a specific swing model. While in one respect this lends support to the findings of scientific studies which revealed that men and women swing differently and supports the view that men and women should not be taught using a "one-size fits all" approach, it also somewhat contradicts the theory that the reason for eschewing that "one size fits all" approach is purely gender-based. With regard to psychological techniques, the female professionals offered a number of suggestions, with many noting that while the implementation of these suggestions would make women feel more welcome during golf instruction and contribute to a higher retention rate among female golfers, the same suggestions could also be helpful when teaching men. This was particularly the case with regard to all the participants' emphasis on the importance of the initial interview to personalize the lesson and establish rapport and learn about the student's goals and background. According to the participants, personalization of the learning experience is extremely important for all students, but particularly so for women. The one area where the participants felt there was the most difference between men and women when it came to psychological concerns was the impact of tokenism on the anxiety and confidence levels of female golfers, and how golf professionals need to acknowledge this concern. This supports previous findings by L. McGinnis and J.W. Gentry (2006) as well as findings in research on other male-dominated sports. This study also revealed that female golf professionals are very interested in improving thegolf environment for women. The participants were passionate and enthusiastic about the topic, and were willing to share their ideas and suggestions. The older participants were particularly keen to participate, having seen improvements in golf's gender imbalance made during their careers and hoping these

improvements could be continued with the younger generation. In addition to the golf-specific implications of this study, many of the findings could be applicable to other sports that have long been the domain of males. For example, encouraging more women to become involved as managers, instructors, and coaches of that sport would contribute to a more welcoming environment for women, as would acknowledging the increasing financial impact of female consumers. Offering sporting equipment options suited to women who may be shorter and not as strong as men could also entice more women to participate, as could offering more social, less time-consuming opportunities for participation as opposed to traditional highly-competitive or overly serious options. When it comes to physical techniques, all sports may be different, but sport coaches should acknowledge that women may set up or generate power in slightly different ways than their male counterparts, and as a result it is important to tailor the technical instruction to the individual rather than basing all instruction on the technique of a highly successful male athlete in the sport. Finally, with regard to psychology, men may underestimate the impact that being a minority has on a woman's psychological state when learning the sport or first attempting to participate in the sport. Instructors and coaches should be sensitive to these concerns and attempt to build confidence using positive reinforcement and confidence-building techniques wherever possible. Ultimately, the study involved a small sample, and was specific to the sport of golf. Future researchers might wish to focus on a larger sample size or answering the same research questions in other traditionally male-dominated sports to determine if guidelines can be developed to assist the sporting community as a whole to attract and retain greater numbers of female participants.

Tables

Table 1
Percentage of Online Survey Respondents (LPGA Members) who said they adopt different teaching styles with women than with men

	Psychologically	Physically/ technically
Beginning golfers	84.2	74.5
Intermediate golfers	66.3	67
Advanced golfers	50.5	51.1

Table 2
Themes Emerging from Qualitative Interviews of LPGA Golf Professionals

Q.1 (overall)	Less time commitment
	Easier courses
	More appropriate equipment options
	Take women seriously as consumers
	More female instructors and coaches
	More opportunities for social, fun participation
	Better teacher-training programs for male professionals
Q.2 (technical)	Work with the individual- do not use only one method
	Less technical / mechanical
	Acknowledge and adapt technique to physiological differences
	Use appropriate cues (fewer sport analogies)
	Conduct more instruction on-course (more playing lessons)
Q.3 (psychological)	More social and fun
	Treat women with more respect
	More positive reinforcement
	Address the issue of intimidation and anxiety
	Importance of interview to personalize lesson

References:

AMBEGAONKAR, J. P., SHULTZ, S. J, PERRIN D. H., SCHMITZ, R. J., ACKERMAN T., & SCHULZ, M. R. 2008. ACL injuries: The gender bias. *Journal of Athletic Training*, *43*(5), 543-560. doi:10.4085/1062-6050-43.5.543

AMERICAN COLLEGE OF SPORTS MEDICINE. 2003. Female athlete issues for the team physician: A consensus statement. *Medicine & Science in Sports & Exercise*, *35*(10), 1785-1793.

ANDERSON, D., & DIXON, A. 2009. Winning isn't everything: Goal orientation and gender differences in university leisure-skills classes. *Recreational Sports Journal*, *33*(1), 54-65.

AUSTRALIA GOLF INDUSTRY COUNCIL. 2009*Research summary report: A snapshot of the Australian Golf Industry*. Retrieved May 16, 2010 from http://www.agic.org.au/AGIC/Documents_files/ AGIC_Research_Report_0509.pdf

BASOW, S.A. 2010. Gender in the classroom. In J.C. Chrisler & D.R. McCreary (Eds.), *The handbook of gender research in psychology*. New York: Springer.

BERKLEY, N. (1999). *Women's golf programs that work: Best practices and case studies*. Jupiter, FL: National Golf Foundation.

BERKLEY, N. 2003. *Women welcome here: A guide to growing women's golf*. Jupiter, FL: National Golf Foundation.

BILLAUT, F., & SMITH, K. 2009. Sex alters impact of repeated bouts of sprint exercise on neuromuscular activity in trained athletes. *Applied Physiology, Nutrition, and Metabolism,* 34, 689-699.

BROPHY, R. H., BACKUS, S., KRASZEWSKI, A. P., STEELE, B. C., MA, Y., OSEI, D., & WILLIAMS, R. J. 2010. Differences between sexes in lower extremity alignment and muscle activation during soccer kick. *Journal of Bone and Joint Surgery*, *92*, 2050-2058. doi:10.2106/JBJS.I.01547

CHU, Y., FLEISIG, G. S., SIMPSON, K. J., & ANDREWS, J. R. 2009. Biomechanical comparison between elite female and male baseball pitchers. *Journal of Applied Biomechanics*, *25*, 22-31.

COMPERIO RESEARCH. 2005. *Ladies' Golf Union research*. Electronic copy retrieved from administrators of the Ladies' Golf Union in St. Andrews, Scotland.

CRESPO, M., PLUIM, B., & REID, M. 2001. *Tennis medicine for tennis coaches*. Valencia, Spain: International Tennis Federation.

CRESWELL, J. W. 2009. *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.

A COMPARATIVE STUDY: DIFFERENCES BETWEEN EARLY ADOLESCENT MALE INDOOR TEAM SPORTS PLAYERS' POWER, AGILITY AND SPRINT CHARACTERISTICS

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Abstract

Objective: There has been lack of information on a comparative study of the early adolescent male (mean age= 13) indoor team sport players with special reference to power, agility and sprint (PAS) values. Hence, the purpose of this study was to compare the differences between PAS values of handball, basketball and volleyball players who are the champions in their province at school leagues.

Design and Settings: Over two separate consecutive days in a week which following the completion of match sessions, a test battery including counter movement jump for power, zig-zag run for agility and 20 m sprint run was used to obtain information concerning of the values of early adolescent male handball (n=12), basketball (n=11) and volleyball (n=11) players. ANOVA was used to determine differences between values of team players.

Results: There was no difference between the values of agility. However, there were significant differences between the team sport players for anaerobic power and sprint values. The volleyball players had higher power values as compared with the basketball and handball players ($p<0.05$), but there was no difference between the handball and basketball teams. Although the basketball and volleyball players had similar sprint values, the basketball players were faster than the handball players ($p<0.05$).

Conclusion: The comparative study showed that in spite of negligible little differences in agility abilities, there were

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Received 17.02.2011 / Acceted 28.04.2011

significant differences between team players' anaerobic power and sprint values which important criterions of performance at team sports. We concluded that these differences between adolescence male indoor team sports players could be changeable in terms of the variables of selection criterion, training and match intensity. Hence, there is a need for more studies on this subject.

Key words*:* Basketball, Handball, Volleyball, Anaerobic Characteristics.

Introduction

Basketball, handball and volleyball are complex intermittent team sport which is including similar motor characteristics that performed a lot of multidirectional movements such as, jumping, sprinting and shuffling at high or maximal velocities and intensities during the game.

These movements depend on most players' agility, speed and power abilities or characteristics that are considered as important aspects of the game and contribute to the high performance of the players (S.E. McInnes, 1995, M.T. Woolstenhulme et al., 2006). Successful performance is dependent upon several fitness components.

Speed, agility, and vertical jump height are important physical characteristics of game performance that are anaerobic in nature and also are predominantly under prevailing influence of genetic factors.

Growth would appear to contribute significantly to enhanced motor performance with age (P. Bale et al 1992). Anaerobic power of male develops from 12 to 17 ages during adolescence, with an increased rate of improvement at the onset of puberty (K. Pearson, et al, 2006).

Explosive power or jumping ability, sprint speed and agility improve to a great extend during adolescence, with the highest rate of increase at the age of 14 and 16 (R. Malina, 2004).

Explosive power is the main determinant of performance in sport activities requiring one movement sequence to produce high velocity at release including jumping, throwing and striking activities.

These activities are frequently occurs during such as rebounding, jump shot, spiking and blocking actions in basketball, handball and volleyball games (T.J. Gabbett, 2008, B. Abdelkerim, 2007, M.B. Wallace and M. Cardinale, 1997).

In addition, sudden bursts of power are needed when rapidly changing direction during those sports activities (R.U. Newton, W.J. Kraemer, 1994). In basketball, handball and volleyball, athletes are required to accelerate, decelerate and change direction throughout the game.

Often these movements are applied to respond the movements of a ball or the actions of opposition players during such as the shadowing, screening, blocking events (K. Hakkinen, 1993). Highly change of direction or agility action may be much more related with player's sprint ability and explosive power (J.D. Vescovi, 2008).

Power, agility and sprint abilities of athletes may vary according to different sport disciplines because of their specific characteristics. The authors consider to it is generally necessary to determine power, agility and sprint profiles of athletes for a selection criteria and to evaluate whether players in different sport disciplines have different motor characteristics.

However, it has not been found yet a comparative study on power, agility and sprint profiles of basketball, handball and volleyball, especially early adolescent male players.

Therefore, in this study, we aimed to determine and early adolescent basketball, handball and volleyball athletes' power, agility and sprint abilities and to evaluate by making a comparison whether possible differences between athletes who are the champions in their province at school leagues.

And we especially focused on early adolescent ages with probabilities these athletes would represent to profile of an elite player and they would form the composition of top class teams in the future.

Method

Participants

Thirty three early adolescent male (handball, n=12), (basketball, n=11) (volleyball, n=11) athletes voluntarily participated in the study. Informed written consent was obtained from the all athletes and their parents.

Tests were carried out that in respect of ethic rules under the control supervision of a medical practitioner.

Procedures

Participants were requested whether they had prior experience with the tests used. Therefore testing protocol was separately explained to the participants who most hadn't been previously tested on several occasions. Power, agility and sprint measurements were obtained over three separate consecutive days following the completion of season.

Measurement

Demographic Characteristics: Body mass was obtained to the nearest 0.1 kg using a balance beam scale whereas height was measured using a stadiometer to the nearest 0.5 cm

Explosive Power: Vertical-jump height was assessed using the Vertec (Young, 1997). Participants performed three trials with a 60-s rest period between each jumping activity and the best jump was used in

the analysis to determine the explosive power (D.L. Johnson and J. Bahamonde, 1996).

Agility: The test zig-zag runs over 24 m to assess agility and speed running assessed using an infrared timing device in an indoor court (B. Mackenzie, 2005).

Sprint Ability: Sprint speed was assessed using an infrared timing device in an indoor court. Three 20 m maximal sprint was run with a 90-s rest period between each sprint and the best of them were used to evaluate.

Statistical Analysis

Means and standard deviations were calculated for each variable. Differences between teams were analyzed using ANOVA and significance was set at $p<0.05$.

Results

The results of age, body height and mass showed that there is homogeneity between groups (Table 1).

Table 1: Demographic Characteristics of Players

	Handball (n=12)	Basketball (n=11)	Volleyball n=11)	F	Significant
Age (year)	13.08±0.7	12.9±0.9	13±0.8	.124	.884
Body Height (cm)	155.5±11	157.3±10	157±10	.091	.913
Body Mass (kg)	46.4±5	45.3±4	48.09±9	.501	.611

There were no statistical differences between the team athletes' age, body height and mass.

Power agility and sprint scores of athletes were depicted in Table 2.

Table 2: Power, Agility and Sprint Mean Values of Players

Variable	Handball (n=12) mean±SD	Basketball (n=11) mean±SD	Volleyball (n=11) mean±SD	F	Significant
Explosive Power (W)	913.7±227	853.3±183	1280.4±311	9,780	0.001
Sprint (s)	3.92±0.2	4.34±0.2	4.11±0.3	6,135	0.006
Agility (s)	7.59±0.4	7.69±0.5	7.46±0.4	634	0.537

ANOVA indicated that there were significantly difference between the teams for explosive power and sprint values ($p<0.05$), but it was not agility. Post Hoc comparison showed that having determined which test scores were responsive for difference (Table 3).

Table 3: Mean Differences between Values of Players

	Mean Difference			Significant		
Variable	H-B	H-V	B-V	H-B	H-V	B-V
Explosive Power (W)	-60.36	-366.6	-427	.828	.003	.001
Sprint (s)	-0.41	-0.19	0.22	.004	.173	.253
Agility (s)	-0.09	0.13	0.22	.884	.782	.509

H=Handball, B=Basketball, V=Volleyball

The volleyball players' power value was higher than the basketball and handball ($p<0.05$), but there was no difference statistically between the basketball and handball.

However, difference between the basketball and handball players' sprint scores was important that the handball player had the best score.

Discussion

In volleyball, handball and basketball athletes perform intermittent exercise that aerobic metabolism contributes to sport games during both exercise and recovery phases, whereas anaerobic metabolism provides energy during the exercise bout (J. Bangsbo, 2000).

Power, agility and speed actions are named as anaerobic activities.

Hence these actions are considered to be an important part of performance in the indoor team sports for success (N. BenAbdelkerim, 2007, T.J. Gabbett, 2008, M.B. Wallace and M. Cardinale, 1997).

Power, agility and speed values may differ between the teams according to training intensity, selection criteria, especially sport specific characteristics.

Present study indicated that there were significantly differences between the teams' explosive power and sprint values.

Especially, the volleyball players' explosive power values were significantly higher than the basketball and handball players.

It is possible to explain that lower limb activities (jumping) required explosive power may covers to a large part of the game during a volleyball match compared with basketball and handball.

Whereas recent researches provided evidence that average number of jumps per player was 45 for volleyball (M.D. Tillman, 2004) and 44 for basketball. (N. Ben Abdelkerim, 2007).

Although no was information on number of jumping activities during handball games, E.M. Gorositaga et al. (2005) reported that handball players' muscle power output of the lower extremities at all loads examined remained unaltered during the whole season.

Y. Nakamura at al. (1986) and J.Z. Popadic Gacesa et al. (2009) reported that anaerobic powers of male volleyball players were higher than basketball and handball. In contrast, M. Kalinski et al (2002) reported that national basketball players attained the largest absolute power values when compared national volleyball players.

This situation may be explained the training or match intensity may vary between team sports.

In addition, the discrepancy with making comparisons of explosive power data from various studies may be related to the methods of testing employed and different testing protocols.

Sprint activities are frequently performed by players during fast break and change of direction speed actions in both basketball and handball matches (N. Ben Abdelkerim, 2007, D. Ohnjec, 2003). This movement requires short-term sprint activities. We hypothesized that the basketball and handball players' sprint and agility abilities might improve during season and might better than the volleyball players.

Present study showed that the handball players' sprint ability was better than the basketball, but there was no statistical difference between the handball and volleyball.

In addition, it was no statistical differences observed between the team sports on the agility performance.

Sprint ability and agility are more based on genetic factors, although there is always a training potential to be considered (E.Van Praagh, 2002).

It was possible that differences of sprint values related to the players' genetic characteristics. In a previous study was reported that there was significant correlation between sprint speed and agility, and sprint speed could transferred to change of direction speed (K. Pauole et al, 2000).

It could be explained that although there was difference between the basketball and handball for sprint values, the basketball players had a limited capacity to transfer from their sprint speed to agility.

Conclusion

The results of this research suggest that each sport is characterized by athletes with particular physical and bio-motor attributes favoring performance in their given sport. Compared with adult athletes, who have already reached a high standard of performance, adolescents involved in many sports are still in the developmental phase.

Because of the relative young age of the athletes in this study, their profiles couldn't exactly reflect to characteristics of their particular sport.

Also, selection criteria and intensive training effects might have been responsible for most of the differences among sports.

The coaches consider it is generally necessary to determine power, agility and sprint speed profiles of athletes for the sake of selection of athletes for a particular sport or discipline and evaluation of training process.

These results may be useful information which contributes to selection criteria of indoor team sports coaches, although there is need to further study in this area.

References

BALE, P., MAYHEW, JL., PIPER, FC., BALL, TE., WILLMAN, MK., 2004: Biological and performance variables in relation to age in male and female adolescent athletes. J Sports Med Phys Fitness 32(2): 142-148.

BANGSBO, J.,2000, Physiology of intermittent exercise. In: Garrett JR. WE, Kirkendall DT, Editors. Exercise and Sport Science. Philadelphia: Lippincott Williams & Wilkins. 53-65. 2000

BAYIOS, IA., BERGELES, NK., APOSTOLIDIS, NG., NOUTSOS, KS., KOSKOLOU, MD., 2006, Anthropometric, body composition and somatotype differences of Greek elite female basketball, volleyball and handball players. Journal of Sports Medicine and Physical Fitness 46: 271-280

BEN ADELKERIM, .N, EL FAZZA, S., EL ATI, J., 2007, Time motion analysis and physiological data of elite under 19 year-old basketball players during competition. Br J Sports Med. 41(2): 69-75

GABBETT, TJ., 2008, Do skill-based conditioning games offer a specific training stimulus for junior elite volleyball players? Journal of Strength & Conditioning Research 22(2), 509-517.

GOROSTİAGA, EM., GRANADOS, C., IBAÑEZ, J., IZQUİERDO, M., (2005): Differences in physical fitness and throwing velocity among elite and amateur male handball players. Int J Sports Med 26: 225–232

HAKKINEN, K., 1993, Changes in physical fitness profile in female volleyball players during the competitive season. J. Sport Med. Phys. Fitness 33: 223-232.

JOHNSON, DL., AND BAHAMONDE, R., 1996, Power output estimate in University athletes. J Strength Con Research 10(3): 161-166

KALINSKI, M., NORKOWSKI, H., KERNER. M AND TKACZUK, W., 2002, Anaerobic power characteristics of elite athletes in national level team-sport games, European J Sport Science 2(3): 1-21.

MACKENZIE, B., 2005, 101 Performance Evaluation Tests, Electric Word plc 2005, London

MALINA, RM, BOUCHARD, C AND BAR-OR O, 2004, Growth, Maturation, and Physical Activity, Human Kinetics, Champaign, III, USA, 2nd edition, 2004.

MCINNES, SE., CARLSON, JS., JONES, CJ., MCKENNA, MJ., 1995, The physiological load imposed on basketball players during competition. J Sports Science 13: 387-397

MELROSE, DR., SPANIOL, FJ., BOHLING, ME., BONNETTE, RA., 2007, Physiological and Performance Characteristics of Adolescent Club Volleyball Players. Journal of Strength and Conditioning Research 21(2):481-486.

NAKAMURA, Y, MUTOH, Y AND MIYASHITA, M., 1986, Maximal anaerobic power of Japanese elite athletes. Medicine and Science in Sport and Exercise 18: 52-58

NEWTON, RU., AND KRAEMER, WJ., 1994, Developing explosive muscular power: Implications for a mixed methods training strategy. Journal of Strength and Conditioning Research 6: 36-41

OHNJEC K, VULETA D, MILANOVIĆ D AND GRUIĆ, I., 2008, Performance indicators of teams at the 2003 World Handball Championship for women in Croatia. Kinesiology 40(1): 69-79

PAUOLE, K., MADOLE, K., GARHAMMER, J., LACOURSE, M AND ROZENEK, R., 2000, Reliability and validity of the T-test as a measure of agility, leg power and leg speed in college aged men and women. Journal of Strength and Conditioning Research 14:443–450.

PEARSON, DT, NAUGHTON, GA AND TORODE, M., 2006, Predictability of physiological testing and the role of maturation in talent identification for adolescent team sports, Journal of Science and Medicine in Sport 9(4): 277-287

POPADIC-GACESA, JZ., BARAK, OF., GRUJIC, NG., 2009, Maximal anaerobic power test in athletes of different sport disciplines. J Strength Con Research 23(3): 751-755

TILLMAN, MD, HASS, CJ, BRUNT, D., AND BENNETT, GR., 2004, Jumping and landing techniques in elite women's volleyball. Journal of Sports Science and Medicine 3: 30-36

VAN PRAAGH, E., AND DORÉ, E., 2002, Short-term muscle power during growth and maturation. Sports Medicine 32, 701-728.

VESCOVI, JD. AND MCGUIGAN, MR., 2008, Relationships between sprinting, agility, and jump ability in female athletes Journal of sports sciences 26(1): 97-107.

WALLACE, M.B, CARDINALE, M. 1997, Conditioning for team handball. Journal of Strength and Conditioning Research 12: 7-12

WOOLSTENHULME, MT., GRIFFITHS, CM., WOOLSTENHULME, EM., PARCELL, AC., 2006, Ballistic stretching increases flexibility and acute vertical jump height when combined with basketball activity. J Strength Con Research 20(4): 799-803

YOUNG, W, MACDONALD C, HEGGEN T, FITZPATRICK J 1997, An evaluation of the specificity, validity and reliability of jumping test. J Sports Med Phys Fitness 37: 240-245

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

ASSESS THE INCIDENCE RATE AND SEVERITY OF INJURIES IN 4TH ALEXANDRIA'S INTERNATIONAL OPEN TAEKWONDO CHAMPIONSHIPS

GEHAN Y. ELSAWY[1]

Abstract

Purpose. Over the last half century, Taekwondo has evolved to become one of the most popular and commonly practiced martial arts in the world. Which has subsequently led to Taekwondo being included as an official Olympic sport since 2000 .The purpose of this study was to assess the injury rates in female adult Egyptian Taekwondo athletes relative to total number of injuries, type and body part injured.

Methods. A prospective recording of the injuries resulting from 83 matches in 4th Alexandria's International Open Taekwondo Championships was performed.

Results. Injuries were recorded, with an incidence of 16.18 injuries per 100 athletes. Occurrence of injuries was higher among lighter categories, the injuries were most commonly located in the hands (20.83%) followed by foot (18.8%), and ankle (16.7%).

Conclusions. Competitive taekwondo is associated with a relatively high injury rate but mainly for minor injuries, with a relative risk lower than in most sports; severe injuries are rare.

Key words: sports injury, taekwondo

Introduction

Taekwondo was originally developed as a fighting art in Korea and subsequently has been distributed all over the world. The competition of Taekwondo is a free-fighting combat sport, using bare hands and feet to repel an opponent. Therefore, the bare hands and kicking technique become significant factors, which have the potential to affect the Taekwondo athlete's performance.

Olympic taekwondo is a modern sport from the second half of the 20th century. Despite its young age, it became an Olympic demonstration sport in 1988 (Seoul) and 1992 (Barcelona) and a full medal contender at the 2000 Sydney Olympic Games. The earliest known epidemiological study on taekwondo injuries was published in 1989 based on the 1988 US Olympic. (E. Gehan , 2002)

Taekwondo is a dynamic form of unarmed self defense that utilizes the entire body, and can be distinguished from other martial arts by its focus on kicking techniques. Snap kicks, a classification of Taekwondo kicks, can be performed quickly and possess the force to break the bones of an opponent.

There is a range of styles of taekwondo in which Participants compete using different sparring rules ranging from non-contact to semi-contact to full-contact.

In 1966, the International TaekwonDo Federation (ITF) was established. Its rules of competition stipulate no contact, while the athletes wear a helmet as well as hand and foot protective gear to help prevent injuries. Sparring bouts last two rounds of 2 min with a 1-min break between rounds for the eliminations and three rounds of 2 min for the finals.

In 1973, the World Taekwondo Federation (WTF) was founded, which follows full-contact competition rules. Matches are for three rounds of 2 min with 1-min breaks in between rounds. Full-contact kicks are allowed to the head and face and designated areas of the body. No punches are permitted to the head and face. (E.Gehan , 2002)

The rules and regulations for Olympic taekwondo competitions, Which are governed by the World Taekwondo Federation (WTF), allow Full-contact sparring using kicking techniques to the head, torso, and punches to the front of the torso. Players are required to wear protective gear during play, including trunk protector, head protector, groin guard, forearm guards, shin guards, mouthpiece, and gloves. (W.Pieter, et al. 2010)

In addition, according to athletes' safety concerns, the World Taekwondo Federation decreed rules concerning matches, as for example, athletes who participate in Taekwondo should hold "black belt" and should be over 16 years old. In addition, punches were allowed to the front of the torso in the area covered by the chest protector worn by the athletes. Kicks were allowed to the torso and head, which was covered by a helm. Only one point was given from referees for a successful blow. Athletes could win the match by means of a knockout, so contact was encouraged. In 2003 the rules changed and ever since athletes win 2 points for every kick-punch contact on the opponents head and an additional point for an eight-count knockout .

Despite all this, injuries still occur and there is an inherent risk of injury to practitioners of combative taekwondo. The incidence of sport injury usually varies widely depending on many factors, such as level of competition, types of sport, and standard of surveillance systems.

Any injuries may have an impact on the athlete, team, as well as the results depending on frequency, location, and severity of injury. Thus, injury prevention during the events should be one of the fundamalestal concerns, which may decrease the incidence of injuries among the athletes.

The vast majority of studies on taekwondo injuries deals with acute injuries and almost all of them are concerned with those incurred in competition.

Epidemiologic studies have reported a wide range of injuries for participants in tournamalests (M.Feehan, 1995, M. Kazemi, et al. 2005). It seems that findings in the matter of pattern and incidence of injuries in different studies vary according to the interests and popularity of martial arts among the people of the country where the study was performed and the type of data authors used in their studies. Therefore, the picture might be different in Egypt, a country with a relatively big population, where Taekwondo is supposed to be the most popular martial art.

To improve training efficiency and extending the life

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Received 22.02.2011 / Accepted 16.05.2011

of Athletes, we must understand the location of Taekwondo and the reasons of injury.

Alexandria's international open taekwondo championships is approved by World Taekwondo Federation from 10 to 15 Feb. 2010 in Mubarak Olympic Centre , the Qualification is -Holder of Kukkiwon Dan Certificate (1st Dan or Higher), Introductory letter by the National Taekwondo Association /Federation . the Competition Rules are WTF competition rules for Poomsea and Kyrogi. The Method Of Competition is Single elimination tournamalest system . the Competition Categories are Poomsea - Kyrogi and Age Categories are

Kyrogi:

- Under 12 years old (DOB: 1998-1999]
- Under 14 years old (DOB: 1996-1997)
- Under 17 years old (DOB: 1993-1994-1995)
- Seniors (Male – Female)

Poomsea: (single – pair – group)

- Juniors : (14-17) years old
- Seniors 1 : (18-30) years old
- Seniors 2 : (31-40) years old
- Masters 1: (41-50) years old.
- Masters 2: +50 years old

Although hands and feet can be used in Taekwondo competition game to repel an opponent, athletes prefer to use the kicking techniques rather than hand.

Since taekwondo competitions are currently contested in bouts of 3 rounds of 2 minutes each and since each athlete might have to be engaged in several bouts before reaching the finals, the chances of incurring an injury over the course of each tournamalest is a cause for concern for all involved.

In combat sports, injuries were reported to increase over time in karate competition.(Pieter, et al. 2010)

The purpose of the present study was to provide the frequency, characteristics, and causes of injuries incurred in the competitions during the 4th Alexandria's International Open Taekwondo Championships, Alexandria, Egypt.

Methods

321 Taekwondo player (72 female taekwondo player and 240 male Taekwondo player)From (15) countries (Egypt ,Sudan , India, Syria ,Georgia, Korea, Saudi , Iraq , Emirates , Libya , Greece , Sweden, Jordan , Bahrain , Russia) in (8 weights) were participated in The 4th Alexandrians' International Open Taekwondo Championships, which was held in Alexandria governorate in the period from 10th – 15th Feb. Egypt. The competition rules used at all competitions were those of the World Taekwondo Federation (WTF).

For the purposes of this study, an athlete was considered injured if any of the following conditions applied: 1) any circumstance that forced the Taekwondo athlete to leave the competition; 2) any circumstance for which the referee or athlete had to stop competition; 3) any circumstance for which the athlete requested medical attention. In other words, the definition included so-called time-loss injuries (stoppage of a bout) as used in the NCAA Injury Surveillance System. (Colorado Medical Society.1991)

Injury rates were calculated from matches fought using the basic rate formula: (# injuries / # athlete-exposures) × 1,000 = # injuries per 1,000 athlete-exposures (A-E). The Colorado concussion classification was utilized in managemalest of the concussions. According to this classification, a first degree concussion is identified by confusion, no loss of memory and no loss of consciousness (LOC). A second degree involves confusion, loss of memory but no LOC and the third degree is when there is LOC.

The definition of concussion used in the present study is "a traumatically induced physiological disruption of brain function with a short period of altered or loss of consciousness" (The Mild Traumatic Brain Injury Committee of the Head Injury Interdisciplinary Special Interest Group of the American Congress of Rehabilitation Medicine, 1993). The case definition of potential concussion includes any athlete who has had a direct blow (blunt trauma by a kick) to the head/face region which may induce physiological disruption of brain function. They must have experienced at least one of the following: any period of loss of consciousness (30 minutes or less); any loss of memory for events immediately before or after the injury (posttraumatic amnesia not greater than 24 hours); any alteration in malestal state at the time of the injury (e.g., feeling dazed, disoriented, or confused); focal neurological deficit(s) that may or may not be transient. When the impact caused facial/skull fractures, the case was excluded from this study.

Results.

Table 1: numbers of adult athletes in each weight

Weight	**-46 kg**	**-49 kg**	**-53 kg**	**-57 kg**	**-63 kg**	**-67 kg**	**-73 kg**	**73-kg**	**Total**
Female	8	6	13	15	15	6	5	4	**72**
Weight	**-54 kg**	**-58 kg**	**-63 kg**	**-68 kg**	**-74 kg**	**-80 kg**	**-87 kg**	**87- kg**	**Total**
Male	36	31	42	39	30	22	20	20	**240**

Is clear from Table 1 that competition in the tournamalest was in 8 weights for males and females, and that the biggest turnout for female was in -53 kg and -57 kg with an average 20.83% in each weight , and the biggest turnout for male was in -63 kg with an average 17.5% .

Table 2 :Injury severity classification

Severe injuries • Grade III concussions (involving loss of consciousness) • Fractures excluding clavicular, nasal, digital, metacarpal and metatarsal fractures; but including any fracture • involving a joint surface or requiring open reduction or internal fixation • Third degree sprains, or any joint injury likely requiring surgery or expected to result in permanent disabling sequelae • Dislocated joint requiring manipulative reduction • Damage to viscera (pneumothorax, acute abdomales, 9 • Major facial laceration with cosmetic or functional sequelae • Facial bone fracture excluding nasal fractures • Eye injury likely to cause residual visual loss (globe laceration, hyphema, retinal detachmalest…) or injuries causing damage • to lid function or lacrimal apparatus • Any injury requiring hospitalization or surgery, or expected to result in significant functional or cosmetic sequelae
Moderate injuries • Grade II concussions (involving retrograde and/or antegrade memory loss) • Clavicular, nasal, digital, metacarpal and metatarsal fractures, but not involving a joint surface or requiring open reduction or internal fixation • Dental injury with tooth loss or requiring restorative procedures

- Corneal abrasions acutely affecting vision
- Laceration requiring stitches
- Joint dislocation that self-reduces at the ring
- Contusion, sprain or haematoma preventing use of the limb on the day of competition

Minor injuries

- Grade I concussion (the athlete is briefly stunned and confused, regaining full faculty within a few minutes)
- Contusion of solar plexus
- Epistaxis without a fracture
- All other injuries not listed above, and generally not requiring removal from the match or further medical care

Table 3: Injury rates (95%CI) in adult Taekwondo athletes.

Injury rates	Male	Female	Total
Number of athletes	240	72	321
Number of reported injuries	41	11	76
Number of athlete-exposures (AE)	480	144	624
Injury rates			
per 100 athletes	17.08	15.28	16.18
per 1,000 AE	85.42	76.39	80.91

Is clear from Table 3 that Injury rates (95%CI) per 100 athletes in males was 17.08 and females 15.28. per 1,000 AE in males was 85.42 and females 76.39.

Table 4: Distribution of injuries by body part per 1,000 athlete-exposures.

Body part	Male		Female	
	Number	Rate	Number	Rate
Head	2	4.2	3	20.83
Nose	1	2.1	-	-
Hands	10	20.83	5	34.72
Upper back	2	4.2	-	-
Low back	1	2.1	-	-
Hamstrings	-	-	2	13.9
Leg	4	8.33	-	-
Ankle	8	16.7	-	-
Foot	9	18.8	1	6.94
Toes	3	6.3	-	-
Total	41	85.42	11	76.39

Is clear from Table 4 that distribution of injuries by body part per 1,000 athlete-exposures in males was Hands (20.83) , Foot (18.8) , Ankle (16.7) , Leg (8.33) , Toes (6.3) , Head and Upper back (4.2) , Nose and Low back (2.1) , followed by no injuries in Hamstrings , and distribution of injuries by body part per 1,000 athlete-exposures in females was Hands (34.72), Head(20.83), Hamstrings(13.9) , Foot (6.94) followed by no injuries in Nose, Upper back, Low back, Leg, Ankle and Toes.

Table 5: Distribution of injuries by Nature of Injury per 1,000 athlete-exposures.

Nature of Injury	Male		Female	
	Number	Rate	Number	Rate
Fracture	2	4.2	3	20.83
Sprain/Strain	35	72.92	7	48.61
Open Wound	4	8.33	1	6.94
Total	41	85.42	11	76.39

Is clear from Table 5 that distribution of injuries by Nature of Injury per 1,000 athlete-exposures in males was Sprain/Strain (72.92), Open Wound (8.33) and Fracture (4.2) , and the distribution of injuries by Nature of Injury per 1,000 athlete-exposures in females was Sprain/Strain (48.61), Fracture (20.83) and Open Wound (6.94).

Table 6: Distribution of injuries by Severity of Injury per 1,000 athlete-exposures.

Severity of Injury	Male		Female	
	Number	Rate	Number	Rate
Severe	5	10.42	2	13.9
Mild	6	12.50	4	27.78
Minor	30	62.50	5	34.72
Total	41	85.42	11	76.39

Is clear from Table 6 that distribution of injuries by Severity of Injury per 1,000 athlete-exposures in males was Minor (62.50), Mild (12.50) followed by Severe (10.42) , and the distribution of injuries by Severity of Injury per 1,000 athlete-exposures in females was Minor (34.72), Mild (27.78) followed by Severe (13.9).

Table 7: Distribution of injuries by Cause/Mechanism of Injury per 1,000 athlete-exposures.

Cause/Mechanism of Injury	Male		Female	
	Number	Rate	Number	Rate
Fall/Throw/Jump	15	31.25	3	20.83
Foot Strike/Kick	11	22.92	2	13.89
Hand Strike/Punch	9	18.8	1	6.94
Block	6	12.5	5	34.72
Total	41	85.42	11	76.39

Is clear from Table 7 that distribution of injuries by Cause/Mechanism of Injury per 1,000 athlete-exposures in males was Fall/Throw/Jump (31.25), Foot Strike/Kick (22.92), Hand Strike/Punch (18.8), followed by Block (12.5). and the distribution of injuries by Cause/Mechanism of Injury

per 1,000 athlete-exposures in females was Block (34.72), Fall/Throw/Jump (20.83), Foot Strike/Kick (13.89), followed by Hand Strike/Punch (6.94).

Table 8: Distribution of head blows and concussions by the kicking techniques

Techniques	Frequency of head blow without concussion (%)		Frequency of concussion (%)	
	Male	Female	Male	Female
Roundhouse kick	10	3	8	3
Axe kick	9	1	3	1
Spinning kick	4	2	2	0
Back kick	2	0	1	1
other	1	0	1	0

Is clear from Table 8 that Frequency of head blow without concussion (%) in male was Roundhouse kick (10%), Axe kick (9%) , Spinning kick (4%), Back kick (2%) and other (1%) , and the Frequency of head blow without concussion (%) in female was Roundhouse kick (3%), Spinning kick (2%), Axe kick (1%) . the Frequency of concussion (%)in male was Roundhouse kick (8%), Axe kick (3%) , Spinning kick (2%), Back kick (1%) and other (1%), and the Frequency of concussion (%)in female was Roundhouse kick (3%), Axe kick (1%) , Back kick (1%) .

Discussion and conclusion

Injury rates

Based on the results of this study the Injury rates (95%CI) per 100 athletes in male was 17.08 and female was 15.28. adding to per 1,000 AE in male was 85.42 and female was 76.39. there is no difference between gender in injury rates.

T.Braun (1999) covered full-contact taekwondo at a World Cup and one German national championship. The national tournament also included junior participants.

Collapsed over gender, the athletes at the World Cup sustained 95.52 injuries per 1,000 athlete-exposures (A-E). Most injuries were contusions: 74.63/1,000 A-E.

One athlete-exposure refers to one individual competing in a bout where he/she is exposed to the possibility of being injured.

Injury rates collapsed over gender were also reported by (Phillips et al. 2001): 86.59/1,000 A-E for African taekwondo-in . Sprains/strains were the most often occurring injury type (47.49/1,000 A-E), followed by contusions (27.93/1,000A-E). The lower extremities were the most often injured body region (61.3% of total), followed by the upper extremities (32.3%).

Injuries by body part

Based on the results of this study the injuries by body part per 1,000 athlete-exposures in males was Hands (20.83) , Foot (18.8) , Ankle (16.7) , Leg (8.33) , Toes (6.3) , Head and Upper back (4.2) , Nose and Low back (2.1) , followed by no injuries in Hamstrings , and distribution of injuries by body part per 1,000 athlete-exposures in female was Hands (34.72), Head(20.83), Hamstrings(13.9) , Foot (6.94) followed by no injuries in Nose, Upper back, Low back, Leg, Ankle and Toes.

Because Punches and/or blocks in Taekwondo can lead to finger, knuckle, hand and wrist injuries.

Past studies have reported several types of injuries to the hand and face: contusion, laceration, facial fracture, dislocation and concussion. Among these injuries, there is a growing concern with respect to concussions due to its potentially detrimalestal effects. However, the back and sidekicks can generate large chest compressions and thus may have more potential for skeletal injury when contact is made with the body of the opponent. In particular, blows to the head region occur commonly in Taekwondo competitions since the face is a major scoring region (W.Pieter & R. Lufting,1994; W.Pieter & ED.Zemper,1998;W.Pieter & ED. JE. Zemper,1999; P. Siana, H. Borum & Kryger ,1986). Thus, it's necessary for prudent rule changes in competition to be considered and for athletes to train and understand how to prevent possible head injuries due to a direct blow to the head.

Nature of Injury

Based on the results of this study Nature of Injury per 1,000 athlete-exposures in males was Sprain/Strain (72.92), Open Wound (8.33) and Fracture (4.2) , and the distribution of injuries by Nature of Injury per 1,000 athlete-exposures in female was Sprain/Strain (48.61), Fracture (20.83) and Open Wound (6.94).

Sprain is an injury on internal organs without any damage to the skin by the impact of a strong external force. Muscular sprain entails the destruction of capillary vessel and hemorrage, producing a bruise and a swell. Sometimes, it accompanies a strong fever around the infected part

Strain is meant by the state of muscle tissue which is partially cut off or split due to excessive extension of muscle, fascia, ligament, tendon, etc. It is usually caused by the impact of external force when a maximum exertion of force is attempted without sufficient warming up. Sometimes symptoms of adiabatic muscle or adiabatic tendon are brought about. In a state of strain, the destruction of capillary vessel produces hematoma which gives much pain and disables the motional function.

Strain-infected muscle or tendon is more likely, if cured one, to relapse, which discourages a player to exert his maximum physical ability.

Ankle sprains are the most common sports injury. (T.E.J.R.Lassiter, et al.1989; D.MacAuley D. 1999). It is projected that one ankle sprain occurs for every 10,000 people per day. (TEJ.R. Lassiter, et al.1989; ED. Zeegers,1995; SC. Brooks, et al. 1981). The ankle is defined as the region of transition from the leg to the foot and contains the ankle joint. (MJ.Boytim , et al. 1991) The ankle region includes three articulations: the inferior tibiofibular joint, the talocrural joint and the subtalar joint. (N.Lauge-Hansen N. 1950)

Full-contact taekwondo was also part of a study on injuries at a multi-sport tournament (Cunningham C & Cunningham S. 1996) . Although no injury rates by gender were provided, the results indicated that 66.3% of all those who participated in taekwondo incurred an injury. The most often occurring injuries were contusions (56% of total injuries) and sprains (26%).

Some studies were conducted on full-contact taekwondo injuries without reporting injury rates by gender. For instance, reported that of approximately 700 adult competitors, 41 presented to the first aid station at a national tournament in the USA incurring a total of 52 injuries. Most injuries were sustained to the head and neck (49% of total) followed by the lower (23%) and upper extremities (21%).

Severity of Injury

Severity of Injury per 1,000 athlete-exposures in males was Minor (62.50), Mild (12.50) followed by Severe (10.42) , and the distribution of injuries by Severity of Injury

per 1,000 athlete-exposures in female was Minor (34.72), Mild (27.78) followed by Severe (13.9).

It is hypothesized that injuries would increase with age in taekwondo as the athletes are expected to increase in body weight and strength (W. Pieter W& ED. Zemper ED.1997). However, this assumption was not analyzed for statistical significance. Later prospective studies showed either no statistically different ($p \geq 0.05$) . or a lower injury rate with age ($p \leq 0.001$) (Pieter W& Kazemi M. 2002) but also a higher one ($p \leq 0.001$) . Middle school taekwondo athletes were more likely to incur a cerebral concussion in competition compared to high school counterparts (OR =1.89) [35].

Cause/Mechanism of Injury

Cause/Mechanism of Injury per 1,000 athlete-exposures in males was Fall/Throw/Jump (31.25), Foot Strike/Kick (22.92), Hand Strike/Punch (18.8), followed by Block (12.5). and the distribution of injuries by Cause/Mechanism of Injury per 1,000 athlete-exposures in males was Block (34.72), Fall/Throw/Jump (20.83), Foot Strike/Kick (13.89), followed by Hand Strike/Punch (6.94).

This usually happens in high-jumping. However, it occurs in Taekwondo too, when at the moment of delivering a jumping kick, a sudden turning of the body with a leg opened apart gives an excessive impact on the muscle connecting the pelvis and the thighbone. In this case, the injury occurs deep inside the muscle so that any adhesive plaster is not effective. Only a deep heat treatment is applicable and a complete cure takes several weeks.

Head blows and conclussions

There is an inherent risk of injury for practitioners of taekwondo, as with any contact sport. In a recent meta-analysis of injuries among taekwondo participants in 15 tournaments, (Lystad, et al. 2009) reported an overall mean injury rate of 79.3 per 1000, or 8%. Head trauma is one of the most common injuries in both males and females receiving a blow during taekwondo matches. However, most head injuries and cerebral concussions are mild; serious head injuries are considered rare events under modern taekwondo rules. Te frequency of head injuries has declined since introduction of a rule requiring participants to wear protective helmets during fights.

It has been noted that Senior taekwondo athletes can generate velocities of 13-16 m/s during the roundhouse kick, a circular kick most frequently used in competition. The Junior girls who participated in the First Junior Taekwondo World Championships recorded a mean velocity of 12 m/s (range: 9-14.5 m/s) for the roundhouse kick, and the boys 14.7 m/s (range: 12-19.6 m/s). It was estimated that a punch velocity of 8 m/s would result in a peak acceleration of the head of about 200 g, assuming there is no deflection during the punch. Head accelerations of 80 g are hypothesized to cause concussion in adults (P.K., Smith, & Hamill, J., 1986). It is readily apparent that the velocities generated by even the Junior taekwondo athletes during kicking are more than sufficient to result in cerebral concussion in adults.

In 2001, (K.Beis, et al.) reported taekwondo injuries in relation to time of competition, while (V.Ziaee et al.2010) suggested that most injuries were sustained in the third round of a match.

Fatigue is suggested to be at the basis of this finding (R. Tuominen,1995)

ED.Zemper and W.Pieter (1994) reported that the rate of concussion for Taekwondo is 3 times higher than in college football games, based on number of exposures, and nearly 8 times as high based on time of exposure. In addition, the frequency of concussions seems to have increased since mandatory usage of headgear became required in competition Taekwondo (i.e., since 1985). Cases of concussion reported during World.

Future research should consider taking into account the time of injury occurrence, which in turn may lead to improved preventive measures, such as better conditioning of the athletes (HH.Wang, et al.2005) or changing competition tactics.

References

BEIS, K., PIETER, W., ABATZIDES, G., 2001.*Match characteristics and taekwondo injuries.* In: Jürimäe T, Jürimäe J (eds). Proceedings of the 7th International Scientific Conference of the International Association of Sport Kinetics. Acta Kinesiologiae Universitatis Tartuensis.; Pp:77-80.

BOYTIM, MJ, FISCHER ,DA., NEUMANN, L., 1991. *Syndesmotic ankle sprains*. Am J Sports Med; 19:294–8.

BRAUN, T . ,1999. *Verletzungen bei hochklassigen Taekwondo-Turnieren – eine Standortbestimmung* . Deut Zeit Sportmed ; 50 (7 + 8): 239 – 242 .

BROOKS, SC., POTTER, BT., RAINEY, JB. 1981.*Treatment for partial tears of the lateral ligament of the ankle: a prospective trial.* Br Med J (Clin Res Ed) ;282:606–7.

COLORADO MEDICAL SOCIETY. REPORT OF THE SPORTS MEDICINE COMMITTEE, 1991. *Guidelines for the Managemalest of Concussion in Sports* (revised) Denver, Colorado Medical Society.

FEEHAN, M., WALLER, AE. 1995. *Pre-competition injury and subsequent tournamalest performance in full-contact taekwondo.* Br J Sports Med. 29:258-62.

GEHAN, E., 2002. *Common injuries among female taekwondo players,* educational researches journal. Zagazig university , (1) 32-49

KAZEMI, M., SHEARER H., CHOUNG YS., 2005. *Pre-competition habits and injuries in Taekwondo athletes.* BMC Musculoskeletal Disord.;6.

KELLY, JP, ROSENBERG, JH., 1998. *The developments of guidelines for the managements of concussion in sports*. J Head Trauma Rehab, 13(2):53-65.

LASSITER, TE JR, MALONE TR, GARRETT, WE. JR., 1989. *Injury to the lateral ligaments of the ankle.* Orthop Clin North Am ;20:629–40.

LAUGE-HANSEN, N. 1950. *Fractures of the ankle, II: combined experimental surgical and experimental roentgenologic investigation.* Arch Surg;60:957–85

LINDENFELD, TN, SCHMITT DJ, HENDY MP, MANGINE RE, NOYES, F.,1994. *Incidence of injury in indoor soccer.* Am J Sports Med,22(3):364-371.

MACAULEY, D., 1999. *Ankle injuries: same joint, different sports*. Med Sci Sports Exerc ;31:409–11.

MCKEAG, DB., HOUGH DO, ZEMPER ED,, 1993. *Primary Care Sports Medicine*. Dubuque, IA: Brown & Benchmark:63-73.

MOHSEN, KAZEMI AND WILLY PIETER, 2004. *Injuries at a Canadian National Taekwondo Championships: a prospective study,* BMC Musculoskeletal Disorders, 5:22

PHILLIPS, JS , FRANTZ JM , AMOSUN SL , WEITZ W ,2001. *Injury surveillance in taekwondo and judo during physiotherapy coverage of the Seventh All Africa Games* . S A J Physiotherapy. 57 (1) : 32 – 34.

PIETER, W., & LUFTING, R., 1994. *Injuries at the 1991 Tae-kwon-do World Championships.* Journal Sports Trauma Real Research ,16,49-57.

PIETER, W., & ZEMPER ,E.D.(1998). *Incidence of reported cerebral concussion in adult Taekwondo athletes.* J Roy Soc Health ,118,272-279.

PIETER, W., ROSTAMI, M. AND ZIAEE V.,2010. *Injury Rates in Iranian Taekwondo Athletes; a Prospective Study, Asian Journal of Sports Medicine,* Volume 1 (Number 2), June, Pages: 117-121

PIETER, W., ZEMPER ,E.D., 1999. *Head and neck injuries in young Tae-kwon-do athletes.* J Sports Med Phys Fitness,39,147-53.

SERINAL, E. R. & LIEU, D. K. 1991. *Thoracic injury potential of basic competition Taekwondo kicks*. Journal of Biomechanics, 24, 951-960.
SIANA, J.E., BORUM, P., & KRYGER, H,1986. *Injuries in Tae-kwon-do.* British Journal of Sports Medicine,20,165-6.
**TUOMINEN R. (1995*).Injuries in national karate competitions in Finland.* Scand J Med Sci Sports.;5:44-8.
WANG HH, LIU C, CHU MY ET AL. 2005. *Effects of passive repeated plyometric training on specific kicking performance of elite Olympic taekwondo player (sic),* ISB XXth Congress - ASB 29th Annual Meeting. Cleveland, USA, July 31 - August 5.
ZEEGERS AV CM., 1995. *Supination injury of the ankle*. Thesis, University Utrecht.
ZEMPER, E. D. & PIETER, W., 1994. *Cerebral concussions in Taekwondo athletes. In: Hoerner, E. F. (Ed). Head and Neck Injuries in Sports (pp. 116-123).* Philadelphia: American Society for Testing and Materials.
ZIAEE V, RAHMANI SH, ROSTAMI M., 2010, *Injury rates in Iranian taekwondo athletes; a prospective study.* Asian J Sports Med.1:23-28.

THE RELATION BETWEEN THE KINEMATIC PARAMTRES OF RUNNING AT MAXIMUM SPEED AND THE 50 METRES RUNNING RESULTS

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Abstract
The aim of this research is to determine the relation between the kinematic parameters of running at maximum speed and the 50 metres running results for children of a younger school age, as well as between girls and boys.The obtained results indicates that the length of the step is the parameter which has the key role in 50 metre running. In the analysis of differences it has been determined that boys achieve a better time in 50 metre running, have a shorter duration of the contact between the foot and the ground and a shorter flying phase.
Key words: sprinter's running, kinematic parameters, maximal speed, children.

Introduction

Sprinting is a cyclic motor activity which consists of repetitive running steps, and it is determined by acceleration, achieving the maximum speed and by the capability of keeping the maximum speed on the track as long as possible. Metabolic and anthropometric components have a powerful impact on these factors. The horizontal speed of the sprinter's step is a product of the length and frequency of the step. From the biomechanical point of view of the sprinter's step, the components which determine the running speed are the frequency of the step, the length of the step, the time of the contact of the ground and the foot and the flight phase (P. Bellotti, 1991; G.P. Bruggemann, B. Glad, 1990; J. Hay, 1994; M.J. Harland, J.R. Steele, 1997; B. Gajer et al., 1999; A. Ferro et al., 2001; J. Hunter et al., 2004; V. Babić, 2005, 2007 and 2008; A. Ito, 2006). In previous researches about the relation between the length and the frequency of the step, papers can be found in which the opinion has been represented that the frequency of the step and its appertaining aspects can be suggested as limiting factors for speed. On the other hand, some researchers suggest that more importance should be given to increasing the length of the step. Other researchers support the need for increasing both the length and the frequency of the step. Despite different statements, the possibility of a negative interaction between the length and the frequency of the step should be seen through the sprinter's training process with the aim of increasing the length of the step, the frequency of the step or both (J. Hunter, R.N. Marshall, P. McNair, 2004). According to the previous accessible researches in which the phase of the running speed has been examined, it can be determined that the frequency of the step increases with the increase in running speed, while the length of the contact between the foot and the ground decreases with the increase in running speed (M. Čoh et al.,, 2001; M. Čoh, K. Tomažin, 2008; V. Babić, M. Čoh, D. Dizdar, 2008; I.N. Bezodis, D.G. Kerwin, A.I.T. Salo, 2008; G.P. Paradisis et al., 2009). Placing the foot on the ground should be as close as possible to the vertical projection of the centre of the body. Sprinters who achieve a better time in 100 metre running have a shorter length of contact between the foot and the ground in the phase of the start acceleration and the maximum running speed and a longer length of the step in the phase of maximum speed.Previous researches of the sprinter's running for children and the young in the phase of maximum running speed (U. Praprotnik, M. Čoh, 2001; R. Pišot, B. Šimunić, 2006; M. Bračić, M. Čoh, K. Tomažin, 2009; V. Babić, I. Blažević, J. Vlašić, 2010) have determined that the maximum running speed increases with the age of the examinees and that boys and girls differ in biomechanical parameters of running when age is taken into account. Boys and girls of a younger school age show a statistically significant difference in the frequency and length of the step while running at maximum speed. Boys achieve a higher frequency of steps, while girls make longer steps. The main

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Received 27.03.2011 / Accepted 05.05.2011

aim of this research is to determine the relations between the kinematic parameters of running at maximum speed (the frequency of steps, the length of steps, the duration of the contact and the flight) and the results in 50 metre running for children of a younger school age, as well as the differences between boys and girls in the analyzed parameters.

Research methods and procedures

Sample of examinees

The sample of examinees is made of 150 male and female pupils from the first and second form of a primary school in Pula (70 male and 80 female pupils). The average male pupils' age is 8.12±0.63, their height is 133.56±7.66 centimetres, and their body mass is 31.42±8.05 kilogrammes. The average female pupils' age is 8.08±0.61, their height is 132.05±6.44 centimetres, and their body mass is 29.91±7.25 kilogrammes.

Sample of variables

The sample of variables is made of variables used for determining the kinematic parameters of the sprinter's running in the phase of the maximum speed (the frequency of steps, the length of steps, the duration of the contact and the flight) and the 50 metre running time (KT50).

Methods of data processing

Kinematic parameters of the sprinter's running in the phase of maximum speed in the segment from the 15th to the 35th metre on a 50 metre section and the running time on a 50 metre section have been collected for the needs of this research. The kinematic parameters of the sprinter's running in the phase of maximum speed have been collected by applying the Opto jump technology which was set on the segment between the 15th and the 35th metre, on a length of 20 metres. The computer programme Sprint comes along with the Opto jump technology. It makes notes about the speed and the running time, the length of the contact and of each step's flight and it works out the average running speed, the average frequency of the step and the length of the steps. The 50 metre running time has been measured by the system for electronic measuring and the supporting computer programme Brz.For further data processing the multiple regression analysis and the univariate analysis of the variance have been used.

Results

Table 1. The results of the regression analysis in the area of sprinter's running kinematic parameters for boys

R= 0,94; R^2=0,88; F(4,64)=115,96 p<0,000; SEE=0,28						
KT50	**β**	**β_e**	**B**	**B_e**	**t (64)**	**p**
Intercept			15,34	9,58	1,60	0,11
LENGTH OF CONTACT	0,48	0,38	24,01	18,80	1,28	0,21
LENGTH OF FLIGHT	0,43	0,30	26,16	18,35	1,43	0,16
FREQUENCY OF STEPS	-0,23	0,38	-0,71	1,20	-0,59	0,56
LENGTH OF STEPS	**-0,84**	**0,06**	**-0,06**	**0,00**	**-15,21**	**0,00**

Table 2. The results of the regression analysis in the area of sprinter's running kinematic parameters for girls

R= 0,94; R^2=0,89; F(4,72)=156,05 p<0,000; SEE=0,30						
KT50	**β**	**β_e**	**B**	**B_e**	**t (72)**	**p**
Intercept			19,18	6,76	2,84	**0,01**
LENGTH OF CONTACT	0,31	0,23	16,52	12,29	1,34	0,18
LENGTH OF FLIGHT	0,26	0,20	16,25	12,62	1,29	0,20
FREQUENCY OF STEPS	-0,32	0,28	-1,02	0,90	-1,14	0,26
LENGTH OF STEPS	**-0,78**	**0,05**	**-0,07**	**0,00**	**-15,58**	**0,00**

Table 3. Differences in anthropometric characteristics between girls and boys

VARIABLE	**MEAN BOYS**	**MEAN GIRLS**	**SD BOYS**	**SD GIRLS**	**SS**	**MS**	**df**	**F**	**p**
KT50	**10,09**	**10,58**	**0,80**	**0,92**	**8,76**	**8,76**	**1**	**11,60**	**0,00**
LENGTH OF CONTACT	**0,15**	**0,16**	**0,01**	**0,01**	**0,00**	**0,00**	**1**	**7,85**	**0,01**
LENGTH OF FLIGHT	**0,09**	**0,11**	**0,01**	**0,01**	**0,01**	**0,01**	**1**	**29,06**	**0,00**
FREQUENCY OF STEPS	**3,99**	**3,69**	**0,25**	**0,28**	**3,15**	**3,15**	**1**	**42,23**	**0,00**

LENGTH OF STEPS	135,29	138,27	10,46	10,68	325,79	325,79	1	2,91	0,09

Chart 1. The graphic representation of the running speed for girls and boys

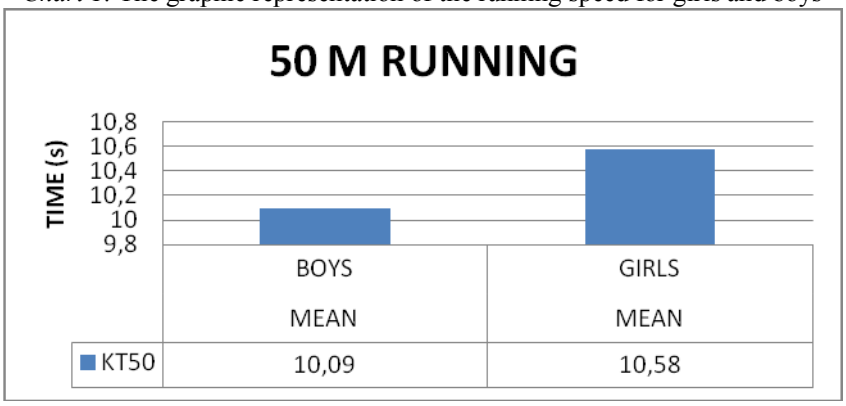
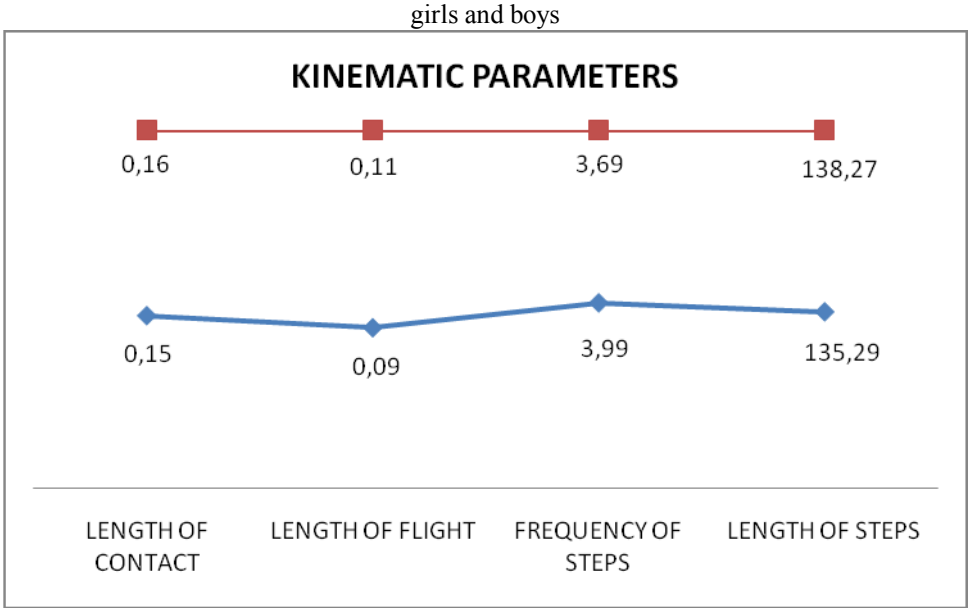


Chart 2. The graphic representation of the length of contact, length of flight, frequency of steps and length of steps for girls and boys



Discussion

The results obtained for the variable 50 metre running time (KT50) show that the average value for boys is 10.09 seconds and for girls 10.58 seconds.The relation between results of the 50 metres running and the kinematic parameters of the sprinter's running in the phase of maximum speed for both girls and boys of a younger school age has been determined by the standard procedure of the multiple regression analysis. It has been determined that the multiple correlation (R=0.94) is statistically significant for boys (*Table 1.)*. It is possible to explain 88 percent of the variance by the applied group of the sprinter's running kinematic parameters. In the group of four variables of the predictive group, only the variable *length of steps* has a statistically negative influence on the criteria variable. Since running time is an inversely scaled variable, boys who achieve a better 50 metre running time have averagely a higher length of steps in 50 metre running. It has been determined that the multiple correlation (R=0.94) is statistically significant for girls (*Table 2.*). It is possible to explain 89 percent of the variance by the applied group of the sprinter's running kinematic parameters. Of all the variables of the predictive group only the variable *length of steps* has a statistically negative influence on the criteria variable. This means that girls who achieve a better 50 metre running time have averagely, as boys, a higher length of steps. U. Praprotnik and M. Čoh (2001) have found out that the increase in the maximum running speed with children is primarily linked to the increase in the length of steps. M. Bračić, M. Čoh and K. Tomažin (2007 and 2009) have determined that the length of the leg and the frequency of steps directly influence the running speed so the variable *frequency of steps* has been expected to gain better predictive values. However, the high values of the regressive coefficients for both sexes have not been confirmed. It can thus be concluded that the

length of steps is the parameter which has the key role in 50 metre running for girls and boys of a younger school age. To determine the differences between boys and girls of a younger school age the univariate analysis of the variance has been used. The obtained results indicate that boys and girls show a statistically significant difference in variables *50 metre running time (KT50), length of contact, length of flight* and *frequency of steps.*

Boys achieve higher values for the variable 50 metre running time (KT50), they have a shorter contact of the foot with the ground, a shorter duration of the flight phase and a higher frequency of steps. The obtained results confirm former knowledge according to which boys achieve better results in their sprinter's running kinematic parameters (U. Praprotnik, M. Čoh, 2001; R. Pišot, B. Šimunić, 2006; M. Bračić, K. Tomažin, M. Čoh, 2009). The duration of the contact is longer for girls for 6.6 percent compared to boys, while the length of flight is longer for 10 percent. On average, girls have a 7.2 percent lower frequency of steps when compared to boys. The length of steps is a variable for which there are not statistically significant differences between boys and girls although girls achieve averagely higher values. As this research, M. Bračić, K. Tomažin and M. Čoh (2009) have determined that boys of a younger school age have a higher frequency of steps, while girls achieve longer steps. R. Pišot and B. Šimunić (2006) claim that boys achieve shorter steps, shorter duration of the flight phase and higher frequency of steps than girls, which is in line with the results of this research. According to the result of accessible researches and this research's results, it can be concluded that boys of a younger school age have in their maximum running a higher frequency of steps, a shorter duration of the flight phase and the contact, while the girls have longer steps.The reasons of such relations between boys and girls at this age can be traced down to the way they play or actively spend their free time. It is possible that games are more active with boys of this age, which can be surely seen on their muscle system. The morphology of the boys' muscle system is of higher quality and intramuscular coordination, which is very important for a seemingly simple motor movement like sprinter's running.

Conclusion

The results obtained in this research show that the variable *length of steps* has a statistically significant negative impact on the 50 metre running time for girls and boys of younger school age. Since running time is an inversely scaled variable, it means that boys and girls who achieve a better 50 metre running time have, on average, longer steps in 50 metre running. It can be concluded, based on the obtained results, that *length of steps* is a parameter which has the key role in 50 metre running with girls and boys of younger school age.

The analysis between boys and girls determined that boys achieve a better time in 50 metre running and a higher frequency of steps, have a shorter duration of the contact of the foot with the ground and a shorter duration of the flight phase, which confirms the knowledge obtained in previous researches about the relations of kinematic parameters on sprinter's running time and speed.

References

BABIĆ, V., 2005. *Utjecaj motoričkih sposobnosti i morfoloških obilježja na sprintersko trčanje*. (Doktorska disertacija, Sveučilište u Zagrebu). Zagreb: Kineziološki fakultet Sveučilišta u Zagrebu.

BABIĆ, V., HARASIN, D., DIZDAR, D. 2007. *Relations of the variables of power and morphological characteristics to the kinematic indicators of maximal running speed.* Kinesiology, 39 (1), 28-39.

BABIĆ, V., ČOH, M., DIZDAR, D. 2008. *Qualitative differences in the kinematic parameters of different quality sprinters*. In M. Čoh (Ed.), Biomechanical diagnostic methods in athletic training, Ljubljana, 2008, (pp. 147-157). Ljubljana: Faculty of Sport, University of Ljubljana.

BABIĆ, V., BLAŽEVIĆ, I., VLAŠIĆ, J. 2010. *Karakteristike sprinterskog trčanja djece predškolske i mlađe školske dobi.* Hrvatski športskomedicinski vjesnik. 25 (2010), 1; 3-8.

BELOTTI, P. 1991. *A few aspects of the theory and practice of speed development.* New Studies in Athletics, 6 (1), 21-25.

BEZODIS, I.N., KERWIN, D.G., SALO, A.I.T. 2008. *Lower-Limb Mechanics during the Support Phase of Maximum-Velocity Sprint Running.* Medicine and Science in Sports and Exercise, 40 (4), 707-715.

BEZODIS, I.N., KERWIN, D.G., SALO, A.I.T. 2008. Lower-Limb Mechanics during the Support Phase of Maximum-Velocity Sprint Running. *Medicine and Science in Sports and Exercise*, 40 (4), 707-715.

BRAČIĆ, M., TOMAŽIN, K., ČOH, M. 2009. *Dejavniki razvoja maksimalne hitrosti pri mladih atletih in atletinjah starih od 7 do 14 let.* U M. Čoh (Ur.), Sodobni diagnostični postopki v treningu atletov, Ljubljana, 2009, (str. 155-163). Ljubljana: Fakulteta za šport, Inštitut za kineziologijo.

BRÜGGEMANN, G.P., GLAD, B. 1990. *Biomechanical analyses of the jumping events: Time analysis of the sprint and hurdle events.* In IAAF Scientific research project at the games of the XXIVth Olympiad - Seoul 1988: Final report. Monaco: IAAF.

BRÜGGEMANN, G.P., GLAD, B., 1990, *Biomechanical analyses of the jumping events: Time analysis of the sprint and hurdle events.* In IAAF Scientific research project at

the games of the XXIVth Olympiad - Seoul 1988: Final report. Monaco: IAAF.

ČOH, M., MILANOVIĆ, D., KAMPMILLER, T. 2001. *Morphological and kinematic characteristics of elite sprinters.* Collegium Antropologicum, 25, 605-610.

ČOH, M., TOMAŽIN, K. 2008, *Biodynamic characteristics of female sprinters during the acceleration phase and maximum speed phase.* In M. Čoh (Ed.), Biomechanical diagnostic methods in atletic training, Ljubljana, 2008, (pp. 125-133).

FERRO, A., RIVERA, A., PAGOLA, I., FERRERUELA, M., MARTIN, A., ROCANDIO V. 2001, *Biomechanical analysis of the 7th World Championships in Athletics Seville 1999.* New Studies in Athletics, 16 (1-2), 25-60.

GAJER, B., THEPAUT-MATHIEU, C., LEHENAFF, D. 1999. *Evolution of stride and amplitude during course of the 100 m event in athletics.* New Studies in Athletics, 14 (1), 43-50.

HARLAND, M.J., STEELE, J.R. 1997. *Biomechanics of the sprint start.* Sports Medicine, 23 (1), 11-20.

HAY, J. (1994). *The Biomechanics of Sports Technique*, 4th Edition. London: Prentice Hall International.

HUNTER, J., MARSHALL, R.N., MCNAIR, P. 2004. *Interaction of step lenght and step rate during sprint running.* Medicine & Science in Sports & Exercise, 36 (2), 261-271.

ITO, A., ISHIKAWA, M., ISOLEHTO, J., KOMI, P.V. 2006, *Changes in the step width, step length, and step frequency of the world's top sprinters during the 100 metres.* New Studies in Athletics, 21 (3), 35-39.

PARADISIS, G.P., BISSAS, A., COOKE, C.B. 2009, *Combined uphill and downhill sprint running training is more efficacious than horizontal.* International Journal of Sports Physiology and Performance, 4 (2), 229-243.

PIŠOT, R., ŠIMUNIČ, B. 2006, *Vloga biomehanskih lastnosti skeletnih mišic v gibalnem razvoju otrok.* Koper: Univerza na Primorskem, Znanstveno-raziskovalno središče Koper, Inštitut za kineziološke raziskave.

PRAPROTNIK, U., ČOH, M., 2001, *Razlike v šprinterskem teku mladih atletov, starih od 10 do 15 let.* U M. Čoh (ur.), Biomehanika atletike (str. 52-58). Ljubljana: Fakulteta za šport.

❖ PHYSICAL EDUCATION AND SPORT

FEEDBACK AND FORWARD IN LEARNING PEDAGOGY

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Abstract

Experience has shown that learning pedagogy is not such an easy task for the students of Physical Education and Sports specialization who opted for teacher training.

Research objectives:

1. identifying typical mistakes in solving assessment tasks;
2. presenting/analysing assessment results from the perspective of typical mistakes;
3. formulating interactive ways of overcoming the identified typical mistakes.

Research content: The study proposes a quantitative and qualitative analysis of the typical mistakes found in learning pedagogy on the occasion of a summative assessment process. The evaluation sample has been applied to a number of 41 students in the second year of didactic training.

Conclusions: We intend, on the basis of the identified typical errors, to illustrate, by means of the "mirror" procedure, interactive ways of overcoming them, the more so as their initial didactic training will continue with specialty and practical training.

Key words: initial didactic training, typical mistakes, assessment.

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Received 17.02.2011 / Accepted 14.04.2011

1. Argument and objectives

Every teacher knows that the results of his/her teaching activity are visible and recognized in relation to at least *two indicators* of his/her students' personal as well as professional evolution, both equally important and relevant: *the level of training* of his/her beneficiaries as well as the *learning motivation*, the interest in continuing studies and, implicitly, in maintaining a permanent educational effort.

This is precisely why the assessment process is constantly subjected to a wave of conceptual analyses and definitions, resumed and increasingly approached through the magnifier of theoretical knowledge and school practice to achieve the best possible coverage so that, step by step, the optimization of teaching – learning – assessment is simultaneously achieved.

Assessment seems, for many beginner teachers, an *easy process* (of the type of applying an evaluation test) and a *conclusion* (simple but less desired by students and often associated with overrating stress and worries) of the teaching – learning process towards which they situate themselves separately, subsequently and finally.

Although initial didactic training courses include, as a self-contained part, the theory and practice of assessment, this (due to issues, volume, number of hours, the students' age and their lack of experience in the field) is difficult to assimilate adequately and wholly and, especially, cannot compensate for the lack of an overall didactic outlook which takes time to form.

Starting from here and in the context of almost 25 years of experience in the field of training activities for the didactic career at the Faculty of Movements, Sports and Health (a practical field par excellence where both specialized training activities as well as assessments are of high practical significance), we have obviously reached such questions as: How should the evaluation tests be conceived for the subject of Pedagogy so as to take into consideration this particularity? Is the current structure of the evaluation test relevant to what these students know and can do? Do the obtained results tell us significant things concerning their level of didactic training? If yes, what exactly? If not, why not? What decisions should be made on the basis of the results obtained?

These findings and issues were the foundation of setting the following *research objectives*:

1. Establishing a set of skills as aims of the pedagogy course;
2. Achieving the didactic process and the formative assessment in the study of pedagogic subjects in terms of forming/practising the established skills;
3. Insuring the process of summative evaluation by applying a sample of evaluation built from the perspective of the established skills;
4. Analysing the results obtained in terms of the level of acquiring the established skills;
5. Identifying typical mistakes and setting up some interactive ways of overcoming them.

To that effect, as a first step, we have proceeded to the identification and analysis of present specialized bibliographical references on the topic of assessment, particularly its forms and functions. Secondly, we have proceeded to the punctual analysis of the results of the evaluation test (applied during the winter session, February 2010, to a group of 41 students from the Faculty of Movements, Sports and Health) approaching the established skills with a view to identifying typical mistakes and establishing some interactive ways of overcoming them.

We suggest, as a basic meaning of the term, the one provided by Palomba and Banta (1999). According to the mentioned authors, "assessment is the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development." And also in agreement with them, we shall claim, in the spirit of our study, that "Educators can meet their responsibility to the public, and to their students, through assessment. The ultimate goal of assessment is continual improvement of student learning".

Numerous professional sites have been posting documents during the last 5 years where both the forms and functions of assessment are analysed and highlighted (C. Worsnop, 2010; D. Huinker, and J. Freckmann, 2009; M. Heritage, 2009; M.K. Burns, 2008; D.G. Wren, 2008; Z.M., Baroudi, 2007; D.J., Nicol, and D. Macfarlane-Dick, 2006; P. Shank, 2005). Based on these, we intend to address in our study a certain way of achieving summative assessment which aims at playing a formative function.

From this point of view, identifying *typical mistakes* that occur during the process of solving the evaluation test becomes a key point. We shall demonstrate that analysing them and insuring interactive and interdisciplinary ways of overcoming them (by drawing on the study of the subjects' didactics and the subjects' pedagogic practice) may be steps in the process of professional and personal development (by covering the stages of awareness, involvement, operationalization, correction, development).

2. Skills and their summative/formative assessment

We have discovered, in a number of online studies, a new aspect of pedagogic approaches: what we call, with a good aim of proceeding to accurate

conceptual delimitations, *assessment forms* (formative and summative) is analysed as representing *assessment functions* (C. Worsnop, 2010; Functions of evaluation, 2009; The Functions of Assessment, 2009; What is a Formative Assessment?, 2008). This re-orientation of the term was led by M. Scriven (1967) who coined the concepts of formative and summative assessment in the context of curriculum assessment. To suggest the best distinction between them, we may appeal to a comparison belonging to Bob Stake, (apud (Functions of evaluation, 2009) according to whom "When the cook tastes the soup, that's formative; when the guests taste the soup, that's summative." Subsequently, most of the approaches have increased the size of the function at the expense of the form of assessment.

As a support to our idea from the beginning of the study according to which assessment should highlight the students' *level of training* and should stimulate the *learning motivation*, we should also mention the distinction made by the Assessment Reform Group (1999, apud Why develop thinking and assessment for learning in the classroom, 2009) between *assessing learning* and *assessing for learning* described in the following words: "A clear distinction should be made between *assessment of learning* for the purpose of grading and reporting, which has its own well-established procedure, and *assessment for learning*, which calls for different priorities, new procedures and new commitment." In essence, assessment for learning is finding out where a learner is (A), knowing and making explicit where the learner needs to get to (B) and most importantly showing the learner *how* to get there. It is essential that the *learner* takes action in order to reach B.

A B →

This approach opens broad opportunities for highlighting the complementarity of assessment forms and for supporting the possibilities of achieving its functions in a relatively simultaneous way.

In fact, the way of analysing and approaching the evaluation test and its results will support the idea that "All assessments can be summative (i.e., have the potential to serve a summative function), but only some have the additional capability of serving formative functions." (apud What is a Formative Assessment?, 2008) Agreeing with this viewpoint, we reckon that these definitions suggest that, unlike what Bloom described, an assessment activity need not be embedded within day-to-day instructional activities and provide immediate feedback in order to serve a formative function. Instead, various types of assessments can serve formative functions if they identify and provide information that is effectively used to correct learning deficiencies (idem). On this ground, we will further use the term of *"summative/formative assessment"* and we shall demonstrate the way in which a summative assessment test can enrich itself with an additional formative quantum.

To carry out our study we have established, at the beginning of the 1st semester of the 2009 – 2010 academic year, *a set of 6 skills* that we have reckoned as fundamental and relevant to the pedagogic training of our students. The entire didactic process in terms of both course and seminar was carried out to the effect of their training. Also, the formative assessment conducted during the entire duration of the 1st semester aimed at the same skills and the mark thus obtained had a 50% share of the final mark (calculated as the arithmetic mean between the mark from the formative assessment and the mark from the exam). The summative/formative assessment from the exam session of February 2010 also focused upon the same skills. The test consisted in 6 items, with 90 points and 10 points ex officio and lasted for 2 hours.

The skills which represented our area of interest, the corresponding items as well as the percentages given within the evaluation test are the following:

1. C1: The ability to identify the truth value of pedagogic statements

I1: Determine, by circling, the truth or false value of the following statements: ;

P1: 16.67% (15 points);

2. C2: The ability to integrate notions

I2: Fill in the right side of the table with notions of a wider sphere than the given ones: ;

P2: 18.89% (17 points);

3. C3: The ability to materialize in/correlate with the didactic practice

I3: Illustrate, in the following table, the required aspects: ;

P3: 14.44% (13 points);

4. C4: Ability of abstractization/generalization

I4: Identify the pedagogic concept corresponding to the statements below for each separate case:

P4: 16.67% (15 points);

5. C5: The ability to identify mistakes and use pedagogic language in short statements

I5: Identify and underline the pedagogic mistake/mistakes in each of the following statements. Rephrase them so that they are correct: ;

P5: 22.22% (20 points);

6. C6: The ability to use pedagogic language in building a professional demonstration

I6: Analyse briefly, at your choice, one of the didactic methods you have studied (definition,

explanation, strong points, restrictions). Give three examples of integrating them in specialty lessons;

P6: 11.11% (10 points)

As one can see, it has been built on the basis of *respecting the didactic principles*, particularly four of them, the ones regarding the formative nature of assessment, insuring the connection between theory and practice, systematization and continuity, and accessibility.

3. Several aspects of forming pedagogical skills

The quantitative and qualitative analysis that we have applied to the evaluation test's results has led us towards emphasizing the following outcomes:

C1: The ability to identify the truth value of pedagogic statements

I1: Determine, by circling, the truth or false value of the following statements: ;

P1: 16.67% (15 points);

1. *509* points have been obtained out of a *maximum* total of *615* points, respectively, an average of *12.41 points* have been obtained out of a *maximum* total of *15 points* per item, meaning that the degree of achieving C1 is *82.76%;*
2. The lowest score, namely *9 points*, obtained by *2 students* (4.87%), also represents the lowest level of acquiring the ability (60%) and the highest level, 14 points, obtained by *4 students* (9.75%), highlights the highest level of acquiring it (93.33%);
3. There is no score lower than 9 points, no student got the maximum score;
4. The most numerous performances of students for this item were those which got *12 points*, a total of *13 students* (31.70%) together with those of *13 points*, a total of *12 students* (29.26%), that is, in all, 25 students have achieved 60.97%, which insures the group's overall high level of acquiring the skill (82.76%*)*;
5. The 4 students who obtained the highest score (14 points) made just one mistake each when considering the statement "Problematization is one of the most acknowledged heuristic methods" as being false;
6. And the 2 students who obtained the lowest score (9 points) have made the same mistake;
7. Analysing all the evaluation tests, we have found that this mistake was a typical one, a number of *30 students* having made the same mistake and only 11 of them having chosen the correct version, that is, obtained an average of *0.26 points* per item, the lowest of the 15;
8. *The second typical mistake* that we have identified concerns the statement "Practical tests assess the students' ability to explain certain theoretical knowledge, their practical skills and abilities" as true;
9. Only 16 students assessed the statement as false, the other *25 students* being mistaken, assessing the statement as true and obtaining an average of *0.39 points* per item;
10. What is interesting is the fact that the 2 typical mistakes that were found were made according to some reversed logic (choosing false when true should have been chosen and vive-versa);
11. In terms of their origin, whereas the first one looks rather like a *language* mistake (probably due to lack of acquiring the term heuristic), the second one seems to have been caused by *lack of attention,* by ignoring the first part of the demonstration in the statement and focusing only on the second part which could have made, by itself, the statement to be true.

C2: Ability to integrate notions

I2: Fill in the right side of the table with notions of a wider sphere than the given ones: ;

P2: 18.89% (17 points);

1. *446* points have been obtained out of a *maximum* total of *697*, namely, an average of *10.87* points has been obtained out of a maximum total of *17 points* per item, meaning that the degree of achieving C2 is *62.19%;*
2. The lowest score, namely *7 points*, obtained by *3 students* (7.31%), also represents the lowest degree of acquiring the skill (41.17%) and the highest level, 14 points, obtained by *1 student* (2.435%), highlights the highest level of acquiring it (82.35%);
3. There is no score lower than 7 points, no student has obtained the maximum score;
4. The most numerous performances of students for this item have been the ones of *13 points*, a total of *6 students* (14.63%) together with those of *11 points*, also *6 students* (14.63%), that is, 12 students have achieved 29.26%, which also insures the group's second degree of acquiring the skill (62.19%);
5. The student who got the highest score (14 points) made two mistakes, when integrating the notions of "didactic methods" and "generation 2", and by leaving an empty space at another notion (the assessment function).
6. The three students who got the lowest score (7 points) have, among their mistakes, the ones previously emphasized;
7. Analysing all the evaluation tests, we have found that the notional integration mistake for the concept of "didactic methods" is a typical error, a number of *39 students* having made this mistake and only 2 of them having integrated it correctly, that is, obtained an integration average of *0.04*, lowest of the 17;
8. *The second typical mistake* that we have identified concerns the integration of the notion of "assessment function";
9. Only 16 students have integrated the concept correctly, the other *25 students* having made the operation wrongly, obtaining an average of *0.39 points* per statement;

C3: The ability to materialize in/correlate with the didactic practice

I3: Illustrate, in the following table, the required aspects: ;

P3: 14.44% (13 points);

1. *306.5* have been obtained out of a *maximum* total of *533 points*, namely, an average of *7.47* has been

obtained out of a maximum total of *13 points* per item, meaning that the degree of achieving C3 is *57.49%;*

2. The lowest score, *4 points*, obtained by *2 students* (*4.87%*), also expresses the lowest degree of acquiring the skill (*30.76%*) and the highest score, *11.25 points*, obtained by *1 student (2.43%),* highlights the highest degree of acquiring it (86.53%);

3. There is no score lower than 4 points, no student got the maximum score;

4. The most numerous performances of students obtained for this item were the ones of *8 points*, a total of *9 students* (*21.95%*);

5. The student who got the highest score (11.25 points) has made one mistake (in illustrating the notion of "forms of planning") and partially exemplified a concept once (2 links of a specialty lesson);

6. The two students who got the lowest score (4 points) also have the previously mentioned error among theirs;

7. Analysing the tests, we have found that the two exemplification errors previously mentioned do not express typical mistakes but, on the contrary, the percentage of correct solutions is high, *82.92%* for both concepts, *34* of the students having managed to make an adequate illustration;

8. *The only typical mistake* that was found concerns the exemplification of "2 questions of controversy";

9. A number of *24 students* have incorrectly exemplified the concept, obtaining an average of *0.41 points* per item;

10. In terms of its origin, there may be the assumption that, due to the particularity of the field for which initial training is provided, this type of task is further away from the students' background and their school experience.

C4: Ability of abstractization/generalization

I4: Identify the pedagogic concept corresponding to the statements below for each separate case:

P4: 16.67% (15 points);

1. *342* points have been obtained out of a *maximum* total of *615 points*, namely, an average of *8.34* points has been obtained out of a maximum total of *15 points* per item, meaning that the degree of achieving C4 is *55.60%;*

2. The lowest score, namely *4.5 points*, obtained by *1 student* (*2.43%*), also expresses the lowest degree of acquiring the skill (*30%*) and the highest degree, *12 points*, also obtained by *1 student* (*2.43%*), highlights the highest degree of acquiring it (*80%*);

3. There is no score lower than 4.5 points, no student got the maximum score;

4. The most numerous performances of students for this item were the ones of *9.5 points*, a total of *6 students* (*14.63%*) together with the ones of *8 points*, a total of *5 students* (12.19%), meaning that 11 students have achieved 26.82%;

5. The student with the highest score (12 points) made *two mistakes*, by incorrectly abstracting case 2 "Throughout this lesson, the most important ideas of the chapter are updated, organized, applied and noted schematically" and case 11 "By watching the teacher perform and by trying it themselves, with their own hands, students understand much better", and by partially generalizing other 2 cases (cases 14 and 15);

6. The student with the lowest score (4.5 points) has incorrectly abstracted all the 4 cases mentioned above, too;

7. Analysing all the evaluation tests, we have found that out of the 4 cases susceptible of being typical errors previously identified, only one is in this situation and that is case 11. A number of *37 students* (*90.24%*) have made mistakes in the generalization and abstraction process and only *4* of them (*9.76%*) have chosen the correct version, obtaining a case average of *0.09 points*, the smallest of them being 15;

8. The way of solving the other 3 cases does not show typical mistakes, but, on the contrary, the percentage of correct solutions is high, as follows: case 2.5*8,53%*, *24* of the students managed to do a correct abstraction; cases 14 and 15, similarly, 90.24%, only *4* students having made mistakes;

9. Concerning the origin of the mistake, one may reckon, based on reading and analysing the solutions provided by students, that the exercise of abstraction and generalization has to be resumed and consolidated. Most of the solutions are the result of insufficient analysis, either due to conceptual errors or to various partial and superficial approaches;

C5: The ability to identify mistakes and use pedagogic language in short statements

I5: Identify and underline the pedagogic mistake/mistakes in each of the following statements. Rephrase them so that they are correct: ;

P5: 22.22% (20 points);

1. *217.75* have been obtained out of a *maximum* total of *820* points, namely, an average of *5.31* has been obtained out of a maximum total of *20 points* per item, meaning that the degree of achieving C5 is *26.55%;*

2. The lowest score, namely *1 point*, obtained by *1 student* (*2.43%*), also expresses the lowest level of acquiring the skill (*5%*) and the highest score, *14.5 points*, also obtained by *1 student* (*2.43%*), highlights the highest degree of acquiring it (*72.5%%*);

3. There is no score lower than 1 point, no student got the maximum score;

4. One cannot reckon that there is a part of students who managed to mark a significant accumulation of points, these being dispersed throughout the entire interval from 1 point to 14.5 with 3 frequencies at the highest;

5. The student who got the highest score (*14.5 points*) made mistakes either in identifying only partially the errors in the given statements (cases 3, 4, 5, 9), or in rephrasing only partially correct the wrong statements (cases 3, 4, 5, 6, 9);

6. And the student who got the lowest score (1 point) partially rephrased the statement in case 1, having worked nothing for the others, neither by underlining nor by rephrasing;

7. In order to be able to formulate conclusions concerning the obtained results, we shall approach the

2 different tasks of the item, namely *underlining errors in the text* and *rephrasing correctly the statements*;

8. As far as *underlining errors in the text* is concerned, the analysis of evaluation tests has shown that there is a statement whose errors have been identified with a 100% accuracy (statement 1) ("In gymnasium classes story-telling, as an alternative to explanations, is used for a clearer presentation of knowledge and to attract students"). There are, accordingly, 2 statements, number 6 and 9, whose errors have been least identified through underlining (14.63%, respectively 26.82%) (statement 6 "The curricular model of planning is focused on contents, indicating exactly what should be learned during the training-educational process and is essentially different from the model of planning by instalment"; statement 9 "There is a didactic method which has long been considered 'the golden rule of didactics' and which can be used only in recapitulation lessons");

9. Therefore, one may reckon that the *degree of correct identification of errors by text underlining* is a *good* one, the arithmetic mean of the group being, from this point of view, 64%;

10. One cannot say the same about the ability of correctly rephrasing statements where there is a great gap between two means of dealing with the task: that of non-respondents and that of respondents;

11. Specifically, there are *statements with a very high level of non-respondents* (statements 6 and 9, where 37 students, namely 90.24%, failed) but also a *statement with a low level of non-respondents* (statement 1, where only 3 students, representing 7.31% of the group succeeded). These data are fully in agreement with the result previously presented in the sub-item h, emphasizing which are the statements perceived as being the simplest and which are those regarded as having the highest degree of difficulty;

12. At the level of the group, *the arithmetic mean of non-respondents* for item *5 is high, 51.72%*, meaning that more than half the students did not know how to rephrase correctly although a large number of these, 64%, had managed to correctly identify and underline the errors. It results that at least 5 students (12.30%) who, although having correctly identified the errors in the statements, do no know how to construct their correct form, do not have the knowledge or language needed to complete the task;

13. By reference to students who did complete the task, we noticed that their percentage is *48.28%*, a percent that we regard as *low*, taking into consideration that it represents less than half the students;

14. The presentation of identified typical errors will be done in reference to the number of answers given by students. One can notice that there are statements where *the weight of wrong answers* is expressed by a *relatively low percentage* (statement 1, *7.89%*; statement 8, *12.5%;* statement 7, *14.81%;* statement 4, *15%*);

15. Unlike these, there is a series of statements where *error percentage is high*, as in the case of statements 6, 75% and 9, 50%;

16. In terms of received answers on the whole, the *percentage of wrong answers is 27.42%;*

17. This result in itself may not seem too weak but, in fact, we regard it as *very* worrying, especially by reference to the percentage of non-respondents;

18. Corroborated, the 2 categories of results reveal the fact that whereas more than half the students (*51.72%*) do not know how to solve the situation, even more than a quarter (*27.42%*) of the respondents (*48*, 28*%)* do it wrongly. This actually means that 5 out of 20 students give wrong answers;

19. The overall number of answers comprised *41 mistakes*. This may look as a very good result in itself (an average of one mistake per paper!) but, in fact, this number of mistakes should be related to the number of respondents, namely 20. In this context, the result doubles and we get an average of *2 mistakes per paper* plus the large number of non-respondents (21);

20. Among the identified errors, most of them are in tests 3 and 8, *6 errors each*, and tests 5 and 14, 5 *errors each*. Accordingly, there is a number of 8 tests where only one mistake has been identified;

21. *The greatest number of errors, 6, representing 14,63%*, was found for statement 3 "Doing homework is a highly efficient form of group organization and means, in pedagogic language, achieving performance" ;

22. *The lowest number of errors, 2, representing 4.87%*, was found for statements 8 ("Measuring is one of the most important didactic principles") and 9 ("There is a didactic method which has long been regarded as 'the golden rule of didactics' and which can only be used in recapitulation lessons");

23. The analysis of errors occurring at item 5 highlight the existence of *the first typical error*: mistaking retention for achieving performance in doing homework (all the 6 students who were mistaken about this statement made the same confusion);

24. *The second typical mistake* that we have identified consists in accepting the fact that doing homework is a form of group organization, namely, not correcting the fact that it is an individual form;

25. 5 out of the 6 students who were wrong concerning this statement accepted the statement as being correct and one of them substituted "group organization" with "frontal organization", generating yet another incorrect statement which means that the error margin is highest in this case, too;

26. *The third typical mistake* that we have identified consists in not recognising the principle which

underlies a recapitulation activity and ignoring the error from the last part of statement 5, implicitly not correcting it adequately: "When the teacher makes a recapitulation at the end of one chapter, s/he obeys the principle of intuition and mainly works alone". All the 5 students who made this mistake worked in the same way;

27. *The fourth typical mistake* that we have identified consists in not correcting the syntagm "practical test for assessing knowledge" for 4 students out of the 5 who were mistaken in statement 2;

28. Concerning their origin, we may reckon that at least the first three of them may be due to the relative gap between the task and the particularities of the field of physical education.

C6: The ability to use pedagogic language in building a professional demonstration

I6: Analyse briefly, at your choice, one of the didactic methods you have studied (definition, explanation, strong points, restrictions). Give three examples of integrating them in specialty lessons;

P6: 11.11% (10 points)

1. *88 points* have been obtained out of a maximum total of *410 points*, namely an average of *2.14* has been obtained out of a maximum total of *10 points* per item, meaning that the degree of achieving C6 is *21.46%;*

2. The lowest score, namely *1 point*, obtained by *5 students* (*12.19%*), also represents the lowest level of acquiring the skill (*10%*) and the highest score, *8 points*, obtained by *1 student* (*2.43%*), highlights the highest level of acquiring it (*80%*);

3. There is no score lower than 1 point, no student got the maximum score;

4. The most numerous performances of students for this item were the ones with *2 points*, a total of *16 students* (*39.02%*);

5. The student who got the highest score (*8 points*) uses a correct, yet incomplete, discourse, but has no mistakes;

6. 4 out of the 5 students who obtained the lowest score (*1 point*) use a correct, yet infantile, discourse, but have no mistakes, whereas one of them made one mistake, that of identifying the "method" with the "process";

7. There is a quite large number of non-respondent students (*7,* that is, *17.07%*) and also 2 students (4.87%) who, although started the analysis, did not obtain any score, who sum up 21.94%, almost a quarter of the students, which confirms the quite low degree of achieving C6;

8. Analysing all the assessment tests of respondents, we have counted a number of *12 mistakes*, meaning less than half an error per student (*0.37*);

9. Though the result is apparently good, in fact it must be correlated to the large number of those who did not get any points at all (*9*, that is, *21.95%*), and to the large number of only started or scarcely developed analyses (*24 tests, 58.53%*), the probability of producing mistakes being very small due to the rather short text;

10. Analysing all the evaluation tests of the respondents, we have found that there is *one single case* where we have identified *2 errors* in the text, while in the others there was only one mistake per test;

11. *9 (75%)* out of the 12 mistakes concern the identification of the "method" with the "process" in defining/analysing the selected methods (for example: Observation is the process ...). In two tests (16.67%), the mistake which occurs refers to identifying the "object" with the "objective" and in one single case (8.33%) the "method" is mistaken for the "principle";

12. Based on these results, one may reckon that there is *one single typical mistake*, the first of the previously analysed. The cause may be a general one related to the particularities of young people's language, specifically, a certain type of abbreviating statements by omitting the proximal genre and passing directly to specific difference in building definitions.

Conclusions

Such an *analysis and self-reflection exercise* concerning the way in which we assess our students is *needed*, *significantly useful* and could extend and amplify its effects if it were carried out *systematically* and *in teams* by all the specialists who ensure the teachers' training for the various didactic specializations.

On the whole, the results of the study are summarized in Table 1:

C	Points	Weight within the test	Achiev-ement percent-age	Minim-um score	Maxim-um score	Typic-al errors
C 1	15	16.67	82.76 %	9	14	2
C 2	17	18.89	62.19 %	7	14	2
C 3	13	14.44	57.49 %	4	11.25	1
C 4	15	16.67	55.60 %	4.5	12	1
C 5	20	22.22	26.55 %	1	14.5	4
C 6	10	11,11	21.46 %	1	8	1
	90	100	51%	26	85.75	11

Table 1

Based on this, we may draw several *conclusions:*

1. *The percentage of acquiring the skills drops from the first item* (82.76%) *to the last* (21.46%), as the items aim at more complex skills and propose tasks more difficult to complete;

2. *The most developed* (82.76%) *is C1,* namely "The ability to determine the truth value of pedagogic statements" *and the least highlighted are C5* (26.55%), "The ability to identify errors and use pedagogic language in short statements" *and C6* (21.46%), "The ability to use pedagogic language in building professional demonstrations";

3. Taking into consideration the fact that the two skills have in common *the development, mastery and use of pedagogic language* and had, together, 33.33% of the test (that is, a third of what has been assessed) we may reckon that this is the weak point of the students' training, obviously correlated to *the lack of field knowledge*, emphasized by the great percentage of non-respondents for the last two tasks, as has been shown throughout the analysis;

4. The systematization of typical error is contained in Table 2:

C1	2	1. "Problematization is one of the best-known heuristic methods" (F); 2. "Practical tests assess the students' ability of explaining certain theoretical information, their practical abilities and skills" (A) (wrong choices);
C2	2	1. "didactic methods" (incorrect integration); 2. "assessment function" (incorrect integration);
C3	1	1. failure to illustrate "2 questions of controversy"
C4	1	1. **"**Watching the way in which the teacher performs and trying it with their own hands, students understand much better" (wrong generalization and abstractization)
C5	4	1. mistaking retention for achieving performance in doing homework; 2. agreeing with the fact that doing homework is a form of group organization, namely, not correcting the fact that it is actually an individual form; 3. not recognizing the principle which underlies a recapitulation activity and not recognizing the fact that it is a frontal or group activity and not predominantly individual; 4. mistaking the "practical assessment test" for one assessing knowledge
C6	1	1. identifying the "method" with he "process"

Table 2

5. *The 11 typical errors* integrated in the process of forming pedagogic competences may be corrected by a continuous and interdisciplinary effort, from the perspective of the subjects of D.P.P.D. which students are going to attend to after completing the Pedagogy course, especially through the Didactics of the subject and the Pedagogic practice;

6. This fact is even more likely as *the 6 skills aimed at* can be developed in all *subjects of study integrated to the didactic training* and assessed in all exams, including those for obtaining a full job as a teacher and those for obtaining didactic degrees;

7. We further offer several *suggestions* for correcting and reducing their weight, in integrated modalities that may aim at all or only some of them:

1. For the didactics of the subject: systematizations and illustrations of didactic methods integrable to the class of Physical Education; the method of the double-entry diary for correlating lesson events (generally) to those of the physical education lesson; comparative approaches to individual, group and frontal organization; exercises in heuristic conversation with questions of controversy or with distinguishing these from other categories of questions; brainstorming exercises for correct definitions; the game of antonyms (heuristic-algorithmic; summative assessment – formative assessment; assessing knowledge – assessing skills and abilities; passive – active; individual – frontal;

2. *For pedagogic practice:* observing and identifying the methods the teacher uses during the lesson, followed by a brief theoretical characterization of the process (definition, classification, particularities, value, restrictions); the analysis of some lesson sequences, focused on a certain pedagogic aspect (the principles obeyed, the methods used, the integrated and used means, the performed event of the lesson, the type of assessment used); writing a 5-minute essay at the end of the practice day to emphasize the strategies used, the activities of the lesson, the achievement of performance; the fractional achievement of a lesson plan (the complete planning of only one link) and analysing it within the practice group, together with the mentor; drawing out versions of planning for links of the lesson, presenting and discussing them; identifying and analysing the typical errors occurred during the didactic planning process, in preparing sample lessons.

8. As one can see, all the suggestions we have provided may contribute, on the one hand, to *correcting typical errors* identified and analysed in our study and, obviously, to *increasing* our students' *quality of didactic training*.

The difficulty aspects of learning pedagogy and of training for the didactic career can be diminished by a comprehensive practical-applicative, continuous and

interdisciplinary approach, by unification and convergence of the efforts of teachers involved in this field of academic training.

Approaches related to knowing students, their theoretical and practical background, their intellectual and motivational dimension, respecting them and making training available are as important as in the pre-academic education if not even more important, considering the fact that we are in the field of training trainers.

REFERENCES

BAROUDI, Z., M., 2007, *Formative Assessment: Definition, Elements and Role in Instructional Practice* in Post-Script: Postgraduate Journal of Education Research, Vol. 8(1), August 2007, pp. 37-48, http://www.edfac.unimelb.edu.au/research/resources/student_res/postscriptfiles/vol8/Ziad_Baroudi.pdf, 29 Mar. 2010;

BURNS, M., K., 2008, *What is Formative Evaluation?* http://www.cehd.umn.edu/reading/documents/FAQ/FormativeEval.pdf, 23 Mar. 2010;

HERITAGE, M., 2009, *Knowing What To Do Next: The Hard Part of Formative Assessment,* Paper presented at the Association of Educational Assessment – Europe, Tenth Annual Conference, November 5-7, 2009, Valletta, Malta, http://www.aea-europe.net/userfiles/p9%20Heritage_Knowing%20What%20to%20do%20Next.doc, 28 Mar. 2010;

HUINKER, D. & FRECKMANN, J., 2009, *Linking Principles of Formative Assessment to Classroom Practice,* in Wisconsin Teacher of Mathematics, Spring 2009, http://www4.uwm.edu/Org/mmp/PDFs/Yr7_PDFs/formative-assessment-huinker-freckman09.pdf, 26 Mar. 2010;

NICOL, D., J. , MACFARLANE-DICK, D., 2006, *Formative assessment and self-regulated learning: A model and seven principles of good feedback practice*, in Studies in Higher Education (2006), Vol 31(2), 199-218, http://tltt.strath.ac.uk/REAP/public/Resources/DN_SHE_Final.pdf, 2 Apr. 2010;

PALOMBA, C., A., BANTA, T., W., 1999, *Assessment Essentials: Planning, Implementing, and Improving Assessment* in Higher Education, Jossey-Bass Publishers: San Francisco;

SCRIVEN, M., 1967, *Formative and Summative Evaluation*, p. 41-43, http://www.hcirn.com/atoz/atozf/formeval.php, 30 Mar. 2010;

SHANK, P., 2005, *Avoiding Assessment Mistakes That Compromise Competence and Quality* in The eLearning Guild's, Learning Solutions, Practical Applications of Technology for Learning, e-Magazine, http://www.learningpeaks.com/pshank_assessmistakes.pdf, 28 Mar. 2010;

WORSNOP, C., 2010, *Types of Assessment*, http://www.mediaawareness.ca/english/resources/educational/teaching_backgrounders/media_literacy/types_of_assessment.cfm, 22 Mar. 2010;

WREN, D., G., 2008, *Using formative Assessment to increase Learning,* Report from the Department of Research, Evaluation, and Assessment, Number 1, November 6, 2008, http://www.vbschools.com/accountability/research_briefs/ResearchBriefFormAssmtFinal.pdf, 24 Mar. 2010;

XXX, 2009, *Functions of evaluation*, http://www.evalguide.ethz.ch/eval_general/functions_of_evaluation_EN, accesat în1.IV.2010;

XXX, 2009, *The Functions of Assessment*, http://serc.carleton.edu/introgeo/assessment/function.html, 21 Mar. 2010;

XXX, 2009, *Why develop thinking and assessment for learning in the classroom,* http://wales.gov.uk/docs/dcells/publications/100301whydeven.doc, 30 Apr. 2010;

XXX, 2008, *What is a Formative Assessment?* în Educational Measurement Research Bulletin, Issue 5/2008, http://www.pearsonedmeasurement.com/bulletin/Formative%20Assessment_Bulletin.pdf, 25 Mar. 2010;

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

STUDY REGARDING THE INFLUENCE OF MOTION GAMES ON MOTRIC CAPACITIES IN PRE-SCHOOL EDUCATION LEVEL

DEACU MARCEL[1]

Abstract

Purpose. The purpose of this research is to emphasize the efficiency of motion games on the evolution of pre-school pupils' motric capacities, within activities of personal development, respecting the demands of the new syllabus for premature education.

Methods. This paper aims to prove that certain approaching strategies of the instructive-educative process are efficient. In the respective process, motion games are promoted, having the purpose of strengthening and perfecting motric capacities of pre-school children, benefactors of this program within their kindergarten.

Results. Comparing the results obtained by the experimental group at the initial and final tests of this research, we can observe a positive evolution, significant for the assimilation level of the tested motric capacities (70,9% of the children obtained a VG grade at the initial test, at the final test, the percentage being 82,9%,).

Conclusions. As a result of the implementation of the systematic program for motion games within activities of personal development, the result obtained by the experimental group proved their positive influence. We can notice signs of strengthening children's motric capacities, a correction of the recorded mistakes at initial tests, and an evolution of their motric behavior. Furthermore, one can clearly notice a harmonious physical development for pupils, as compared to the results obtained by the control group, where mandatory games were introduced, apart from the Physical Education activity existing in the syllabus for premature education. In addition to this, we have seen an improvement of inter-social relations, a better collaboration and a better group communication among children, and the development of the fair-play spirit.

Key words: Pre-school period, motric capacity, motion game.

Introduction

The preschool period is the period of the most intensive responsiveness, mobility and mental capabilities, a period of remarkable progress in all areas. The children's experiences of the knowledge stage through the expansion of its contact with the social and cultural life, from which he/she assimilates models that enable and determine his/her ever active integration in the human condition (Gh. Tomşa, N. Oprescu, 2007).

The concept which states that the child is a whole has at its basis the accepted principle that all areas of growth and human development are interrelated. None of the aspects regarding human development does occur independently, and all skills, no matter how simple or complex should be, reflect the intertwining of abilities.

Motric skills are essential, but also specific components of different motric acts, which, if harmoniously combined, ensure the performance of certain motric tasks (M. Deacu, M. Finichiu, 2010).

The game is the most important source of learning for children, is an activity that helps them to learn more effectively. Through play, children learn to interact with others, to explore the environment, to find solutions for problem situations, to express their emotions, acquire knowledge and skills that will be necessary for their adaptation to school requirements (M. Deacu, 2008).

The motion game is a physical exercise and a primary means of harmonious development of preschool children; it is primarily a bodily action, performed systematically and consciously in order to improve the physical development and motric skills. The game is an ideal way of education and satisfies at the highest level, the need for movement and action. The game satisfies the child immediately, according to possibilities, their own desires, consciously and freely acting in the imaginary world he/she creates himself.

The psycho-motric field syllabus for pre-school education covers coordination and control of body motion, general mobility and physical strength, motric ability and elegant handling, as the elements are linked especially to human anatomy and physiology.

Activities through which pre-school children can be put in contact with this field are those which

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Received 03.03.2011 / Accepted 21.04.2011

involve physical motion, competition between skills as objectives, as well as activities that can have as result a better resistance, strength or flexibility (St. Antonovici, 2010).

In the new early education syllabus it is mentioned to follow a Physical Education activity per week, the teacher having the freedom to plan in the daily schedule complementary activities for the fulfillment of Physical Education objectives; at different times of the day the teacher may propose to children different ways of competing, between two static activities (V. Tudor, 2005).

Psychological development is based on incorporating and creating new attitudes and behaviors, for the formation of increasingly complex adaptation tools and for the formation of satisfying modalities for certain needs, and formation of new needs and means of satisfying them.

Development involves changing the balance between assimilation of the reality and accommodation to the subjective and circumstantial, concrete conditions of life. In other words, development implies complex changes for the bio-psycho-social aspects of the individual, ranked in time.

Quantitative and qualitative transformations that define the development can be classified into three main categories, depending on the specifics of development: physical, mental and social. There are strong correlations between the types of development, but their evolution is relatively independent of each other.

Purpose

The purpose of this research is to emphasize the efficiency of motion games on the evolution of pre-school pupils' motric capacities, within activities of personal development, respecting the demands of the new syllabus for premature education.

For younger children, the physical, social, emotional, cognitive or language development is achieved at the same time, being inter-conditioned. Children learn holistically, so that every area of development affects the other, and none operates independently. Physical development may influence children's contribution to the achievement of various tasks or when attempting to obtain certain group performances, to which he/she belongs. The success or failure largely affects the child's self image and self-esteem.

Research methods and procedures

Objective of research

This paper aims to investigate the effectiveness of certain developed strategies of approaching the instructive-educative process, where motion games are individuals and groups, concerning psycho-motric promoted, in order to strengthen and improve the motric skills of preschool, benefactors of this process within the kinder garden.

Subjects of research

This research has been undertaken on a group of preschool children, aged 6 to 7, enrolled in a kindergarten. The syllabus for premature education mentions a compulsory Physical Education activity, done once a week within the psycho-motric field (30 – 35 min. for the second age level); the teacher has the possibility to plan various motion games in various moments of the daily program (for free-chosen activities, for transition activities and for activities of personal development).

Although groups are heterogeneous, we have chosen for the experimental research, children aged 6 to 7, who have constantly frequented kindergarten for 3 years (the experimental group named within the kindergarten the "Group of Ladybugs", and a control group, named the "group of the Little Bears").

Tests description

Both groups were subjected to initial tests applied at the beginning of school year 2009 - 2010, we also recorded data regarding the physical development of children both at the beginning and the end of the experiment.

TASK No. 1 Applicative track: Walking on the tip of the toes – 10 m; running between poles – 15 m; walking in balance on the gymnastic bench; walking on heels – 10 m; crawling on ell-bows and knees – 5 m; Walking in balance on a line – 10 m.

Evaluation:

- **VG** – performs the walk, the run between poles correctly, maintains balance and a correct body position, and performs the crawling correctly.
- **G** – body position is incorrect while walking (head bent over, lifted shoulders), the lack of limbs coordination while running, losing balance 1 - 2 times during the exercise, lifting the torso or the head while crawling.
- **S** – lack of limbs coordination while walking, body swinging, touching the sole on the ground and an exaggerated motion of the arms while running; an incorrect position of the body while walking in balance, looking down, a lack of limbs coordination while crawling.

TASK No. 2 High jump: "Touch the balloon!"; ***Long jump :*** "Little frogs jump in the lake".

Evaluation:

- **VG** – performs both of the jumps correctly, following the stages;
- **G** – lack of control over the feet position in the air; incorrect landing (feet position);

- **S** – incorrect impetus or lack of it; incorrect landing (on the heels or with spread feet).

TASK No. 3 "The relay": Throwing the ball at the target; carrying weight – 10 m; climbing on a leaned plan; slow run; throwing and catching the ball.

Evaluation:

- **VG** – performs the throwing correctly, hitting the target, carries the toy sack to the fixed point, pushes the chair, performs the throwing and the catching of the ball correctly;
- **G** – does not estimate correctly the distance and misses the target, the body position is incorrect while carrying the sack, does not throw the ball correctly (direction deviation);
- **S** – deviates the track of the ball away from the target, the body position is incorrect while carrying the sack (humped back, looking at the ground), the ball throwing is incorrect due to the rigid body position.

Research results

As a result, after the comparative analysis of the obtained data (the period 30 May – 05 June 2010), we have observed the following:

- Comparing the results obtained at task no. 1 by the experimental group at the beginning and at the end of the experiment, we may notice a positive evolution, significant for the level of assimilating the tested motric skills, (the Very Good mark was obtained by 70,9% of the children at the initial test, and at the final test the percentage was 82,9%, 3 children perfecting their level of motric skills assimilation); for the control group, only one child managed to improve the level of motric skills assimilation (from S to G).
- For task no. 2 the results obtained by the experimental group emphasize a positive evolution, significant for the level of assimilating the tested motric skills (18 children had the VG mark, 5 more than at the initial test, 1 of the children with S receiving the B mark); 16 children from the control group received VG (14 at the initial test), 3 children perfecting their level of motric skills assimilation (2 from G to VG, and 1 child from S to G);
- The results of the third task emphasizes the following aspects for the experimental group: 3 children have perfected the tested motric skill (obtaining VG at the final test), and 2 children have consolidated and corrected the tested motric skills (obtaining G at the final test); the results of the control group have recorded no significant progress (1 child managed to improve the level of motric skills assimilation from S to G at the final test).

We will present a comparative recording of the data, differentiated for the two groups, the results of the initial test with those of the final test.

Table 1: Results obtained at the initial test – control group (the "Little Bears" group)

No.	Subjects	Age	Task 1	Task 2	Task 3
1.	A.E.F.	6 years	B	B	B
2.	A.A.	6 years	FB	FB	FB
3.	A.S.A	6 years	FB	FB	FB
4.	B.Ş.I	6 years	B	B	B
5.	C.A.	6 years	FB	FB	B
6.	C.A.M	6 years	FB	B	FB
7.	C.C.V.	6 years	FB	FB	FB
8.	C.C.G.	6 years	FB	FB	FB
9.	D.I.B	6 years	B	B	B
10.	D.S.	6 years	FB	FB	FB
11.	D.A.N	6 years	FB	FB	FB
12.	D.V.	6 years	FB	FB	FB
13.	E.D.A.	6 years	FB	FB	B
14.	E.C.E	6 years	FB	B	B
15.	I.M.	6 years	S	S	S
16.	I.A.E	6 years	S	S	S
17.	J.M.C	6 years	FB	FB	FB
18.	M.I.A	6 years	FB	FB	B
19.	M.P.C.	6 years	B	B	S
20.	N.R.F..	6 years	FB	FB	FB
21.	P.C.M	7 years	FB	FB	FB
22.	S..P.T.I	6 years	FB	FB	B
23.	S.D.M	6 years	S	S	S
24.	T.R.M..	6 years	FB	B	FB

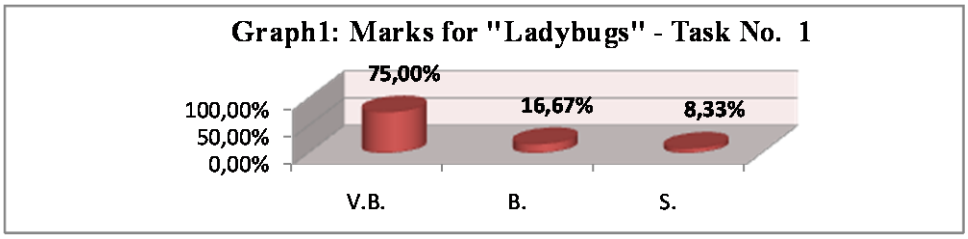
Table 2: Results obtained at the initial test – experimental group ("group of Ladybugs")

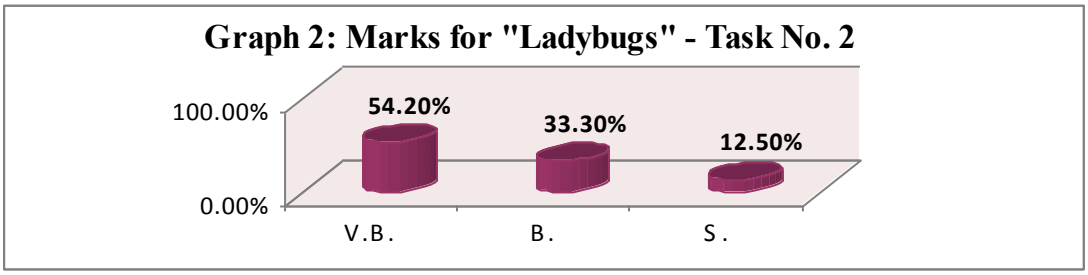
No.	Subjects	Age	Task 1	Task 2	Task 3
1.	A.B.M.	6 years	FB	FB	B
2.	A.Ş.	6 years	B	B	FB
3.	C.M.E.	6 years	B	S	B
4.	C.L.V.	6 years	FB	FB	FB
5.	C.C.I.	6 years	FB	FB	FB
6.	D.B.A.	6 years	FB	FB	FB
7.	.F.C.	6 years	FB	B	FB
8.	G.D.C.	6 years	B	B	B
9.	G.B.A.	6 years	FB	FB	B
10.	I.E.A.	6 years	FB	B	FB
11.	I.M.R.	6 years	FB	FB	FB
12.	M.I.G.	6 years	FB	FB	FB
13.	M.M.S.	6 years	FB	B	B

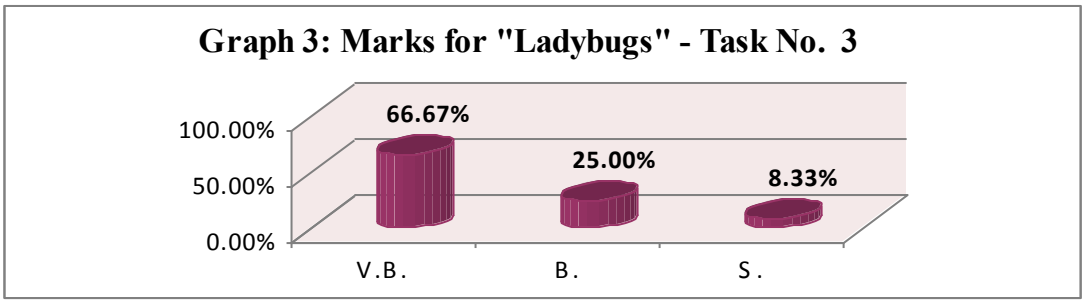
14.	N.A.I.	6 years	FB	FB	S
15.	P.T.M.	6 years	S	S	S
16.	P.C.A.	6 years	S	S	FB
17.	P.E.	6 years	FB	B	B
18.	S.D.M.	6 years	FB	FB	B
19.	S.D.A..	6 years	FB	B	FB
20.	S.D.F.	7 years	FB	FB	FB
21.	T.M.	6 years	FB	FB	FB
22.	T.M.	6 years	FB	FB	FB
23.	U.A.M.	6 years	FB	B	FB
24.	D.A.G.	6 years	B	FB	FB

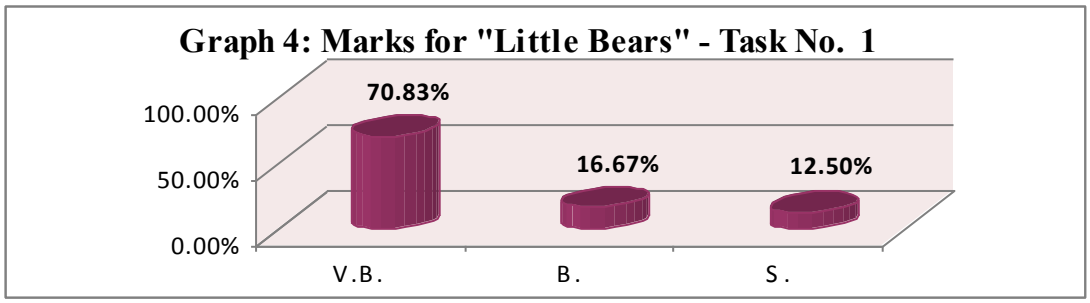
The subjects of the control group recorded after the application of the initial tests the following results: for task 1, 17 children (70.83%) obtained VG; 4 children (16,66%) obtained G; 3 children (12,5%) obtained **S**; task 2, 14 children (58,34%) obtained VG, 7 (29,16%) obtained G**,** 4 children (12,5%) obtained S; task 3, 13 children (54,16%) obtained VG, 8 children (33,34%) have obtained G, 3 children (12,5%) obtained **S**.

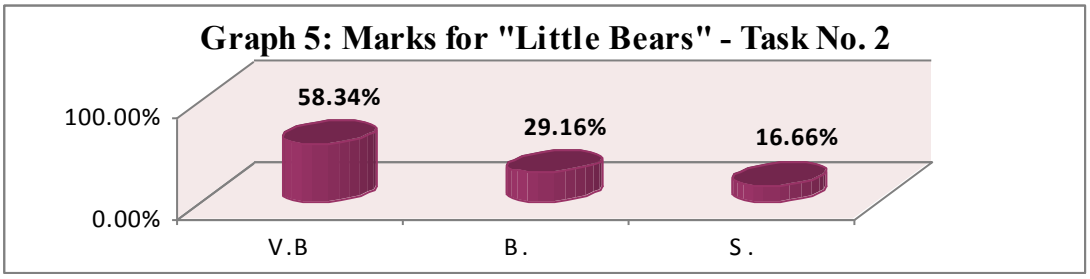
The subjects of the control group recorded after the application task 1 obtained the following results: 18 children (75%) obtained VG; 4 children (16,6%) obtained G; 2 children (8,33%) obtained **S**; task 2 had the following results: 13 children (54,2%) obtained VG; 8 children (33,3%) obtained G; 3 children (12,5%) obtained **S**; task 3 had the following results: 15 childr en (66,6%) obtained VG; 7 children (25%) obtained G, and 2 children (8,33%) obtained **S**.

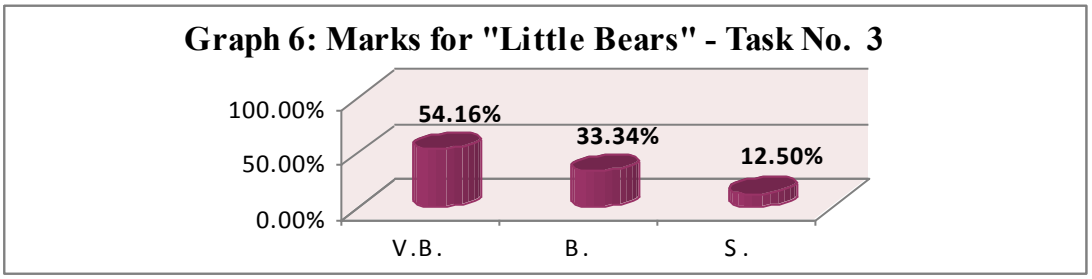






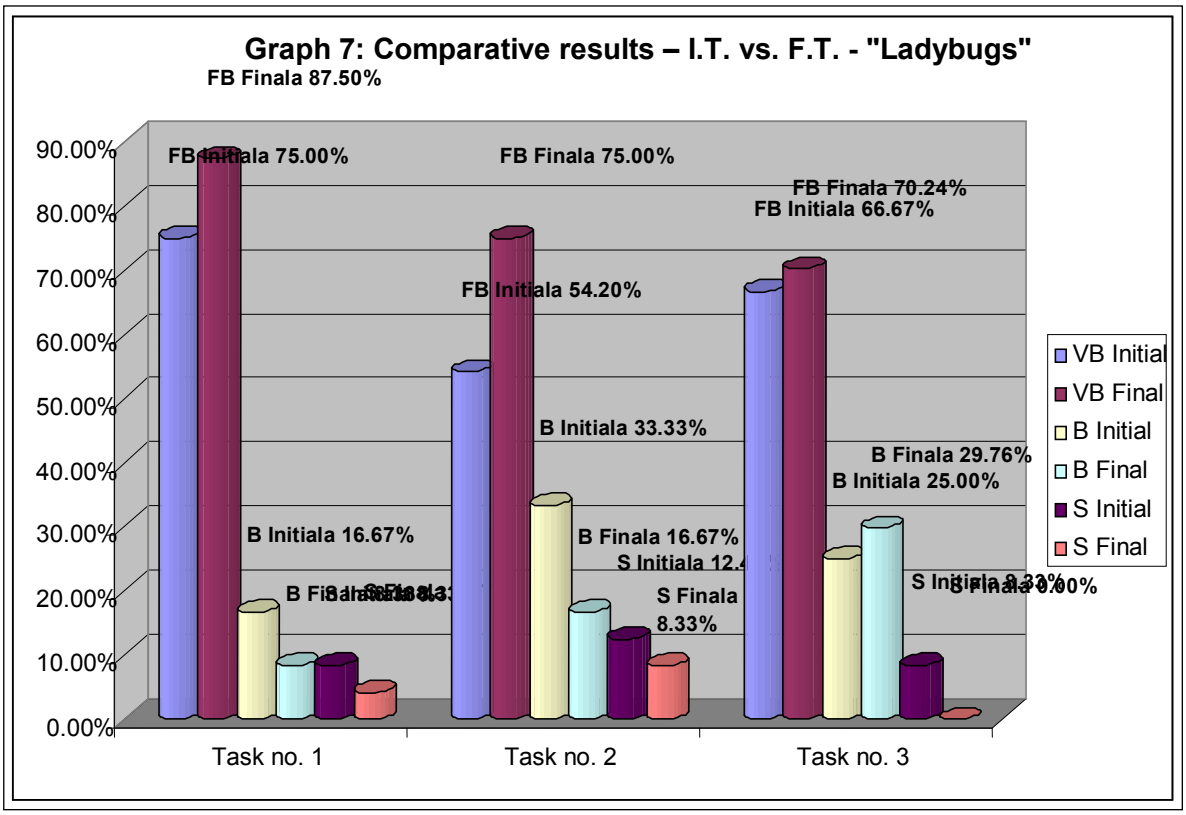


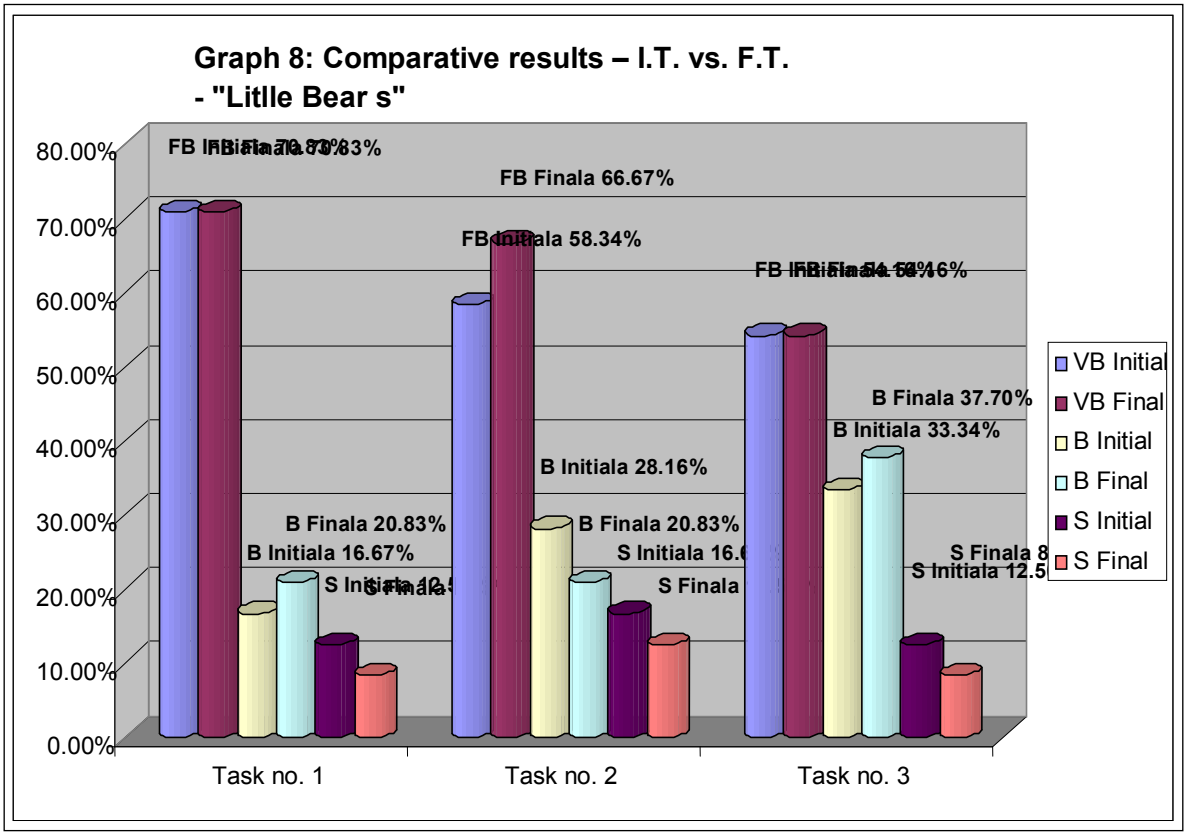




After the results analysis we established an annual planification for the Physical Education activity (1 activity/week), common for both of the groups.

For the experimental group, we have elaborated a different program of motion games, program applied in the stage of personal development activities (PDA), developed during the period 1 October 2009 – 15 May 2010. Through the exercise and consolidation of motric skills and abilities, basic and utilitarian, in the conditions of their concrete application, we aimed to, along with their correction and improvement also to have the enlargement of the motric experience.


Graph 7: Comparative results – I.T. vs. F.T. - "Ladybugs"
FB Finala 87.50%
FB Initiala 75.00%
FB Finala 75.00%
FB Finala 70.24%
FB Initiala 66.67%
FB Initiala 54.20%
B Initiala 33.33%
B Finala 29.76%
B Initiala 25.00%
B Initiala 16.67%
B Finala 16.67%
S Finala 8.33%
90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Task no. 1
Task no. 2
Task no. 3
VB Initial
VB Final
B Initial
B Final
S Initial
S Final


Graph 8: Comparative results – I.T. vs. F.T.
- "Litlle Bear s"
FB Finala 66.67%
FB Initiala 58.34%
B Finala 37.70%
B Initiala 33.34%
B Initiala 28.16%
B Finala 20.83%
B Finala 20.83%
B Initiala 16.67%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Task no. 1
Task no. 2
Task no. 3
VB Initial
VB Final
B Initial
B Final
S Initial
S Final

Results interpretation. As a result, after the comparative analysis of the obtained data (the period 30 May – 05 June 2010), we have observed the following:

Comparing the results obtained at task no. 1 by the experimental group at the beginning and at the end of the experiment, we may notice a positive evolution, significant for the level of assimilating the tested motric skills, (the Very Good mark was obtained by 70,9% of the children at the initial test, and at the final test the percentage was 82,9%, 3 children perfecting their level of motric skills assimilation); for the control group, only one child managed to improve the level of motric skills assimilation (from S to G).

- For task no. 2 the results obtained by experimental group emphasize a positive evolution, significant for the level of assimilating the tested motric skills (18 children had the VG mark, 5 more than at the initial test, 1 of the 3 children with S receiving the B mark); 16 children from the control group received VG (14 at the initial test), 3 children perfecting their level of motric skills assimilation (2 from G to VG, and 1 child from S to G);
- The results of the third task emphasize the following aspects for the experimental group: 3 children have perfected the tested motric skill (obtaining VG at the final test), and 2 children have consolidated and corrected the tested motric skills (obtaining G at the final test); the results of the control group have recorded no significant progress (1 child managed to to improve the level of motric skills assimilation from S to G at the final test).

Conclusions

Starting from the need to move of the preschool child, the need to alternate the static and dynamic activities, and to respect the differences in age and individual, we believe that using motion games in various stages of the day may influence the consolidation and improvement of motric skills. In the same time, passing from one activity to another is made enjoyable for children, aiming to fulfill the proposed objectives.

The data obtained after the implementation of the initial evaluation, proves that, at the beginning of the school year 2009/2010, the level of ownership of motric skills of children from both groups is almost the same, with insignificant differences.

After applying a systematic program of motion games within activities of personal development, the results obtained by the experimental group certify their positive influence.

References

ANTONOVICI, ŞT., **2010,** *Physical Education in kindergarten*, Didactica Publishing House, Romania, 120-125

DEACU, M., FINICHIU, M., 2010, *The management of Physical Education and Sports lessons,* University Publishing House, Romania, 170-174

DEACU, M., 2008, *Development of motion qualities combined "force-speed" and „speed-force" through sportive games in the university class of Physical Education,* Ph.D. Thesis, Bucharest, I.O.S.U.D. A.N.E.F.S.,180-190.

TOMŞA, GH., OPRESCU, N., 2007, *Theoretic bases of preschool psycho-pedagogy***,** Publishing V&I Integral, Romania, 58.

TUDOR, V., 2005, *Measurement and evaluation in physical culture and sports*, Publishing Alpha, Romania, 106-114.

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
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DEVELOPMENT COURSE OF HEALTH EDUCATION IN THE FACULTY OF PHYSICAL EDUCATION FOR GIRLS IN ZAGAZIG BASED ON THE NEEDS OF LABOR MARKET IN THE HEALTH CLUBS

MUSTAFA AMAL[1], MAHMOUD GEHAN[2]

Abstract

The present research aims at:

1- Constructing a cognitive questionnaire to recognize the suitability of the health education course in the faculty of Physical Education for girls in Zagazig in the light of the requirements of the labor market in the health clubs.
2- Developing the health education course in the faculty of physical Education course in the faculty of physical Education for Girls in Zagazig in the light of the requirements of the labor market in the health clubs.

Researchers used the survey methodology which is one of the descriptive studies for its suitability for the nature of the research on a sample amounted (228) students of the fourth grade in the faculty of Physical Education for girls in Zagazig.

Researchers prepared the forms for studying the requirements of the labor market in the health clubs, concerning the health aspects of the health club and the programs introduces in it , to be used on a sample reached (35) coaches, (15) managers representing (15) health clubs and (100) benefactors.

. Then, they constructed a questionnaire to recognize the suitability of the health education course in the faculty of physical Education for Girls in Zagazig and it was applied on the students of the fourth grade in the faculty.

Researchers confirmed that the present course of health education in the faculty is unsuitable for the requirements of the labor market in the health clubs, so, they suggested the development of the present course by adding a special part for the requirements of the work in the health clubs.

Keywords: health education - labor market - health clubs.

Introduction

The availability of health services in the society is one of the factors that affect the health of the individuals such as the availability of health foundations as hospitals and health units and centers as well the equipment and instruments.

Now there are growing universal industries that include health and fitness and faced an increasing competition.

These organizations resorted to information system as a means to obtain a competitive advantage.

Many of these organizations and clubs complain of less experience and the lack of the competent labor in managing training and dealing with individuals.

The health clubs industry remarkably spread in the middle East area because of the increasing of the tourists and residents who wish to

This improvement is what makes the state able to confront and cope with the effects of benefit from the available health and fitness facilities, this besides, the society's awareness of the importance of relaxation and having some rest to be for a way of the daily hassles (S. Walter, K. Andrew, I. Richardson, 2001)

The most important health conditions for health clubs is the efficiency of its staff both in terms of (physical training and specialized). Each division of the health club requires a special expert and in case of non- availability of this experience it will cause harm for the trainees, thus it is important that the health club workers must have full experience and they must be graduates of the faculties of physical Education to substitute the present unqualified workers (K. Medhat and A. Ahmed, 2004).

The modern developments in science and in various academic areas led to be improving standards and quality of education and one of the most important challenges faced by all countries.

globalization policies, and therefore education has become a national issue to the attention of civilized

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Received: 17.03.2011 / Accepted 11.05.2011

nations and developing countries alike. What we need is to achieve the main goal of education, namely the supply of the community with graduates able to meet the needs of this society, professional and research by increasing the skills of graduates and enhance their competitiveness in the job market locally and regionally.

So it has been the development of reform policies in the quality of Higher Education of Egypt in order to ensure the production of graduates at the level of the universally recognized norms (NQAAC, 2005)

The reforming policies in the Egyptian high education quality were developed so as to secure providing graduates according to world standard (I.E. Kamal, 2005).

So we had interest in the development of health education course, and add the necessary health conditions for work in departments of health clubs so graduate from the Faculty of Physical Education can to storm the labor market health clubs, with skill and thought. The present research

The purpose of the study:

The present research aims at:

1- Constructing a cognitive questionnaire to recognize the suitability of the health education course in the Faculty of Physical Education- Girls in Zagazig for the requirement of the labor market in the health clubs.
2- Developing the health education course in the Faculty of Physical Education- Girls in Zagazig in the light of the requirements of the labor market in the health clubs.

Enquiries of the research:

1- Is the present health education course in the Faculty of Physical Education- Girls in Zagazig suitable for the labor market requirements in the health clubs?
2- Does the cognitive questionnaire contribute in developing the health education course in the light of the labor requirements in the health clubs?

Methods and procedures:

The scientific transactions of the questionnaire:

The questionnaire's validity:

Researchers used Researchers used a descriptive approach. According to (G. A. Rotem, 1992; Jose, D., 1994; M.S. Rehab, 2000; S. Alia, 2001; I. E. Kamal, 2005; A.A. Lila and T. S. Nadia, 2008) researchers prepared a data collection form is an open question, the purpose of identifying the knowledge and information needed by the labor market and health clubs, which should be available in order to qualify for graduate work in those clubs.

Steps of constructing the questionnaire:

Owing to the lack of questionnaire for the information and knowledge related to the labor market in the health clubs, researches designed this questionnaire through deciding the main axes of it and after examining the scientific reference, researches and studies and with the help of the from that was distributed to the labor market through (15) managers in the health club (53) coaches and (100) of the benefactors from the health club to collect the primary data to determine the most important requirements for graduate work in health clubs. and this included the health clubs in:

- Arab republic of Egypt (Sharkia governorate- Kaliobia governorate- Cairo governorate- Sharm El sheikh city)
- Arab Saudi kingdom as a regional market.

Researchers were able to set the axes in its initial form and presented to the experts.

After exposing the questionnaire axes to the experts to know their suitability and their purpose, researchers formulated a group of phrases under each axis of the questionnaire in the light of understanding and theoretical analysis of each axis.

After that, researchers distributed the questionnaire phrases randomly and applied it on the introductory research sample which consisted of (150) students from the fourth grade in the faculty of physical Education-Girls-Zagazig University so as to finding the Scientific transactions of the questionnaire.

1-The judges` validity:

Researchers exposed the axes of the questionnaire and the phrases each axis to the experts in the field of health education and course who were (9) experts.

Researchers considered that the ratio of agreement of the experts on the axes and phrases of the questionnaire a criterion of its validity.

2- The validity of the inner consistency of the phrases and axes of the questionnaire:

Researchers calculated the validity by calculating the correlation coefficient among the degree of each phrase alone and the degree of each axis and the total degree of the questionnaire on the sample of the introductory study.

Reliability coefficient of the questionnaire:

In order to find reliability coefficient the axes of the questionnaire which are (4) ones and their phrases which are (18) ones. Researchers used the half partition of the answer of the sample of the introduction study for each axis by using the equation of (Guttman- Spearman- Prown) and the method of (Alpha Kronpkh)

Method of designing the questionnaire:

* Marks of the questionnaire are calculated on a bi-value scale (Yes- No)
* The degree of the student's response on the questionnaire is from (0-3) that shows non-existent of cognitive information concerning the health clubs.
* And from (31-78) shows that they have cognitive information concerning the health clubs.

The executive steps of the research:

Researchers applied the cognitive questionnaire after confirming its scientific usefulness on the research main sample which are (50) students of the fourth grade in the Faculty of physical Education- Girls- Zagazig University after passing the health education course in the first academy term.

Results:

Table (1)
Means, standard coefficient and skewness coefficients of the phrases of the questionnaire
N=50

Phrases	health conditions of health club			health conditions of instruments and the equipment			health conditions of presented programs			Awareness		
	M	SD	Skew	M	SD	Skew	M	SD	Skew	M	SD	Skew
1	0.43	0.49	0.272	0.50	0.50	0	0.31	0.48	0.529	0.41	0.49	0.356
2	0.54	0.49	-0.189	0,44	0.49	0.217	0.38	0.48	0.499	0.61	0.48	-0.470
3	0.43	0.49	0.272	0.47	0.50	0.108	0.45	0.49	0.189	0.40	0.49	0.412
4	0.51	0.50	-0.054	0.36	0.48	0.589	0.42	0.49	0.300	0.56	0.49	-0.244
5	0.43	0.49	0.272	0.37	0.48	0.529	0.60	0.49	-0.441	0.43	0.49	0.272
6	0.47	0.50	0.108	0.37	0.48	0.529	0.39	0.49	0.441	0.30	0.45	0.882
7	0.40	0.49	0.384	0.45	0.49	0.189	0.29	0.45	0.917	0.42	0.49	0.300
8	0.33	0.47	0.714	0.31	0.46	0.813	0.38	0.48	0.499	0.22	0.41	1.366
9	0.47	0.50	0.108	0.37	0.48	0.529	0.21	0.41	1.414	0.31	0.46	0.813
10	0.35	0.47	0.620	0.28	0.45	0.953	0.28	0.45	0.953	0.38	0.48	0.470
11	0.44	0,49	0.244	0.36	0.48	0.589	0.62	0.48	-0.499	0.55	0.49	-0.217
12							0.30	0.45	0.882	0.45	0.49	0.189
13							0.31	0.46	0.813	0.28	0.45	0.990
14							0.37	0.48	0.529	0.29	0.45	0.917
15							0.29	0.49	0.917	0.42	0.49	0.327
16							0.32	0.47	0.747	0.35	0.47	0.620
17							0.28	0.45	0.953	0.38	0.48	0.470
18							0.32	0.46	0.780	0.39	0.49	0.441

19	0.30	0.45	0.882	0.44	0.49	0.217
20	0.21	0.41	1.414	0.30	0.45	0.002
21	0.36	0.48	0.589	0.32	0.46	0.780
22	0.18	0.38	1.683	0.34	0.47	0.682
23				0.20	0.40	1.464
24				0.41	0.49	0.356
25				0.34	0.47	0.682
26				0.43	0.49	0.272
27				0.48	0.50	0.054
28				0.30	0.45	0.882
29				0.34	0.47	0.651
30				0.34	0.47	0.651
31				0.36	0.48	0.559
32				0.30	0.46	0.847
33				0.38	0.48	0.499
34				0.28	0.45	0.953

It is clear from table (1) that the values of skewness coefficient are limited between (±3) and this indicates that the main sample comes under (homogenous) curve in the questionnaire axes.

Result:

The results of table (1) point that the axes of the cognitive questionnaire to determine the requirements of the labor market in the health clubs that are prepared by Researchers are (The health conditions of health club- the health conditions of the instruments and equipment- the health conditions of the presented programs- the health awareness)

Researchers see that these axes effect on the choice of the suitable competent ones to work in the health club because it is a place closely related to the general health and the individual personality, so it was necessary to set some conditions that must be found in any place having this name. thus, it is Important to set some health conditions for the health clubs which start on designing the health foundation and continue forever (K. Medhat, A. Ahmed, 2004).

Researchers concluded that the first axis is: the health condition of the health club:

The results of the questionnaire pointed out the Importance of the health conditions of the health club concerning:

- The building
- Ventilation
- Lighting
- Temperature

Setting the health rules for the parishioners of sport activities provides optimal conditions to complete training and sport practice.

The building of the health club is very important because it Is necessary to choose a suitable location and a suitable total area to include the instruments and equipment and to allow the parishioners to go on training with out injuries.

Lighting is an important health condition of the health club because it has a great effect on the vision and the eye- safety. The sufficient lighting keeps the eye safe and attracts the beneficiaries to go on training. It protects the eye from sight- shortness (K. Medhat, A. Ahmed, 2004).

Ventilation is also very important for the health club because the air is necessary during the practice physical activity and the person needs to exchange gases rapidly in the lungs for the process of the food assimilation and getting rid of un wanted gases, providing the body with oxygen required for burning inside the body cells besides helping the body to maintain its temperature fixed (A. Kamal and A. Abo Elela, 2001)

This result agree with (I. E. Kamal, 2005) who pointed out to the necessity of taking care of the health club and its construction abilities such as the building and its components as sauna and other preparations with all health conditions and qualifications to secure good services from the health club.

Researchers concluded that the second axis is: The health conditions of the instruments and equipment:

The sport instruments and equipment used in the club must have the law prescriptions that go with the requirements of the special rules of each activity and cope also with the health and technical rules

concerning size, shape and weight to suit the years age and the training age of the individual. It is also necessary to follow the health rules in their cleaning, maintenance and keeping (A. Kamal and A. Abo Elela, 2001).

It is very Important to set and lay out the instruments and equipment in the club and distributing them in a suitable way that allow the practitioners in the club to exercise activity safely and remove the danger of injuries that are increased in the health club because of the lack the experts who can run the club and arrange it.

There must be experts who arable to take care of safety, to run the training sessions and to allow the parishioners who come to the club to get the targeted usefulness. (I. E. Kamal, 2005)

I. E. Kamal (2005) points out to the importance of performing periodical maintenance for the instruments and equipment and avoiding practicing training on the out the out of order ones to refrain from injuries (I. E. Kamal, 2005).

The third axis: the health conditions of the presented programs:

This axis refers to the necessity of taking acre of the health conditions of the presented programs to the beneficiaries to the health club that include (exercises- sauna - rubbing- equipment, etc.) in order to give them the maximum benefit.

These conditions of the programs are related to the previous conditions of instruments- equipment and the facilities of the club as a whole concerning their importance to obtain the optimal benefit for the practitioners and to secure the continuity of the work in the health club and increasing its clients.

The fourth axis: health awareness:

Sport its related to health and needs health awareness so it is necessary to include the axis of health awareness and its many benefits with the beneficiaries to the health club from the part of (the women health- computer users- diseases and how to deal with them through practicing exercises- health feeding and others).

This was confirmed by (D. Tomanek and A. M. Levine, 2003) about the important part played by the health club through providing feeding services and health awareness by showing the importance of having complete feeding elements and how to reach the health food to maintain the health of individual.

Researchers calculated the average scores of the total questionnaire of the research sample that was (29.666) scores from the sum of (48) scores that was the total score of the questionnaire. this shows the weakness of the cognitive level of students of h the research sample in the knowledge required to enter the labor market in the health club as a result of non-having of the health education course what concerns the health clubs as a labor market should be entered, taking interest in it and preparing the graduates well to be fit to work in these health clubs.

According to the previous results of the questionnaire and the lowering of the level of the girls' graduates concerning the required information to work in the health clubs, Researchers suggested developing the content of the health education course:

1- The health conditions of the health club.
* The building
* Ventilation
* lighting
* Temperature

2- The health conditions of the instruments and equipment:
* Prescriptions of the equipment
* Methods of their maintenance and storing
*Methods of laying out the instruments and equipment in the health club
* The heath conditions of clothes and shoes

3- The health conditions of the presented programs as follows:
* Exercises
* Sauna
* rubbing

4- Health awareness that includes:
* Food awareness
* Diseases and the role of sport in prevention and qualifications
* Woman and sport
* Computer users

Conclusion:

1- The questionnaire prepared by Researchers measures the cognitive level of the requirements of the labor market in the health clubs.

2- The proposed content blocks the presented gap in qualifying the graduates to work in the health clubs.

References

AYMAN, M.A., 2005, *The effect of a training program for improving the efficacy of the Vestibular Apparatus and its impact on the trans skill of the wrestler, master thesis,* Faculty of physical education Assuit University, Egypt, pp. 97- 101

AZIZA, A., 1986, *The effect of balance and sensation on the skillful performance in gymnastic*, Phd. Thesis, faculty of physical education girls, Helwan University, Egypt, pp.95- 102

BAHAA-ELDEEN, S., 2007, *Health and health education,* Dar el fikr Al Araby, Egypt, pp.1

NATIONAL FOR QUALITY ASSURANCE AND ACCREDITATION COMMITTEE (NQAAC), 2005, *The quality assurance and accreditation handbook for higher education in Egypt.*

REHAB, M.S., 2000, *A suggested content for the curriculum of fencing in the faculties of sport education,* Mater Thesis, the Faculty of physical Education, Assuit University

ALIA, S., 2001, *Designing an experimental suggested academic curriculum for sport education for the prep stage,* PHD,The Faculty of physical Education, Helwan University.

KAMAL, I.E., 2005, *Evaluating the health clubs in the hotels of the big Cairo* – master Thesis, The Faculty of Physical Education, Zagazig University, Behna Branch.

KAMAL, A., ABO ELELA, A., 2001, *The health culture of the spots men,* Dar El Fekkre-El Araby.

LILA, A.A., NADIA, T.S., 2008, *Designing a curriculum for impressive swimming for third conference of the Faculty of Physical Education, Zagazig:* developing the academic curriculum in the light of the modern trends and the lobar market requirement – March .

MEDHAT, K., AHMED, A., 2004, *The health clubs (Health and fitness – Weight lessening – body building),* Dar El Fekre El Araby .

TOMANEK, D., LEVINE, A. M., 2003, *Nutrition Products and Services Provided by Health Clubs in Northeastern Pennsylvania (NEPA),* Mary wood University, Scranton, Pa, USA, July.

JOSE, D., 1994, *Physical Education and Curriculum Development,* Acase Study in Collaborative Research, PHD, Universitat- De-valercia – Spain.

ROTEM, G. A., 1992, *The Importance Of The Appropriate Segmentation Approach and Strategic Fit between Users & Clubs In The Health Club Industry*, Phd, University Of Illinois At Urbana Champaign.

WALTER, S., ANDREW, K., RICHARDSON, I., 2001, *Diagnosing information systems success: importance–performance maps in the health club industry,* Kingston Business School, Kingston University, Kingston Hill, Kingston upon Thames, Surrey KT2 7LB, UK.

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
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ATTITUDE OF FIRST GRADE TEACHERS OF PRIMARY EDUCATION SCHOOLS RELATED TO PHYSICAL EDUCATION AND SPORT LESSONS

OSMAN PEPE[1], CELAL TAŞKIRAN[2], KADIR PEPE[3], BEKIR ÇOKSEVİM[4]

Abstract

Purpose: At this study, it was aimed to investigate the attitudes of primary education school teachers employed at their first stage related to physical education and sport lessons

Method: For this aim, a likely type inventory format was developed with the help of physical education, sport, assessment and evaluation specialists. Inventory questions have five levels as "strongly agree", "agree", "not certain", "disagree" and strongly disagree". Inventory's Cronbach's alpha reliability coefficient was found as 0, 78. This coefficient was valid for assessment and evaluation specialists.

Population of the study was consisted of primary schools within the boundaries of the province of Antalya City / Turkey. In the sample of the study there were included primary school teachers employed at the first stage of these schools. In this sample of the study, 300 teachers were selected through simple randomized sampling. Correctly and completely filled were 240 out of 300 questionnaires; only those were evaluated.

For statistical analysis, chi-square test and percentage distribution were done according to sex. The level of significance was set at 0.05.

Result: Attitudes of first grade teachers of primary education schools related to physical education and sport lessons were found positive and statistically meaningful difference was not found at the gender parameter $p>0,05$.

Conclusion: It was well-known that physical education and sport lessons were very important for children's social, physical and mental improvement. We thought that the importance of Physical education and sport lessons was known by first grade teachers of primary education schools and they had positive altitude levels for this lesson.

Keywords: Physical Education and Sport, Primary Education School, Attitude.

Introduction

The most distinguishing features of people separating them from other creatures is that they constantly renew themselves and transfers acquired knowledge and experiences to new generations, which is done through education and training.

Education is defined in different ways, although meaning the same. Some of these definitions are: "Education is a chosen process to make sure development of personal and social skills and involving the controlled environment especially the school (E.D. Marry, 1981, 80).

"When the new generations are preparing to take their place in society, education is an activity that helps to gain lifestyle, the necessary knowledge, skills and personalities". (A.F. Oğuzkan, 1993, 13).

"Individuals and communities with purposes of reaching a proper way of life and passing the possessed knowledge, skills and values, planned and programmed manner to new generation and at the same time it is a process of changing the behaviors through lifestyle" (I. Yolcu, 1992, 69). "Education is a process to make the individuals and communities to reach the ideal way of life, transfer of the possessed knowledge and skills to the next generation in a planned way and changing this transformation through the process of changing human behavior and experiences " (A. Yetim, 2000, 128-129).

In a broad definition, it is a behavior development process or process of all topics related society as a result of learning and teaching, especially considering the positive values of society, aims to develop current one's innate abilities and skills as a whole, giving effective harmony to physical and social environment (C. Binbaşıoğlu, 1994, 31).

According to A.F. İmamoğlu (1992, 52), the purpose and function of education, although many, collects them into four groups in general; These are stated as the person's self-realization, human relationships, economic efficiency, and social responsibility. In addition, the purposes of education seem as indispensable in such cases of learning values and social norms of society, build up the social heritage, to ensure the continuation of it, to find solutions to the problems through research and innovation and to make community gain feelings of unity and solidarity.

Physical and physiological aspects of training are also available besides the training of the human mind. This can only be given by means of physical

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Received 12.02.2011 / Accepted 23.04.2011

education and sport. In this context, the complementary part of a general education is physical education and of developing the individual's physical, mental, moral and social skills and make them able to gain personality and character.

According to A. Yetim (2000, 128-129) the purposes of spor and physical education can be divided into four groups as physical development, motor development (nerve-muscle development), mind development and social development.

Education also provides culture transport and continuity of social life. At the same time, it is a series of ongoing activities making individuals gain knowledge, attitude and ability to apply for the development. Education has very important function in community life. It is not an independent variable; it has mutual interaction with other social institutions, cases and with other sciences. Education is in close relationship with economics, law, government, religion, culture, recreation and physical education (A. Yetim, 2000, 117).

Today, the way of looking to physical education in developed countries is having a healthy society with the good harmony of education. Constantly changing and developing events and technology have begun to have an impact on individuals. The function of education here is to provide qualified manpower in the society against this effect. As it is known, qualified manpower requires being physically, mentally and spiritually healthy. This can be done by multi-faceted motion and physical training, which forms basis and principles of physical education. With this regard, physical education takes its own place in the integrity of education (M. Yalçıner, 1992, 65). To complete the education in the contemporary sense can only be done by providing physical education besides student's mental training. In this respect, physical education is a part of general education. Mental and physical training has a parallel correlation in terms of their purposes. One fulfills the other (K. Tamer, 1987, 2). Education is the art of raising a human being and physical education has enormous contribution to public education in the manner of raising human being, so physical education and sports is an inseparable whole with general education (O. Özmen, 1999, 27).

The important place of physical education and sports applications in general education requires no discussion as it is seen. At this study, it was aimed to investigate the attitudes and ideas of primary levels education teachers giving physical education and sport courses.

Attitude is a density ranking from positive to negative towards psychological object (L.L. Thurstone, 1967, 15). A similar definition made by Stanford as well. Stanford describes the attitude as "preparation state of showing the positive or negative reaction to the objects and symbols "(F.H. Stanford, 1961, 473). Certain events and facts take part in individual social environment and their lives, developed and realized the psychological part of an organization that affect the behavior of people (B. Güvenç, 1976, 26).

Method

Research that is Survey-scan model was done to determine attitudes and ideas of primary school education teachers related to given physical education courses.

The population group of the research is collected from the villages and central district of Antalya province of Turkey. Totally 4175 class teachers working in these areas at primary school involved in the study. Collected samples in the way of represent the universe, composed of totally 240 class teachers; 80 from villages, 80 from districts and 80 from city center. The sample group formed by classroom teachers collected from determined primary school according to levels of their development in villages, districts and city center. Classroom teachers were chosen from each school by random sampling method. So, it was aimed to reach the entire universe with the way of forming sampling group.

Data was collected through written sources and survey. A questionnaire was developed according to the purpose. The survey questions have five levels as "strongly agree", "agree", "not certain", "disagree" and "strongly disagree". The survey was applied to sample groups after testing comprehensibility of the questionnaire, content validity and reliability of the sample group. Cronbach's alpha reliability coefficient of the survey was 0.78. The obtained data were analyzed with the frequency (f) and percentage (%), cross-table (Croostab), X^2 (Chi-SQUARE) as a statistical processing. To evaluation of obtained data for determination of % distributions and differences between variables, confidence interval was accepted as 0.05%.

Results

Table 1 Participants' answer rates on the jurisdiction of "Physical education course develops children improvement as a whole (physiological, mental, psychological and social)"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	92	76,7	26	21,7	1	0,8	1	0,8	-	-	120	100

Female	92	76,7	27	22,5	1	0,8	-	-	-	-	120	100
Total	184	76,7	53	22,1	2	0,8	1	0,4	-	-	240	100

X^2= 1,019 df= 3 P>0.05

Jurisdiction of "Physical education courses develops children improvement as a whole (physiological, mental, psychological and social)" were cross-examined with answer of participants at Table 1. Given answers by participants were 76.7% and 22.1% strongly agree, and agree, respectively when look at the results. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 2 Participants' answer rates on the jurisdiction of "Physical Education courses increases achievement of children in other courses overall"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	81	67,5	29	24,2	6	5	3	2,5	1	0,8	120	100
Female	67	55,8	38	31,7	8	6,7	5	4,2	2	1,7	120	100
Total	148	61,7	67	27,9	14	5,8	8	3,3	3	1,3	240	100

X^2=3,652 df= 4 P>0 .05

Jurisdiction of "Physical Education courses increases achievement of children in other courses overall" were cross-examined with the answers of participants at Table 2. Given answers by participants were 61.7% and 27.9% strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 3 Participants' answer rates on the jurisdiction of "Other courses that students not good at can be given instead of physical education courses"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	3	2,5	6	5	14	11,7	31	25,8	66	55	120	100
Female	8	6,7	8	6,7	22	18,3	28	23,3	54	45	120	100
Total	11	4,6	14	5,8	36	15	59	24,6	120	50	240	100

X^2= 5,689 df= 4 P>0.05

Jurisdiction of "Other courses that students not good at can be given instead of physical education couses" were cross-examined with the answers of participants at Table 3. Given answers by participants were 50% and 24.6% strongly disagree, and disagree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 4 Participants' answer rates on the jurisdiction of "Physical Education courses are unnecessary for fist Class student of primary school"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	-	-	1	0,8	3	2,5	22	18,3	94	78,3	120	100
Female	1	0,8	1	0,8	5	4,2	37	30,8	76	63,3	120	100
Total	1	0,4	2	0,8	8	3,3	59	24,6	170	70,8	240	100

X^2=7,219 df= 4 P>0.05

Jurisdiction of "Physical Education courses are unnecessary for fist class student at primary school" was cross-examined with the answers of participants at Table 4. Given answers by participants were 70.8% and 24.6% strongly disagree, and disagree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 5 Participants' answer rates on the jurisdiction of "I think Physical Education has important impact on to be part of the group and being social"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	95	79,2	22	18,3	3	2,5	-	-	-	-	120	100
Female	91	75,8	26	21,7	1	0,8	2	1,7	-	-	120	100

Total	186	77,5	48	20	4	1,7	2	0,8	-	-	240	100

X^2= 3,419 df= 3 P>0.05

Jurisdiction of "I think Physical Education has important impact on to be part of the group and being social" were cross-examined with the answers of participants at Table 5. Given answers by participants were 77.5% and48% strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 6 Participants' answer rates on the jurisdiction of "With the help of Physical Education courses children can spend their energy in a positive manner"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	81	67,5	38	31,7	1	0,8	-	-	-	-	120	100
Female	76	63,3	39	32,5	3	2,5	1	0,8	1	0,8	120	100
Total	157	65,4	77	32,1	4	1,7	1	0,4	1	0,4	240	100

X^2=3,172 df= 4 P>0.05

Jurisdiction of "Children spend their energy in a positive manner with the help of physical education courses" was cross-examined with the answers of participants at Table 6. Given answers by participants were 65.4% and 32.1 % strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 7 Participants' answer rates on the jurisdiction of "Physical Education is a Indispensable Part of Teaching Integrity"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	92	76,7	25	20,8	3	2,5	-	-	-	-	120	100
Female	78	65	35	29,2	5	4,2	1	0,8	1	0,8	120	100
Total	170	70,8	60	25	8	3,3	1	0,4	1	0,4	240	100

X^2= 5,320 df= 4 P>0.05

Jurisdiction of "Physical Education is a Indispensable Part of Teaching Integrity" were cross-examined with the answers of participants at Table 7. Given answers by participants were 70.8 % and 25 % strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 8 Participants' answer rates on the jurisdiction of "To make the education reach its purposes, branch teacher must give the course at primary school"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	74	61,7	16	13,3	23	19,2	5	4,2	2	1,7	120	100
Female	73	60,8	29	24,2	8	6,7	9	7,5	1	0,8	120	100
Total	147	61,3	45	18,8	31	12,9	14	5,8	3	1,3	240	100

X^2= 12,497 df= 4 P<0.0

Jurisdiction of "To make the education reach its purposes, branch teacher must give the course at primary school" were cross-examined with the answers of participants at Table 8. Given answers by participants were 61.3 % and 18.8 %, and 12,9 % strongly agree, and agree, and not certain respectively. Statistically meaningful difference was found between the genders (P> 0.05).

Table 9 Participants' answer rates on the jurisdiction of "Physical Education and sport course has a important place in preventing the new generation from having bad habits and raising qualified people"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	87	72,5	30	25	2	1,7	-	-	1	0,8	120	100
Female	85	70,8	32	26,7	1	0,8	2	1,7	-	-	120	100

Total	172	71,7	62	25,8	3	1,3	2	0,8	1	0,4	240	100

sX^2=3,421 df= 4 P>0.05

Jurisdiction of "Physical Education and sport course has a important place in preventing the new generation from having bad habits and raising qualified people" were cross-examined with the answers of participants at Table 9. Given answers by participants were 71.7 % and 25.8 % strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 10 Participants' answer rates on the jurisdiction of "Students gaining their self-confidence with help of Physical Education and sport courses".

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	80	66,7	29	24,2	11	9,2	-	-	-	-	120	100
Female	83	69,2	31	25,8	5	4,2	1	0,8	-	-	120	100
Total	163	67,9	60	25	16	6,7	1	0,4	-	-	240	100

X^2=3,372 df= 3 P>0.0

Jurisdiction of "Students gaining their self-confidence with help of Physical Education and sport courses" were cross-examined with answers of the participants at Table 10. Given answers by participants were 67.9 % and 25 % strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 11 Participants' answer rates on the jurisdiction of "Physical Education and sport courses strengthening the students to adaptation to school"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	75	62,5	30	25	6	5	2	1,7	7	5,8	120	100
Female	79	65,8	32	26,7	3	2,5	4	3,3	2	1,7	120	100
Total	154	64,2	62	25,8	9	3,8	6	2,5	9	3,8	240	100

X^2= 4,613 df= 4 P>0.05

Jurisdiction of "Students gaining their self-confidence with help of Physical Education and sport courses" were cross-examined with answers of the participants at Table 11. Given answers by participants were 64.2 % and 25.8 % strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 12 Participants' answer rates on the jurisdiction of "Physical Education and sport courses provide the students to distinguish what is correct, make cooperation, congratulate the winner, teaching loosing not end of the life"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	87	72,5	27	22,5	5	4,2	-	-	1	0,8	120	100
Female	82	68,3	31	25,8	6	5	1	0,8	-	-	120	100
Total	169	70,4	58	24,2	11	4,6	1	0,4	1	0,4	240	100

X^2= 2,515 df= 4 P>0.05

Jurisdiction of "Physical Education and sport courses provides the students to distinguish what is correct, make cooperation, congratulate the winner, teaching loosing not end of the life" were cross-examined with answers of the participants at Table 12. Given answers by participants were 70,4 % and 24.2 % strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 13 Participants' answer rates on the jurisdiction of **"**Physical Education and sport courses teach the students obey the rules and respect them"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	N	%	n	%	n	%	n	%	n	%
Male	78	65	39	32,5	3	2,5	-	-	-	-	120	100
Female	79	65,8	36	30	4	3,3	1	0,8	-	-	120	100
Total	157	65,4	75	31,3	7	2,9	1	0,4	-	-	240	100

X^2= 1,269 df=3 P>0.05

Jurisdiction of "Physical Education and sport courses teach the students obey the rules and respect them" was cross-examined with answers of the participants at Table 13. Given answers by participants were 65,4 % and 31,3 % strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 14 Participants' answer rates on the jurisdiction of "Physical Education and sport course increases creativeness and courage of the students"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	N	%	n	%	n	%	n	%	n	%
Male	76	63,3	27	22,5	16	13,3	1	0,8	-	-	120	100
Female	76	63,3	35	29,2	7	5,8	2	1,7	-	-	120	100
Total	152	63,3	62	25,8	23	9,6	3	1,3	-	-	240	100

X^2= 4,887 df= 3 P>0.05

Jurisdiction of "Physical Education and sport course increases creativeness and courage of the students" were cross-examined with answers of the participants at Table 14. Given answers by participants were 63,3 % and 25.8 % strongly agree, and agree, respectively. Statistically meaningful difference was not found between the genders (P> 0.05).

Table 15 Participants' answer rates on the jurisdiction of **"**Physical Education and sport course make the students free of mental fatigue caused by other courses"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	N	%	n	%	n	%	n	%	n	%
Male	85	70,8	32	26,7	3	2,5	-	-	-	-	120	100
Female	82	68,3	37	30,8	-	-	1	0,8	-	-	120	100
Total	167	69,6	69	28,8	3	1,3	1	0,4	-	-	240	100

X^2= 4,416 df= 3 P>.05

Jurisdiction of "Physical Education and sport course make the students free of mental fatigue caused by other courses" was cross-examined with answers of the participants at Table 15. Given answers by participants were 69,6 % and 28.8 % strongly agree, and agree, respectively. Statistically meaningful difference was found between the genders (P> 0.05).

Table 16 Participants' answer rates on the jurisdiction of "Physical Education and sport courses have an impact on building happiness and peace within the societies"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Male	67	55,8	38	31,7	14	11,7	1	0,8	-	-	120	100
Female	73	60,8	40	33,3	3	2,5	4	3,3	-	-	120	100
Total	140	58,3	78	32,5	17	7,1	5	2,1	-	-	240	100

X^2= 9,226 df=3 P<.05

Jurisdiction of "Physical Education and sport courses have an impact on building happiness and peace within the societies" were cross-examined with answers of the participants at Table 16. Given answers by participants were 58,3% and 32.5 % and 7,1 % strongly agree, and agree, not certain respectively. Statistically meaningful difference was found between the genders (P> 0.05). So, difference point of view of between genders was found

Table 17 Participants' answer rates on the jurisdiction of "Physical Education and sport courses have an important impact on raising healthy children, being creative, sociable, and having good manner"

Variables	strongly agree		agree		not certain		disagree		strongly disagree		Total	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Male	71	59,2	35	29,2	14	11,7	-	-	-	-	120	100
Female	87	72,5	25	20,8	6	5	2	1,7	-	-	120	100
Total	158	65,8	60	25	20	8,3	2	0,8	-	-	240	100

X^2= 8,487 df= 3 P<.05

Jurisdiction of "Physical Education and sport courses have an important impact on raising healthy children, being creative, sociable, and having good manner" were cross-examined with answers of the participants at Table 17. Given answers by participants were 65, 8% and 25 % and 8, 3 % strongly agree, agree, and not certain respectively. There were statistically meaningful ideas differences between the genders (P> 0.05).

Discussion and Conclusion

The research was done to determine attitudes and ideas of primary school education teachers related to given physical education courses. The comparisons were done according to given answers to questions by classroom teachers with using chi-square test. As a result of this comparison, statistically significant difference was found between the given answers of male and female teachers in three jurisdictions. These data were given below;

"To make the education reach its purposes, branch teacher must give the course at primary school"

"Physical Education and sport courses have an impact on building happiness and peace within the societies"

"Physical Education and sport courses have an important impact on raising healthy children, being creative, sociable and having good manner". Their responses was found statistically different with taken 0.005 significance level (P<0.005) (Table 8-16-17).

Statistically significant difference was found between the given answers of male and female teachers in 14 jurisdictions indicated below.

"Physical education course develops children improvement as a whole (physiological, mental, psychological and social)", "Physical Education courses increases achievement of children in other courses overall", "Other courses that students are not good at can be given instead of physical education courses", "Physical Education courses are unnecessary for first class student of primary school", "I think Physical Education has an important impact on being part of the group and being social", "With the help of Physical Education courses children can spend their energy in a positive manner", "Physical Education is a indispensable part of teaching integrity", "Physical Education and sport course have an important place in preventing the new generation from having bad habits and raising qualified people", "Students gaining their self-confidence with the help of Physical Education and sport courses", "Physical Education and sport courses strengthening the students to adaptation to school", "Physical Education and sport courses provide the students to distinguish what is correct, make cooperation, congratulate the winner, teaching loosing not end of the life", **"**Physical Education and sport courses teach the students obey the rules and respect them", "Physical Education and sport course increase creativeness and courage of the students", **"**Physical Education and sport course make the students free of mental fatigue caused by other courses". Their responses were not found statistically different with taken 0.005 significance level (P<0.005) (Table 1-7, 9-15).

The obtained data related with attitudes of the participant classroom teachers on the importance of physical education and sports courses were generally positive in accordance with the judgments in the survey and we can say that they are aware of positive effect and necessity of physical education and sports courses at primary school.

References

BİNBAŞIOĞLU, C., 1994, *"General Educational Information"*, Kadı oğlu Press, Ankara,

GÜVENÇ, B., 1976, *"Values, Attitudes and Behaviors"* Journal of Research and Method at Social Science. R. Keleş.Ankara :TODAİE Press Ankara

MARRY, E.D., 1981, *"Creating Social Reality: The Case of Women of Sport"* in Sociology of sport Diverse Perspectives (Eds: Suzan L, Green Darfer, Andrew Tiannakis), Leisure Press, M.Y.

OĞUZKAN, A.F., 1993, *"Glossary Of Educational Terms"* , Emel Press Ankara,.

ÖZMEN, Ö., 1999. *"Contemporary Sport Training Triangle"* , Publishing House, Ankara,

THURSTONE, L.L., 1967, *"Attitudes Can Be Measured",* Readings In Attidute Theory and Measurement. Ed: Martin Fishlen . New York: John Wiley&Sons, inc77-89,

STANFORD, F.H., 1961, *" Psychology A Scientific Study of Man",* California: Wadsworth Publishing Company

TAMER, K., 1987, *"Physical Education and Games teaching"*, Açık öğretim Fakültesi Press, No:101, Ankara.

YALÇINER, M., 1992, *The Place of Physical Education and Sport in Integrity of National Education",* I. Educational Institutions of

Physical Education and Sports Symposium,19-21.

YETİM, A., 2000, "*Sociology and Sport***"** , Topkar Typography, Akçaabat, Trabzon, Ankara.

İMAMOĞLU, A.F., 1992, *"The Place of Physical Education and Sports in General Education"*, Education Journal Vol 1,(2), Milli Eğitim Press

YOLCU, İ., 1992, *"The Place and Importance of Physical Education and Sports in Integrity Education"* , I. Educational Institutions of Physical Education and Sports Symposium,, İzmir M.E.Press, ,72, Ankara.

GENDER, COMPETITION AND COOPERATION IN SCHOLAR PHYSICAL EDUCATION

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Abstract

Background. The present study analyzes the gender difference presented in the physical education class: the boys are competitive but they do not cooperate and the girls cooperate but they are not competitive.

Aims. The aim of the study is to dispute gender stereotypes and to encourage communication between pupils by using the play in a mixed pair and to improve cooperation skills for boys and competition spirit for girls.

Methods. Observation and Sociometry of Moreno. We applied the sociometry and the sociomatrix and calculated the sociometric index: the Index of Social Status (ISS) and the Index of Preferential Status (ISP) based on the total of preferences (Tpref) and rejections (Tresp).

Results. By calculating the Index of Social Status and Index of Preferential Status, we will know the formal and informal leader of the mixed group. If at the initial test, the leader is a boy, followed by a girl, at the final tests the boy loses the place and another boy becomes the leader but the girl keeps the same position in the group, proving consequence and appreciation.

Conclusions. We observe that the initial stereotypes are changed and this will determine choices based on new criteria which involve cooperation and competition.

Keywords: pair, game, cooperation, stereotype.

Introduction

When mentioning the concept of gender identity, one can understand the process of social construction of the differences between the two categories: "feminine" and "masculine" (C. Delphy, 1991), as well as those of "woman" and "man". Gender studies can also be approached from the perspective of physical education through the analysis of gender stereotypes regarding the sportive branches and disciplines which are not recommended for girls, as they are considered to be "masculine" and can be registered in the subfield of *feminist studies*. But the same rule applies to boys that want to practice sportive branches and disciplines considered to be "feminine" such as dance, ballet, even volley, which can be registered under *masculine* studies. Gender differences are defined as the products of the interaction between biological characteristics of women and men with the environment and they reflect the individual differences through biological, psychological and behavioural variables. (D.N. Ruble, C.L. Martin, 1998).

It has been observed that the separate development of motor skills facilitates the separate development of cognitive skills: boys will get involved especially in activities which will stimulate the development of their spatial skills, girls will engage in social, interactive activities which stimulate their verbal skills (M. Gurian, 2001). At a pedagogical level, in the physical education class it has been observed (M. Balica et al., 2004) that boys aged between 10 and 14 do not know how to cooperate, but only compete; the predominant characteristics are competitiveness and combativeness (A. Chiriac, 2004); the co-operant characteristic belongs to the girls. The educational system itself is structured around the notion of competitiveness, hierarchy and not cooperation and finding a role and status of each member of the group; this implies that the girls, which generally do not adapt to the competitive system, produce much weaker results in the physical education class than the boys (A. Davisse, 2000) and the ones that manage to adapt are regarded as "sportive".

Research shows that women have a more positive attitude towards cooperation than men, while men have a more positive attitude towards

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Received 02.04.2011 / Accepted 23.05.2011

competition than women do (Hoyenga & Hoyenga, 1993). Often, boys get involved in games of a competitive nature. Even in the cases in which girls and boys are playing the same game, the boys start competing with everyone around them, while the girls form cooperation groups (Hoyenga & Hoyenga, 1993). and individualism and they will collaborate with the girls in order to achieve the motor tasks. Thus, working in pairs and mixed teams during physical education classes helps fight gender stereotypes by getting to know the partner or teammate of the opposite sex (S. Colwell, 1999). Communication and cooperation strategies approached together with the purpose of the motor task facilitate a path of getting to know the other, appreciating his role and implicitly the development of relationships.

The analysis of school curriculum represents a current issue (M. Balica et al., 2004) and the specific of physical education in Romania has been up to 2010 that certain sportive branches were indicated and recommended separately for boys and girls in the school curriculum. In certain schools, if the space and material conditions allowed it, the physical education class was organised completely unmixed; the timetable was made so as two parallel classes of the same level would have the same physical education class, but unmixed in terms of gender; a male teacher would work with the boys and a female teacher with the girls. These practices are presently not recommended as they no longer correspond to current educational demands; it is believed that working in unmixed groups prevents boy-girl interaction, even if something maybe gained on a motor and organizational level.

Gender education is the teaching system related to the specific learning needs of boys and girls, with the purpose of ensuring them equal chances of development.

The object of study is the boy-girl relationship and communication in the pair required by the motor game. It has been proves that boys are not educated in the spirit of cooperation. In this regard, the Learning through cooperation is a modern method through which individuals work together with the purpose of accomplishing common objectives. They collaborate to learn better or to help other learn better; this is why the usage of the pair boy-girl will diminish the boys' will of competitiveness.

The aim of this research is to dispute gender stereotypes in the physical education and sports class through girl-work pair work that also involves achieving the didactic objectives.

The tasks and objectives of the research were to organise a set of motor games to be played in pairs during the physical education class (such as "The Statues"). The operational objectives will be made so as to fulfil the tasks as follows:

- During the motor game "The Statues", pupils hold hands; the pairs are formed by a boy and a girl that run in an allocated space, trying to catch another pair without taking their hands apart; the followed pair must run between the other pairs that are standing in place, going around them; if the pair is caught, then it must catch in its turn the pair that had been following it during the previous round.
- Methodical tips: the activity should be started with a large space, which, as the game progresses is made smaller, so that the space between the pairs is less extensive; thus, the pupils must communicate better between themselves in order to move around.

chosen game will educate and improve the boys' cooperation skills with the purpose of disputing gender stereotypes. It is mentioned that each pupil had the liberty of choosing his/her own partner.

Hypothesis

It is presumed that mixed pair work will improve the cooperation and communication between boys and girls, which will lead to a better knowledge and appreciation between the two members of the pair, materialised in the high number of mutual choices.

Material and method

The experiment took place in the eighth grade School from Jamu Mare, Timiş County , during the first semester of the 2010-2011 scholastic year, at an eighth grade class with 18 pupils – 9 girls and 9 boys. The observation method (systematic observation) and the sociometric method (F. Georgescu, 1979) were used. The sociometric test was applied, the sociometric matrix was produced and the sociometric indexes were calculated: the Social Status Index (ISS) and the Preferential Status Index (ISP) were calculated on the total of preferences (TPref) and on the total of rejections (TResp). The sociometric test used to determine the choices and rejections contains 4 types of questions: *a) Whom would you choose as your pair in "The Statues" game? b) Whom would you not choose as your pair in "The Statues" game? c) Who do you think would make a pair with you in "The Statues" game? d) Who do you think would not make a pair with you in "The Statues" game?*

Three answer options are offered, each being awarded with 3 points, 2 points or 1 point on the order of preference. These choices will be represented in a sociometric matrix in which the choices and rejections between boys and girls will be presented.

In the tables presented below, the boys are registered with dark grey and the boys with light grey.

An initial testing was made at the beginning of the first semester and a final one was made at the end of the same semester (Tables 1-4)

Results

Following the initial testing, this data has been recorded:

Table 1: Presentation of choices and rejections recorded upon initial testing

Pupils	GM	LO	TC	BS	MP	MB	CD	PN	PI	NF	FG	SŞ	MI	SI	GR	BP	PR	FA
GM	**0**	1			-1		-3			-2				2			3	
LO		**0**					-1			-2		-3		3			1	2
TC			**0**				-2		2	-3			-1	3				1
BS	-2			**0**								2	1	-3		3		-1
MP				-3	**0**				3	-1		-2	2			1		
MB		1			-2	**0**			-1	-3							2	3
CD				-3		1	**0**	3			2	-2				-1		
PN				-2			3	**0**	2	-3		-1		1				
PI				-2	3				**0**			-3	2	-1		1		
NF		2		-2						**0**	3	-1	-3		1			
FG				-3			2	1	-2		**0**						3	-1
SŞ			-1	3	-3				1			**0**	-2			2		
MI		-3	2				-1		3	-2			**0**			1		
SI	2		1	-1			-2			-3				**0**			3	
GR				-1				1		2	3	-2			**0**			-3
BP			2	-1	-2				1			-3	3			**0**		
PR	2			-1			-2	1		-3				3			**0**	
FA			1			3				-1		-2	-3	2				**0**
T.Pre	2/4	3/4	4/6	1/3	1/3	2/4	2/5	4/6	6/12	1/2	3/8	1/2	4/8	6/14	1/1	5/8	5/12	3/6
T.Res	½	1/3	1/1	10/19	4/8	0/0	6/11	0/0	2/3	10/23	0/0	9/19	4/9	2/4	0/0	1/1	0/0	3/5
ISS	0,11	0,17	0,23	0,05	0,05	0,11	0,11	0,23	0,35	0,05	0,17	0,05	0,23	0,35	0,05	0,29	0,29	0,17
ISP	0,05	0,11	0,17	-0,52	-0,17	0,11	-0,17	0,23	0,23	-0,52	0,17	-0,47	0,00	0,23	0,05	0,23	0,29	0,00

Upon initial testing, boys choose girls firstly in 2 cases (TC - SI, PR - SI), while girls choose boys in the same order also in 2 cases (FG – PR, SI - PR).

For the second position, boys choose girls in one single case (GM – SI), while the girls choose boys in 4 cases (MB – PR, PN – PI, SI – GM, GR – NF).

For the third position, boys choose girls in 3 cases (GM – LO, TC – FA, PR – PN), the same number of times girls choose boys (LO – PR, SI – TC, FA – TC).

When it comes to rejections, boys turn down girls chiefly in 5 cases (GM – CD, TC – NF, BS – SI, MI – LO, PR – NF), the same as girls reject boys (LO – SŞ, CD – BS, NF – MI, FG – BS, FA – MI).

For the second position, boys reject girls in 4 cases (GM – NF, TC – CD, MI – NF, PR – CD) and girls reject boys in 7 cases (MB – MP, CD – SŞ, PN – BS, NF – BS, FG – PI, GR – SŞ, FA – SŞ).

Boys reject girls for the third position in 4 cases (BS – FA, MP – NF, PI – SI, MI – CD) and the girls reject boys in 6 cases (MB - PI, CD - BP, PN - SŞ, NF - SŞ, NF - SŞ, SI - BS, GR - SŞ).

Table 2: Presentation of choices and rejections estimated upon initial testing

Pupils	GM	LO	TC	BS	MP	MB	CD	PN	PI	NF	FG	SŞ	MI	SI	GR	BP	PR	FA
GM	**0**			-1	-2			-3						1			2	3
LO	2	**0**					-2						-3			-1	3	1
TC			**0**		-3				2			-2	-1	3				1
BS	+2 -2			**0**		-1					3			-3	1			
MP			1	+2 -1	**0**				3				-3			-2		
MB	1	2			-2	**0**							-3	-1				3
CD	1	-2					**0**	3		2							-1	-3
PN		2	-1			-2	3	**0**							1			-3
PI					3	-2	1	2	**0**		-1							-3
NF	-2					-3				**0**	2			1	3		-1	
FG		-3				-1	1			2	**0**				3			-2
SŞ		-2		3		-3						**0**	1	-1		2		
MI		-2	3									1	**0**	-3		2		-1
SI	2		1	-3									-1	**0**	-2		3	
GR		-3					1			2	3				**0**		-2	-1
BP				1	-3				2			-2	3			**0**	-1	
PR	2	-3				1							-1	3			**0**	-2
FA		2				3				-1	-3			1	-2			**0**
T.Pre	6/10	3/6	3/5	4/7	1/3	2/4	4/6	2/5	3/7	3/6	3/8	1/1	2/4	5/11	4/8	2/4	3/8	4/8
T.Res	2/4	6/15	1/1	3/5	4/10	6/13	1/2	1/3	0/0	1/1	2/4	2/4	6/12	4/8	2/4	2/3	4/5	7/15
ISS	0,35	0,17	0,17	0,23	0,05	0,11	0,23	0,11	0,17	0,17	0,17	0,05	0,11	0,29	0,23	0,11	0,17	0,23
ISP	0,23	-0,17	0,23	0,05	-0,17	-0,23	0,17	0,05	0,17	0,23	0,05	-0,05	-0,23	-0,05	0,11	0,00	-0,05	-0,17

When it comes to presuming, the boys think they will be chosen firstly by the girls in 4 cases (GM – FA, TC – SI, BS – FG, PR – SI) and the girls by the boys in 2 cases (LO – PR, SI – PR).

For the second position, the boys presume they will be chosen by girls in 2 cases (BS – GM, PI – PN) and the girls will be chosen by the boys also in 2 cases (LO – GM, SI – GM).

For the third position, the boys think they will be chosen by the girls in 5 cases (GM – SI, TC – FA, BS – GR, PI – CD, PR – MB) and the girls by the boys in 4 cases (MB – GM, CD – GM, SI – TC, GR – BS).

In the case of the presumed rejections, the boys think they will not be chosen by girls for the first position in 6 cases (GM-PN, BS-SI, PI-FA, SŞ-MB, MI-SI, PR-LD) and the girls think they will not be chosen by the boys in 3 cases (LO-MI, MB-MI, SI-BS).

For the second position, the boys think they will not be chosen by the girls in 5 cases (BS-GM, PI-MB, SŞ-LD, MI-LD, PR-FA) and the girls will not be chosen by the boys in 3 cases (MB-MP, NF-GM, GR-PR).

For the last position the boys think they will not be chosen by the girls in 4 cases (BS-MB, PI-FG, SŞ-SI, MI-FA) while the girls will not be chosen by the boys in 5 cases (LO-BP, CD-PR, PN-TC, NF-PR, SI-MI).

Following the final testing, the results were recorded in the next two tables:

Table 3: Presentation of choices and rejections upon final testing

Pupils	GM	LO	TC	BS	MP	MB	CD	PN	PI	NF	FG	SŞ	MI	SI	GR	BP	PR	FA
GM	**0**			-1	-2			-3						1			2	3
LO	2	**0**					-2						-3			-1	3	1
TC			**0**		-3				2			-2	-1	3				1
BS	+2 -2			**0**		-1					3			-3	1			
MP			1	+2 -1	**0**				3				-3			-2		
MB	1	2			-2	**0**							-3	-1				3
CD	1	-2					**0**	3		2							-1	-3
PN		2	-1			-2	3	**0**							1			-3
PI					3	-2	1	2	**0**		-1							-3
NF	-2					-3				**0**	2			1	3		-1	
FG		-3				-1	1			2	**0**				3			-2
SŞ		-2		3		-3						**0**	1	-1		2		
MI		-2	3									1	**0**	-3		2		-1
SI	2		1	-3									-1	**0**	-2		3	
GR		-3					1			2	3				**0**		-2	-1
BP				1	-3				2			-2	3			**0**	-1	
PR	2	-3				1							-1	3			**0**	-2
FA		2				3				-1	-3			1	-2			**0**
T.Pre	6/10	3/6	3/5	4/7	1/3	2/4	4/6	2/5	3/7	3/6	3/8	1/1	2/4	5/11	4/8	2/4	3/8	4/8
T.Res	2/4	6/15	1/1	3/5	4/10	6/13	1/2	1/3	0/0	1/1	2/4	2/4	6/12	4/8	2/4	2/3	4/5	7/15
ISS	0,35	0,17	0,17	0,23	0,05	0,11	0,23	0,11	0,17	0,17	0,17	0,05	0,11	0,29	0,23	0,11	0,17	0,23
ISP	0,23	-0,17	0,23	0,05	-0,17	-0,23	0,17	0,05	0,17	0,23	0,05	-0,05	-0,23	-0,05	0,11	0,00	-0,05	-0,17

Upon final testing, one can observe that the boys choose girls for the first position in 4 cases (GM - FA, TC - SI, BS - FG, PR - SI), while the girls choose the boys for the first position for the same position in 2 cases (LO - PR and SI - PR).

For the second position, boys choose girls in one single case (PI-PN), while girls choose boys in 2 cases (LO-GM, SI-GM).

For the third position, boys choose girls in 5 cases (GM - SI, TC - FA, BS - GR, PI - CD, PR - MB) and the girls choose boys in 3 cases (MB - GM, CD - GM, SI - TC).

In the case of rejections, boys do not choose girls for the first position in 6 cases (GM - PN, BS - SI, PI - FA, SŞ - MB, MI - SI, PR-LO) and the girls reject boys in 3 cases (LO - MI, MB - MI, SI - BS).

For the second position, the boys reject the girls in 4 cases (PI - MB, SŞ - LO, MI - LO, PR - FA) and the girls reject the boys in 3 cases (MB - MP, NF - GM, GR - PR).

Boys reject girls for the third position in 4 cases (BS - MB, PI - FG, SŞ - SI, MI - FA) and the girls choose the boys in 5 cases (LO - BP, CD - PR, PN - TC, NF - PR, SI - MI).

Table 4: Presentation of estimated choices and rejections upon final testing

Pupils	GM	LO	TC	BS	MP	MB	CD	PN	PI	NF	FG	SŞ	MI	SI	GR	BP	PR	FA
GM	**0**	1			-1		-3			-2				2			3	
LO		**0**					-1			-2		-3		3			1	2
TC			**0**				-2		2	-3			-1	3				1
BS	-2			**0**								2	1	-3		3		-1
MP				-3	**0**				3	-1		-2	2			1		
MB		1			-2	**0**			-1	-3							2	3
CD				-3		1	**0**	3			2	-2				-1		
PN				-2			3	**0**	2	-3		-1		1				
PI				-2	3				**0**			-3	2	-1		1		
NF		2		-2						**0**	3	-1	-3		1			
FG				-3			2	1	-2		**0**						3	-1
SŞ			-1	3	-3				1			**0**	-2			2		
MI		-3	2				-1		3	-2			**0**			1		
SI	2		1	-1			-2			-3				**0**			3	
GR				-1				1		2	3	-2			**0**			-3
BP			2	-1	-2				1			-3	3			**0**		
PR	2			-1			-2	1		-3				3			**0**	
FA			1			3				-1		-2	-3	2				**0**
T.Pre	2/4	3/4	4/6	1/3	1/3	2/4	2/5	4/6	6/12	1/2	3/8	1/2	4/8	6/14	1/1	5/8	5/12	3/6
T.Res	1/2	1/3	1/1	10/19	4/8	0/0	6/11	0/0	2/3	10/23	0/0	9/19	4/9	2/4	0/0	1/1	0/0	3/5
ISS	0,11	0,17	0,23	0,05	0,05	0,11	0,11	0,23	0,35	0,05	0,17	0,05	0,23	0,35	0,05	0,29	0,29	0,17
ISP	0,05	0,11	0,17	-0,52	-0,17	0,11	-0,17	0,23	0,23	-0,52	0-17	-0,47	0,00	0,23	0,05	0,23	0,29	0,00

When it comes to presumptions, the boys think that they will be chosen for the first position by girls in 2 cases (TC-SI, PR-SI) and the girls presume they will be chosen by the boys in 2 cases (FG-PR, SI-PR).

For the second position, boys presume they will be chosen by the girls in one single case (GM-SI) and the girls think they will be chosen by the boys in 3 cases (MB-PR, PN-PI, SI-GM).

For the third position, the boys think they will be chosen by the girls in 3 cases (GM-LO, TC-FA, PR-PN) and the girls will be chosen by the boys in 3 cases (LO-PR, SI-TC, FA-TC).

In the case of presumed rejections, the boys assume they will be rejected by the girls for the first position in 5 cases (GM-CD, TC-NF, BS-SI, MI-LO, PR-NF) and the girls think they will not be chosen by the boys also in 5 cases (LO-SŞ, CD-BS, NF-MI, FG-BS, FA-MI).

For the second position, boys think they will not be chosen by girls in 4 cases (GM-NF, TC-CD, MI-NF, PR-CD) and the girls presume they will not be chosen by the girls in 7 cases (MB-MP, CD-SŞ, PN-BS, NF-BS, FG-PI, GR-SŞ, FA-SŞ).

For the last position, the boys think they will be rejected by the girls in 4 cases (BS-FA, MP-NF, PI-SI, MI-CD) and the girls think they will not be chosen by the boys in 6 cases (MB-PI, CD-BP, PN-SŞ, NF-SŞ, SI-BS, GR-BS).

Table 5: Presentation of the choices and rejections (initial and upon final testing)

	Ti: BOYS-GIRLS	Tf: BOYS-GIRLS	Ti: GIRLS-BOYS	Tf: GIRLS-BOYS
CHOICES (3)	2	4	2	2
CHOICES (2)	1	1	4	2
CHOICES (1)	3	5	3	3
REJECTIONS (-3)	5	6	5	3
REJECTIONS (-2)	4	4	7	3

REJECTIONS (-1)	4	4	6	5
PRESUMED CHOICES (3)	4	2	2	2
PRESUMED CHOICES (2)	2	1	2	3
PRESUMED CHOICES (1)	5	3	4	3
PRESUMED REJECTIONS (-3)	6	5	3	5
PRESUMED REJECTIONS (-2)	5	4	3	7
PRESUMED REJECTIONS (-1)	4	4	5	6

Discussions

a) *Whom would you choose as your pair in "The Statues" game?*

It can be observed from the table above that the boys are improving their perception of girls during the first semester: if upon initial testing they chose a girl for the first position in 2 cases, upon final testing the number of choices increased to 4; for the second position no change is noticed (1 case each) and for the third position the number of choices rises from 3 to 5. In the case of the girls their choices remain relatively unchanged (2 for the first position and 3 for the third position); only for the second position one can notice a decrease from 4 to 2 choices.

b) *Whom would you not choose as your pair in "The Statues" game?*

In the case of girls' rejection by boys, their decision remains unchanged in the case of the second and third positions (4 each) and they increase from 5 to 6 for the first position. The girls diminish their rejections towards the boys from 5 to 3 for the first position, from 7 to 3 for the second position and from 6 to 5 for the third position.

c) *Who do you think would make a pair with you in "The Statues" game?*

If upon initial testing, the boys presume that the girls would choose them in 4, 2 and 5 cases respectively (for the first, second and third position) and upon final testing these presumptions decrease to 2, 1 and 3, respectively. When it comes to the girls, they remain constant in their choice for the first position (2 presumed choices upon both tests), increase from 2 to 3 for the second position and decrease from 4 to 3 for the third position.

d) *Who do you think would not make a pair with you in "The Statues" game?*

If the boys decrease their number of presumed rejections by girls from 6 to 5 and from 5 to 4 for the first two positions and remain constant for the third position (4 upon both tests), the girls increase the number of presumed rejections by boys from 3 to 5 for the first position, from 3 to 7 for the second position and from 5 to 6 for the third position.

- ***Index of sociometric status***

Upon initial testing, one can notice that there is a tie for the position for class leader: a girl (SI, Iss=0,35) and a boy (PI, Iss=0,35) and upon final testing, PI loses his position; only one pupil remains the leader (GM, Iss=0,35), followed closely by SI (Iss=0,29).

- ***Index of preferential status***

Upon initial testing, a boy is on the first position (PR, Isp=0,29), followed closely (Isp= 0,23) by two girls (SI and PN) and by two boys (BP and PI). Upon final testing, preferences change completely – two boys (GM and TC) and a girl (NF) share the same index (Isp=0,23).

Conclusions

1. The analysis of preferences and rejections recorded between boys and girls before and after working in mixed pairs helps us understand better the perception and stereotypes that boys and girls form about each other, without knowing each other and without working together and to be aware of the difficulty with which these are changed. Working in mixed pairs during the physical education class represents one of the means to dispute gender differences and helps improve the cooperation between girls and boys.
2. It has been noticed that girls are more reserved regarding the boys' capacity of cooperating in a mixed team and this is reflected in the relatively unchanged number of choices from the initial to the final testing.
3. It has been noticed that initial stereotypes that determine attraction during adolescence are confused and determine choices based on new criteria that involve competitiveness (in the case of the girls' rejection by boys) or cooperation (in the case of the boys' choice or rejection by girls).

References:

BALICA, M., FARTUŞNIC, C., HORGA, I., JIGĂU, M., VOINEA, L., 2004, *Perspective asupra dimensiunii de gen în educaţie*. Ed. MarLink, Bucureşti.

CHIRIAC, A., (coord), 2004, *Diferenţe de gen în creşterea şi educarea copiilor*, Editor.ro

COLWELL, S., 1999, *Feminism and figurational sociology: contributions to understandings of sports, physical education and sex/gender*. European Physical Education; (5) 3: 219-240.

DAVISSE, A., 2000, *Au temps de l'école l'éducation physique et sportive des filles*. Dans: Louveau Catherine et Davisse Annick: Sports, école, société : la différence des sexes. coll : Espaceset Temps du Sport, Ed. l'Harmattan. Paris.

DELPHY, C., 1991, *Penser le genre : quels problèmes* ? In M-C. Hurtig, M.Kail, H. Rouch, *Sexe et genre : de la hiérarchie entre les sexes* (pp 89-102). Paris : CNRS.

GEORGESCU, F., 1979, *Îndrumător pentru cercetarea sociologică în cultura fizică*. Editura Sport-Turism, Bucureşti, 160-170

GURIAN, M., 2001, *Boys and Girls Learn Differently*!, Jossey-Bass, San Francisco.

HOYENGA & HOYENGA, 1993, *Gender Related Differnces. Origines and Outcomes*, Allyn & Bacon, New York.

RUBLE, D.N, MARTIN, C.L, 1998, *Gender development.* In W. Damon & N. Eisenberg, Handbook of child psychology. Social, emotional, and personality development. New York: Wiley.

REGULATION DOCUMENTS IN PRIMARY SCHOOL IN ITALY ON MOTOR CONTROL SYSTEM AND DIDACTICS OF MOVEMENT

RAIOLA GAETANO[1]

Abstract

Purpose. To identify into the ministerial documents of Primary school the educational activities and didactic on pedagogy of body and movement according to new neurological discoveries on motor control and learning

Methods. Theoretical-argumentative approach about scientific paradigms on motor control and learning and historical-documentary one about the ministerial documents on teaching activities

Results. Particular [aspects], that can be connected to the new neurological theories, does not carry out. All ministerial documents does not provide any reference of motor imagery, open loop, closed loop and didactics of movement

Conclusions. It may be useful to deepen further the study and deliver the results to the governmental experts for the necessary updates to fill up the vacuum

Key words: regulation documents, motor imagery, open loop, closed loop.

Introduction

To introduce this study it is mandatory to synthesize the rules and the regulation documents and then to deduce, by theoretical and argumentative research approach, the essential data of neurological, psycho and physiological aspects on movement and its didactics.

Primary education was completely reformed with Legislative Decree no. 59 of 19 February 2004, which was passed following the implementation of delegated Law no. 53 of 28 March 2003 which aimed at reforming the entire system of education and training. Based on the new organization, the first cycle of education, which lasts of a total of 8 years, consists of primary school and first cycle of secondary school.

Primary school and lower secondary school are two different education levels, each with its own specificities, even though they are part of only one school cycle. Primary school is compulsory and lasts 5 years (from 6 to 11). It consists of a first year that serves as a transition from nursery school and two successive periods of two years. Primary education is provided at legally recognized State and non-State schools. Enrolment and compulsory attendance are free of charge at State, equal status or *parificata* (authorized) schools.

The municipality provides all pupils with textbooks free of charge. Transport and school meal services are always managed by the municipality, but the families are requested to make contributions, except for some exemptions for particular class people. The possibility to offer financial aids directly to the families falls within the responsibility of single regions; therefore, it changes according to different legislations. It can be generally stated that provisions are contributions in money and scholarships, reductions of the payment for transport and meals up to the total exemption, for the weaker categories, as well as reductions for text books purchase. (Structures of Education and Training Systems in Europe Italy 2009/10 Edition, EURYDICE CEDEFOP ETF Sharing Expertise in Training p.16)

Compulsory Education.

Education is compulsory from 6 up to 16 years of age. The right/duty to education and training for at least 12 years is fulfilled within the education system or up to the obtainment of a three-year vocational qualification (either at school or in the initial vocational training system) before reaching 18 years of age. Compulsory education covers the first cycle of education, made by 8 years, and the first two years of the second cycle (upper secondary education).

Admissions criteria is the enrolment to the first class of primary school and it is compulsory for all children who have turned 6 within the 31st December of the current school year or, earlier, within the 31st April of the current school

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Received 25.02.2011 / Accepted 21.04.2011

year. Enrolment to the first year of lower secondary school is compulsory for all pupils who have successfully completed the primary school. Enrolment and attendance are offered free of charge for the whole

six days a week. Compulsory annual teaching hours are 891 in primary school; this amount is subdivided into 33 teaching weeks with an average amount of, respectively, 27 weekly hours.

According to school autonomy, each educational institution is responsible for the organization of its annual teaching time. At primary level schools can also organize the teaching time on an average of 30 or 40 weekly hours, but it is special and in low tendency. In the first year of primary schools also a weekly timetable of 24 hours has been introduced.

Curriculum control and content Schools of the primary school adopts National Guidelines (*Indicazioni nazionali per i piani personalizzati delle attività educative*) of 2004 together with Guidelines for the Curriculum *(Indicazioni per il curricolo per la scuola dell'infanzia e per il primo ciclo di istruzione)*, issued in 2007 and introduced on an experimental basis in the school year 2007/08 and the school year 2008/09. In the next three school years (until 2011/12) the activities carried out by the schools will be monitored.

The outcomes are likely to be used to amend the Guidelines. Such guidelines define the essential performance levels that should be ensured by each school. The guidelines are nationally determined and adapted to local needs by each school according to school autonomy. Knowledge and skills are indicated for each subject; the school will help pupils to transform them into personal competencies. Specific learning objectives at primary school level have been defined for the following subjects: Catholic religion, Italian, English language, history, geography, mathematics, science, technical education and ICT, music, art and drawing, sport and motor sciences. Class size/student grouping pupils are usually grouped according to their age. According to their organizational autonomy, schools can also organize groups with pupils of different ages.

Each class is generally made up of maximum 26 and minimum 15 pupils. At this primary level teachers are generalist and then they will become specialists in one or more subjects. (National system overviews on education systems in Europe and ongoing reforms EURIDYCE 2010 pp.3-4).

General objectives in Primary school are, through the exploitation of the pupils, personal diversities, including those due to disabilities, "fosters the personality development, the acquisition of basic knowledge and the development of skills, from ICT literacy up to the first logical-critical organization, as well as learning expressive means, Italian language and English language literacy (Organization of the education system in Italy 2009/2010 pp.60-61). Furthermore, it intends to place the bases for the use of first cycle of education. Families are free to choose the school, within the limits of available posts.

Length of school day/week/year: the school year comprises at least 200 days between the 1st of September and the 30th of June. Schools open five or scientific methodologies in the study of the natural world, its phenomena and laws, and to exploit social and orientation skills in the space and time as well as to teach the fundamental principles of civil coexistence'" (Legislative Decree no. 59 of 19 February 2004). Primary school aims are clarified in the National Guidelines (*Indicazioni nazionali*) for the personalized study plans of 2004 and in the new Guidelines for the curriculum (*Indicazioni per il curricolo*) introduced on a trial basis for school years 2007/08 and 2008/09.

The ministerial documents are in temporal order: 1955 Programme **for the educational activity in elementary school,** 1985 Programme **for the educational activity in elementary school**, 2004 National Guidelines in the first cycle of the school, 2007 Curriculum Guidelines the first cycle of the school, 2009 Revision of the educational organization regulated directions for the first cycle of the school.

To continue after the analysis of education system we needs to start a deductive and argumentative investigation on new aspects on mind and movement and its didactics.

Several research methods can be integrated to investigate on the whole phenomenon of theory of the mind, which may include science fields that are completely different such as neurobiology and philosophy to investigate on the motor activities and the mechanism to learn or between neurophysiology and motor skills.

Recently, the neurological and scientific research has placed highlight to the need for links among the different fields of knowledge to explain the phenomena according to human science instead to confine it only internally to the life sciences.

To explain how the mind works only from the organic point of view may be restrictive, the same may hold if you approach the subject only from the philosophical point of view. The occasion is the new scientific evidences on the function of the brain and its mind theory; new discoveries show the relation and relationship between two different research approaches.

Certain nerve cells that are activated when they see, hear or perceive through touch a movement but do not produce actions and movements. They do not give any contributes to the practical execution of the movement while being structures appointed to motor nerve but they receive the information without the movement, such as the immagination (G. Rizzolatti, 2006, M. Iacoboni, 2008, V. Gallese, 2006, V. Gallese, 1996).

They can be seen when they activate, i.e. they discharge the electrical potential and it is possible to highlight thanks to x-ray sophisticated instrumentation of brain-imaging or neuro-imaging such as Positron

Emission Tomography (PET), Functional Magnetic Resonance Integrated (fMRI) of Transcranial Magnetic Stimulation (TMS) and Magneto Encephalo Graphy (MEG). This phenomenon happens all the time when the subjects see, hear, feel on the body or inside the body information concerning the movements of others when there is interest in those activities and actions. It has been demonstrated the existence of particular neurons (mirror neurons) that, in the absence of movement, discharge, activate and reflect the motor activities of others around the body.

Furthermore, they discharge even when we imagine a movement but we do not run it. It is then defining a new theory of motor control called imagery motor. This opens a new scenario on learning of motor activities for imitation and on teaching based on simulation and demonstration. It means that action and perception occur at the same time and help each other in all phases of movement. Thus, there is also knowledge at the same time without the traditional sequential stages of sensitive afferent or perception, development of the motor idea, motion planning, execution of actions and their feedback.

The importance of the playful-motor activities suggests a new way of doing school, which can be carried out only acknowledging the centrality of the person. The "learnings" of Embodiment and Situatedness are the center of learning in early age, which means that they are embodied and situated; cognition into the phenomenon on the body and movement to develop the learning way are the study of the educational psychology that updates its own scientific paradigms in relation to these discoveries. (V. Gallese, 2007).

Finally, these discoveries bring into discussion the theories of motor control that temporally distinguish the afferent perceptive phase from the executive efferent one according to the two more shared scientific paradigms: closed-loop motor control and open-loop motor control. The first provides that the perception is first and then the movement and so constantly in a continuous loop called closed-loop motor control system.

Movements are those that are not present in motor memory and are executed with the help of feedback for adjustments and corrections of errors. They are constantly updated through the comparison between what is perceived, called perceptive trace, and what you have in mind, called memory trace. The second is also expected to be the first is the perception and then the movement but in one or different scheme called open-loop motor control system (R.A. Schmidt, 1985).

The aim of this study is to verify if the ministerial documents of the kindergarten there are aspects of psycho-pedagogy and educational applications of any recent neurological and scientific discoveries on mirror neurons and on motor imagery; to help to develop an epistemological and psycho-pedagogical framework including any related educational applications about body and movement; to make an epistemological reflection on the theory of human movement in the educational school environment for preschool activities in connection with the primary school.

Methods

1. Integration of different types of research into a single model with an ecological approach. 2. Theoretical and argumentative research that analyzes methodological and didactic patterns of motor activities according to the main educational psychology and neurological and physiological theories.
3. Historical and documentary research that analyzes the methodological and teaching contents of physical activities in preschool obtained from ministerial papers.
4. Comparative research that correlates the different models of study of physical activities for children.

Results

Theoretic and argumentative elements are divided in two types. First of all, the single sentence on knowledge, didactics and the methodology of motor activities. Secondly, it verifies if there are psychological and physiological elements in the didactics and the methodology sentences.

The document 1955, Programme **for the educational activity in elementary school** is very short and contains a few elements for the harmonic development about behaviourist aspects. It has a double orientation: the first one is orientated to the harmonic development of the body and its natural expression by the guide of the master and the second one to include the complexity of movement to help to develop the child to grow up. There are no elements on motor control system or didactics method to teach the movement as well as the neuro- scientific research.

The document 1985, Programme **for the educational activity in elementary school** is longer than the past one and, for the first time, speaks on motor education in a cognitive aspects in several interface of physical education and sport in the developmental process between five years old and ten. It contains a strong appeal for a didactic guided by the free doing and acting and the provision of appropriate learning environments for a rich and extensive stimulation. The field of knowledge is divided by areas and that of body and movement is enhanced as other fields of knowledge. The teacher's role is slightly active tending in some cases to director of operations. Despite this innovation, the document is incomplete about the new discoveries on motor control system and there are no scientific elements on neuroscience applied to movement and the learning process through the body.

The document 2004, Attachment A – National Guideline for the Programs of studies of the first cycle of education National Guidelines for Personalized Programs of the Educational Activities in the first cycle of education, Specific Learning Objectives, **Recommendation to put into practice the National**

Guidelines for Personalized Programs of the Educational Activities is a very innovative regulation tool to teach properly to a new discoveries on individual learning process. It takes in light the relation between the teaching and the learning in an unicum. It writes in double column, where there is specified knowledge and ability in motor and sports science, as a sort of a new scientific paradigm of physical education and sports in primary school. It is a mere list of objectives to be achieved in the form of motor skills and there is no single reference to teaching. Basically, it refers to the document above and does not refer to any element related to the theories of motor control or to the recent neuro-scientific discoveries.

The document 2007, The Guidelines for the curriculum of the first cycle of education, as the last one a large paper where there is written a lot of knowledge and process of motor and sports science in a new vision for this research field. It resumes the contents of the document Guidelines for primary school and they are contextualized in a disciplinary process that goes from childhood to the end of the first education cycle. It widens the sense of continuity of teaching action without indicating specific teaching methods.

It does not indicate a specific item on motor control and does not address to new neuro-scientific scenarios on movement in the light of the discovery of mirror neurons or the other two motor control system theories. In all the documents there is no cultural basis of theories of motor control and there are no elements of new scientific discoveries about the brain from the motor point of view. The psycho-pedagogical paradigms are totally based on the overall contents on learning generalizing the teaching in all fields of knowledge.

The document 2009, Revision of the educational organization regulated directions for the first cycle of the school does not explain the innovation in new rules, but it postpones to a new experimental study the final revision and does not hint anything. It recommends to trust in two last documents: 2007, the Guidelines for the curriculum of the first cycle of education and 2004, National Guideline for the Programs of studies of the first cycle of education National Guidelines for Personalized Programs of the Educational Activities in the first cycle of education, Specific Learning Objectives, **Recommendation to put into practice the National Guidelines for Personalized Programs of the Educational Activities.**

Therefore, there is no trace of a scientific specificity about body and movement nor there is a cultural content on the theories of motor control.

In these documents there are not elements and/or methods to establish the application of motor control system in its three scientific ways and forms: closed loop, open loop and motor imagery. The big vacuum is the absolute absence of psychological and pedagogical aspects on movement that could have the theoretical aspect of new discoveries.

Discussion

Documents are lacking in cultural references about physical education and this results in a total absence of knowledge of general and specific aspects of human movement, motor control and psychological aspects. The unique and overall formulation of knowledge is useful for the holistic approach to knowledge but it does not realize at all the objective of base knowledge of a field of knowledge. What is needed is a detailed review of the psycho-pedagogical principles at the basis of ministerial documents with the purpose to insert clear links to the theories of motor control and human movement.

Finally it suggests to address the traditional way to concern the training' teachers throughout a new one of Master Degree to Preschool education such as in the most states of European Country in accordance to Bologna process and to Dublin descriptors.

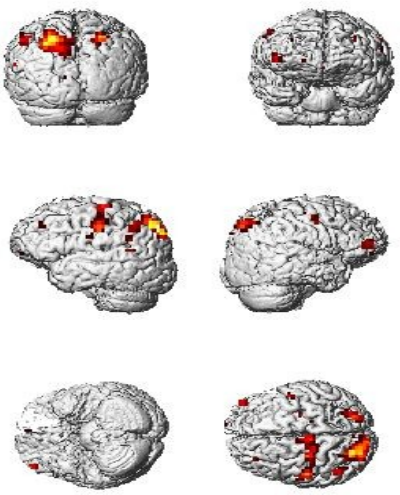

Fig. 1 Soc. Neurosci. Abstr., Vol. 26 p.967, 2000

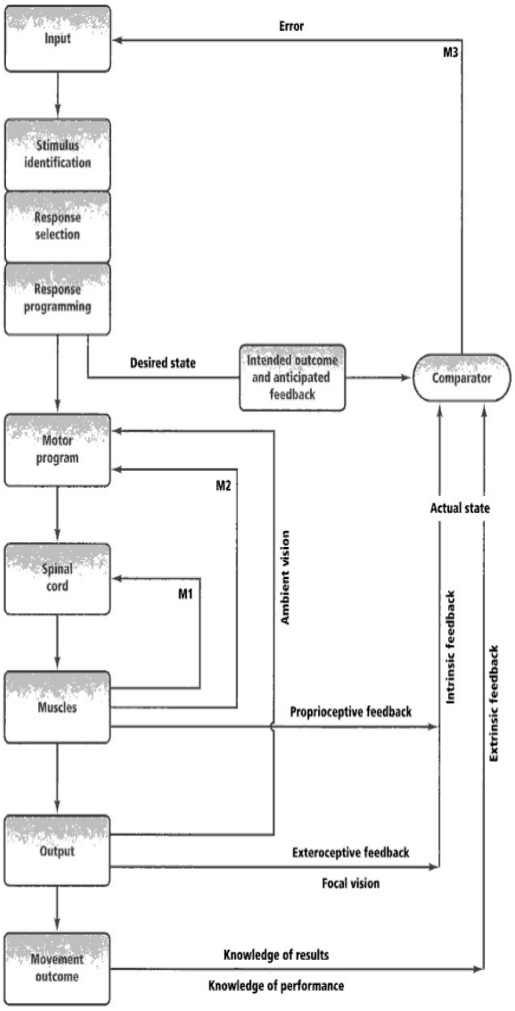

Fig. 2 Schmidt R.A. and Wrisberg 2008

References

GALLESE, V., 2007, *Before and below "theory of mind" : embodied simulation and the neural correlates of social cognition.* Philosophical Transactions of the Royal Society B, 362, 659-669.

GALLESE, V., 2006, *Intentional attunement: A neurophysiological perspective on social cognition.* Brain Res. Cog. Brain Res., 1079, 15-24.

GALLESE, V., 2006, *Corpo vivo, simulazione incarnata e intersoggettività . una prospettiva neurofenomenologica* . In M Cappuccio (Ed.),Neurofenomenologia . La scienza della **mente e la sfida dell'esperienza cosciente Milano: Mondadori.**

GALLESE, V., FADIGA, L., FOGASSI, L., RIZZOLATTI, G., 1996, *Action recognition in the premotor cortex.* Brain, 119, 593-609.

SCHMIDT, R.A., WRISBERG, G.A., 2008, *Motor learning and performance.* Champain, IL, USA: Human Kinetics.

IACOBONI, M., 2008, ***Mirroring People.*** *The new science of how we connect with others.* L.A. USA: Farrar Straus & Girox.

RIZZOLATTI, G., 2006, *So quel che fai. Il cervello che agisce e i neuroni specchio.*

Regulations References

Organization of the education system in Italy 2009/2010, EURIDYCE EACEA, EU

Structures of Education and Training Systems in Europe Italy 2009/10 Edition, EURYDICE CEDEFOP ETF Sharing Expertise in Training National system overviews on education systems in Europe and ongoing reforms EURIDYCE 2010.

Decree of Republic President DPR no. 89 of 20 march 2009, Revisione dell'assetto ordinamentale didattico organizzativo del primo ciclo di istruzione. Revision of the educational organization regulated directions for the first cycle of the school.

Ministerial Decree D.M. 31 July 2007, Indicazioni per il Curriculo per il primo ciclio di istruzione, The Guidelines for the curriculum of the first cycle of education.

Legislative Decree DLGS no. 59 of 19 February 2004 - Attachment A – National Guideline for the Programs of studies of the first cycle of education National Guidelines for Personalized Programs of the Educational Activities in the first cycle of education, Specific Learning Objectives, Recommendation to put into practice the National Guidelines for Personalized Programs of the Educational Activities.

Decree of Republic President DPR no. 104 of 12 February 1985, Programmi per la scuola elementare, Program for the educational activity in elementary school.

Decree of Republic President DPR no. 503 of 14 June 1955, Programmi per la scuola elementare, Program for the educational activity in elementary school.

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

SELF-KNOWLEDGE AND PROFESSIONAL FORMATION IN THE FIELD OF PHYSICAL EDUCATION AND SPORTS

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Abstract
Aims: This study aimed to emphasize whether the physical education students (Faculty of Movement, Sports, and Health Sciences, of Bacau) chose to train in the profession for which they have predispositions.
Material and methods: As research methods we used: the observation, the study of the specialized literature, the test, the statistical-mathematical method, and the chart method. Our assessment regarding how much the chosen profession matches the students' predispositions was made through the ***self-knowledge test*** *"What profession suits you"*, promoted by Nicolae Radu, in 2007, pag. 147-149. The test emphasizes the dominance or non-dominance of manifestation of the inventive, directive, and organizing type of behavior in the students. This research was conducted on 30 students.
Results: In Table 1 we present the recorded results for the 30 subjects. We observed that 70% had an individual score higher than the average value for the inventive behavior, and 96.67% had it higher for the directive and organizing types. Also, 30% of the subjects had an individual score of minimal values for the inventive type, and 3.33% had the same for the directive and organizing types.
The **conclusions** show that the students participating in this study recorded high values for the inventive, directive, and organizing types of behavior, thus confirming the first hypothesis, and that the organizing type (12.20 points) has higher values than than the inventive type (10.73 points), proving that the second hypothesis was false.
Keywords: self-knowledge, formation, profession, test .

Introduction

During the professional formation and development, the physical education and sports specialists have "used and adapted to their needs concepts and data from other sciences, biological, humanistic, or technical, as they deal with different facets of human personality" (M. Epuran, 2008, page 9).

Today, professional formation represents a direction of action that allows ensuring a way of evolution for the human personality, and, implicitly, getting a good job. A condition of attaining a high, if not a maximum level of personal evolution, knows your own predispositions and abilities. Hence, making students aware about this constitutes not only the starting point for the professional formation, but also an obligation.

People who are aware of their abilities and predispositions are more likely to be aware about what is happening to them during the professional formative process. Planning, organizing, and conducting the formative process implies also actions for knowing the people involved. Any motor activity is the result of mental activity.

The study and knowledge of the predispositions and behavioral features manifesting mechanisms in the people participating in the formative act, as well as the understanding and forming the belief that every activity is the result of heredity "opens a new window for knowing the human being" (M. Epuran, 2008, page 4), and new possibilities for its development. The professional formative process is based on practical theories and methods that are very important for the teaching career, in school, athletic performance, rehabilitation, or recreation.

Man, "as a bio-psycho-socio-cultural being, is defined both by the endogenous, born elements, and the exogenous elements that are learned, acquired during our lifetime" (M. Epuran, 2008, page 1), hence developing according to them. Knowing the profession that suits an individual best, and training him/her in that direction constitutes in fact the key to professional success.

The success of the professional formation is determined by the use of certain student-centered programs, "supporting the learning, encouraging the mental, emotional and physical development, ... respecting the diversity of intelligences, abilities, learning styles, producing an extension of the reflexion on the life's essential matters" (I. Neacşu , 2010, page 287).

The heredity has "a polyvalent character, offering a matrix of possibilities for the mental development" (I. Nicola 1996, page 84) and motor development, hence its knowledge can ease and direct the teacher's work.

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Received 03.03.2011 / Accepted 29.04.2011

Material and method

In this study we ***aimed*** to know the students, to teach them to know themselves, and to be aware how the profession they choose suits them.

In this study we set ourselves to verify the following **hypotheses**:

1. because in our field, activities must be planned, organized, and developed, we assumed that our students must be characterized by high scores for the inventive, directive, and organizing types of behavior;

2. the inventive type has higher average and individual values than the organizing type.

As ***research methods*** we used: the observation, the study of the specialized literature, the test, the statistical-mathematical method, and the chart method.

Believing that the educational activity, "which is based on knowing and respecting the pupil" (Cojocariu V, 2010, page 207), and implicitly, the student, we started this study as a ***constative-type experiment***. In this research we used the ***self-knowledge test*** *"What profession suits you"*, promoted by Nicolae Radu, in 2007, pag. 147-149).

This test evaluates the predispositions for the chosen profession. It comprises 24 assertions delimiting three types of behavior: inventive, directive, and organizing. The test is done by ticking the answer "yes" or "no" for each assertion, each ticking being equivalent to two points.

The result differentiating the three profiles is calculated by adding the points recorded for certain assertions. Each behavioral type is noted with maximum 16 points and minimum 2 points. The subjects scoring between 6 and 16 points are believed to have positive scores regarding the three types of behavior, while those who have between 0 and 4 points are considered to have less of that type in them. We cumulated the points for each type of behavior according to an assessment scale, thus obtaining a general score.

The highest score given by the answer "yes" confirms whether a person is inventive, directive, or organized, thus being able to direct him/her towards research, leadership, or organization.

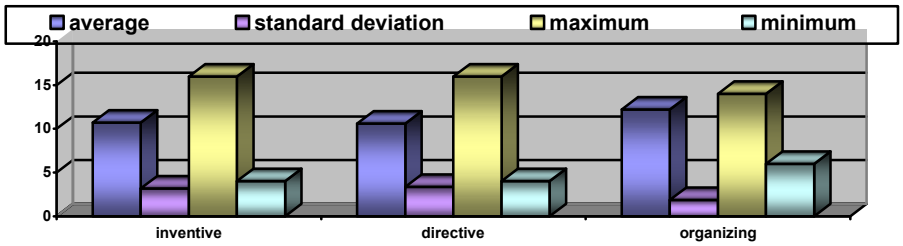
The points scored by each student for the three types of behavior can help us, the teachers, during the didactic process, but it can help them too, in the forming process for the profession they choose.

This experiment comprised 30 ***subjects*** (undergraduate and graduate students). The testing was done at the beginning of ***February 2011***, within the Faculty of Movement, Sports, and Health Sciences, in Bacau. After the completion of the testings, the recorded results were analyzed and discussed with the subjects.

Results

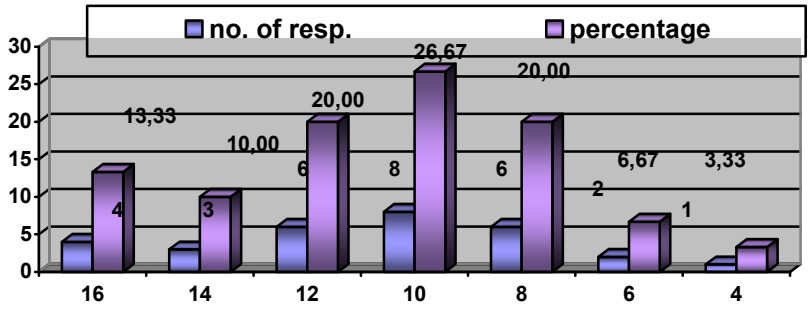
The recorded results can be found in Table 1, at the end of this paper. As we can see in Table 1 and Chart 1, the average values for the three types of behavior are relatively high. The arithmetical mean has, for the inventive type, a value of 10.73 points, for the directive type 10.70 points, and for the organizing type 12.20 points.

Chart 1. Group values for the three types of behavior

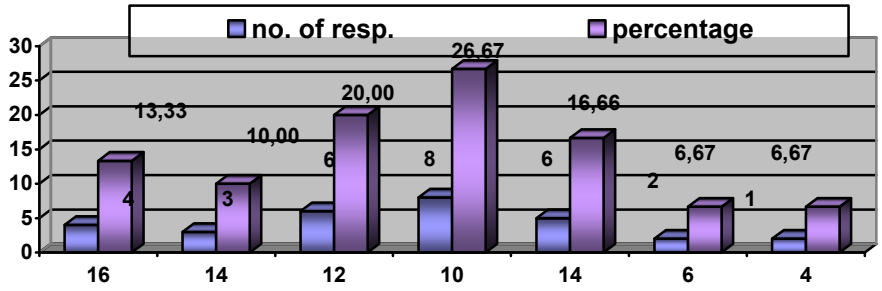


For the inventive type, we can see in Table 1 that four of the 30 subjects chose "yes", scoring a maximum of 16 points, three scoring 14 points, six 12 points, eight 10 points, six 8 points, two 6 points, and one 4 points.

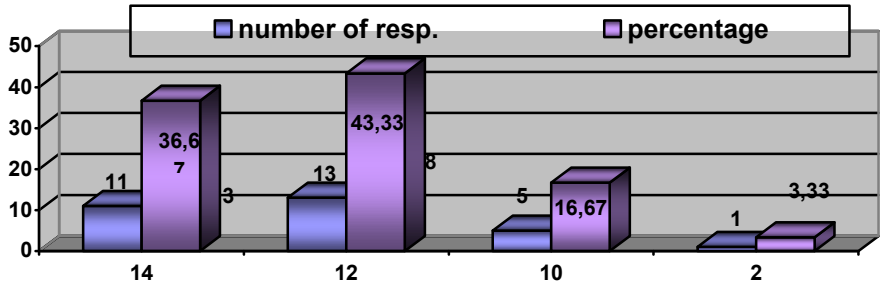
In the descending order of the points given between 16 and 4, the percentage corresponding to the number of subjects who chose "yes" in the 24 questions, shows that: 13,33% have maximum scores of 16 points, 10% have 14 points, 20% 12 points, 26,67% have 10 points, 20% have 8 points, 6,67 % have 6 points, and 3,33% have 4 points.



For the directive type, the 30 subjects chose "yes", as follows: four scoring a maximum of 16 points, three scoring 14 points, six 12 points, eight 10 points, five 8 points, two 6 points, and two 4 points. In the descending order of the points given between 16 and 4, the percentage corresponding to the number of subjects who chose "yes" in the 24 questions, shows that: 13,33% have maximum scores of 16 points, 10% have 14 points, 20% 12 points, 26,67% have 10 points, 16.66% have 8 points, 6,67 % have 6 points, and 3,33% have 4 points.



For the organizing type, the results presented in Table 1 emphasize that the 30 subjects were divided, according to their choice of "yes", as follows: eleven scoring 14 points, thirteen 12 points, five 10 points, and one 2 points. In the descending order of the points given between 16 and 4, the percentage corresponding to the number of subjects who chose "yes" in the 24 questions, shows that: 36.67% have 14 points, 43.33% have 12 points, 16.67% have 10 points, and 3.33% have 2 points.



Discussions

"In order for us to understand more of the people's social behavior, we must 'get into their minds'" (Atkinson & Hilgard, 2005, page 941). This study tries to achieve knowledge of our students by analyzing the results they gave during the test. The results recorded for the three types of behavior prove that the students comprised in the study chose their profession well.

Out of the 30 students, 70%, meaning 21 subjects, have an individual score, for the the ***inventive*** type, of between 16 and 6 points. The subjects comprised between these values have a rich imagination, are curious, non-conformists, preoccupied by what is said, intelligent, and original in their thinking. The rest of 30%, meaning seven subjects, had an individual score between 4 and 0 points. These subjects are preoccupied by practical works, they lack imagination, they act in an effective manner within imposed rules, they are adept of stability, and are less creative when it comes to solving problems.

For the ***directive*** type, 93.33%, meaning 28 subjects have individual values between 16 and 6 points. These individual values signify perseverance, determination, adaptability, ability to change, energy, respect for discipline, intelligence. The rest of 6.67%, meaning two subjects, had an individual score between 4 and 0 points. These subjects are preoccupied with their personal peace.

Concerning the ***organizing*** type, we observed that all of the 30 students, 100%, have an individual score between 14 and 6 points. All of the studied students are earnest, reliable, wise, constant in their behavior, cautious, perceived as insensitive by some people, but generally persons who respect their principles. These entire individual values, average values, and percentages, emphasize the fact that the profession chosen by our students suits them well. "The correct assessment, respecting the specific Physical

Education and Sports triad: to know, to understand, to do" (I. Neacşu , 2010, page 257) starts, in the formative process, with the initial assessment, which ensures the knowledge and self-knowledge, and represents also the starting point for a future evolution. We must emphasize also that the study comprised good students who actively participate in courses and seminars.

By knowing the students' types of behavior, we can foresee the strategy and the effectiveness of the instruction.

Conclusions

After presenting and analyzing the data, we could draw the following conclusions:

1. The hypothesis stating that "the students included in this study will record high scores for the inventive, directive, and organizing types of behavior" was confirmed.
2. The hypothesis stating that "the inventive type will have higher values than the organizing type" was not confirmed.
3. The results of the study, discussed and analyzed with the students, individually, constituted a starting point in the teaching strategy for the second semester.
4. Knowing how much the chosen profession suits each and every one of us constitutes a necessity and an incentive for the professional formation process.

References

ATKINSON & HILGARD, **2005,** *Introduction to Psychology*, Edit. Tehnică, Ediția a XIV-a, Bucureşti.

COJOCARIU, V.M., 2010, *Educational strategies centered on the beneficiary of the education. Constructivism and effective practices,* Editura ALMA MATER, Bacău,

EPURAN, M., 2008, *The psychology of top performance sports: theory and practice,* Edit FEST, Bucureşti.

NEACŞU, I., 2010, *Introduction to the psychology of education and development,* Editura Polirom, Iaşi.

NICOLA, I, 1996, *Treaty of school pedagogy,* Edit Didactică şi Pedagogică, R.A., Bucureşti.

RADU, N., 2007, *Psychological tests for career orientation and self-knowledge,* Edit. Polirom, Iaşi.

Table 1. Results of the test "What profession suits you"

			Inventive		**Directive**		**Organized**	
No.	**Initials**	**Age**						
			Yes	No	Yes	No	Yes	No
1	AD	20	8	8	4	12	12	4
2	UD	50	12	4	6	10	14	2
3	LM	21	16	0	10	6	10	6
4	BV	40	8	8	6	10	10	6
5	MI	23	10	6	14	2	12	4
6	FS	20	10	6	16	0	10	6
7	GA	22	10	6	10	6	14	2
8	DC	20	10	6	8	8	12	4
9	HA	22	14	2	12	4	12	4
10	AA	20	4	12	4	12	14	2
11	AIA	20	6	10	12	4	12	4
12	CA	20	10	6	14	2	12	4
13	MT	44	12	4	12	4	14	2
14	CI	20	8	8	12	4	6	10
15	US	19	12	4	12	4	14	2
16	CM	20	12	4	8	8	10	6
17	FM	20	14	7	10	6	12	4
18	PRE	44	10	6	8	8	14	2
19	MR	19	16	0	10	6	12	4
20	RB	20	12	4	14	2	12	4
21	CG	20	6	10	10	6	14	2
22	GM	22	12	4	10	6	12	4
23	ŞA	20	16	0	10	6	14	2
24	MV	21	10	6	8	8	12	4
25	RN	22	14	2	16	0	14	2
26	O M	21	10	6	16	0	10	6
27	DD	20	16	0	19	0	14	2
28	GMD	36	8	8	10	6	14	2
29	IS	20	8	8	8	8	12	4
30	SP	23	8	8	12	4	12	4
Average		**24.30**	**10.73**	**5.43**	**10.70**	**5.40**	**12.20**	**3.80**
Studev		**8.69**	**3.17**	**3.13**	**3.57**	**3.37**	**1.85**	**1.85**
Max		**50**	**16**	**12**	**19**	**12**	**14**	**10**
min		**19**	**4**	**0**	**4**	**0**	**6**	**2**

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

EVALUATION OF BODY FAT PERCENTAGE OF FEMALE UNIVERSITY STUDENTS ACCORDING TO THREE DIFFERENT METHODS

SARITAŞ NAZMI[1], ÖZKARAFAKI İRFAN[2], PEPE OSMAN[1], BÜYÜKİPEKCİ SERDAR[1]

Abstract
Purpose: In the present study, it was aimed to evaluate the body fat percentage of female university students according to three different methods.
Methods: This study was conducted on 282 healthy female students aged 20–25 years who attended at different faculties of Erciyes University and, also lived in female dormitories of General Directorate of Credit and Dormitories Agency. Body weight, height, body fat percentage (BF %) were measured by methods of skinfold thickness (SKF), circumference measurement (CM) and bioelectrical impedance analysis (BIA). Data were analyzed by *repeated measures analysis* of *variance.* Significance level was accepted as 0.05.
Results: Mean age was 21.07 ± 1.26 years while body weight and height of the participants were 57.48 ± 8.00 kg and 162.26 ± 5.97 cm, respectively. When BF % was compared according to three different methods, statistically significant difference was found ($p<0.001$). Range of BF % of three methods from minimum to maximum was found as CM, BIA and SKF, respectively. According to BIA and SKF methods, BF % was significantly different between physically active and less active students in other faculties ($p<0.001$). Significant difference was not found in physically less active students. According to CM, BF % was not significantly different among faculties.
Conclusion: It was known that a physically active lifestyle could decrease BF % and increase muscle mass. However according to SKF, BF % could give different results because of the researcher or different measurement formulas. It was thought that BIA could give both practical and accurate results by paying attention to measurement rules.
Key words: Body Fat Percentage, BIA, Skinfold Thickness, Circumference Measurements, Female Student.

Introduction

Currently, physical inactivity caused by industrialization and modern lifestyle has a negative impact on individuals in all age groups. A sedentary lifestyle causes many serious health problems with itself (F.F. Çolakoğlu, Ö. Şenel, 2003).

This lifestyle which grows due to more energy intake compared with energy expenditure occurs as a result of energy imbalance, is a serious public health problem which reduces quality and length of life (N. Şanlıer, 2005, E. Şanlı, 2008). In recent years, it was reported that obesity as a serious public health problem increased in both childhood and adulthood allover the world (B. Livingstone, 2000).

This study has once again pointed out the importance of the effects of overweight and obesity in our young population. Also, the present study conducted on female university students drew attention to decreasing fat mass, increasing fat free mass and total body water and providing suggestions on these anthropometric measurements to the exercise programmers.

Method

In the present study, 282 healthy female students aged 20–25 years who attended at different schools of Erciyes University, and also lived in female dormitory of General Directorate of Credit and Dormitories Agency participated voluntarily.Body weight, height, body fat percentage (BF %) by skinfold thickness (SKF), circumference measurement (CM) and bioelectrical impedance analysis (BIA) methods were measured.Informed consent was obtained from all subjects before the study begun. The study protocol and procedures were approved by the local ethical committee. This study was conducted in accordance with the Declaration of Helsinki or local laws depending on whichever afforded greater protection to the subjects.Codes of the Faculties or Colleges: Following codes in parenthesis were assigned to the faculties or colleges; Physical Education and Sport College (F1)**,** Faculty of Arts and Sciences (F2), Faculty of Engineering (F3), The Faculty of Economics and Administrative Sciences (F4)**,** The Faculty of Education (F5)**,** Faculty of Medicine (F6).

Body Weight and Height: A non–stretching measuring tape sensitive to 0.01 cm was used in height measurement. Height were measured in subjects with barefoot, in a plain standing position with strained knee and attached heels while body weight was measured by BIA with a sensitivity degree of 0.1 in participants with barefoot and minimum cloths.Subcutaneous Fat Mass (Skinfold Thickness Caliper Measurement): In measurement of subcutaneous fat mass, Holtain skinfold caliper which measures in sensitivity of ± 0.2 mm and pressures 10 g/mm² in every open space. Triceps, subscapula and subrailiac parts of the body were measured.Circumference Measurement: Circumferences of forearm, mid–upper arm, waist and thigh measurements were performed with a gullick

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Receveid 04.03.2011 / Accepted 21.04.2011

band sensitive to 0.01 cm (K. Tamer, 2000).

Body Fat Percentage by Three Methods

Bioelectric Impedance Analysis (BIA): This measurement was done by Tanita–BC 418 MA (Tanita Corporation, Japan). This device was able to be used by 8 polar electrodes and to measure on high frequencies (50 kHz, 500A).

Skinfold Thickness (SKF): Durnin–Womersley's formula was performed for measuring body density according to the values measured by SKF. Body fat percentage was measured according to siri formula (K. Tamer, 2000, E. Zorba, MA. Ziyagil, 1995). Formula of Durnin–Womersley for adult female is the following;

Body Density: $1.1468 - 0.0740 (\log(X_1+X_2))$

BF % = ((4,95/D) – 4,5)*100 (K. Tamer, 2000).

X_1 =Triceps X_2 = Subscapula (E. Zorba, MA. Ziyagil, 1995).

Circumference Measurement (CM): McArdle's formula for young women was performed (K. Tamer, 2000). Constant of waist circumference (cm) for women (constant A), of thigh circumference for women (constant B), of forearm circumference (cm) (constant C) were used in the following formula;

Body Fat Percentage for Women (%) = Constant A + Constant B – Constant C – 19.6

Weight of the Fat Mass = Fat % / 100 x Body weight

Weight of the Fat Free Mass = Body Weight – Weight of the Fat Mass (K. Tamer, 2000).

Statistical Analysis

In the present study, the data were analyzed by the statistical package program for social sciences (SPSS) version 13.0. All results were given as mean, standard deviation. After testing the homogeneity of variances, variance analysis was performed according to different schools. ***Repeated measures analysis*** of ***variance*** was performed in order to compare BF % according to the three different methods. The level of significance was set at 0.05.

Results

Table 1. Characteristics of female students attending at different faculties and colleges of our university

Faculties	n	Age (year)	Body Height (cm)	Body Weight (kg)
		X±SD	X±SD	X±SD
F1	61	21.00 ± 1.24	164.07 ± 5.43[a]	55.86 ± 6.65
F2	58	21.19 ± 1.42	160.43 ± 5.38[b]	58.14 ± 7.93
F3	33	21.12 ± 1.24	161.39 ± 6.95[ab]	56.63 ± 9.44
F4	61	21.15 ± 1.19	162.80 ± 6.00[ab]	57.85 ± 8.36
F5	35	21.14 ± 1.31	162.14 ± 6.23[ab]	57.69 ± 5.69
F6	34	20.71 ± 1.06	162.09 ± 5.84[ab]	59.21 ± 10.02
TOTAL	282	21.07 ± 1.26	162.26 ± 5.97	57.48 ± 8.00
	F	0.792	2.521	1.001
	P	0.556[NS]	0.030[*]	0.418[NS]

ab: Significant difference was not found between groups which was shown as the same letter at the same column.
SD: Standard Deviation, NS: Not Significant, [*]p<0.05

Statistically significant difference was not found in mean age and body weight of the female students among faculties (p>0.05). Statistically significant difference in mean age of the female students was found between F1 and F2 (p<0.05). Significant differences were not found when the other schools compared with each other except for F1 (p>0.05). Ranking was as follows; "F2 < F3 < F6 < F5 < F4 < F1" (Table 1).

Table 2. Comparison of BF % of female students according to three different methods

	n	X ± SD (%)	F	P
BIA	282	24.03 ± 6.51[a]	184.75	**0.000**[***]
SKF	282	27.83 ± 5.00[b]		
CM	282	22.01 ± 5.01[c]		

abc: Significant difference was not found between groups which was shown as the same letter at the same column.
SD: Standard Deviation, NS: Not Significant, [***]p<0.001

When BF % of female students were measured according to BIA, SKF and CM methods, statistically

significant difference was found among three different methods ($p<0.001$). Ranking was as follows; "CM < BIA< SKF (Table 2).

Table 3. Comparison of BF % of female students attending at different faculties and colleges of our university according to three different methods

Faculties	n	BIA	SKF	CM
		X ± SD	X ± SD	X ± SD
F1	61	19.25 ± 5.74[a]	23.76 ± 4.54[a]	22.07 ± 4.65
F2	58	25.81 ± 6.66[b]	29.02 ± 4.21[b]	22.92 ± 5.57
F3	33	24.89 ± 6.21[b]	28.79 ± 5.16[b]	21.59 ± 4.65
F4	61	24.87 ± 6.39[b]	28.43 ± 5.05[b]	21.33 ± 5.00
F5	35	25.02 ± 4.59[b]	28.80 ± 4.09[b]	21.22 ± 3.72
F6	34	26.19 ± 5.96[b]	30.09 ± 3.86[b]	22.80 ± 6.03
TOTAL	282	24.03 ± 6.51	27.83 ± 5.00	22.01 ± 5.01
	F	10.057	13.125	1.003
	P	0.000***	0.000***	0.416NS

ab: Significant difference was not found between groups which was shown as the same letter at the same column.
SD: Standard Deviation, NS: Not Significant, ***p<0.001

In statistical comparison of BF % of female students with BIA; while significant differences were found between F1 and F2, F3, F4, F5, F6 ($p<0.001$), significant difference was not found when other schools were compared with each other ($p>0.05$). Ranking was as follows; "F1 < F4 < F3 < F5 < F2 < F6". In statitistical comparison of BF % of female students with SKF; while significant differences were found among F1 and F2, F3, F4, F5, F6 ($p<0.001$), significant difference was not found when other schools were compared with each other ($p>0.05$). Ranking was as follows; "F1 < F4 < F3 < F5 < F2 < F6". Statistical comparison of BF % of female students with CM could not show significant difference between faculties ($p>0.05$), (Table 3).

Discussion and conclusion

Mean age of the female students was not statistically significant between faculties. Body fat percentages of female students according to CM, BIA and SKF from minimum to maximum was found as 22.01 %, 24.03 % and 27.83 %, respectively. Significant difference was found among three different methods (BF % with; CM < BIA < SKF). In a study with 17–22 years old female members in the USA Army BF % values were found as 28.70 % (Kyle et al, 2004). In another study conducted on 409 female university students aged 19–23 years, BIA result was 20.73 % (H. Kaya, O. Özçelik, 2009). In the present study, female students of our university had 3.3 % more body fat according to SKF. A hundred and eight sedentary college students aged 19–20 years in the USA were found to have BF % as 28.33±7.93 % and 38.33±5.84 % according to SKF and BIA, respectively (Bowden et al, 2005). It was obvious that different methods could give different results. The results in the other studies were higher than of our study. Minimum and maximum BF % of the students according to BIA was found in faculties coded F1 and F6, respectively. Significant difference was found between F1 and the other faculties and was not found among other faculties except for F1.

In the study which active athletes and students of physical education and sports college of Cumhuriyet University participated, BF % was found as 15.11 % (G. Sınırkavak, U. Dal, Ö. Çetinkaya, 2004). Students of Faculty of Medicine and Physical Education and Sport College were found to have BF % as 32.78 % and 25.55 %, respectively. Significant difference was found between the two faculties which was similar to our study (S. Karakaş et al, 2005). Lowest BF % of female students according to SKF method was found at F1 which was 23.76 %, while the highest was determined at F6 and F2 (30.09 % and 29.02 %, respectively). According to BIA, significant difference was found between F1 and the other faculties and was not found at the other faculties except for F1. In a study conducted with female university students, it was reported that BF % were 31.30 % by SKF method (N. Şanlıer, 2005) which was similar in our study.

Although BF % of the faculties was significantly different according to CM method, it was not valid enough for our young population. The reason may be the female subjects of our population with a tendency of increasing fat in their hip area. Although significant difference was found between faculties according to BIA and SKF, ranking in BF % of these methods were same ("F1 < F4 < F3 < F5 < F2 < F6"). In a 9 week regular endurance and strength training healthy people were able to have decreased BF % (F. Toraman et al, 2002). An 8 week regular aerobic exercise programme was found to decrease BF % of middle aged sedentary women (FF. Çolakoğlu, Ö. Şenel, 2003). Exercise and

physically active lifestyle were accepted as having positive impact on BF % (Y. Bektaş et al, 2007)

Female Slovenian army members aged 24.82 years old had 28.50 % body fat by SKF method (Tomazo – Ravnik and Jezernik (2008). Body fat percentages of our participants were lower. Statistically significant differences in BF % with BIA in 19–29 years old female students of faculty of medicine and physical education and sport college were determined (S. Karakaş et al, 2005) which was also similar our study.

Various methods were performed in order to measure BF %. Various factors should be considered for evaluating the data. Because these methods had not only positive benefits but also missing aspects, it was possible to use different methods together (E. Güney, et al, 2003). Currently, BIA has entered to clinics because of its ease of use and reliability of results. On the other hand, there were studies suggesting contrary findings (AC. Utter et al, 1999). Many studies showed that BIA was an effective way for evaluating the body composition of children, young and old people (LB. Houtkooper et al, 1996, LG. Bandini et al, 1997). Measuring body composition by BIA could give reliable results especially in clinical and health assessments (H. Kaya, O. Özcelik 2009).

Measuremets in body composition by BIA were reported to be affected by changes in nutritional habits, by conditions influencing total body water and concentration of electrolytes such as dehydration, exercise, menstruation and by hot and cold environments which affect skin temperature (K. Üçok et al, 2008). Although SKF method was used for assessing obesity, it was not used in common because of problems in terms of measurement techniques. However, measurements which were done by one observer could give results compatible with reference methods (E. Güney et al, 2003).

Circumference measurement was another method for evaluating body composition which had advantages and limitations. It was especially preferred to SKF for measuring BF % of obese people. The reason may be that skinfold thickness could promote the maximum level of thickness of caliper. Besides, CM method requires less technical abilities. There has been found less difference in circumferences when the differences among experts were measured. However, CM method was able to give racial differences (E. Zorba, 2006). Measuring BF % by using SKF method, different formulas were performed. Each formula was used for different values from different parts of the body. That was the reason why SKF method could give different results even in the same group.

In conclusion, significant difference was not found in the age, body weight and BF % values of other faculties except for F1. It was known that physically active lifestyle could decrease BF % and increase muscle mass. According to SKF method, BF % could give different results because of the researcher or due to different measurement formulas. We thought that BIA could give both practical and accurate results by paying attention to measurement rules.

Acknowledgments

Erciyes University Research Foundation has supported this research; Contract grant number TSY-09-1020.

References

BANDINI, LG., VU, DM., MUST, A., DIETZ, WH., 1997, *Body fatness and bioelectrical impedance in non-obese pre-menarcheal girls: comparison to anthropometry and evaluation of predictive equations.* European Journal of Clinical Nutrition,; 51: 673-677.

BEKTAŞ, Y., KOCA ÖZER, B., GÜLTEKİN, T., SAĞIR, M., AKIN, G., 2007, *Anthropometric characteristics of female basketball players: somatotype and body composition values,* Nigde University, Journal of physical education and sports sciences, 1 (2):1-11.

BOWDEN, RG., LANNING, BA., DOYLE, EI., JOHNSTON, HM,. NASSAR, EI., SLONAKER, B., SCANES, G., RASMUSSEN, C., 2005, *Comparison of body composition measures to dual-energy x-ray absorptiometry*. Journal of Exercise Physiology,; 8 (2):1-9.

ÇOLAKOĞLU, FF., ŞENEL, Ö., 2003, *The effects of 8 weeks aerobic exercise program on body composition and blood lipids of middle aged sedentary females* Ankara University Spormetre. Journal of Physical Education and Sport,; 57-61, (in Turkey).

GÜNEY, E., ÖZGEN, AG., SARAÇ, F., YILMAZ, C., KABALAK, T., 2003, *Comparison of bioelectrical impedance and the other methods used for diagnosis of obesity*. Journal of Adnan Menderes University Medical Faculty,; 4(2): 15-18.

HOUTKOOPER, LB., LOHMAN, TG., GOİNG, SB., HOWELL, WH., 1996, *Why bioelectrical impedance analysis should be used for estimating adiposity.* Am J Clin Nutr,; 64: 436-448.

KAYA, H., ÖZÇELİK, O., 2009, *Comparison of effectiveness of body mass index and bioelectric impedance analysis methods on body composition in subjects with different ages and sex,* Fırat University Medical Journal of Health Sciences,; 23 (1): 1-5.

KARAKAŞ, S., TAŞER, F., YILDIZ, Y., KÖSE, H., 2005, *Comparison of body compositions between medical school students and physical education and sports school students by using the bioelectrical impedance analysis (BIA) method.* Journal of Adnan Menderes University Medical Faculty,; 6 (3): 5-9.

KYLE, UG., BOSAEUS, I., DE LORENZO, AD., DEURENBERG, P., ELİA, M., GÓMEZ, JM., HEİTMANN, BL., KENT-SMİTH, L., MELCHİOR, JC., PİRLİCH, M., SCHARFETTER, H., SCHOLS, AM., PİCHARD, C., 2004, *Bioelectrical impedance analysis-part: I review of principles and methods*. Clinical Nutrition,; 23:1226-1243

LİVİNGSTONE, B., 2000, *Epidemiology of childhood obesity in Europe.* Eur J Pediatr, 159 (1): 14-34.

SINIRKAVAK, G., DAL, U., ÇETİNKAYA, Ö., 2004, *The relation between the body composition and maximal oxygen capacity in elite sportsmen* Cumhuriyet Medical Journal,; 26 (4):171-176. (In Turkey).

ŞANLIER, N., 2005, *Biochemical findings among the youth, anthropometrical measurements, body composition, evaluation of nutritional and physical activity Status,* Gazi University Journal of Gazi Educational Faculty,; 25(3):47-73 (in Turkey).

ŞANLI, E., 2008, *Relation of physical activity level-age, gender and body mass index among the teachers,* Master thesis, Gazi University Health Science Institute, Ankara March (in Turkey)

TORAMAN, F., YAMAN, H., ŞAHİN, G., AYÇEM, N., MURATLI, S., 2002, *The effect of a 9 week training program on the body composition of elderly people.* Turkish Journal of Geriatrics, Geriatric,; 5 (3): 91-96.

TAMER, K., 2000, *Sports measurement and evaluation of physical and physiological performance*. Bağırgan Publishing house, Ankara (in Turkey).

TOMAZO-RAVNİK, T., JEZERNİK, D., 2008, *Assessment of body composition of young female adults using anthropometry and bioelectric impedance analysis.* Acta Medica Lituanica,; 15(1):39-42.

ÜÇOK, K., MOLLAOĞLU, H,. AKGÜN, L., GENÇ, A., 2008, *Comparison of measured resting metabolic rates of two different methods.* Journal of General Medicine,; **18 (3):117-120. (In Turkey).**

UTTER, AC., NİEMAN, DC., WARD, AN., BUTTERWORTH, DE., 1999, *Use of the leg to leg bioelectrical impedance method in assessing body-composition change in obese women.* Am J Clin Nutr,; 69:603-607.

ZORBA, E,. 2006, Body structure measurement techniques and coping with obesity. Morpa Culture Publications, Istanbul (in Turkey)

ZORBA, E., ZİYAGİL, MA., 1995, *Body composition and measurement methods.* Erek Off-set, Trabzon (in Turkey

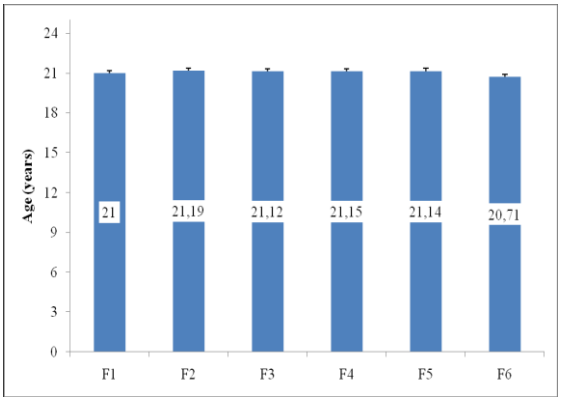

Figure 1. Age of female students attending at different faculties and colleges of our university. Results were presented as means ± SEM. One way ANOVA was performed according to different faculties. Statistically significant difference was not found in terms of age among faculties.

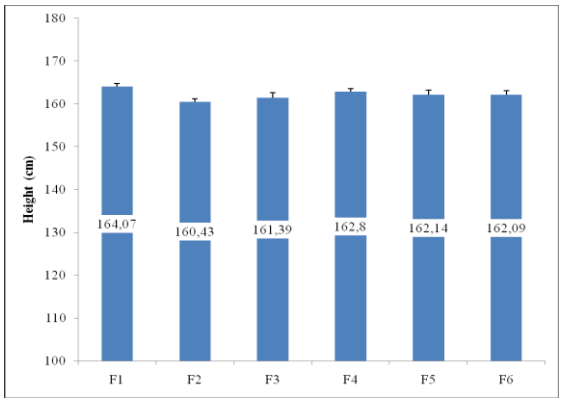

Figure 2. Height of the female students attending at different faculties and colleges of our university. Results were presented as means ± SEM. One way ANOVA was performed according to different faculties. Statistically significant difference was found between F1–F2 ($p<0.05$). Significant difference was not found when the other schools were compared with each other except for F1 ($p>0.05$).

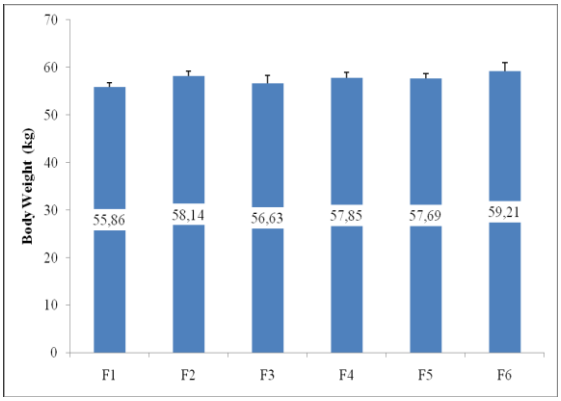

Figure 3. Body weight of female students attending at different faculties and colleges of our university. Results were presented as means ± SEM. One way ANOVA was performed according to different faculties. Significant difference was not found in body weight among faculties.

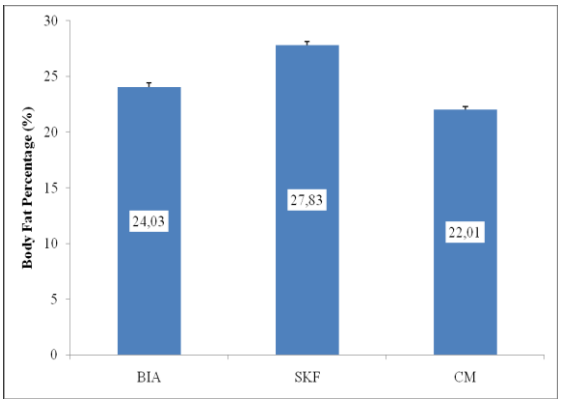

Figure 4. Comparison of BF % of female students according to three different methods. Results were presented as means ± SEM. ***Repeated measures analysis*** of ***variance*** was performed. When BF % of female students were measured according to BIA, SKF and CM, statistically significant difference was found among three different methods ($p<0.001$).

Figure 5. Comparison of BF % of female students attending at different faculties and colleges of our university according to three different methods. Results were presented as means ± SEM. ***Repeated measures analysis*** of ***variance*** was performed. While statistically significant difference was found among F1 and other faculties according to SKF and BIA method, significant difference was not found among faculties according to CM method.

THE EFFECT OF PSYCHOLOGICAL COUNSELLING PROGRAM ON DEVELOPING THE POSITIVE AND SPORT CONFIDENCE AND ITS RELATIONSHIP WITH THE PERFORMANCE LEVEL OF KARATE STUDENTS

YOUSEF AMAL[1], ELTANAHI NAGLA[1]

Abstract

Purpose: this study aims to design a psychological counseling program and know its effect on developing the positive and confidence sport and their relationship with the level of the performance of karate subject for the female students in the faculty of physical education, Zagazig University, Egypt. **Methods**: The experimental approach has been applies, the sample of this study was (40) students in the second year who study karate subject, scales were applied the positive scale consists of (42) question, the high degree refers to increase of the positive level to the student and vice verse, Carolina test of the sport confidence, it consists of three dimensions: perceived sports competence, perceived control, Dispositional optimism. The psychological counseling program has been applied in (12) weeks as (2) meetings per week in the first (8) weeks in the program there was one meeting per a week in the (4) last weeks, the period of meeting (45-60) minutes, it consists of these techniques, the techniques of following relaxation, the mental relaxation, meditation, awareness, role playing, feeling reflection according to the counseling which was set upon self confidence, home works, lecture, discussion and modeling. **Results**: the psychological counseling program has a positive effect on

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Received 17.02.2011 / Accepted 11.04.2011

developing the positive and confidence sport to experimental group, there also a positive correlation between the level of karate performance and both positive and confidence sport. **Conclusion:** using the proposed counseling program which has been applied in this study to develop the positive, confidence sport and the level performance of the students in the physical education faculty in Egypt which contributing to the quality of education process, interest and scientific in holding seminars courses for the development of positive and confidence sport, perform others studies in the field of positive and confidence sport.

Key words: psychological counseling - sport confidence – positive.

Introduction

The world where we are living has become variable and with speed tone and with various material achievements and need to be coped with. E. Abdul Rahman (2001) refers to that the process of psychological counseling is aiming at making change in the individual personality, his/her behavior and realizing the relation between him /her and others and also between his ideas, feelings and actions.. A.H. Ighlas (2002) refers that of the goals of the psychological counselling in the sportive field to develop a positive concept of the athletic towards himself, assisting his to direct his sportive life with him/her self with intelligence according to his abilities and capabilities and achieving its impulses and directing him to the best ways of training in order to achieve the maximum degrees of the sportive successes in addition to providing him with suitable range of the specialized and social information to contribute to increase his/her knowledge of him /her self and achieving the psychological coordination and psychological health. The positivity is considered on of the important indicators on the sound psychological health of the person and his/her capabilities and abilities to face effectively the situations and problems (68:14). G. Hartzelle (2000) mentions that the positivity is achieved through forming

feelings of enthusiasm, anticipation, joy, calm and focus on performance (D. Rennie, 2008). Manzo, LG" (1994).Indicates " that sport confidence is a property relatively constant that is consist of a high degree of positive thinking (optimism), and the belief that you have the control and the control (perceived control) and also the belief that you have the skill and ability in order to be successful in the sport (perceived control) Karate is one of the most popular martial arts practiced both inside and outside of Japan. Traditional karate training involves basics, kata and sparring. Basic techniques such as punching, kicking, blocking and striking are practiced either in a stationary position or with body movements in various formal stances, sparring is the execution of defensive and offensive techniques while freely moving against an opponent (Nakazawa et al. 1998).Kata is a performance of series according to a system recognized by the international styles of defense and attack as our behavior is forming to environment more than the environment is forming our behavior, the positive human is who can overcome the problems of his environment (14:19).T. Bathman 1993) indicates "that the positivity is to know the new problems and find renewal solutions to it with bearing future ambiguity with ambition and persistence. M. Rushdie (2000) also refers, that must consolidate the positive aspects of the personality of the individual even though it was few and refine them to be more helpful to the individual in the future and help to improve his/ her psychological condition.The sport confidence is considered one of the most important psychological phenomena that effect on the performance of female students either in a positive manner that leading them to do more effort to face competitive situations in the field of their sport activity with their confidence in ability to achieve success, or a negative way that lead to harm the performance for not their confidence in their ability to achieve success in the field of their activities of sports (22: 223).Success and failure are part of the sport; accordingly the athletic person with having sport confidence knows this fact and deal with it with a great deal of realism (K. R. Osama, 1995).Self-confidence is resulting from the positive thoughts of success and

blocking, punching and kicking in different trends and speeds directed to the three levels of the body of the attacker or group of phantom attackers through many different balance positions (A. M. Ebrahim, 1995). The two researchers saw that the prediction of the female student for success comes from her positive view and sport confidence in sports that make her tend to choose a specialization that fits with her abilities and hard work in order to achieve a high level of performance and the degree of positive thinking, comman, control and also believe that she has the skill and the ability to be successful in the specialty, therefore, the development to be success in specialization, so to develop positivity and sport confidence affect in both the public mood, and then select the appropriate specialization. In addition, the two researchers noted over the years of their work in college that there is considerable variation in the number of students in different specializations, and the number of

students of karate specialization are decrease from year to another as a result to have a low degrees in the final exam for the previous year of specialization, as well as fear of injury as a result of mistake performance of to some of the difficult skills, and a sense of dissatisfaction with self-lead to a low level of their performance, and where the sport karate are from martials arts that require direct contact between players in kumite competitions, leading to fear of female students to choose a karate as a special field and it practice without going to learn the importance and advantages of karate as a sport.In an interview made by the two female researchers for students of third year and asking them about the reason of the refusal to join specialization karate show attitude towards them negative toward specialization, and students who lack the self-confidence talking about the difficulty of the performance of some skills that require a high degree of control of the different body parts and the work of more than one muscular group at one time and requires a degree of fluid and smooth, and then reflect on their behavior, which had an impact on the low numbers of students of karate specialty, So the two researchers found that it is possible through a psychological counseling program prepared by the two researches for the students of the Second class (pre-specialized) to develop the positivity students and thus become to have the ability to solve their problems toward specialization in a positive manner and able to follow the specialization of karate and to give birth to themselves the level of realistic ambition that commensurate with their abilities and thus leads To improve the sport confidence level and karate, and here the idea of this study of two junior researchers to identify the impact of psychological counseling program on the development of positive and sport confidence and their relationship to the level of performance for subject for the students of Karate Sport Girls College of Physical Education, Zagazig University.

The objectives. The research aims to design a program of psychological counseling in order to know their effect on sport confidence and positivity and their relationship with the performance level of karate Subject.**Methods.**The two Researchers used the experimental method curriculum using experimental design of pre and post measurement of two groups, one experimental and the other control.The two Researchers applied a measure of positivity and a list of sport confidence on research community (students of the Second class, Faculty of Physical Education for Girls in Zagazig) and of their number (246) students in a comprehensive inventory to identify the students who receive lower grades, thus the main sample became (40) students, has Researchers find moderation frequency distribution of the research sample in the variables that may have an impact on the experimental variable "Age 18.48 ± 1.26 years old, intelligence 32.48 ± 2.57 degrees, the cultural level of 124.75 ± 9.27 degrees.Then the two Researchers divided the sample randomly into two groups, the number of each group is (15) Student, experimental group was applied as the psychological counselling program and control group where the adopted method was applied, and a survey sample of (10) students outside the core research sample for the application of scientific coefficients of the measurements.**The two Researchers used the following means to collected data**:Personal interview**,** high intelligence test prepared by, "M.R. Khairy" and aims to measure some mental functions and consists of 42 questions graded in difficulty.Scale of the cultural level of the Egyptian family prepared by Abdul, "K .Basset and A.M. Amal and consists of 6 dimensions: the level of family income, educational level, cultural level, Screened center of the family, promoting the cultural practices and cultural practices of the family, psychometric measurements.

A- Positivity Measure

A measure of positivity prepared and modified by H. Khalid (2004) and consists of (42) Questions: The high degree refers to the high level of positivity of the female student and vice versa, scientific coefficients of the measurement were calculated (Validity finding Alorbaiat by Terminal comparison of fours between Alorbayupper and lower, were calculated Consistency of the scale in a mid-term fragmentation and Cronbach alpha coefficient).

B- Carolina Sport Confidence Inventory (CSCI)

This list is designed by L.G. Manzo (1994) and the scale consists of number of 20 words divided into three dimensions, namely "perceived sports competence (6 words) - perceived control (6 words) - Dispositional Optimistic (8 words) ", And each dimension of these three dimensions is measured by a set of statements including all the words to two sentences, one in the direction of the dimension, and the other the opposite direction of the dimension and the student shall choose one of them in proportion to its concept of itself, and then determines her applicability to the situation whether (they apply it completely), or (they apply to some extent) subject to the application list under the title "List of personal opinions in the sport and the athletes "in order to reduce the bias of the players when answering about the social desirability. The scale consists of the number of 20 to be distributed over three dimensions were calculated scientific coefficients (Validity through Believe internal consistency, stability was calculated of the scale in a test application and re-applied Test Retest).

Program of Psychological Counselling

The program aims to develop positivity for giving the opportunity for students to acquire skills and

concepts to help them dealing with their problems in a positive way and take the appropriate decisions to resolve them and to improve sport confidence and performance level of a substance karate, as far as this goal is achieved and the program is a useful and effective, This program is applied (12) weeks (2) meetings per week in (8) weeks from the first program, and then one session per week last (4) weeks, and the duration of the session (45-60 minutes), counselling program have been applied on experimental group students inside the Faculty of Physical Education for Girls in Zagazig University.**Program content**:

• Designing the program sessions using the method of group psychological counselling where it saves time and effort, and it provides the opportunity to contact students with each other while they all have one goal Is to develop positivity and sport confidence, as it increases the spirit of competition among them and can benefit from the progress that some of them may achieve, which increases the Motivation to comply with the program.• Content of karate course for second class which included basics, kata, fighting agreed upon

The basic skills of karate of defense methods (blocking – feet movements) and attack methods (punching – hitting – kicking).**Feet positions**: Front – stance (zenkutsu – dachi) , Back – stance (kokutsu – dachi), Straddle – leg Stance (kiba – dachi), Sparring Front stance (zenkutsu kumite –dachi)

Blocking methods: Downward block **(**Gedon-Bari) Rising block (Jodan Age-Uke), Inward foream block (Chudan Uchi-uke), Outward foream block (Soto-ude-uke), Seward hand block(Chudan - Shuto –Uke).**Punching methods:** Rising Punch (Age-Zuki), Short Punch (kizami-zuki) ,Lung Punch (Oi-zuki), Reverse Punch (Gyaku-zuki) .**Kicking methods**: Front Kick (Mae – Geri), Back Kick (Ushiro – Geri), Side Kick (Yoko- Geri), Roundhouse Kick (Mawashi – Geri).**Kata**: Heian shudan.• It takes the educational image by virtue of its implementation with students of the university as it follows the model of personal growth.•Using the following techniques: cascade relaxation techniques, mental relaxation and feedback and include the supply students with information about the subject of karate and the level of their achievement, so the student can modify her behavior.Through the program the views are displayed during the discussions where the focus is on behavior, and feedback is provided by the two female researchers which gives the observations and information where the student can choose what would you do with this information and also give at the end of performance information to understand the results and extent of success in the acquisition of skill, Lecture techniques are a display method of the acquisition of positive behavior by knowing the real potential of the self and the strengths and weaknesses of students and focus on the strengths and promoting them with improving weaknesses, and techniques of the discussion that the researcher introduced the question and the students answer and then generate ideas (bilateral discussion, group discussion, free discussion), and techniques to solve problems where the researcher present a problem associated with specialization karate hindering the students and the students provide the proposal of their solutions and in accordance with the steps: (determine the problem and its causes - identify the potential students - the search for solutions and possible alternatives to solve the problem), and techniques of self-awareness of positivity helping by the researcher of to have an perceived of themselves and what is the student lack and existing capacities and needs and it helps the student to recognize the drawbacks to be removed and positiveness in attitudes to be strengthened through dialogue with itself, and positive imagination is that the student imagine requesting the same in situations like that reflect the positive behavior and imagine that it has done and the joy you brought to themselves and to imagine that they got rid of the negative behavior, and techniques of homework assignments designed to exercise various skills learned by students as they help students to transfer skills learned to the field of life, and techniques of modeling is the help of examples of students minded and positive view of their problems and experiences to the students in question and these techniques have proven their effectiveness in foreign studies, and had a clear impact in the development of positivity and sport confidence and modified y attitudes of others together for the students, and the table (1) illustrates the program of psychological counselling.

(Table 1)

Month	Weak	Session	Session objectives	Used techniques	Karate Skills
First	First	First	Clarify the basic goal for students and the formation of a positive trend towards the program : ▪ Make the female students identify the reasons for their choosing ▪ Explain how to implement the program ▪ Clarify the techniques used in the program. ▪ informing them about the timing attendance – duration for the meeting ▪ And the duration of the program as a whole. ▪ Development of awareness among the student of the subject of positivity and sport confidence ▪ The impact of positive and sports confidence on improving performance Karate	Lecture	- Attention stance (Heisoku dachi)
		Second	Develop awareness among students and the types of positive subject and sport confidence, karate skills training prescribed in the lectures of this week, and Cascade relaxation training,	Lecture, relaxation, feedback, homework.	-Front stance (Zenkutsu- Dachi). - ride a horse (Kiba-Dachi)
	Second	Third	knowing the positive thinking and self-concept and self-esteem and feedback for the karate skills assessed in the lectures this week	Lecture, relaxation, modeling, feedback, homework	- Back stance(kokutsu – dachi) - Application of the fingers (grip) - areas that can defend and divisions defense skills
		Fourth	knowing the positive intentions and the effectiveness of self-training, the skills of karate in the lectures scheduled this week and relax staggered (face - neck - chest)	Lecture, relaxation, modeling, feedback, homework	- Downward block (Gedon-Bari) -Rising block (Jodan Age-Uke)
	Third	Fifth	knowing the level of no attention and view examples of the karate skills of prescribed in the previous lectures and training on relaxation and staggered (face - neck - chest)	Lecture, relaxation, modeling, feedback, homework	-Inward foream block (Chudan Uchi-uke) - Outward foream block (Soto-ude-uke)
		Sixth	knowing the fifth level of the levels of positive this negative and self-talk of sport confidence and relaxation training as a means to cope with internal and negative frustrations and relaxation (chest - back - abdomen)	Lecture, relaxation, modeling, feedback, homework	-Seward hand block(Chudan - Shuto –Uke) - Review of previous skills

Month	Weak	Session	Session objectives	Used techniques	Karate Skills
	Fourth	Seventh	knowing the point of control and the difference between two settings of internal and external adjustment efficiency perceived, mental relaxation training, training on the skills of karate prescribed in the lectures this week	Lecture, discussion, relaxation, live modeling, and feedback, homework	- Lung Punch (Oi-zuki) -Reverse Punch (Gyaku-zuki) .
		Eighth	knowing the nature of achievement motivation and knowing the impact of achievement motivation on the positive development of the student and comparing e the motivation of achievement on five levels of positive and goal-setting influence and training on the skills of karate prescribed in the lectures this week and training in relaxation (crippling and thigh down a man and a leg - foot)	Lecture - Relaxation - live Modeling - feedback – homework	- Ttsuy - diagnostic evaluation
Second	Fifth	Fifth	To know what the future vision and to identify the difference between future vision and the vision of past and perceived control and the skills of karate training prescribed in the lectures this week.	Lecture - discussion - and feedback - homework.	- the division of technical kicks - Front Kick (Mae – Geri)
		Tenth	To know what the future vision and to identify the difference between future vision and the vision of past and perceived control and the skills of karate training prescribed in the lectures this week	Lecture - discussion - and feedback - homework.	- Side Kick (Yoko-Geri) -Roundhouse Kick (Mawashi – Geri)
	Sixth	Eleventh	Making the female students identify the nature abundance of possibilities and to identify the impact of the abundance on development of positive possibilities and the ability to develop the appropriate possibilities of attitudes and different problems and the identification of success and experience of relaxation training and overall skill set for this week to Karate	Lecture - Relaxation - homework.	agreed Fighting Jodan Oi-zuki progress (attacker) + Age-Uke, Gyaku-zuki (defender). - Chudan Oi-zuki progress (attacker) + Soto-uke, Gyaku-zuki (defender).
		Twelfth	knowing the definition and concept of the inevitability of free choice and identify of the capacity given by God to humans and the ability to choose appropriate solutions to the problems	Lecture - discussion - and mental relaxation - homework	- Mae – Geri (attacker) + Gedon-Bari, Gyaku-zuki (defender)
	Seventh	Thirteenth	The ability to bear hardships and suffering and to identify the difference in bearing suffering at the five levels of positivity	Lecture, discussion and feedback	- Mawashi – Geri (attacker) + Uchi-uke, Gyaku-zuki (defender)
		Fourteenth	knowing What are the models to identify the guidance and the ability to overcome the erroneous extension models and to identify the effect of guidance models on the five levels of positivity	Lecture and discussion	-Yoko- Geri (attacker) + Soto Ok, Gyaku-zuki (defender)

Month	Weak	Session	Session objectives	Used techniques	Karate Skills
	Eighth	Fifteenth	knowing the concept and what is satisfaction and the postponement of gratification and ability to differentiate between the different situations and the degree of saturation	Lecture and discussion	Review the skills that were learning - personal evaluation
		Sixteenth	knowing the concept and what is the calculated risk, and to identify the difference between calculated risk and Stampede	Lecture and discussion	- Introduction to the Kata and the definition it - First half of the first kata
Third	Eleventh	Seventh	knowing the concept and what is the initiative, and to identify the difference between the initiative, weakness and surrender and the ability to apply initiative proposes five levels of positivity	Lecture and discussion	- the second half of the first kata
	Tenth	Eighteenth	knowing the concept and what self-confidence, and to identify the difference between the vanity and arrogance and self-confidence and to identify the importance of trust in the development of positivity	Lecture and discussion	-review Kata full - review kumite
	Eleventh	Nineteenth	knowing the concept and what perseverance, and to identify the importance of perseverance in the continuation of life and the development of positivity	Lecture and discussion	- Review the prescribed defensive and offensive skills
	Eleventh	Twentieth	The adaptation of the sample to terminate the program	Lecture	-Evaluating

Performance level. The degree to which obtained by requesting the exam Applied Karate for the end of the second semester for second year by a committee composed of three members of the combat departmentin the faculty distributed on three committees of the basics and kata and kumite agreed and the total score of the exam fifteen degrees was taken the average. **Statistical analysis.** Data were examined using a computerized statistical package (SPSS). Differences between measuring two groups were analyzed using paired samples T-Test. And Correlation between variables was assessed by a Pearson's correlation coefficients. Significance was accepted at the $p < 0.05$ level.

Results

(Table 2) significant differences between pre and post measurements of experimental group in selected variables under consideration

N=15

Variables	Pre M ± SD	Post M ± SD	T
Positivity	104.39±8.46	145.62±6.02	13.74*
Sport Confidence	52.65±3.24	68.42±5.16	9.16 *

T value at 0.05 = 2.15.

Table (2) Shows that there are significant differences between pre and post measurements for the experimental group in selected variables under discussion.

Table (3) significant differences between pre and post measurements of the control group in selected variables under consideration

N=15

Variables	Pre M ± SD	Post M ± SD	T

Positivity	105.21±7.31	106.34±7.34	1.36
Sport Confidence	51.86±2.49	53.73±3.62	2.04

T value at 0.05 = 2.15

Table No. (3) Shows that there are no statistically significant differences between pre and post measurements of the control group in selected variables under discussion.

(Table 4) significant differences between measurements of the dimensions of the two experimental and control groups in the selected variables under consideration

N1=N2=15

Variables	**Experimental Pre M ± SD**	**Control Post M ± SD**	**T**
Positivity	145.62±9.02	106.34±7.34	12.64*
Sport Confidence	68.42 ±5.16	53.73±3.62	8.72*
Karate performance level	12.58± 2.37	10.37±1.36	3.03*

T value at 0.05 = 2.05.

Table No. (4) Shows that there are no significant differences between the two post measurements of the experimental and control groups in the selected variables under consideration for the experimental group.

(Table 5) correlation coefficient between the level of performance for karate subject and the positive and sport confidence

Variables / **Performance level**	**Experimental Group**	**Control Group**
Positivity	0.761*	0.681*
Sport Confidence	0.748*	0.649*

The significance of the correlation coefficient at the level of 0.05 = 0.514

Table (5) shows that there is no statistical correlation between the statistically significant positive for the performance level of karate subject and all of the positive and sport confidence of the experimental group and control group.

***Discussion*:**

The results of Table (2) refer to the existence of statistical differences between pre and post measurements for the experimental group in selected variables under consideration.As can be seen from the results of Table (3) there is no statistically significant differences between pre and post measurements of the control group in selected variables under consideration

And the researchers attribute that to the program of psychological counselling proposed and to using by the researchers of method of collective counselling where there is love, understanding and acceptance. the researchers have been taken into account at the application `of counselling sessions to be similar to academic lectures within the college, either practical or theoretical in order to accustom students to the confront inside the lecture, taking also into account that the program include Some techniques such as modeling, relaxation, breathing, meditation and social skills, problem solving, lecture, discussions, feedback and other strategies of behavior counselling as well as the method of self-positive awareness , which is where the two researchers assist the female student to have an awareness of her abilities t and capabilities and to determine her negatives to can avoid it, and her positivity in different situations and to strength such positivity through dialogue with herself. In addition, the two female researchers used the positive imaginary approach which helps the student to imagine herself while making the positive attitude in various situations and felt happy in doing so all of these methods and other techniques of the program of psychological counselling for students and which is considered the main entrance to help them facing the problems and the changing situations in their studies in her college and in their general life, and this is consistent with what indicated by P.M.Rushdie (2000) that the positive aspects personality of individual must be enhanced and refined to help to him in different positions .This is also Consistent with the study of H.E. Khaled (2002) ; A.H.

Hoda (2008), which confirms that positvity improve the feeling of the positive sense of psychological security and bear the frustrations and general psychological state and the level of ambition.

The two researchers believes that improvement of sport confidence for the student makes her into a predicted positively to their level and their capabilities, skills and confidence through the success of sequences works to improve the performance, on the contrary the student with low-level adversely affects negatively the position of performance and other negative effects they are in predicting the failure and inability to focus and distraction As well as awareness of the feeling of non-pleasant emotion and inability to cope with the position of competition with confidence, and this is consistent with each of K.R.Osama (2000); H.A.Mohammad (1997) that the acquisition of self-confidence makes athlete more calm and relaxed and able to act successfully in Positions bout as they help him to concentrate on the required performance and evoke the challenge to him to do his best to achieve the required goals, and the athletes who have the performance level of skill and fitness tend to play to achieve the gain and are not afraid to try the initiative and have control over their competitors and can therefore To take advantage of the conditions of competition.L. F. Jessica, C.T. Jean, D. Janice (2005) saw the importance of sportive programs in improve the positivity, confidence and efficient for youth.t is clear from the results of Table (3) that there are statistically significant differences between the pre and post measurements of the control group in the selected variables under consideration, and blames the researchers to the attention of the program followed for Karate and teaching skills and various movements of karate without regard to Psychological Skills that may affect the students and especially the Second Division**,** the fact increasing the burden on the nervous system which in turn leads to the emergence of biological and psychological symptoms associated with emotions**,** especially as the nature of the study process had to assess the level of college students on an ongoing basis along with the educational process.This is consistent with Fabiocoman (2004); R. Maryg (2003) that training in the traditional was focusing s on the performance in the case of stability and making little progress in improving the level of skill performance.The results of Table (4) refers to the fact that there are statistical significant differences between the post measurements for the two experimental and control group in a positivity and sport confidence for the benefit of the experimental group, and researchers returns the improvement of the impact of the program of psychological counselling proposal, which was applied to the experimental group without control, which led to the improved level of positivity and sport confidence And the level of performance for karate subject in the experimental group, and is in line with the results of M.A.Zeinab , M.Y. Amal (2001) that the program of psychological counselling an appropriate method is effective in reducing social anxiety and increase self-confidence and level of performance to express the dynamic of what it contains of the techniques where Students feel of security, love and acceptance and help them to cope in different social situations.This is consistent with what referred to by each of A.H. Hussein, B. Mustafa (2006) that there is a an urgent and necessary need for to the programs, psychological counselling in the sports field as there are causes, such as fear or a sense of non capicity in performance due to the impressions, situations, and educational attempts, the role of counselling programs is to detect the compatibility of sports with the problems and circumstances faced in the process of training or education, S.Nabil (2004) view that that the objectives of psychological counselling to improve the educational process by raising the motivation for learning and attention to individual differences and shed light on Problems of student learning and trying to solve, and guide the student to the proper methods in studying and help the student to achieve herself .Z.Hamid (1997) Indicates " that the counselling will help students in making educational plans that fit their abilities and inclinations, tendencies and their goals and help them to succeed, and also provide guiding services are integrated in and through the educational process as a whole in the context of a specific program to be consistent with the objectives of the process guidance with the objectives of the process Education as a whole .That agreed with results A. Jeffrey, M. Lisa (2001) counseling programs lead to improve the performance.This is also is agreed with what indicated by A. Saffaa , K. Aladdin (2000) on the importance of psychological adduction of the individual to develop of emotional and psychological aspects to help him/her to understand itself and its environment.This is also is agreed with T. Mei, D.A. Kathleen, L. Danielle et al.(2004)there is a positive relationship between providing counselling program and educational programs and self-efficacy and reduce anxiety.I.B. Ahmed (2010) saw the process of teaching karate education is a collaborative process between the player and coach, who is on his shoulder many of the tasks of teaching and educational are assumed, that contribute to individual breeding a comprehensive balanced and allow him the opportunity to achieve the highest levels

of training in karate next to instill and develop the characteristics of congenital and positive attitude practitioners. The results of Table (5) to the existence of significant differences between the indices dimensions for the two experimental and control group in a positive and confidence in sports and in favor of the experimental group, and returns the researchers of this improvement of the impact of the program of psychological counselling proposal, which was applied to the experimental group without control, which led to the improved level of positive and confidence sports And the level of performance for material karate in the experimental group, and is in line with the results of M. Zeinab, M.Y. Amal (2001) that the program of psychological counselling an appropriate method is effective in reducing social anxiety and increase self-confidence and level of performance to express the dynamic of what it contains of the techniques is Students of security, love and acceptance and help them to cope in different social situations.The results of Table (5) show that there is a statistically significant positive correlation between the level of performance of karate subject and both positivity and sport confidence of the experimental group and control group. The two researchers attribute this to the fact that the positivity development will help the female student to become more able to face the situations and different problems that may face her that making her sport confidence to be of high level and therefore to have optimism, and then increase her level of performance. This is consistent with what was referred by both A. Abdalmtalb (1998) ; M. Rushdie (2000) that the positivity is one of the important indicators of improvement in the sound psychological condition of the individual, as agreed with the study of A. Taha (1987) ; H. Khaled (2002) in that there is positive correlation statistically significant between the positivity and all of the style in front of the pressing situations and the ability to solve problems, thereby increasing a sense of psychological security.This agrees with K.R. Osama (2000) ; A.S . Mohammed, I. Magda (2001) that self-confidence is important because it is related with athletic appreciation for himself and it makes him/her exert the effort for excellence Self-confidence is formed as a result of providing their physical abilities and skills and tactical and through the integration between mind and body. It must be concerned with self-confidence that go side by side with the programs of physical, skill and tactical preparation where all this gives it all a sense of security and instability of performance skills, and raise the level of the specialized Skill Performance.This is indicated by the results of study for R.S. Vealey (1988); J. Jeffrey and L. Diane L. (1991) that the athletes who got the sport confidence enjoy a high level of performance better than athletes with less sport confidence. When athletic have self-confidence, he tends to persevere even through the matter is as an ideal way as confidence is from the basic features that success performance in most sports (D. Rennie, 2008). Also that agreed with W. Tim, H. Lew (2003) there is a relationship between sport confidence and combat performance level.

Conclusions:

- The proposed program of psychological counselling has a positive effect on the development of positivety and sport confidence for the experimental group.
- There is a positive correlation between the level of statistical performance of karate and all the material of the positive and sport confidence.

References:

ABD, ALMTALB, A., 1998, *Mental Health*, House of the Arab Thought, Cairo, Egypt, 68.

ABDUL, RAHMAN, E., 2001, the new in Mental Health, Alexandria, Institution of Knowledge, Egypt, 7-8.

AHMED, I.B., 2010, *the road to black belt in karate Encyclopedia with the modernist scientific and practical methods*, Center for the Book for Publishing, Cairo, Egypt, 18

AHMED, M. I., 1995*, karate, the principles of planning for educational programs and training, institution of knowledge*, Alexandria, Egypt, 17

BATHMAN, T., 1993, *the reactive component of organization behavior*, Journal of organization behavior, Vol., 14, 108

CATHERINE, D.E., 2005, *Students Experiences in: Sport – Based Physical education More than] Apologies are necessary*, QUEST, 48, 453-456

FABIOCOMANA, 2004, F*unction training for sports,* human kinetic champing 11 England

GRANT, B., 1992, *Integrating sport into the physical education curriculum in New Zealand*, secondary schools. Quest, 44, 304-316.

HAMID, Z., 1997, *guidance and psychological counselling,* i 2, the world of books, Cairo, Egypt, 344

HARTZELL, G., 2000, *Being proactive, book repor*t. May/Apr. issue 5, Vol.18, p.14

HODA, A.H., 2008, *development of positivity and its impact on the general psychological state and the level of ambition for the students of First Year Girls Faculty of Physical Education,* "

International Scientific Conference of sport, Faculty of Physical Education and Sport Sciences, Hashemite University of Jordan,83-97.

HUSSEIN, A.H., MUSTAFA, B., 2006, *psychological adjustment and balance career,* World Home of the publication and distribution, Cairo, Egypt, 77.

IKHLAS, A.H., 2002, *psychological guidance and counselling in the sports field, Cairo*: Center for the Book Publishing, Cairo, Egypt, 21

JEFFREY, A., LISA, M., 2001, *The Impact of Performance Feedback on Counselling Self-Efficacy and Counselor Anxiety*, Vol. 41, No. 2, 120 - 130

JEFFREY, J., DIANE, L., 1991, *the Relationships among Competitive Orientation, Sport-Confidence, Self-Efficacy, Anxiety, and Performance*, Journal of Sport & Exercise Psychology, 13, p.149-159

JESSICA, L.F., JEAN, C.T., JANICE, D., 2005, *Youth sport programs: an avenue to foster positive youth development, Physical Education & Sport Pedagogy*, Volume 10, Issue 1, P. 19 - 40

KHALED, H.E., 2002, *Positivity and personal relationship with some variables in a sample of university students*, Master Thesis, Faculty of Girls for Arts, Science and Education, Ain Shams University, Egypt

MAGYAR, T.M., FELTZ, D.L., 2003, *The influence of dispositional and situational tendencies on adolescent girls' sport confidence sources,* Psychology of Sport and Exercise, Volume 4, Issue 2, 175-190

MANZO, L.G., 1994, *Psychometric Assessment of the Carolina sport confidence Inventory .University of the North Carolina at chapel Hill Department of physical Education*, Exercise and sport Science ., U.S.A, 8-9.

MARYG, R., 2003, *what makes functional training national strength and conditioning*, association 27,

MEI, T., KATHLEEN, D.A., DANIELLE, L. et al., 2004, *Factors That Influence Self-Efficacy of Counselling Students: An Exploratory Study,* Counselor Education and Supervision, Vol. 44, No. 1, 70 - 80

MOHAMMED, A.S., MAGDA, I., 2001, *the player and the mental training,* Center for the Book Publishing, Cairo. Egypt

MOHAMMED, H.A., 1997,Trained Psychology and Athletic Training, Knowledge House, Cairo, Egypt, 68.

NABIL, S., 2004, *manual in the personal and psychological counselling, Eterk Printing*, Publishing and Distribution, Cairo, Egypt,198.

NAKAZAWA, T.A. et al., 1998, *Maximal oxygen uptake, body composition and strength of highly competitive and novice karate practitioners,* Applied Human science, Vol.17, No .5, 215-218.

OSAMA, K.R. , 1995, *Psychological Counselling in Sports, House of the Arab Thought,* Cairo, Egypt, 338

OSAMA, K.R., 2000, *psychological skills training, applications in the sports field*, House of the Arab Thought, Cairo, Egypt, 299-305

RENNIE D., 2008, *Sports Psychology - The Will To Win,* Peak performance,123.

RUSHDIE, P.M., 2000, *prevention and treatment Psychology,* Egyptian Anglo press, Egypt, 286.

SAFFA, A., ALADDIN, K., 2000, *Emotional Intelligence,* House of Quba for Publishing, Cairo, Egypt, 165.

TAHA, A., 1987, *the relationship between self-concept and positive to the undergraduate students,* Master Thesis, Faculty of Education, Benha, Zagazig University, Egypt

TIM, W., LEW, H., 2003, *the relative impact of cognitive anxiety and self-confidence upon sport performance: a meta-analysis*, Journal of Sports Sciences, Vol. 21, Issue 6, 443 - 457

ZEINAB, M.A., AMAL M.Y., 2001, *effects of two programs for motor expression and psychological counselling on social anxiety and self-confidence for the students of the Faculty of Physical Education for Girls in Zagazig*, Journal of Research of global education, Faculty of Physical Education Girls, Zagazig University, Egypt, 136-178.

VEALEY, R.S., 1988, *Sport-confidence and competitive orientation: An addendum on scoring procedures and gender differences,* Journal of Sport & Exercise Psychology, Vol. 10(4), 471-478

VEALEY, R.S., 1986, *Conceptualization of sport confidence and Competitive orientation preliminary investigation and instatement development*, Journal of sport psychology (champing 111), 223.

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
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❖ KINETOTHERAPY

MOTOR RECUPERATION OF A PATIENT WITH BASAL GANGLIA ISCHEMIA- CASE REPORT

DOCU-AXELERAD DAN[1], DOCU-AXELERAD ANY[2], DAMIAN MIRELA[1]

Abstract
Purpose. This case presentation was meant to underline the importance of clinic diagnosis and correlation of symptomatology with imagistic findings, without minimizing the role of imagistic examination, so necessary for an accurate diagnosis.
Methods. This case study relates the relationship between imagists and neurologists and recuperation team can have difficulties in establishing an accurate diagnosis. The same importance has the early initiation of a recuperation programme and shows once again the benefits of team work.
Results. The particularity of the presented case released in the pseudotumoral imagistic aspect, even though the symptoms, the neurological signs and evolution of symptomatology were more suggestive for an ischemic stroke. We underline the importance of complete imagistic examination, in our case the absence of the contrast substance made it impossible to perform a contrast MRI, examination necessary for a more accurate diagnosis and a correct design of passive and active recuperation which has a good outcome.
Conclusions. This case presentation was meant to underline the importance of clinic diagnosis and correlation of symptomatology with imagistic findings, without minimizing the role of imagistic examination, so necessary for an accurate diagnosis. Another important aspect is that sometimes even experienced imagists and neurologists can have difficulties in establishing an accurate diagnosis, and this once again shows the benefits of team work.
Key words: basal ganglia ischemia, imagistic examination, kinetic programme.

Introduction

The basal ganglia are the masses of gray matter deep within the cerebral hemispheres. The basal ganglia include the caudate nucleus, amygdala, claustrum, internal capsule, external capsule, extreme capsule, and lentiform nucleus (*A. Osborn, K. Tong, 1996)*.

The lentiform nucleus comprises the globus pallidus and putamen. The caudate nucleus, globus pallidus, and putamen are collectively referred to as the corpora striatum (N. *Beauchamp, et al., 1999)*

The basal ganglia derive their blood supply from small arteries (medial lenticulostriate arteries, which originate from the A1 segment of the anterior cerebral artery and lateral lenticulostriate arteries which originate from the superior portion of the M1 segment of the MCA) and that is why they are susceptible to ischemic injury. (*N. Tomura et al.,* 1988).

Early CT signs of MCA infarction include hyperattenuation of the MCA, an obscured lentiform nucleus, an obscured sylvian fissure, loss of the gray-white matter junction, and loss of the delineation of the basal ganglia. (*R. Von Kummer, H. Bourquain, S. Bastianello, et al., 2001)*

To underline the importance of clinic diagnosis and correlation of symptomatology with imagistic findings, without minimizing the role of imagistic examination, so necessary for an accurate diagnosis. (*W. Harris, M. Castillo, 2000; A. Osborn, 1980)*

Another important aspect is that sometimes even experienced imagists and neurologists can have difficulties in establishing an accurate diagnosis, and

Another important aspect is that sometimes even experienced imagists and neurologists can have difficulties in establishing an accurate diagnosis, and that shows once again the benefits of team work. (*R. Von Kummer, U. Meyding-Lamede, M. Forsting, et al., 1994)*

Von Kummer, U. Meyding-Lamede, M. Forsting, et al., 1994)

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Received 13.03.2011 / Accepted 15.04.2011

Method

It is a case study realized in a hospital in Constanta, department of neurology in cooperation with the Faculty of Physical Education.

Results

This case study refers to a male patient, aged 56, hypertensive, obese, without any treatment undergoing, with a recent carotic TIA, who was admitted in our clinic accusing weakness of left limbs, visual troubles and sfyncterial troubles.

The neurological exam at admission revealed left hemiplegia, altered superficial, profound and cortical sensibility, left equilateral hemianopsia, incontinence.

After 24 hours from the onset we performed a brain CT scan (fig 1, 2) that did not show the presence of ischemia or hemorrhage. After two weeks of treatment the patient is discharged with partial relieved symptomatology and with recommendations for diet, kynetotherapy and clinical and therapeutical reexamination after 3 weeks.

After two weeks the patient returns, complaining of severe headache, nausea and repetead bilious vomiting. The neurological examination shows left hemiplegia, equilateral reflex Babinski"s,e xagereted left reflex tendon, impaired sensibility, urinary incontinence.

It is decided to perform a brain MRI (fig. 3) with and without contrast (unfortunely our clinic did not have the contrast substance at that time). The imaging investigation proves the presence of a expanded-infiltrated non-specific lesion, localized in the right frontal and parietal lobe and small demyelinating lesion in the left parietal lobe.

The evolution of symptoms and neurological signs correlated with imagistic results rise the suspicion of a right paraventricular tumor, and after consulting the neurosurgeon it is decided that it will be opportune to perform surgery. Unfortunely surgery is delayed for two weeks because the patient developed acute renal insufficiency. The biopsy is performed with good postoperative evolution , without accidents or new neurological impairement. During surgery it is observed the macroscopical aspect of mass tumor that is suggestive for pseudotumoral ischemia of the right basal ganglia.

The hystopathologycal result established the final diagnosis of cerebral ramollissement (cerebral tissue with microlesions of ischemic ramollissement; absence of tumoral aspects of examed fragments).

After surgery the patient underwent an individualized program of rehabilitation using physical exercises adapted to his clinical tolerance.

We initiate **passive and active kinetics therapy program:**

I. The initial phase, immediately after the surgery:

- in the early stages of the disease, the total or partial paralysis of the limbs is lax;
- the objective of the rehabilitation is the maintenance of the articular mobility in complete amplitudes and the prevention of muscular contractions;
- the correct posture of the limbs in functioning position;
- the upper limb is to be kept with the shoulder in abduction (a pillow in the axilla), the forearm in slight flexion on the arm or in extension, semisupination, the fist in slight extension, the finger in semi-flexion and the thumb in abduction;
- the lower limb is to be kept in extension, not allowing for any degree of flexion or rotation of the hip;
- the knee is to be kept in extension, and the lower foot at a right angle with the lower leg with the aid of a posterior splint, well cushioned in order to avoid compression or skin injuries.

II. The functional recovery of the hemiplegic upper limb

The rehabilitation of the hemiplegic fist and arm is the most difficult problem for the rehabilitator. The rehabilitation of the upper limb started early, in our case – on the 7th day since the debut of the neuro-muscular deficit. It is the period of flaccidity when, first of all, we must proceed to correctly posture the entire upper limb:

- the arm in 45˚ abduction, the elbow in slight flexion or extension, the fist in extension, the fingers in slight flexion, the thumb in abduction (it is repeated every 5' with 30" breaks after each minute of maintenance);
- gradual tactile and proprioceptive stimulation, from facilitating positions; (sensory stimulation is used in the direction of increasing the desired responses and inhibiting the unwanted ones);

-muscle tapotement associated with light pressure, joint light compression, in rapid alternation (5-6' with 30" breaks).

- form the seated position, we use the normal reactions of stability and equilibrium, which we challenge through light pushes of the upper body so as to unbalance the patient who, trying to maintain balance, initiates muscle contractions in the upper limb (5' with 30" breaks after each minute).

Methodic indications: the rehabilitation therapy develops in two phases:

A. In the initial phase, when the proximal extremity of the upper limb is taken care of, there must be voluntary control of the shoulder and elbow, if possible, in different plans; all movements should be as far away as possible from the sin kinetic schemes.

In the beginning, there is recommended to accentuate the plasticity of the hand to any movement of the upper limb root. Therefore, during the active mobilization of the proximal extremity, the hand shall be kept in an inhibition position, that is: total extension

of the fingers and of the fist with the thumb in abduction.

- the passive mobilization of all of the joints of the affected limb is done gently, but it must be insisted in order to carry on the full amplitude of the movement. Every joint should be separately mobilized, holding at the extremities of the mobilized segments (a joint is not passively mobilized through another joint);

- the training of the body symmetry is made through bilateral activities, then alternative unilateral ones, and finally through reciprocal activities;

- when the overall condition allowed it, (on the 30th day since the debut), the Kabat technique is applied, the diagonals for the upper limb; once the spasticity is installed, the new conditions of the neuro-muscular deficit forced the adjustment of the therapeutic tactics;

- it is important to know that with some hemiplegics there may reside a lack of usage of the hand, although motility is recovered. This is explained by the profound sensory disorders due to the involvement of the upward sensory paths which are very close on the pyramidal path, at the level of the cortex and the inner capsule.

The prognosis of the functional rehabilitation of the hand is linked to many aspects, among which we mention some references to the etiology and topography pf the lesion:

- the most serious, from a functional point of view, and, unfortunately, the most frequent, are the cortical or capsular lesions following an ischemia, such as is our case in the ICA territory. If at the debut of the illness, the functional prognosis cannot be determined, two months later it may be known according to: the topography of the lesion, the importance of the sensory and motility disorders.

- the functional prognosis is initially mediocre, and its primarily purpose is that of preventing the elbow-shoulder syndrome and learning how to use the arm as a basic helper, as well as the preservation of the future, in case the rehabilitation should occur (after a year), which is sometimes the case.

The functional rehabilitation was proximally started, then distally.

B. Afterwards, the evolution was the following. During hospitalization, the patient went through:

1. Initially, the hand had no voluntary command or can only flex through stereotype movement.

2. At release, he can actively flex her fingers and thumb, but she cannot extend them except in one position; we explain that it is required to have precision in movement, and not force and execution speed.

The rehabilitator tries the “awakening” of the extensor muscles, with the help of the facilitating techniques, especially those that use the position shifts (Bobath).

III. The functional rehabilitation of the lower hemiplegic limb and walking

The major objective of the lower limb rehabilitation is thus defined: obtaining a balanced command on different antagonist groups and eliminating the sin kinetics in order to recover a walking as close to normal as possible. Most statistics give percentages between 85 and 95 of recovering walking for hemiplegics.

Methodic indications: in order to prevent the typical flexion stiffness and the external rotation of the hip, knee flexion and equinovarus, we install the patient so as to have the basin flat on the bed, with no flexion of the hip and knee, the lower limb totally coupled so as to avoid its fall in external rotation, the feet is maintained at 90˚ on the lower leg.

Spasticity is announced through the exaggeration of the ROT and usually begins with the abductors of the thighs and the quadriceps, in our case, on the 30th day.

For a good rehabilitation of the walk, it is necessary to make a thorough analysis of the muscular deficit, of the repartition and intensity of the spasticity, of the intensity of the sin-kinetics, to sum up, it is necessary to make a functional evaluation of the patient.

The muscular deficit is mostly recorded (the general scheme of hemiplegia) on the following muscles: psoas, abductors and internal rotators of the hip, the knee flexors, and the leg dorso-flexors. The ischio-tibial muscles are partially respected.

During the evolution, the deficit is modified; the first muscles to recover voluntary contraction capacity are the abductors, the quadriceps and then gluteus maximus.

Conclusions:

This case presentation was meant to underline the importance of clinic diagnosis and correlation of symptomatology with imagistic findings, without minimizing the role of imagistic examination, so necessary for an accurate diagnosis. Another important aspect is that sometimes even experienced imagists and neurologists can have difficulties in esthablishing an accurate diagnosis, and that shows once again the benefits of team work.

The muscles that remain most often, deficient, are the common extensor of the fingers, the peroneals, and the middle and small gluteus.

Bearing this in mind, the importance of the correct positioning during the flaccidity period is thoroughly justified.

Fig 1: FirstCT SCAN

Fig 2: CerebralCT scan

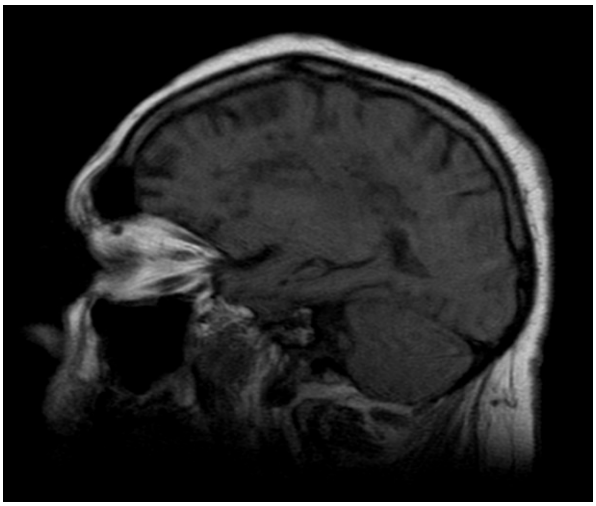

Fig. 3

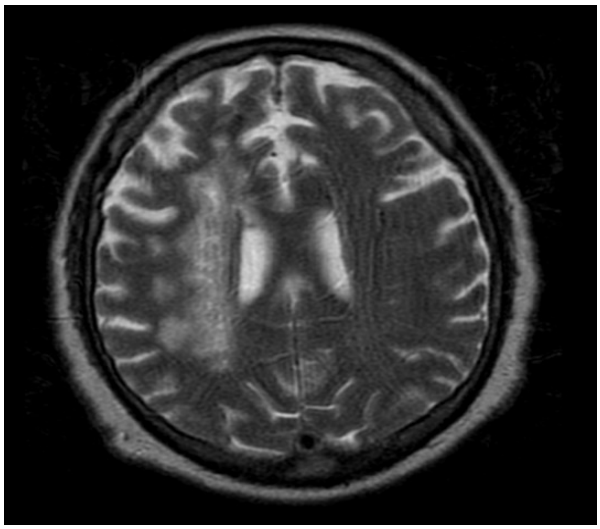

Fig. 4 CEREBRAL RMN

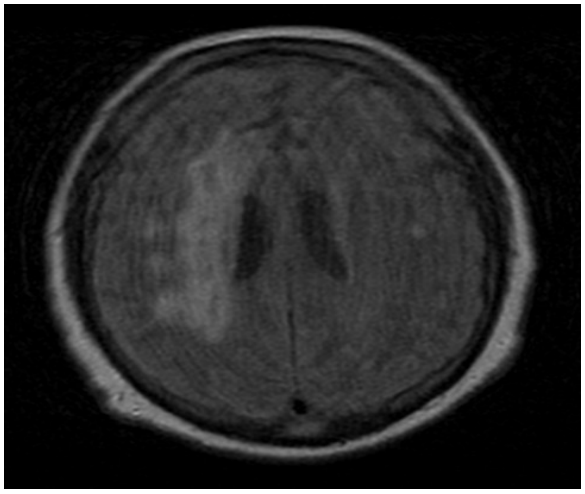

Fig. 5

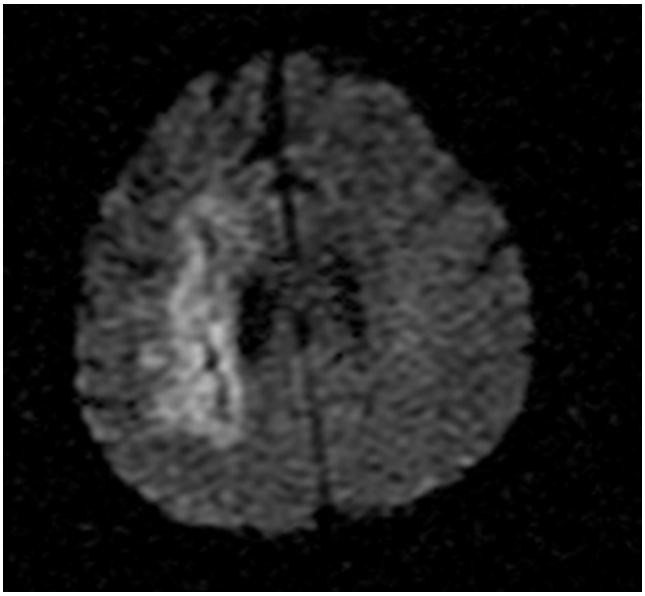

Fig.6

References

BEAUCHAMP, N., BARKER, P., WANG, P., VAN ZIJL, C.M., *1999,* *Imaging of acute cerebral ischemia*. Radiology*;* 212*:*307-*324*

HARRIS, W., CASTILLO, M., 2000, *The radiology of emergency medicine Baltimore,* Md: Lippincott Williams & Wilkins; *30*-31.

OSBORN, A., TONG, K., 1996, *Handbook of neuroradiology: brain and skull St Louis, Mo:* Mosby, *52*-53, 568–569.

OSBORN, A., 1980, *Introduction to cerebral angiography Philadelphia,* Pa: Harper & Row; *239*-251.

TOMURA, N., UEMURA, K., INUGAMI, A., FUJITA, H., HIGANO, S., SHISHIDO, F., *EARLY, C.T.,* 1988, F*indings in cerebral infarction: obscuration of the lentiform nucleus.* Radiology*;* 168*:*463-*467.*

VON KUMMER, R., MEYDING-LAMEDE, U., FORSTING, M., et al., 1994, *Sensitivity and prognostic value of early CT in occlusion of the middle cerebral artery trunk.* AJNR Am J Neuroradiol*;* 15*:*9-*15.*

VON KUMMER, R., BOURQUAIN, H., BASTIANELLO, *S., et al., 2001,* *Early prediction of irreversible brain damage after ischemic stroke at CT.* Radiology 2001*;* 219*:*95-*100.*

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

❖ MANAGEMENT IN SPORT

RELATIONSHIP BETWEEN JOB SATISFACTION AND LIFE SATISFACTION OF SPORTS ENTREPRENEURS

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Abstract
Purpose. The main purpose of this study is to examine the relationship between job satisfaction and life satisfaction of sports entrepreneurs in Denizli, Turkey.
Methods. Fifty-one sports entrepreneurs from 39 different sport institutions completed both "The Job Satisfaction Scale" of Brayfield and Rothe and "The Life Satisfaction Scale" of Deiner, Emmons, Larsen and Griffith. First, descriptive statistics were conducted to provide an overall outlook of sports entrepreneurs' demographic information and their opinions about their job. Then, the Pearson product-moment coefficients of correlation were computed to determine relationship between their job and life satisfaction. Finally, a simple linear regression was conducted to further examine such relationship.
Results. The results of this study showed that no statistically significant relationship emerged on the mean scores of job and life satisfaction of sports entrepreneurs although there was a positive relationship between these two variables ($p > .05$).
Conclusions. This finding is not consistent with most of previous studies indicating that job satisfaction is related to life satisfaction for business entrepreneurs. Because this was one of the few studies to examine relationships between job satisfaction and life satisfaction for business entrepreneurs, more research is needed to confirm or refute this finding.
Key words: Entrepreneurship, sport, sport entrepreneurship.

Introduction

Entrepreneur is a type of person who observes the opportunities and takes any risks trying to accomplish his/her ideas when he/she find these opportunities. Without entrepreneurship, which is the most important part of business, nobody can mention economic and social development. Standing up against a failure, positive thinking, working hard, not expecting someone to help you when you fail, continuously generating new ideas are the sine qua non of being an entrepreneur.

In addition to this, entrepreneurs' happiness / unhappiness, satisfaction / dissatisfaction in their work life will affect their private life positively or negatively. For this, individuals' life quality needs to be improved. This situation, however, will vary depending on the quality of the work of individuals. Until recently, most of the studies have focused mainly on industrial sector. Although sport is a dynamic and fast-growing sector with underestimated macro-economic impact, a few researches have been conducted with sports and sport entrepreneurs.

E.A. Locke (1976) defined job satisfaction as "…a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (p. 1304). Implicit in Locke's definition is the importance of both affect, or feeling, and cognition, or thinking. Job satisfaction is summarized in evaluative component and comprised of cognitive, affective, behavioral components. Job satisfaction is an important variable that could give an idea about an individuals' expectations of his/her job and workplace (A. Keser, 2005: 79).

Life satisfaction, on the other hand, has been defined as the function of the physical, psychological and social well being of an individual (A. Bakhshi, K. Kumar, S. Sharma, A. Kumari, 2008).

It represents how satisfied people feel with their life including factors such as whether they are achieving their goals, are doing as well as other people around them, and are happy generally rather than just right now.

The relationship between job satisfaction and life satisfaction has been studied over the years. This is

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Received 22.03.2011 / Accepted 30.04.2011

because job satisfaction may not only related to job environment, but also may be critical to satisfaction with all aspects of life.

Many research, therefore, have studied the relationship between job and life satisfaction among different occupational groups.

While many studies have indicated that job and life satisfaction are positively related, others have found that either no relationship or inversely relationship between these two variables (T.A. Judge, S. Watanabe, 1994; J.S. Rain, I.M. Lane, D. Steiner, 1991; M. Tait, M.Y. Padgett, T.T. Baldwin, 1989).

T.A. Judge and S. Watanabe (1994), for example, specified that a recurring distinction has been made between three hypotheses about the relation between job and life satisfaction: spillover, compensation and segmentation.

As they indicated, "From an attitudinal perspective, the spillover hypothesis indicates that one domain 'spills over' onto the other such that workers who have (dis)satisfying jobs also will have (dis)satisfying lives, and vice versa.

A positive correlation between job and life satisfaction supports the spillover hypothesis. The compensation hypothesis suggests that workers with dissatisfying jobs seek out more pleasurable experiences in their non-work lives, and vice versa. Thus, a negative correlation between job and life satisfaction supports the compensation hypothesis.

Finally, the segmentation hypothesis suggests that there is no relationship between job and life satisfaction—job and life satisfaction are independent of one another, a weak or non-significant correlation between job and life satisfaction supports the segmentation hypothesis." (p. 102).

In addition, most of previous studies focused on other than sports industry. The results of these studies have established the relationship between job and life satisfaction as being significant and positive (N. De Cuyper, H. De Witte, 2006; K. Moser, H. Schuler, 2004; J.C. Rode, 2004).

The relationship between job satisfaction and life satisfaction, however, is still controversial (T.A Judge and S. Watanabe, 1993; J.S. Rain et al., 1991).

Because of these reasons, the main purpose of this study is to examine the relationship between job satisfaction and life satisfaction of state and private sports entrepreneurs in Denizli, Turkey.

Method

Participants and instrument. Fifty-one (37 male and 14 female; Xage = 33,80 and SD = 6.57) sports entrepreneurs from 39 different sport institutions voluntarily from Denizli, Turkey participated in this study (see Table 1). Two instruments were used to understand the relation between job satisfaction and life satisfaction: Job Satisfaction Scale and Life Satisfaction Scale. Job Satisfaction Scale, developed by A.H. Brayfield and H.F. Rothe's (1951). It consists of 5 items. Scale ranges from 1 (not all satisfied) to 4 (very satisfied). Life Satisfaction Scale, developed by E. Deiner, R.A. Emmons, R.J. Larsen and S. Griffin (1985).

This scale has also 5 items, rated on a 7 point Likert scale. Research indicated valid and reliable data for Turkish people (N. Bilgin, 1995; S. Koker, 1991). A. Keser (2005) transformed these two scales to 5 ranges and also indicated valid and reliable data. A 5 point Likert scale, therefore, was used in this study.

Data analysis.

First, descriptive statistics were conducted to provide an overall outlook of sports entrepreneurs' demographic information and their opinions about their job.

An exploratory factor analysis (EFA) was conducted to examine the factorial validity of job and life satisfaction. Then, the Pearson product-moment coefficients of correlation were computed to determine relationship between their job and life satisfaction. A simple linear regression was conducted to further examine such relationship. Finally, paired sample t test was used to compare the means of job and life satisfaction of sports entrepreneurs.

Results

Given that there is no prior knowledge of the number of factors underlying sports entrepreneurs

toward the job and life satisfaction, an exploratory factor analysis was performed. The Kaiser-Meyer-Olkin is (KMO= 0.74) and Bartlett test of sphericity is significant (p <0,05). As shown in Table 2, this scale consists of 8 items from 10 items reflecting sports entrepreneurs' job and life satisfaction.

Two items (items 6 and 9) are dropped after EFA procedure because they are cross-loaded onto more than one factor (see Table 1).

A principal components analysis with VARIMAX rotation revealed two factors with an eigenvalue exceeding 1. The factor accounted for %52.25 of the variance and all factor loadings were between .461 and .917.

As a result, overall scores for sports entrepreneurs' job and life satisfaction were computed by averaging the items on the each scale. The Cronbach's alpha coefficients were 0.71 for job satisfaction scale and 0.83 for life satisfaction scale.

Table 1. Basic demographic information for participants

Variables	N	%
Age		
18-25 years-old	3	5.88
26-35 years-old	33	64.70
36-45 years-old	12	23.54
46-55 years-old	3	5.88
55-65 years-old	-	-
Total	51	100.00
Gender		
Male	37	72.5
Female	14	27.5
Total	51	100.00
Education Level		
High school	7	13.7
Undergraduate	39	76.5
Graduate	5	9.8
Total	51	100.00

Table 2. Exploratory factor analysis

	Factor Loadings	
Items	1	2
1. I find real enjoyment in my work.	.267	.591
2. Most days I am enthusiastic about my work.	.142	.735
3. I feel fairly satisfied with my present job.	.159	.699
4. I consider my job rather unpleasant.	-.100	.619
5. Each day of work seems like it will never end.	-.010	.461
6. I am satisfied with my life.	.330	.430
7. So far I have gotten the important things I want in life.	.837	.064
8. In most ways my life is close to my ideal.	.917	.122
9. If I could live my life over, I would change almost nothing.	.605	.459
10. The conditions of my life are excellent.	.834	-.015

The results of descriptive statistics are presented in Table 3. Pearson product–moment correlations and regression analyses were calculated to identify significant relationships between job and life satisfaction (see Table 3 and Table 4). The results of this study showed that no statistically significant relationship emerged on the mean scores of job and life satisfaction of than life satisfaction.

Although there was a positive relationship between these two variables ($p > .05$). Paired sample t test was used to compare the means of job and life satisfaction of sports entrepreneurs. The result [$t(50) = -13.54$, $p < .01$] shows a significant difference between job and life satisfaction of sports entrepreneurs, which implied that job satisfaction significantly higher scores.

Table 3. Descriptive data and correlations for job and life satisfaction

Variables	*M*	*SD*	Job Satisfaction	Life Satisfaction
Job Satisfaction	4.50	.393	-	.237
Life Satisfaction	3.07	.755	.237	-

Table 4. Results of regression analysis on life satisfaction

Independent Variable	b	β	R^2	*Adj.* R^2	*t*
Job Satisfaction	.482	.237	.056	.037	1.710

Discussion and conclusion

This study attempted to expand previous research of job and life satisfaction by examining these relationships in a unique sample (sports entrepreneurs in Denizli, Turkey).

The results of the EFA and Cronbach α coefficients indicated that the scores produced by scales were valid and reliable in the examination of sports entrepreneurs' job and life satisfaction.

The examining result of paired sample t test shows a significant difference between job and life satisfaction. More specifically, sport entrepreneurs have higher job satisfaction scores than life satisfaction scores.

This result is parallel with B. Donuk (2009) study indicating workers in private companies satisfied with their jobs more than their life. In this study, the vast of majority were sport entrepreneurs who graduated from department of physical education and sports from universities.

Therefore, entrepreneurs might feel more satisfied for doing their jobs graduated from than their life. On the other hand, they might be less satisfied for their life conditions because of economic difficulties.

Pearson product-moment correlations and regression analyses were calculated to identify significant relationships between job and life satisfaction for Denizli sports entrepreneurs.

Research indicates that job satisfaction is positively related to life satisfaction. This relationship, however, is not statistically significant.

This result is not consistent with previous studies indicating that job satisfaction is the most critical factor for life satisfaction (N. De Cuyper & H. De Witte, 2006; A.A. Dikmen, 1995; A. Keser, 2005; K. Moser & H. Schuler, 2004; J.C. Rode, 2004).

The current study, however, supports previous studies explaining the relationship between job satisfaction and life satisfaction is quite controversial (T.A. Judge and S. Watanabe, 1993; J.P. Near et al., 1980; J.C. Rode, 2004; M. Tait et al., 1989). This result also supports the segmentation hypothesis suggesting no relationship between job and life satisfaction.

T.A. Judge and S. Watanabe (1993), for example, examined simultaneous consideration of cross-sectional and longitudinal effects between job and life satisfaction.

Their results indicated that longitudinal results a weaker relationship over a 5-yr period between job and life satisfaction while cross-sectional results suggest a relatively strong relationship.

Moreover, in their study, T.A. Judge and S. Watanabe (1994) found that for a significant minority the relationship between job and life satisfaction was negative and significant, or there was little relationship at all while most individuals job and life satisfaction are positively related.

They concluded that it was improper to argue that any of the models of the job-life satisfaction relationship are either correct or incorrect. The current study also supports this statement by finding no significant relationship. This might be because of occupation differences of the research participants.

In this current study, sport entrepreneurs' point of view about job and life satisfaction was examined and most of them were graduated from universities' physical education and sport departments (n = 39).

Previous research has also suggested that job and life satisfaction may be higher among particular occupational groups and lower for other groups (D.

Olsen and J.P. Near, 1994; M.D. Sorcinelli and J.P. Near, 1989).

The result of this study emerges that employers' life satisfaction should be increased because lower life satisfaction levels may lead to problems in society. For this reason, politicians should take necessary relaxing steps to improve individuals' health, education, and nutrition issues.

In addition, several actions may be taken by entrepreneurs to improve their life satisfaction, such as having strong connections to their family and school friends, spending time with their family, setting flexible working hours, and even taking psychological support from professionals.

After all, the result of this study should be carefully evaluated because (1) this study is one of the frontier researches examining the relationship between sports entrepreneurs' job and life satisfaction; (2) the number of participants of this study may not enough to make generalizations. Obviously, additional research is needed to confirm or refute the finding of this study by involving a larger sample of sport entrepreneurs, and utilize a longitudinal study.

References

BAKSHI, A., KUMAR, K., SHARMA, S., KUMARI. A., 2008, *Job satisfaction as predictor of life satisfaction: A Study on lectures of Govt. & Private colleges in Jammu*, Praachi Journal of Psycho-cultural Dimensions: 24(2): 174-77.

BILGIN, N., 1995, *Sosyal psikolojide yöntem ve pratik çalışmalar*, Sistem Yayıncılık.

BRAYFIELD, A. H., ROTHE, H. F., 1951, *An index of job satisfaction,* Journal of Applied Psychology: 35: 307-311.

DE CUYPER, N., DE WITTE, H., 2006, *Autonomy and workload among temporary workers: Their effects on job satisfaction, organizational commitment, life satisfaction, and self-rated performance*. International Journal of Stress Management: 13: 441-459.

DIENER, E., EMMONS, R. A., LARSEN, R. J., GRIFFIN, S., 1985, *The Satisfaction With Life Scale*, Journal of Personality Assessment: 49: 71-75.

DIKMEN, A. A., 1995, *Relations between Job and Life Satisfdaction* (*İş Doyumu ve Yaşam Doyumu İlişkisi*), Ankara Üniversitesi SBF Dergisi: 50(3): 115-140.

DONUK, B., 2009, *The Comparison of the Job Satisfactions of the Sport Managers who Work Private and Public Sectors* (*Özel ve Kamu Sektöründe Görev Yapan Spor Yöneticilerinin İş Tatminlerinin Karşılaştırılması)*, Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi: 21: 179-185.

JUDGE, T. A., WATANABE, S., 1993, *Another look at the job satisfaction-life satisfaction relationship*, Journal of Applied Psychology: 78: 939-948.

JUDGE, T.A., WATANABE, S., 1994, *Individual differences in the nature of the relationship between job and life satisfaction*, Journal of Occupational and Organizational Psychology: 67: 101-107

KESER, A., 2005, *Relations between the satisfactions obtain from the working life and general life satisfaction among automotive sector* (İş Doyumu ve Yaşam Doyumu İlişkisi: Otomotiv Sektöründe Bir Uygulama, Çalışma ve Toplum): 4: 77-96.

KÖKER, S., 1991, *Comparision* of *Life Satisfaction Levels between Normal and Troubled Adolescents* (*Normal ve Sorunlu Ergenlerin Yaşam Doyumu Düzeylerinin Karşılaştırılması),*. Yayınlanmamış Yüksek Lisans Tezi. Ankara: A.Ü. Sosyal Bilimler Enstitüsü.

LOCKE, E. A. 1976, *The nature and causes of job satisfaction* in M. D. Dunnette (ed.), Handbook of Industrial and Organizational Psychology (Rand McNally,Chicago, IL), 1297–1343.

MOSER, K., SCHULER, H., 2004, *Is involvement a suppressor of the job satisfaction-life satisfaction relationship? Journal of Applied Social Psychology*: 34: 2377-2388.

NEAR, J. P., RICE, R. W., HUNT, R. G., 1980, *The relationship between work and nonwork domains: A review of empirical research*, Academy of Management Review: 5: 415–429.

NEAR, J. P., SORCINELLI, M. D., 1986, *Work and life away from work: Predictors of faculty satisfaction*, Research in Higher Education: 25: 377–394.

OLSEN, D., NEAR, J. P., 1994, *Predictors of life satisfaction: Work and nonwork satisfaction and interrole conflict,* The Review of Higher Education: 17: 179–195.

RAIN, J. S., LANE, I. M., STEINER, D., 1991, *A current look at the job satisfaction/life satisfaction relationship: Review and future considerations*, Human Relations: 44: 287–307.

RODE, J. C., 2004, *Job Satisfaction and Life Satisfaction Revisited: A Longitudinal Test of an Integrated Model*. Human Relations: 57(9): 1205-1230.

SORCINELLI, M. D., NEAR, J. P., 1989, Relations between work and life away from work among university faculty, Journal of Higher Education: 60: 59–81.

TAIT, M., PADGETT, M. Y., BALDWIN, T. T., 1989, *Job and life satisfaction: A reexamination of the strength of the relationship and gender effects as a function of the date of the study*, Journal of Applied Psychology: 74: 502–507.

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

❖ SPORT AND HEALTH

THE COMPARISON OF SOCIAL ANXIETY LEVELS BETWEEN ADOLESCENT(S) HEARING-IMPAIRED ATHLETES AND NORMAL HEALTHY ATHLETES

KAYA MUSTAFA[1], POLAT METIN[2], GEVAT CECILIA[3], GÜVEN HACER[1]

ABSTRACT

Purpose

The purpose of this study is searching whether the social anxiety is different between hearing-impaired and normal healthy athletes in sport or not. 50 hearing-impaired and 50 normal healthy athletes attended the study voluntarily.

The inventory of social anxiety which consists of 22 questions was applied to the volunteers.

The averages of ages, heights and body weights of the volunteers who attended the study were determined in turn as 12.82±1.19 year, 147±98 cm, 39.94±11.32 kg for hearing-impaired athletes and 12.84±1.03 year, 145.62±10.60 cm and 36.38±10.86 kg for normal healthy athletes.

Methods

The differences of the findings which were obtained as result of measurements were evaluated by applying t test in independent groups to compare these independent groups in the computer environment. The level of significance was determined as 0.05.

Results

According to the findings which were collected, the fear of negative evaluation of hearing-impaired and normal healthy athletes was found as significant, social avoidance and distress in general was found as insignificant and social avoidance and distress specific to new situations were found as insignificant.

Conclusions

As a result, the social anxiety, the fear of negative evaluation, social avoidance and distress specific to new situations of normal healthy athletes were found as more significant than hearing-impaired athletes, social avoidance and distress in general was found as insignificant and it is thought to be necessary that we should give much more part the programs which can decrease the level of the anxiety in hearing-impaired athletes.

Key Words: Hearing-Impaired Athletes, Social Anxiety, Normal Healthy Athletes.

Introduction

The structural, physiological, psychological qualities which determine the level of athletic performance can get an excellent success with the effects of mental ability.

Anxiety is a quality which is peculiar to human being and it is the position of that the stimuli cause some reactions which normally don't cause fear (I. Tavacıoğlu et al, 1997, E. Kuru, 2000).

Social anxiety (phobia) was named firstly by Janet in 1903.

Janet used this term which he named as 'social phobia' (phobie des situations socials) to identify the people who are afraid of being watched by others while they are speaking, playing piano writing.

It is quite new that social anxiety is

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Received 15.02.2011 / Accepted 17.04.2011

described as irrelevant. The most important quality in diagnosis of social anxiety is the fear of being watched and investigated which comes out in different circumstances.

circumstances such as speaking in society, going to common toilets (K.Y. Moutier & M. Stein, 1999).

Being hearing-impaired is a condition that the performance of education and harmony in society of a person are affected negatively with the reason of acquisition of speaking, usage of language and communication because of the deficiency of hearing sensibility partially or totally.

These are essential to fulfill hearing that the sound, its being in the borders of frequency and intensity which can be perceived by human ears, the receiver organ which will receive the sounds, namely ear, the reach of the sound to the hearing center in the brain by passing through the structure in the ear without being hindered, and to be received and interpreted in the center correctly (E. Belgin 1995, 12).

The purpose of this study is comparing how the social anxiety changes in hearing-impaired and normal healthy athletes in sport.

Methods

1. Collection of Subjects

The study was carried out in the hearing-impaired athletes who are between the age of 12 and 16 and study in the impaired school in Kayseri and the healthy voluntary athletes who are in the adolescence and study in high school.

The best and the most correct measurements were supplied by giving information to the volunteers about the purpose and content of the research.

The information of identity was predicated on to determine the ages of the volunteers.

The heights and weights of their bodies are measured by electronic weighing machines.

Social anxiety was described as fear and avoidance related to social, temporary

2. Collection of Data

It was requested from the volunteers who attended the research that they fill the 'Social Anxiety Measure in Adolescents' without missing with the help of teachers and trainers.

This is a 22- item-measure which was carried out by L.J. La Greca ,1998.

The revised form of SASC-R is a 22-item-measure which is known as SASC-R.

The 18 ones of these are items of measure and the rest 4 of them are the items which were chosen of other subjects such as 'I like reading book' , 'I enjoy doing sport' which don't join the rating.

The validity and the reliability were supported with the studies which were carried out on the normal and the clinical samples. (La Greca & Stone 1993).

SASC-R which was developed for the children is adapted to the adolescent by doing minor changes of the words such as 'my peer' instead of 'other children, 'to do something' instead of 'playing the game' and the form is named as (Social Anxiety Scale for Adolescents- SAS-A) (L.J. La Greca ve N. Lopez, 1998).

SAS-A consists of 22 items, 4 of which are irrelevant like the form for children. Its being in the structure of three factors like the form for children was strenghtened with different researches. (L.J.Garcia-Lopez ve ark. 2001, H.M.Inderbitzen-Nolan ve Walters 2000).

These sub-measures which were also supported with factor analysis were fear of negative evaluation (FNE), social avoidance and distress (SAD-General) and social avoidance and distress specific to new situations (SAD-New).

3. Statistical Analysis

The differences of the findings were assessed by applying Independent Sample t test in independent groups to compare these independent groups in the computer environment and the level of significance was determined as 0.05.

RESULTS

Table I. The Demographic Qualities in Hearing-Impaired and Normal Healthy Athletes

Volunteers	Variables	$\overline{x}$ ±SD
Hearing-Impaired Athlete(n=50)	Age (year)	12,82±1,19
	The weight of the body (kg)	39,94±11,32
	The height (cm)	147,98±1,.67
Normal Healthy Athlete (n=50)	Age (year)	12,84±1,03
	The weight of the body (kg)	36,38±10,86
	The height (cm)	145,62±10,60

The ages of the hearing-impaired athletes who attended the research were 12.82±1.19 and the ages of normal healthy athletes were 12.84 ± 1.03.

The weight of the bodies of hearing-impaired athletes was determined as 39.94 ± 11.32 and the weight of the bodies of normal healthy athletes are 36.38± 10.86. The heights of hearing-impaired athletes were determined as 147.98 ± 10.67 and the heights of normal athletes were 145.62±10.60.

Table II. The Fear of Negative Evaluation of Hearing-Impaired Athletes and Normal Healthy Athletes

	n	$\overline{x}$ ±SD	t	P
Hearing-Impaired Athletes	50	24,64±3,16	3,748	0,000*
Normal Healthy Athletes	50	22,28±3,13		

*p<0.05

According to the Table II, the fear of negative evaluation between hearing-impaired and normal healthy athletes was found as significant. ($p<0.05$).

Table III. The Social Avoidance and Distress in General of Hearing-Impaired and Normal Healthy Athletes

	n	$\overline{x}$ ±SD	t	P
Hearing-Impaired Athletes	50	10,56±3,25	1,30	0,191
Normal Healthy Athletes	50	9,78±2,69		

According to the Table III, the social avoidance and distress in general between hearing-impaired and normal healthy athletes was found as insignificant. ($p>0.05$).

Table IV. Social Avoidance Specific To and Distress Situations of Hearing-Impaired and Normal Healthy Athletes

	n	$\overline{x}$ ±SD	t	P
Hearing-Impaired Athletes	50	21,48±4,92	6,31	0,000*
Normal Healthy Athletes	50	16,10±3,47		

* $p<0.05$

According to the Table IV, social avoidance and distress specific to new situations between hearing-impaired and normal healthy athletes was found as significant ($p>0.05$).

Discussion

The aim is reaching the peak level and maintains this success like all other sport branches.

On the other hand, it is essential that athletes should be supplied with being social and healthy self-confident individuals should exist in society**.**

In the study, while fear of negative evaluation, social avoidance and distress specific to new situations of hearing-impaired and normal healthy athletes were found as significant, social avoidance and distress in general was found as insignificant.

Significant difference wasn't found in the parameter of social avoidance and distress in general.

It was observed that while SAD- New is much in male, SAD- General is much in female.

In the studies made by Erkan and his friends on adolescents, there was no connection between the social avoidance and distress and the sexes.

The study in the literature showed parallelism with our finding.

It was indicated that there are some difficulty in the learning of social and ethical rules by hearing-impaired students because of the deficiency of their hearing (B.Luetke –Stahlman & Luckner, 2000).

It depends on the ability of communication of hearing-impaired students to progress in expected level in social and other areas like normal individuals who can hear. (G. Akçamete, 2005; I Tüfekçioğlu et al, 1992).

G. Akçamete, 2005, emphasized that the acquisition process of the information about social

rules of hearing-impaired students follows main patterns like their peers who can.

Another reason of the possibility of these hearing-impaired students to be declined in the foundations where they are studying is that these students show aggressive, cooperative, bully behaviors towards their peers because they don't know social and ethical rules adequately (Akçamete, 2005)

The reason of these behaviors may stem from the borders of verbal communication and the effect of this borders on their communication with their peers negatively and the increase of social anxiety .

The researches showed that the sport activities have great role on the eliminating of anxiety among the groups of students in university who do exercises or not and the people who are related with sport in their daily life are less anxious. (M.Akandere, 1997).

For conclusion, the social anxiety of normal healthy athletes was determined more significant than hearing-impaired students.

The hearing-impaired individuals should be supplied with the inception with sport in their earlier years.

Special training program in sport should be carried out with the purpose of improving the level of the knowledge of hearing-impaired students about ethical and social rules.

While hearing-impaired students are being trained via teeming, the essential arrangement should be carried out to improve the knowledge of social and ethical rules of them not only in the activities in the classroom but also out of the classroom.

The parents should be included in the training program.

References

AKANDERE, M., 1997, *Üniversite Gençliğinde görülen kaygının giderilmesinde sporun etkisinin spor yapan ve yapmayan gruplar açısından incelenmesi.* 1. Uluslar arası spor Psikolojisi Sempozyumu, Mersin.,1997

AKÇAMETE, G., 2005, '*İşitme Yetersizliği Olan Çocuklar',* A. Ataman (Editör) (2005). Özel Gereksinimli Çocuklar ve Özel Eğitime Giriş, Ankara: Gündüz Eğitim ve Yayıncılık.

ANNETTE, M., GRECA L.A., AND LOPEZ, N., 1998, *Social Anxiety Amon Adolescents: Linkages with Peer Relation s and Friendships* Journal of Abnormal Child Psychology, Vol. 26, No. 2, 1998, pp. 83-94

BELGIN, E., 1995, *İşitme Engelli Öğrencilerin İlkokul Öğretmenlerine Yaklaşım Prensipleri,* Unıcef Türk Temsilciliği Ankara

ERKAN, Z, GÜÇRAY, S, ÇAM, S., *Ergenlerin Sosyal Kaygı Düzeylerinin Ana Baba Tutumları ve Cinsiyet* Açısından İncelenmesi. ss. 64-75.

GARCIA-LOPEZ, L.J., OLIVARES, J., HIDALGO, M.D., VE ARK., 2001, *Psychometric properties of the Social Phobia and Anxiety Inventory, The Social Anxiety Scale for adolescents, The Fear of Negative Evaluation Scale, and The Social Avoidance and Distress Scale in an adolescent Spanish-speaking sample*. J Psychopath Behav Assess 23:51-59.

HECKELMAN, L.R.,VE SCHNEIER, F.R., 1995, *Diagnostic Issues" Social Phobia: Diagnosis, Assessment, and Treatment,* Der.: Heimberg, R.G., Liebowitz,M.R., Hope, D. A.,Schneier, F.R., New York: The Guilford Press, 3-20.

INDERBITZEN-NOLAN, H.M., WOLTERS, K.S., 2000, *Social Anxiety Scale for Adolescents:Normative data and further*

evidence of construct validity. J Clin Child Psychol 29:360-371.

KURU, E., 2000, *Sporda Psikoloji***,** *Gazi Üniversitesi. İletişim fak. Basım evi*, 1. baskı s 191-195, Ankara .,2000.

LA GRECA, A.M., STONE, W., 1993 *Social Anxiety Scale for Children-Revised: Factor structure and concurrent validity*. J Clin Child Psychol 22:17-27.

LA GRECA, L.J., LOPEZ, N., 1998, *Social anxiety among adolescents: Linkages with peer relations and friendships.* J Abnorm Child Psychol 26:83-94.

LUETKE-STAHLMAN, B., LUCKNER, J., 2000, *Effectively Educating Students with Hearing Impairments,* London: Longman.

MOUTIER, C.Y., VE STEIN, M., 1999, "*The history, Epidemiology and Differential Diagnosis of Social Anxiety Disorder,"* Journal Clinical Psychiatry, 60 (9), 4-8.

TAVACIOĞLU, L., KORA, K., KARAVELI, D., YAZICI, O., ERCAN, H., 1997, *Kaygının Reaksiyon Zamanı Üzerine Etkisi. 1 th İnternational Symposium of sport Psychology.* October 10-12, Mersin.1997.

TÜFEKÇIOĞLU, Ü., 1992, *Kaynaştırmadaki İşitme Engelli Çocuklar, Eskişehir:* Anadolu Universitesi Yayını, No: 24.

THE RELATION BETWEEN ACTUAL AND PERCEIVED BODY WEIGHT IN ADOLESCENCE

NANU CRISTINA[1], BĂBAN ADRIANA[1]

ABSTRACT

Previous research showed that self-perceived body image is subject to misrepresentation and appearance appraisals are strongly influence by cultural norms. The thin ideal is a cultural norm that is considered to have a strong influence over body image, when internalized and transformed in a personal standard. Teenage girls are a vulnerable group regarding the pressure to be thin. This can lead to distortions in body perception and bias in interpretation of body related information. The aim of the present study is to explore the relation between body mass index and possible distortions in shape and size perception, and the extent to which body esteem and socio-cultural attitude toward appearance might be relevant factors related to misrepresentation of body image. 124 adolescent girls (15-18 years) completed questionnaire measures on body-esteem, thin-ideal internalization and rated their self-perceived weight on a three Likert scale (from underweight to overweight). Also they were asked to complete the Contour Drawing Rating Scale (Thompson &Gray, 1995) by selecting the figure that best represents their current size. Each perceived score was compared to actual size based on BMI to measure distorted self-image. Results showed that thin-ideal internalization is related to overestimation of the body size and low scores in body-esteem. Positive body-esteem favored distortions toward normal weight. Overall there was a significant difference between BMI and body perception and this difference was connected to thin ideal internalization. The present research findings give us further perspective in exploring the role of thin-ideal internalization in body image perception

Keywords*:* perceived body image, thin ideal internalization, body esteem.

Introduction

Researches regarding the perception of the body image, in terms of size and weight, show that there is a significant lack of accuracy in the perception of the body (K. Thompson, et al, 1999; M.P. McCabe, L. Ricciardelli, G. Sitaram & K. Mikhail, 2006). Distortions in body image perception were identified first in studies about anorexia nervosa. Models of the development of anorexia nervosa underlined a causal link between overestimation of the body size, body dissatisfaction and eating disorders. Researchers

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Received 17.03.2011 / Accepted 05.05.2011

proposed the hypothesis of a dysfunction in sensorial input integration (P. Slade & D. Brodie, 1994) accurate. Therefore, the model accepted was that overestimation is due to cognitive factors related to beliefs, assumptions regarding the centrality of the appearance for the self, attitudes toward the cultural ideal of body image. All these factors lead to negative affect that, in turn, activate cognitive bias and size distortions (L.J. Heinberg, et al, 1999). The conclusion would be that accuracy of perception should be related to body image satisfaction. A contraire, K.L. Allan, et al, 2008), in a prospective study, showed that an objective weight perception, in an overweight group, was related to dissatisfaction and the relation between body image concern and body perception accuracy was stronger that the reverse relation, concluding that concerns about body image might precede the development of a specific pattern in body size perception. Also, depression was proved to be a predictor of accuracy of perception (K.L. Allan et al, 2008). The theoretical background for this finding comes from studies regarding self-enhancement (R.F. Baumeister et al 1989). It is a self-protective process of distorting the reality in a positive way, for maintaining high self-esteem. When under threat, individuals are choosing downward comparison or are focusing on another domain they consider superior, in order to maintain their positive self-view. Wilson, Cressman and Buote (2006), mentioned that this mechanism does not work in body image perception, especially for women. This suggests that the relation between accuracy of shape and size perception and body image satisfaction is not linear. There are factors that not just moderate the relation but also change the meaning of it. One of these factors is BMI. In the context of a positive body image, overweight people have the tendency to underestimate, while underweight people overestimate their body size (M.A. Smeets, et al, 1998; M. McCabe, et al, 2006). But, in their study, regarding the role of biopsychosocial factors in the estimation of body size, M. McCabe et al. (2006) found that for women, media and peer influences but not the BMI, predicted the overestimation of the body size. Therefore, the socio-cultural ideal of body image might have an influence on what is considered normal in terms of body image. Previous researches underlined the sensitivity of women toward the cultural ideal of body image. Teenage girls are also a vulnerable group because of the centrality of thin ideal in many girls self-concept (H. Dittmar, et al, 2009). Because of the thin ideal promoted, underweight teenager girls might consider they have a normal weight. In this case, the hypothesis declined because the perception of neutral objects seemed to be overestimation should be related to a positive body image. Following the same pattern, normal weight teenage girls might consider themselves overweight.

The aim of the present study is to explore the relation between BMI and possible distortions in shape and size perception, and the extent to which body esteem and socio-cultural attitude toward appearance might be relevant factors related to misrepresentation of body image. We are expected that underestimation will be related to a positive body image because being thin is socially accepted. In the normal weight group, we are expected that a correct perception of the body size is related to positive body esteem, while overestimation might be related with negative body esteem. In the overweight group, those that consider their weight normal should have low scores in thin ideal internalization. Therefore, there will be significant differences between adolescents that evaluate their weight and body size accurate and those who underestimate or overestimate it, in terms of body-esteem and socio-cultural attitude toward appearance.

Methods

Participants:

Participants were 124 high-school girls, in grades 10 to 12, attending two theoretical high-schools from Alba Iulia. The majority of girls were within the 15 to 18 years (mean age 16.96). The mean BMI for girls across all grades was 20.00 kg/m² (SD = 2.72). According to international age based cutoff points for BMI (WHO), 46 were under-weight, 67 were having normal weight and 11 were overweight.

Measures:

Body Mass Index

BMI was calculated from the equation (weight in kg)/(height in m²), using self-reported weight and height.

Self-evaluation of weight

The perception of own weight was assessed by asking participants to rate their body weight based on three options *("I consider myself thin / having a normal weight / being overweight")*

Body-esteem

Body-esteem was measured by Body Esteem – Weight subscale of "The Body Esteem Scale for Adolescents and Adults" (BESAA; B.K. Mendelson et al 1997). The subscale consists on 8 statements that address the satisfaction with weight and shape (*"I think I have a*

good body"), negative affect ("*My weight makes me unhappy*") and investment ("*I am preoccupied with trying to change my body weight*"). Respondents indicated their degree of agreement with each statement on a 5-point Likert scale ranging from 0 (never) to 4 (always), with higher scores that indicate higher body-esteem. A mean score for each individual was calculated. The authors reported an internal consistency coefficient of ά = .94 and high 3-month test-retest reliability (r=.92, p<.001) (Mendelson et al. 1997).

Socio-cultural attitude toward appearance

The attitude toward thin ideal was measure by the internalization subscale of Socio-cultural Attitudes towards Appearance Scale (SATAQ, Heinberg, Thompson & Stormer, 1994). Respondents were asked to indicate their agreement with 8 different statements ("*I believe clothes look better on thin models*", "*I tend to compare my body to people in magazines and on TV*") on a 5-point Likert scale ranging from "completely disagree" (1) to "completely agree" (5). For each participant, a mean score was calculated. High scores indicated a high tendency to internalize the thin ideal. The authors reported an internal consistency coefficient of ά = .88.

Contour Drawing Rating Scale (MA. Thompson & JJ.Gray, 1995)

The perception of body size was measured by Contour Drawing Rating Scale (M.A. Thompson & J.J. Gray, 1995), consisting of 9 female contour drawings, ordered from thin to overweight. The author reported a significant one week test retest reliability data (r=.78, p<.0005) For the Contour Drawing Scale, the participants were instructed to circle the image that best represents their actual size. Of the nine images, three were underweight, three represented normal weight body size while three were situated in the overweight range.

Procedure

Participants were invited to participate in a study titled "My body". After receiving their consent, the paper and pencil questionnaire was administered. The original scales have been translated in Romanian and then back in English, by another translator, in order to make sure the meaning was not changed. The research team checked that all items had been translated in a correct and meaningful way. Regarding body-mass index, self-reported body weight and height were calculated, based on the formula weight (in kilos)/ height² (in meters). Then, international cut-off scores were used, in order classify the subjects.

Results

The relation between BMI and self evaluation of weight status

Based on self evaluation of weight status, 19 students (15.3%) considered they were thin, 85 students (68.5%) thought they had normal weight, while 20 students (16.1%) declared they considered themselves overweight. Figure 1 shows the results regarding the frequency for underestimation, overestimation and correct evaluation of weight, deducted from self-reported evaluation, for each category, based on BMI (thin: BMI<18.5, normal weight: BMI from 18.5 to 24.9 and overweight: BMI from 25 to 29.9). Chi-square = 48.89, df=4, p< 0.0001, confirms a significant difference between BMI and self evaluation of weight status. 58.7% of underweight subjects considering their weight situated in the normal range, while only 41.3% recognized their underweight status. In the normal weight category, 21.7% considered to be overweight, while 75.4% perceived their weight correctly. In the overweight category, 54% considered their weight normal, while 45% recognized their overweight status.

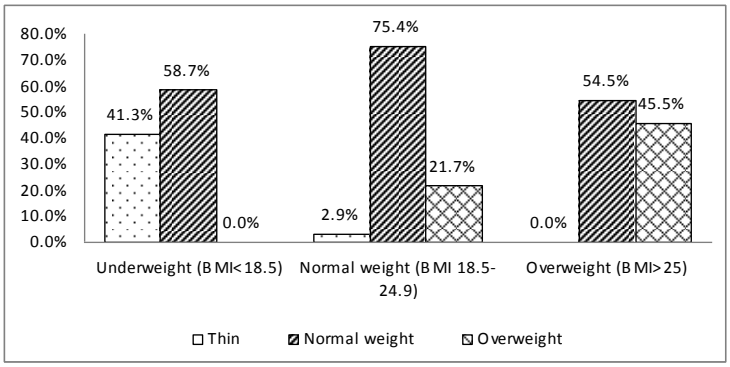

Figure 1. Verbal evaluation of weight

Thin ideal internalization and body-esteem for each category based on BMI and self evaluation of weight status

Table 1 represents the mean scores for the each evaluated dimension in the underweight group (BMI<18.5) that was split in two categories: subjects that evaluated themselves thin, therefore according to their BMI status and subjects that considered themselves having a normal weight, in contrast with their actual BMI. Those that overestimated their weight toward normal range, scored higher in body esteem (t= 5.701, df = 44, p = 0.0001). No significant differences were found in thin ideal internalization..

Table1 Underweight group statistics

Group Statistics

	Weight perception	N	Mean	Std. Deviation	Std. Error Mean
Body esteem	Thin	19	**16.37**	6.525	1.497
	normal_weight	27	**26.04**	4.981	.959
Thin ideal internalization	Thin	19	22.00	8.253	1.893
	normal_weight	27	22.11	6.841	1.316

Table 2 represents the mean scores for each evaluated dimension, in the normal weight group. Subjects who evaluated themselves having normal weight scored higher than subjects who considered being overweight, in body esteem (t = 4.203, df =65, p = 0.0001). Thin ideal internalization scores are higher in the group that considered been overweight (t = -5.343, df = 65, p = 0.0001).

Table 2 Normal weight group statistics

Group Statistics

	Verbal weight perception	N	Mean	Std. Deviation	Std. Error Mean
Body esteem	normal_weight	52	**21.87**	6.161	.854
	overweight	15	**14.20**	6.439	1.662
Thin ideal internalization	normal_weight	52	22.06	5.428	.753
	overweight	15	30.40	4.940	1.275

Table 3 represents the mean rank for subjects that perceived their weight correct compared to subjects that underestimated their weight. In the overweight group (N=11), body esteem has higher scores for cases where the weight is considered normal compare to subjects that recognize their overweight status. Internalization scores are higher for subjects that recognized their overweight status.

Table 3 Overweight group statistics

Ranks

overweight	Body esteem regarding weight	normal_weight	6	8.50	51.00
		overweight	5	3.00	15.00

		Total	11		
Thin internalization	ideal	normal_weight	6	5.42	32.50
		overweight	5	6.70	33.50
		Total	11		

The relation between BMI and visual estimation of body size

Figure 2 shows misrepresentations resulted from visual perception of pictorial body images for each category, based on BMI. Chi-square = 64.9, df=4, p< 0, 0001, confirms a significant difference between BMI and visual perception of body size. 78% of underweight subjects choose a pictorial body image that was situated in the underweight class while 23.9% choose a pictorial from the normal weight range. In the normal weight group, 21.7% selected an underweight figure while 59.4% selected a normal weight figure. The visual perception of body size seems more accurate than the self evaluation of weight status.

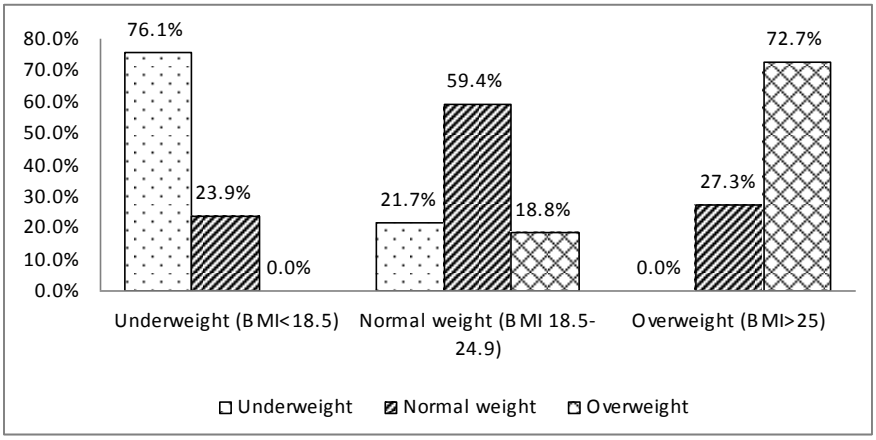

Figure 2 Visual evaluation of weight

Thin ideal internalization and body-esteem for each category based on BMI and visual estimation of body-size

By looking at each group based on BMI, in the underweight group, there is a significant difference in terms of body-esteem between subjects that acknowledge their underweight status and those that view their weight normal (Tab. 4).

Tab.4 Underweight group statistics

	Visual weight perception	N	Mean	Std. Deviation
Body esteem regarding weight	underweight	35	**20.46**	7.406
	normal_weight	11	**27.09**	4.700
Thin ideal internalization	underweight	35	22.66	7.746
	normal_weight	11	20.18	5.930

In the normal weight group, there is a significant difference in terms of thin ideal internalization, based on visual weight perception (F=6.60, p=.002). Those that perceive their weight correct or underestimate it, have lower scores than those that overestimate their size. Overestimation is related to internalization of thin ideal. No significant differences were found in terms of body-esteem

Tab. 5 Normal weight group statistics

	Visual weight perception	N	Mean	Std. Deviation
Body esteem regarding weight	underweight	13	22.87	4.58
	normal_weight	41	20.22	7.24
	overweight	13	17.23	7.32
Thin ideal internalization	underweight	13	22.77	5.790
	normal_weight	41	22.61	6.016
	overweight	13	29.23	5.403

The relation between self evaluation of weight status, body-esteem regarding weight and thin ideal internalization, for each BMI category.

Regarding associations between variables, it was found that body-esteem negatively correlates with BMI (r= -.405, p<.01). Socio-cultural attitude also negatively correlates with body-esteem (r=.364, p<.01).

Means and standard deviations by BMI, self evaluation of weight status and visual perception of body size, for body-esteem and socio-cultural attitudes toward appearance are presented in Table 6. As can be seen, body-esteem vary significantly based on BMI (F=7.11, p=.0001), underweight student girls having the highest body-esteem, followed by normal weight and overweight students.

The analysis of variance (One-Way ANOVA) of body esteem, for the three categories, based self evaluation of weight status, showed a global significant difference (F=29.13, p = 0.0001). Post hoc analysis with Bonferoni, revealed a significant difference in body-esteem, between girls that evaluated their weight as being in the normal range and girls that perceived their weight as being thin or overweight. No significant differences in body-esteem were observed for those that considered being thin and overweight.

For thin ideal internalization, the mean in underweight group (N=19) is 22.00 (SD 8.25), normal weight group, N=85 (M=21.98, SD 6,04) and overweight group N=20 (M=28.6, SD 6.16). The analysis of variance (One-Way ANOVA) also showed a significant difference in terms of socio-cultural attitude toward appearance (F=8.86, p=.0001). Post hoc analysis with Bonferoni, demonstrated a significant difference between girls that perceived their bodies as being thin and girls that evaluated their body as being overweight. Overall, perceived overweight group had significantly higher scores in thin ideal internalization compared to underweight and normal weight.

Looking at the variation of body-esteem, based on visual perception of body size, One-Way ANOVA showed a global significant difference (F=6.55, p=.002). Post hoc analysis revealed that body-esteem of girls that saw their body size in the normal or underweight group was significantly higher compared with girls that chose an overweight pictorial. Also thin ideal internalization was seen to vary between the three groups (F=3.62, sig.030), but post hoc analysis showed significant differences only between girls that saw their weight as been normal or underweight compared to overweight.

Table 6 Means and standard deviations for body-esteem and sociocultural attitude toward appearance, based on BMI, self evaluation of weight status and visual perception of body size

Variable	BMI						
	Underweight		Normal weight		Overweight		
	M	SD	M	SD	M	SD	F(124)
BE	22.04	7.38	20.15	6.96	12.91	8.06	7.112***
SATAQ	22.07	7.36	23.93	6.34	21.82	7.36	1.209
	Visual perception of body size						
	Underweight		Normal weight		Overweight		
	M	SD	M	SD	M	SD	F(124)
BE	21.1	6.79	21.42	7.28	15	8.13	6.55**
SATAQ	22.69	7.2	22.02	6.00	26.57	7.19	3.62*
	Self evaluation of weight status						
	Underweight		Normal weight		Overweight		
	M	SD	M	SD	M	SD	F(124)
BE	16.37	6.52	23	6.06	12	6.88	29.130***
SATAQ	22	8.25	21.98	6.04	28.6	6.16	8.863***

*p<.05 **p<.01 ***p<.001
BE – body esteem – weight subscale
SATAQ - Sociocultural Attitudes Toward Appearance

Discussions

The aim of the study was to explore the relation between BMI, self evaluation of weight status and visual perception of body size, in relation to body-esteem and thin ideal internalization and to explore differences in terms of body-esteem and thin ideal internalization, between participants that evaluate their weight correct and participants that underestimate or overestimate their size. The findings revealed that, in line with previous research, self-perceived body image is subject to misrepresentation. The overall results show there is a significant difference between BMI and weight perception, for both self evaluation of weight status and visual estimation of body size. In the underweight group, more then a half declared they have normal weight, while in the normal weight group, a quarter considered themselves overweight. The overweight group had a reverse tendency, more then a half considering their weight normal. The results support previous findings that normal and underweight persons have the tendency to overestimate their body size (B.P. McCabe et al l, 2006), while overweight persons have the tendency to underestimate their body size (K.L. Allen et al, 2008). The visual estimation of body size was more accurate, compared to self evaluation of weight status. If asking the subjects to choose a pictorial body image from a series of nine, a more accurate perception was obtained. In line with the literature, these results suggest that overestimation is not as much a perceptual problem but a conceptual one regarding the meaning of being underweight and BMI is just one factor that contributes to self evaluation of weight status

A relevant factor, proposed to account for differences in weight perception is thin ideal internalization. In the context of the promotion of the thin ideal as a normative standard of beauty, these girls might consider their weight normal because it is in accord with these standards (H. Dittmar, 2007). Indeed, thin ideal internalization was found to be significantly higher for those that perceived their weight as being overweight compared to girls that evaluated them as normal or underweight. No significant differences were found between underweight and normal weight perception in terms of thin ideal internalization, but we registered a significant difference in terms of body-esteem. Actually, high body-esteem correlates with low levels of thin ideal internalization. This finding contradict our expectation that acknowledge of the thin status is related to high body esteem because being thin is socially valued. Even if very thin and apparently in accord with socio-cultural ideal, these girls were not both high in thin ideal internalization and high in body esteem. This might suggest the fact that thin ideal, if transformed in a personal standard relates to body dissatisfaction independently of BMI. *A.*Brown and H.Dittmar in their article, "Think thin and feel bad" shows that thin ideal internalization is related to negative affect and S. Grabe et al. 2008, brought evidence that body ideal internalization is an essential factor in explaining adolescents body-esteem. L.Smolak ,2004, suggests that girls, who score high on

body ideal internalization, often compare themselves to the thin models and this lead to low body-esteem.

In the normal weight group, lower scores of body-esteem are related to higher scores in terms of socio-cultural attitude toward appearance and overestimation. Therefore, overestimation is related to sensitivity toward socio-cultural pressure. In this context of a normal BMI, an accurate perception is related to high scores of body-esteem. In the overweight group, more than half considered their weight normal, had high levels of body esteem and low levels of thin ideal internalization, confirming Allen's finding that overweight persons underestimate their body size. As E.J. Strahan, A.E. Wilson, K.E. Cressman and V. Buote, 2006, argued, a dysfunction in perception of the body size might be benefic when misrepresentation is directed toward average size body.

Limitations

There are limitations to this study that need to be taken into account when interpreting the findings. First, BMI was calculated based on self-reported weight and high. Therefore we can expect a degree of inaccuracy that was not considered. Then the pictorial body image does not permit a very accurate estimation of the body size, as a technique where subjects have to identify their correct image from o series of self images with size distortion present or absent. Also the overweight group was underrepresented compared to normal and underweight group.

Conclusions

The study brings new evidence, that distortions in body image perception are rather related to non sensory factors, such as attitudes toward the body, than to visual perception inaccuracy. Therefore, future research regarding cognitive factors that might lead to misperception of body image would be very valuable. A second important finding is that the meaning of the misperception changes based on BMI. A differentiation between when misperception is maladaptive and when it does not lead to negative outcomes, it might help in identifying factors that lead to pathology as well as protective factors. As found in the present research, one relevant factor is BMI. In this particular group of teenage girls, only overestimation in normal and overweight group was related to a low body-esteem and thin ideal internalization. Cultural norms might be a significant factor that shapes the perception of the body and the meaning attached to this perception.

References

ALLEN, K.L., BYRNE, S.M., MCLEAN, N.J. & DAVIS, E.A., 2008, *Overconcern with weight and shape is not the same as body dissatisfaction: Evidence from a perspective study of pre-adolescent boys and girls,* in Body Image, Vol. 5, pp. 261- 270

BAUMEISTER, R.F., TICE, D.M. & HUTTON, D.G. (1989) *Self presentational motivations and personality differences in self- esteem*, in Journal of Personality, 57:3

BROWN, A., & DITTMAR, H., 2005, *Think "Thin" and Feel Bad: The Role of Appearance Schema Activation, Attention Level, and Thin Ideal Internalization for Young Women's Responses to Ultra-Thin Media Ideals* în Journal of Social and Clinical Psychology, Vol. 24, No. 8, 2005, pp. 1088-1113;

DITTMAR, H., 2007, The Cost of Consumer Culture and the "Cage Within": The Impact of the Material "Good Life" and "Body Perfect" Ideals on Individuals Identity and Well-Being în *Psychologycal Inquiry*, vol. 18, nr. 1, 23-59;

DITTMAR, H., HALLIWELL, E., & STIRLING E., 2009, *Understanding the Impact of Thin Media Models on Women's Body- Focused Affect*, in Journal of Social and Clinical Psychology, Vol 28, No. 1, pp. 43-72

GARDNER, R.M. & JONES, L.C., 1995, *Comparison of three psychological techniques for estimating body-size perception*, in Perceptual & Motor Skills, Vol. 80, Issue 3, p1379

GRABE, S., HYDE, J., WARD, L., 2008, *The Role of the Media in Body Image Concerns Among Women: A Meta-Analysis of Experimental and Correlational Studies* in Psychologycal Bulletin, vol 134, nr. 3, 460-476;

HEINBERG, L.J., ALTABE, M., TANTLEFF-DUNN S. & THOMPSON, J.K., 1999, *Cognitive-Processing Models*, in Exacting Beauty: Theory, Assessment and Treatment of Body Image Disturbances (pp 271-292), Washington DC

HEINBERG, L. J., THOMPSON, J., K. & STORMER, S., 1995, *Development and Validation of the Sociocultural Attitudes Towards Appearance* in International Journal of eating Disorders, Vol. 17 (1) p. 81-89

MCCABE, M.P., RICCIARDELLI, L.A., SITARAM, G. & MIKHAIL, K., 2006, *Accuracy of body size estimation: Role of*

biopsychosocial variables, in Body Image, Vol 3, p. 163-171

MENDELSON, B.K., WHITE, D.R. & MENDELSON, M.J., 1997, *Manual for the Body-Esteem Scale for Adolescents and Adults*, in Res. Bull. 16, No. 2) Montreal: Concordia University

QUINLIVAN, E., & LEARY, M.R., 2005, *Women's Perceptions of Their Bodies: Discrepancies Between Self-Appraisals and Reflected Appraisals* in Journal of Social and Clinical Psychology, Vol. 24, Nr. 8, 1139-1163

SLADE, P., BRODIE, D., 1994, *Body Image Distorsion and Eating Disorder: A Reconceptualization Based on the Recent Literature* in Journal of Eating Disorders, vol. 2 nr. 1;

SMOLAK, L., 2004, *Body image in Children and Adolescents: Where do we go from here?* In Body Image, Vol 1, 15-28

SMEETS, M.A., SMIT, F., PANHUYSEN, G.E., & INGLEBY, J.D., 1998, *Body perception index: Benefits, pitfalls, ideas* in Journal of Psychosomatic Research, 44, 457-464

STANDLEY, R., SULLIVAN, V. & WARDLE, J., 2009, *Self-perceived weight in adolescents: Overestimation or underestimation?* in Body Image, Vol 6, 56-59

STRAHAN, E. J., WILSON, A. E., CRESSMAN, K. E. & BUOTE, V. M., 2006, *Comparing to perfection: How cultural norms for appearance affect social comparisons and self-image* în Body Image, Vol. 3, 211-227

THOMPSON, K. , HEINBERG, ALTABE, M & TANTLEFF-DUNN, S., 1999, *Cognitive-processing Models* in Exacting beauty: Theory, assessment, and treatment of **body image** disturbance, p. 271-310

THOMPSON, M.A. & GRAY, J.J., 1995, *Development and Validation of a New Body-Image Assessment Scale*, in Journal of Personality Assessment, 64(2), 258-269

THE EFFECT OF FINNISH SAUNA ON THE ACTIVITY OF SELECTED LYSOSOMAL ENZYMES ON HEALTHY SUBJECTS

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Abstract

Purpose. The aim of this study was to determine the effect of sauna on the activity of arylsulfatase (ASA), cathepsin D (CTS D), acid phosphatase (AcP) and α-1-antitrypsin (AAT) in serum of healthy subjects.

Methods and procedures. Subjects (n=16) performed 30 min Finnish sauna in temperature of 85°C and humidity of 40%. The blood samples were taken from cubital vein before the entry to sauna, 5 and 30 min after the exit. The obtained results were statistically analyzed by using ANOVA test. The changes of the level $p<0.05$ were accepted as statistically significant.

Results. Statistically significant increase of ASA and AAT as well as decrease of CTS D activity 5 and 30 min after the exit from sauna was revealed as compared to the value before entry to sauna. There was not changed in AcP activity after sauna. Statistically significant correlations between studied parameters were also revealed.

Discussion and conclusions. Sauna is a very popular regeneration method among sportsmen. This procedure is also very stressful for human organism. Statistically significant increase of activity of lysosomal enzymes revealed in the paper proves that single entry to Finnish sauna significantly decreases stability of lysosomal membranes in healthy volunteers.

Key words: Finnish sauna, arylsulfatase, cathepsin D, acid phosphatase, α-1-antitrypsin.

Introduction

The sauna bathings origin from very primitive steam baths (R. Livingston, 2010). The place where sauna bathings were started was probably Central Asia and this practice arrived to Europe just from there (J. Bruchac, 1993, Sauna, 2004 a). Very primitive steam baths were used by Vikings, Aztecs, North American Indians, ancient African people (R. Livingston 2010, Sauna, 2004 a) and Maya people (Harvard Men's Health Watch, 2005). The practice of bathing in hot air

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Received 19.02.2011 / Accepted 07.05.2011

fumes reached to Syria, Greece and also to Egypt (Sauna, 2004 a). The sauna bathings supersaturated by water steam were especially widely practiced among the ancient Slavs and in the eastern part of the Scandinavian Peninsula. The Finland is a place where about 2000 years ago techniques of hot steam bath with hot dry bath were joined together and Finnish sauna was created. It gradually got popularity in whole Europe (similarly like the "banya" in Russia which is steam sauna) (Sauna, 2004 a, b). In the Middle Ages using of sauna was almost completely stopped. The revival of this procedure occurred not early as in the middle of 20th century, mainly due to Finnish sportsmen (T. Prystupa, 2009). Nowadays, Finnish sauna is the most popular type of such procedures.

In the first part of the whole sauna procedure subjects stay in a wood room (sauna) by 5-20 min at temperature of 80-120°C. Inside of sauna of relative air humidity is 5-10%. After exit fast and precise cool down of whole body is done by immersion in cold water or a shower (Harvard Men's Health Watch, 2005, R. Jeffrey et al., 2009, T. Prystupa, 2009). Extremely high temperatures inside of the sauna are obtained due to an oven which heats the stones located on it. Red-hot stones can be sprinkled with water what causes an increase of air humidity and decrease of temperature. In this way other types of dry sauna can be also obtained: wet sauna (70-90°C, 25-39% of air humidity) and steam sauna (45-65°C, 40-65% of air humidity). The steam sauna belongs to the mildest kind of sauna bathings and it is often combined with aromatherapy (using of essential oils, herbs) (Sauna, 2004 a). A relatively new type of sauna is far-infrared sauna. Its course is similarly like in Finnish sauna, source only decrease and the systolic pressure do not change significantly (A. Eisalo and O. Luurila J., 1988). Sauna improves blood circulation in the mucosa of the upper respiratory tract (W. Pilch et al., 2006, O. Hanninen, 1986) and positively effects on the locomotor system. It increases mobility in the joints by increasing the flexibility of the fibrous tissue of joint capsules and ligaments, by improving of blood flow in the tissues surrounding joint and by reducing the viscosity of synovial fluid. Sauna relaxes the skeletal muscles and their intergrowths, too (T. Brzostek et al., 2007). Sauna session increases endurance performance and psychological efficiency of organism (D. Groves, 1987, M. Chorąży and K. Kwaśny, 2005, W. Pilch et al., 2006, G.S.M. Scoon et al., 2007).

Sauna bathings are often used as a supplement of treatment in patients with circulatory system diseases, depression, respiratory system diseases (especially in chronic obstructive pulmonary disease – COPD) as well as in diseases of locomotor system (usually in fibromyalgia but also in rheumatoid arthritis) (K. Kukkonen-Harjula and K. Kauppinen, 2006). However, sauna is a procedure the most often applied for biological restoration in sportsmen both professional and amateur (T. Prystupa et al., 2009, Sauna, 2004 a, b, G.S.M. Scoon, 2007). Special difference is the heat. In infrared sauna it is far-infrared radiation. Its energy is absorbed by the skin (4cm in depth) and deeper located tissues, and then it is converted into heat energy. The temperature inside of far-infrared sauna is lower than in a dry sauna (40-60°C, air humidity to 5%). Nevertheless, the body sweating is more intensive and due to lower air humidity it is easier to breathe (R. Beever, 2009). For this reason far-infrared sauna does not load an organism and therefore it can be used in patients with diseases of circulatory system (S. Il-Suk et al., 2010).

During sauna bathing the sympathetic nervous system and hypothalamus-pituitary-adrenal hormonal axis is intensively activated to compensate the excessive increase of body temperature (K. Kauppinen and I. Vuori, 1986, K. Kukkonen-Harjula and K. Kauppinen, 1988). The consequences of this activation are changes in hormonal profile resulting in water retention and "fight-or-flight" organism response. It is followed by reduced perception of pain, stimulation and increase of vigilance. Thus, the thermal impulse is connected i.a. with increased concentration of noradrenaline (D. Jezovà et al., 1994, K. Kauppinen et al., 1989). The level of adrenaline does not change or it can be increased. The alterations revealed by different authors probably result from different conditions of doing bath into sauna, especially from various techniques of organism cooling down (K. Kauppinen et al., 1989, K. Kukkonen-Harjula and K. Kauppinen, 1988, K. Vähä-Eskeli et al., 1992). The overall heart work determined by the heart rate and systolic blood pressure, which indicate myocardial oxygen demand, does not increase greatly (K. Kauppinen and I. Vuori, 1986) because the diastolic and mean arterial pressures indication for supporting treatment in patients with circulatory system diseases can be far-infrared sauna, because this type of sauna does not load the patient's heart (S. Il-Suk et al., 2010, M. Imamura, 2001, M. Miyata et al., 2008). The contraindication for sauna bathing is its using to fast reduction of body mass by sportsmen of disciplines depending on weight classes. It often results in considerable decrease of endurance performance due to too large and rapid dehydration (T. Prystupa et al., 2009). The sauna procedures are also contraindicated for patients with abnormal heart rhythms, unstable angina, advanced heart failure or heart valve disease (Harvard Men's Health Watch, 2005).

The purpose of this paper was to study the effect of single Finnish sauna procedure on the activity of selected lysosomal enzymes and proteases inhibitor, α-1-antitrypsin in peripheral blood of healthy volunteers.

Methods and procedures

The studied group consisted of 16 healthy subjects (3 women and 13 men) which did not use sauna at least 3 months before the study. Mean age was 36.7 ± 12.3 years. The study in Finnish sauna was performed at "Olsztyńska Szkoła Wyższa" in Olsztyn. Subjects stayed inside of the sauna in swimsuit by 30

min at temperature of 85°C and 40% relative air humidity.

Blood samples were taken from cubital vein three times: before the entrance to the sauna and 5 and 30 min after the exit from the sauna. The venous blood

The cathepsin D activity was estimated by the Anson method (S. P. Colowick and N. C. Kaplan, 1955). Substrate was 2% denatured bovine hemoglobin dissolved in 100 ml in 0.1 M solution of citrate-phosphate buffer about pH = 3.8. The cathepsin D activity was measured by the following scheme:

Reagent (ml)	**Assay**		
	Blank	Subject	Control
2% bovine hemoglobin	-	0.4	0.4
0.1 M citrate-phosphate buffer pH=3.8	2.5	2	2
	15 min incubation at temp. of 37°C		
Serum	-	0.1	0.1
5% TCA	60 min incubation at temp. of 37°C		no incubation
	1.0	1.0	1.0
	centrifugation 5 min by 960xg		
Supernatant	2.0	2.0	2.0
5 N NaOH	1.0	1.0	1.0
Reagent of Folin-Ciocalteu	3.0	3.0	3.0
	centrifugation 5 min by 960xg		

Extinction of the samples was detected after 15 min at a wavelength λ = 600 nm versus blank. The enzyme activity was calculated by the formula:

C (nmol/min) = E(B) – E(K) x K

where: E(B) – extinction of subject
E(K) – extinction of control
K – gradient coefficient of calibration curve

The activity of the enzyme was expressed as nM of tyrosine/mg of protein/min.

The activity of acid phosphatase was measured according to Bessy method which was modified by Krawczyński (1972). P-nitrophenylphosphate disodium (substrate) in 0.5 M citrate-tartaric-formaldehyde buffer about pH = 4.9 was used for study. The level of enzyme activity was the amount of p-nitrophenol released during enzymatic hydrolysis of the substrate. Acid phosphatase activity was determined by the following scheme:

Reagent (ml)	**Assay**			
	Standard	Subject	Control	Blank
Working solution of substrate	-	1.0	-	1.0
H_2O	1.0	-	1.0	-
30 min incubation at temp. of 37°C				
Standard solution of p-nitrophenol	2.0	-	-	-
Serum	-	2.0	2.0	-
H_2O	-	-	-	2.0
30 min incubation at temp. of 37°C				
0.1 N NaOH	0.5	0.5	0.5	0.5

was taken into dry tubes in order to obtain the blood serum. In the serum the activity of cathepsin D, arylsulfatase and acid phosphatase and also α-1-antitrypsin was determined.

Working solution was prepared on the same day as an experiment. 0.4% solution of p-nitrophenylphosphate disodium was mixed with 0.5 M citrate-tartaric-formaldehyde buffer (pH = 4.9) in 1:1 ratio. Extinction was detected versus distilled water at the wavelength λ = 405 nm. Acid phosphatase activity was calculated according to the formula:

C (nmol/ml) = (E(B) – E(K) – E(S))/E(W) x n

where: E(B) – extinction of subject
E(K) – extinction of control
E(W) – extinction of standard
E(S) – extinction of blank
n – the concentration of p-nitrophenol in standard

The activity of the acid phosphatase was expressed as nM of p-nitrophenol/mg of protein/min.

The arylsulfatase activity was estimated according to Roy method which was modified by Błeszyński (W. Błeszyński and L. M. Działoszyński, 1965). For the determination 0.01 M sulphate of 4-p-nitrocatechol (4-NCS) in 0.5 M acetate buffer (pH = 5.6) was used. The measure of enzyme activity was the amount of released 4-nitrocatechol (4-NC) during enzymatic hydrolysis of the substrate. Arylsulfatase activity was determined according to the following schedule:

Reagent (ml)	**Assay**	
	Subject	Control
0.01 M 4-NCS	0.5	0.5
0.5 M acetate buffer pH 5.6	0.4	0.5
Serum	0.1	-
10 min incubation at temp. of 37°C		
1 N NaOH	2.0	2.0

Extinction was detected versus the control at a wavelength λ = 510 nm. Amount of released 4-NC was calculated due to the formula:

C (nmol/ml) = K x E(B)

where: K – gradient coefficient of calibration curve

E(B) – extinction of subject

The arylsulfatase activity was expressed as nM of 4-NC/mg of protein/min.

The activity of α-1-antitrypsin in blood serum was determined by Eriksson method (E. Szczeklik, 1974, M. Szmidt et al., 1991). The basis of the assay in measuring a decrease of enzymatic activity of trypsin due to short incubation with defibrinated blood serum. As a substrate a synthetic amide derivative of arginine – benzoyl-DL-arginine-p-nitroanilide was used. The samples consisted of 0.1 M Tris-HCl buffer (pH = 8.2) which contained 0.02 M $CaCl_2$, trypsin solution (10 mg of trypsin in 50 ml of 0.0025 N HCl) and the serum of the subjects. After 15 min incubation at temp. of 25°C into the tubes a solution of substrate was added and it was still incubated at temp. of 25°C by 10 min. After this time the reaction was stopped by acetic acid and then absorbance was detected at a wavelength λ = 410 nm versus the blank which did not contain a solution of trypsin. Control samples contained the same ingredients as the subject samples but without the serum. The inhibitor activity was calculated in accordance with to the formula:

$$TIC = (Ec - Es)/Ec \times T \times 1/V \times F$$

where: Ec – extinction of control
Es – extinction of subject
T – number of μg of trypsin
V – the volume of the serum expressed at μl
F – coefficient that expresses the ratio of the trypsin combined with soy inhibitor which is used for standardization of trypsin solution

The TIC means mg of trypsin which activity was inhibited by 1 ml of serum (mg of trypsin/ ml).

The laboratory studies were done in the biochemical laboratory of the Chair of Medical Biology, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń. Subjects were informed about the purpose of study and gave their written consent. The study received the approval of the Bioethics Committee at the Collegium Medicum in Bydgoszcz. The results were statistically analyzed by using ANOVA test. The changes of the level $p<0.05$ were accepted as statistically significant.

Results

In the paper statistically significant decrease of cathepsin D activity both 5 min (about 84%; $p<0.001$) and 30 min (about 75%; $p<0.01$) after sauna was revealed as compared to activity before sauna bathing. On the other hand, the arylsulfatase activity increased about 94% 5 min ($p<0.001$) and about 83% 30 min after sauna ($p<0.001$) as compared to ASA activity before entrance into sauna. An increase of α-1-antitrypsin activity after bath into sauna was also reported. Comparing AAT activity before and after the sauna procedure (tab. 1), it was about 34% higher 5 min ($p<0.05$) and 54% higher 30 min ($p<0.001$) after exit from sauna.

The tendency to increase of AcP activity 5 min after sauna was also found as compared to the activity of this enzyme before the sauna ($p>0.05$). Although activity of acid phosphatase decreased statistically insignificant 30 min after exit from sauna compared with the value measured 5 min after sauna session, it was still higher than before the entrance to the sauna ($p>0.05$).

Moreover, statistically significant correlations were reported between studied parameters. 5 min after exit from sauna strong, positive correlation between AcP and ASA activity ($r=0.94$; $p<0.001$) and also between CTS D and AAT activity ($r=0.5$; $p<0.05$) was found. Positive correlation was also determined in the third term of study (30 min after exit from sauna) between activity of AcP and ASA ($r=0.7$; $p<0.01$).

Table 1. The activity of lysosomal enzymes and α-1-antitrypsin in the blood of volunteers after Finnish sauna

	Term of study		
Parameter	**Before entrance to sauna (control)**	**5 min after exit from sauna**	**30 min after exit from sauna**
ASA (10^{-2} nM of 4-NC/mg of protein/min)	0.48±0.12	0.93^{***}±0.38	0.88^{***}±0.23
CTS D (10^{-2} nM of tyrosine/mg of protein/min)	19.89±18.82	3.12^{***}±1.22	4.9^{**}±0.71
AcP (10^{-3} nM of p-nitrophenol/ mg of protein/min)	110.58±26.89	125.59±12.28	118.55±12.17
AAT (mg of trypsine/ml of serum)	0.61±0.33	0.82^{*}±0.13	0.94^{***}±0.14

The results were shown as mean ± SD
* statistically significant difference as compared to study before entrance to the sauna ($^{*}p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$)

Discussion and conclusions

Among sportsmen sauna is often used as a training of the respiratory and cardiovascular system without necessity of the locomotor system loading. Sauna activates many physiological reactions in the

organism which are very similar to the reactions after physical exercise. Therefore, it is regarded as a type of physical training (W. Pilch, 2010). It has been proved that during the sauna session, the organism burns about 300 kcal what is equivalent to the energy needed for 3-4 km run (A. Tanny, 1995). During sauna bathing the heart rate increases about two times as compared to the value at rest (K. Kauppinen, 1989, K. Kukkonen-Harjula et al., 1989). The frequency of lung ventilation significantly rises what is caused i. a. by an increase of lung tissue extensibility (W. Pilch et al., 2006, O. Hanninen, 1986). Regular sauna using increases vital capacity (VC), peak expiratory flow rate (PEF) and also the forced expiratory volume in the first second (FEV_1) (L.A. Laitinen et al., 1988). Similarly like after exercise due to sauna effect, the increase of organism temperature induces synthesis of heat shock proteins. In the blood serum of subjects which performed single sauna bathing significantly increase of Hsp70 concentration 2 hours after procedure ending was reported (J-É. Blatteau et al., 2008). As an effect of exercise-induced hyperthermia the synthesis of heat shock protein increases in skeletal muscle, heart and liver cells of rats (D. C. Salo et al., 1991). In addition to increase of body temperature sauna also affects the endocrine glands and especially the adrenal glands on the hypothalamic-pituitary-adrenal axis as well as the renin-angiotensin-aldosterone system. Both as a result of the sauna and exercise the increase the human growth hormone (hGH), ACTH, prolactin, cortisol and catecholamines concentration in blood is observed. After sauna like after physical effort the concentration of LDL cholesterol reduces and HDL cholesterol and free fatty acids (FFA) concentration increases (W. Pilch, 2010).

During aerobic exercise in the organism the generation of reactive oxygen species (ROS) is increased which occurs mainly during the reduction of oxygen in the respiratory chain in mitochondria (R. R. Jenkins, 1988, A. Woźniak et al., 2005). In a natural way some part of the oxygen is incompletely reduced leading to production oxygen free radicals (OFR) (R. R. Jenkins, 1988, L. L. Ji, 1995) what may also take place as a result of the sauna.

During sauna in the overheating phase cardiovascular system combats thermal stress by cutaneous vasodilatation and increase of cutaneous blood flow. The overheating phase is followed by a rapid phase of cool down and contraction of blood vessels (vasoconstriction) (K. Kukkonen-Harjula et al., 1989). These phases form a sauna cycle which is performed at least twice (T. Prystupa, 2009, Sauna, 2004 a, b). The phenomenon ischaemia (cool down phase) and then hyperaemia (overheating phase), in the endothelium of blood vessels leads to convertion of xanthine dehydrogenase to xanthine oxidase which catalyzes the reaction of superoxide anion radicals generation (B. Halliwell and J. M. C. Gutteridge, 1993). In this way OFR can be formed also during the sauna.

Sauna procedure statistically significant increases noradrenaline and adrenaline concentration (D. Jezovà et al., 1994, K. Kauppinen et al., 1989, K. Kukkonen-Harjula and K. Kauppinen, 1988). Autooxidation of catecholamines due to higher supply of oxygen (hyperventilation during overheating phase) is another possible source of higher than physiological concentration of OFR (B. Halliwell and J. M. C. Gutteridge, 1993) as the sauna effect.

The generation of reactive oxygen species (ROS) intensifies the processes of lipid peroxidation. These are free radical reactions which are one of the most specific consequences of free radicals reactive action. The process is based on self-stimulation chain reactions according to the principle of transfer free electrons to each other. Free radical molecules which are still produced accelerate chain reaction (J. Kedziora, 1998). Peroxidation initiated by ROS leads to the split of polyunsaturated fatty acids that build protein-lipid membranes (P. L. Marino, 2001).

The statistically significant increase of ASA activity and tendency to increase of AcP activity after single sauna procedure revealed in this study, can be caused by oxidative damage of lysosomal membranes in organism and the leak of these enzymes first into the intercellular space and then into the peripheral blood. The existence of such the phenomenon as an effect of oxidative stress caused by exercise was proved by Wozniak et al. (2001). The confirmation of the increased lability of lysosomal membranes after the sauna is also correlations between the activity of AcP and ASA both 5 and 30 min after exit from the sauna found in this paper.

The increase of the lysosomal enzymes after the sauna can be also explained by another theory. It is supposed that the source of the increased permeability of lysosomal membranes during and/or after exercise is an increase of pH in lysosomes and decrease of the aggregation of enzymes molecules in their interior. This is a consequence accumulation in the lysosomes of ammonia which concentration in skeletal muscle and in blood increases significantly during exercise (A. Wozniak, 2005). The physiological effects of sauna on the organism are believed to be are similar to the effects of physical exercise thus, it is possible that after sauna procedures ammonia also accumulates in lysosomes.

This study also revealed statistically significant decrease of cathepsin D activity both 5 min (about 84%; $p<0.001$) as well as 30 min after sauna (about 75%; $p<0.01$) as compared to the activity before sauna bathing. However, simultaneous the increase AAT activity was found in subjects' blood serum in the same terms of study. Alfa-1-antitrypsin as a glycoprotein of blood is the main protease inhibitor in the organism (I. Graziadei et al., 2000). Hence, it could inhibit the activity of CTS D after the sauna. AAT is included to acute-phase proteins. The increase of its concentration occurs during infection, inflammation and cancer (D. Kolarich et al., 2006). Reported in this

study statistically significant increase of arylsulfatase activity and the tendency to increase of acid phosphatase activity may indicate on the organism response similar to inflammation. Increase of the AAT activity in the blood serum due to sauna effect therefore, can be explained by the stress caused in the organism as a result of this procedure (W. Pilch, 2010, T. Prystupa et al., 2009).

The statistically significant increase in activity of lysosomal enzymes and correlations between them observed in this study may testify to the fact that single staying in Finnish sauna by 30 min at temperature of 85°C and with 40% relative air humidity significantly decrease of stability of lysosomal membranes in healthy volunteers both sexes.

References

BEEVER, R., 2009, *Far-infrared saunas for treatment of cardiovascular risk factors*. Can Fam Physician 55:691-696.

BLATTEAU, J-É, et al., 2008, *Predive Sauna and Venous Gas Bubbles Upon Decompression from 400 kPa*, Aviat Space Environ Med, 79(12): 1100-1105

BŁESZYŃSKI, W., DZIAŁOSZYŃSKI, L. M., 1965, *Purification of soluble arylsulfatase from ox brain*, Biochem J, 97:360-364.

BRUCHAC, J., 1993, *The Native American Sweat Lodge*, Freedom, C. A.: The Crossing Press.

BRZOSTEK, T., et al., 2007, *Wpływ kąpieli w saunie na układ sercowo-naczyniowy*, Rehabilitacja Medyczna, 3:23–29.

CHORĄŻY, M., KWAŚNY, K., 2005, *Wpływ sauny jako odnowy biologicznej na zachowanie się tętna i ciśnienia krwi u ludzi o różnym stopniu wytrenowania*, Zeszyty Metodyczno-Naukowe AWF, Katowice, 19:249–258.

COLOWICK, S. P., KAPLAN, N. C., 1955, *Methods in enzymology*, vol. 2 Academic Press, New York.

EISALO, A., LUURILA, O. J., 1988, *The Finnish sauna and cardiovascular diseases*, Ann Clin Res 20:267-270.

GRAZIADEI, I, et al., 2000, *A novel binding site for the native hepatic acute-phase protein α1-antitrypsin expressed on the human hepatoma cell line HepG 2 and intestinal cell line Caco 2*, Liver, 20:240-246.

GROVES, D., 1987, *Sauna use by competitive athletes*, Phys Sportsmed, 15:187–190.

HALLIWELL, B., GUTTERIDGE, J.M.C., 1993, *Free radical in biology and medicine. II*, Clarendon Press, Oxford.

HANNINEN, O., 1986, *The sauna-stimulating and relaxing*, News in Physiological Sciences, 1:179–181.

HARVARD MEN'S HEALTH WATCH, 2005, *Saunas and your health*, 6-7.

IL-SUK, S., et al., 2010, *Preliminary clinical experience with waon therapy in Korea: Safety and Effect*, J Cardiovasc Ultrasound 18(2):37-42.

IMAMURA, M., et al., 2001, *Repeated thermal therapy improves impaired vascular endothelial function in patients with coronary risk factors*, JACC 38 (4):1083–1088.

JEFFREY, R., et al., 2009, *Safety, Acceptance, and Physiologic Effects of Sauna Bathing in People With Chronic Heart Failure: A Pilot Report*, Arch Phys Med Rehabil 90:173-177.

JENKINS, R.R., 1988, *Free radical chemistry: relationship to exercise*, Sport Med 5:156-170.

JEZOVÀ, D., et al., 1994, *Sex differences in endocrine response to hyperthermia in sauna*, Acta Physiol Scand 150:293-298.

JI, L.L., 1995, *Oxidative stress during exercise: implication of antioxidant nutrients*, Free Radic Biol Med, 18:1079-1086.

KAUPPINEN, K., 1989, *Sauna, shower, and ice water immersion. Physiological responses to brief exposures to heat, cool, and cold. Part II. Circulation*, Arctic Med Res 48:64-74.

KAUPPINEN, K., et al., 1989, *Some endocrine responses to sauna, shower and ice water immersion*, Arctic Med Res 48:131-139.

KAUPPINEN, K., VUORI I., 1986, *Man in the sauna*, Ann Clin Res 18:173-185.

KĘDZIORA, J., 1998, *Wolnorodnikowe procesy zachodzące w stanach fizjologicznych i patologii*, Med Sportiva, 2:203-217.

KOLARICH, D., et al., 2006, *Comprehensive glycol-proteomic analysis of human α_1-antitrypsin and its charge isoforms*, Proteomics, 6:3369–3380.

KRAWCZYŃSKI, J., 1972, *Diagnostyka enzymologiczna w medycynie praktycznej*, Metodyka badań, PZWL, Warszawa.

KUKKONEN-HARJULA, K., et al., 1989, *Haemodynamic and hormonal responses to heat exposure in a Finnish sauna bath*, Eur J Appl Physiol 58:543-550.

KUKKONEN-HARJULA, K., KAUPPINEN, K., 2006, *Health effects and risks of sauna bathing*, Int J Circumpolar Health 65(3):195-205.

KUKKONEN-HARJULA, K., KAUPPINEN, K., 1988, *How the sauna affects the endocrine system*, Ann Clin Res 20:262-266.

LIVINGSTON, R., 2010, *Medical risks and benefits of the sweat lodge*, J Altern Complement Med 16 (6):617–619.

MARINO, P.L., 2001, *Toksyczne działanie tlenu. W: Intensywna terapia*, Wydawnictwo medyczne Urban & Parter, Wrocław, 31-48.

MIYATA, M., et al., 2008, *Beneficial effects of waon therapy on patients with chronic heart failure: Results of a prospective multicenter study*, J Cardiol 52:79-85.

PILCH, W., 2010, *Changes in the lipid profile of blood serum in women taking sauna baths of*

various duration, Int J Occup Med Environ Health, 23(2):167-174.

PILCH, W., et al., 2006, *Zmiany wybranych wskaźników fizjologicznych u kobiet pod wpływem termicznego przegrzania w saunie*, Medicina Sportiva Practica, 7(4):50–53.

PRYSTUPA, T., et al., 2009, *The Effects of Finish Sauna on Hemodynamics of the Circulatory System in Men and Women*, J Hum Kinet 22:61-68.

SAUNA, 2004 a, Ogólnopolski Kwartalnik Polskiego Związku Saunowego, 1:6-7.

SAUNA, 2004 b, Ogólnopolski Kwartalnik Polskiego Związku Saunowego, 2:5-6.

SALO, D. C., et al., 1991, *HSP70 and other possible heat shock or oxidative stress proteins are induced in skeletal muscle, heart, and liver during exercise*, Free Radic Biol Med, 11: 239-246.

SCOON, G. S. M., et al., 2007, *Effect of post-exercise sauna bathing on the endurance performance of competitive male runners*, J Sci Med Sport 10:259-262.

SZCZEKLIK, E., 1974, *Enzymologia kliniczna*, PZWL, Warszawa.

SZMIDT, M., et al., 1991, *Zachowanie się alfa-1-antytrypsyny oraz jej fenotypy u chorych na astmę z nadwrażliwością na aspirynę*, Pneumonol Alergol Pol 59:114-120.

TANNY, A., 1995, *Sauna*, Lady Fitness, 43–44.

VÄHÄ-ESKELI, K., et al., 1992, *Responses of placental steroids, prostacyclin and thromboxane A2 to thermal stress during pregnancy*, Eur J Obstet Gynecol Reprod Biol, 43:97-103.

WOŹNIAK, A., 2005, *Wpływ kriostymulacji ogólnoustrojowej i wysiłku fizycznego na równowagę prooksydacyjno – antyoksydacyjną oraz aktywność enzymów lizosomalnych we krwi kajakarzy i wioślarzy*, UMK w Toruniu, Collegium Medicum w Bydgoszczy, Rozprawa habilitacyjna.

WOŹNIAK, A., et al., 2005, *Effect of cryogenic temperatures and exercise on lipid peroxidation in kayakers*, Biol Sport, 22:247-260.

WOŹNIAK, A., et al., 2001, *Aktywność wybranych enzymów lizosomalnych w surowicy krwi kajakarzy po kriostymulacji ogólnoustrojowej*, Med Sport, 17(8):322-327.

❖ VARIA

GENDER DIFFERENCES IN ADOLESCENTS´ PHYSICAL SELF -PERCEPTIONS

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Abstract

Purpose. This study examines the gender differences on adolescents´ physical self-perceptions.

Methods. The participants were 594 high school students who filled in Ecklund et al.´s CY-PSPP (1996).

Results. Girls reported lower levels of physical self-worth, global self-worth and its sub-domains than boys.

Conclusions. These results can inform the design of programs addressed to adolescents´ involve in sport.

Key words: Self-perceptions, gender difference, physical self-worth.

Purpose

Some studies (Eklund, Whitehead, & Welk, 1997) suggested that there has been a need of better understanding of self-perceptions in the physical domain. This is quite surprising given the robust links between physical self-perceptions, such as physical self-esteem and self-concept, and facets of physical fitness, participation in physical activity and overall mental health .

The increasing prevalence of overweight and obesity poses a global health problem. Special concern is focused on overweight during youth since it cause negative impact on health both during childhood, adolescence and later life. As perceived competence theory suggests, perceptions that the children hold of themselves may be important motivational influences for current and future physical activity (Biddle et al. 1993). Through the study of self-perception, important

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Received 22.03.2011 / Accepted 30.04.2011

findings for the motivational determinants of physical activity in adolescents can be explored. The possession of positive feelings of self-worth or high self-esteem has been considered important, not only as an index of mental well-being but also as a mediator of behavior (Fox 1988). Research shows that the self-esteem is associated with positive achievements and socially related behaviors such as leadership ability, satisfaction, decreased anxiety, and improved academic and physical performance (Hayes et al. 1999). Such research has highlighted the importance of self-esteem in physical education and exercise programs (Biddle et al. 1993). Self-worth is a fundamental contributor to human behavior. Once thought to be a unidimentional construct, self-worth is now seen as a multifaceted, multidimensional, hierarchical structure with many different domains and sub-domains.

Physical self-worth is thought to be a powerful and strong domain within the hierarchal structure of global self-worth. Fox and Corbin (1989) developed the Physical Self-Perception Profile (PSPP) based on the hierarchical model and measures physical self-perception and its relationship to overall global self-worth. The PSPP is both hierarchal and multidimensional with global self-worth (GSW) at the apex of the hierarchal structure and physical self-worth (PSW) at the domain level with (a) skill, (b) body attractiveness, (c) fitness and conditioning, and (d) physical strength as sub-domains.

The PSPP was tested on youth, adolescents and college students and found valid and reliable in testing physical self-perception (Welk et al., 1997). Later, Ecklund, Whitehead, & Welk, (1997) modified and validated the PSPP for its use with children and youth (CY-PSPP) as young between nine years and high school age.

A few number of investigations have analysed the differences in physical self-concept related to gender and the different levels of physical activity involvement. This investigations show that males have higher perceptions of physical self-worth (Marsh, 1997; Whitehead and Corbin, 1997), The objective of this investigation was to analyse the effects of gender on the physical self-perceptions of Romanian adolescents.

Our hypothesis was that males would present higher levels of physical self-perception than females.

Methods

Participants

594 high school students (age range = 17-18 years), from eight high school from city of Cluj were asked to volunteer their participation in this study. 279 were girls and 315 were boys. Permission to conduct this study was obtained from the school manager, participants and their parent with signed informed ascent letters prior to any data collection.

Instrument The CY-PSPP includes scales to address perceptions of Physical Conditioning (Cond), Sports Competence (Sport), Body Attractiveness (Body) and Strength (Strong) as well as scales to assess Physical Self Worth (PSW) and Self-Esteem (SE). Each scale is assessed with six items scored on a four-point scale with the average score used to represent the value for the scale. Respondents are first asked to decide which side of a contrasting description is most like them (e.g., some kids are pleased with the appearance of their bodies BUT Other kids wish that their bodies looked in better shape physically.).All of the items use a structured alternative format to reduce the tendencies for socially desirable responses and approximately half of the items were reverse coded to keep the instrument more interesting for participants. The CY-PSPP was administered by the researchers during physical education classes. Participants were told to answer each question as best they could and to choose the statement that best described them. There were no right or wrong answers

and questionnaires would not be graded. Before the questionnaire was handed out to all participants were guided through a practice question to prevent questionnaires from being filled out incorrectly. For assuring confidentiality we placed a number code on the questionnaire of each participants. Participants were free to ask questions about the questionnaire at any stage. The researcher then examined each questionnaire to be sure it was completed with the age, gender, and grade filled in correctly. Questionnaires not filled out correctly were then removed from the study.

Design

A quantitative correlational research design was utilized. The Children and Youth Physical Self-Perception Profile (CY-PSPP, Ecklund, Whitehead, & Welk, 1997) was completed by a sample of 594 high school students (age range = 17-18 years), from city of Cluj. CY-PSPP was recently adapted to Romanian norms (Crăciun et al., 2010).

Results

The first aim of this study was to examine the effects of gender on physical self-perceptions in Romanian adolescents. The results showed that males showed better scores in physical self-perceptions than females.

The descriptive statistics of the variables measured in the presented study are included in the Table 1. From this table it can be seen that girls tended to report lower scores on the all variables related to physical self-perceptions compared to boys.

In order to identify the significance of the differences between the scores obtained by girls and boys on physical self-perceptions variables, it was conducted an independent t-test. The results of this test indicate that girls significantly report lower scores on perception of physical activity levels ($t(592) = -7.80$, $p<.01$), skills ($t(592) = -8.52$, $p <. 01$), body attractiveness ($t(592) = -2.54$, $p <. 05$), physical strength ($t(592) = -7.17$, $p <. 01$) compared to boys. Also, they have a lower perception of physical self-worth ($t(592) = -4.17$, $p <. 01$) and global self-worth ($t(592) = -1.97$, $p <. 05$). The magnitude of the differences between the means of adolescent boys and girls is reflected by Cohen´s *d* effect size. Considering the Cohen´s d conventional values for small, medium and a large effect sizes, in the present study there are small differences between adolescent girls and boys regarding the perception of their body attractiveness ($d = -.21$) and global self-worth ($d = -.16$). A medium gender difference exists in the case of physical self-worth perception ($d = -.34$), body attractiveness perception ($d = -.64$), skill perception ($d = -.70$) and physical strength perception ($d = -.59$). The gender differences on adolescents´ physical self-perceptions are illustrated in Figure 1.

Further investigation is needed in order to analyse if significant differences between boys and girls is a characteristic for adolescents in general.

Conclusions

We believe that more research is required to analyse from a motivational and experimental point of view how modifying motivational climates can affect physical self-perceptions during adolescence. Many female adolescents want to be slim, since slim is regarded as beautiful. Thus, they are under greater pressure than men to lose weight. Physical appearance differs in meaning and importance for males and females; concerns surrounding body weight and shape also differ. There is a greater discrepancy between male and female regarding their perceived body size and their ideal body size (Marsh, 1997). Female adolescents are more preoccupied with physique and appearance than are those in other age groups and they are more likely to identify themselves as overweight than are males. Research has indicated that female adolescents tend to be dissatisfied with their body weight, size, and shape (Wichstrom, 1995). For example, Marsh (1997) reported that dissatisfaction with body weight and shape was highest among

females aged 12 through 23 years.

This study have results with implications for health education. Health care providers need to teach female adolescents about their normal weight range and how to maintain it through appropriate diet and exercise. In addition, health care providers need to help them attain a realistic, positive perception of their weight in order to prevent depression and lowered self-esteem. Further study is needed to determine the effect of perception of a weight problem on weight control behaviors among female adolescents.

References

Biddle S, Page A, Ashford B, Jennings D, Brooke R, Fox K. (1993). Assessment of children's physical perceptions. *International Journal of Adolescence and Youth,* 4, 93–109.

Crăciun M., Grosu E.F., Petrehus D. (2010). Adaptation to Romanian norms of children and youth physical self-perception profile (CY-PSPP). A pilot study. *Transylvania University Press,* 96-101.

Eklund R.C, Whitehead J.R., Welk G.J. (1997). Validity of the children and youth physical self-perception profile: A confirmatory factor analysis. *Research Quarterly for Exercise and Sport*, 68, 233 – 249.

Fox K R. (1988). The self-esteem complex and youth fitness. *Quest* 40, 230–46.

Fox KR & Corbin CB (1989) The physical self-perception profile: development and preliminary validation, *Journal of Sport & Exercise Psychology*, 11, 408-430.

Hayes SD, Crocker RE, Kowalski KC (1999). Gender differences in physical self-perceptions global self-esteem and physical activity: evaluation of the physical self-perception profile model. *Journal of Sport Behavior,* 22, 1–14.

Marsh, H. W. , Shaverlson, R. J. (1985).Self-concept: Its multifaceted, hierarchical structure. *Educational Psychologist,* 20, *107-125.*

Marsh, H. W. (1997). The measurement of physical self-concept: a construct validation approach. In K. R. Fox (Ed.), The physical self: from motivation to well-being (pp. 27–58). Champaign, IL: Human Kinetics.

Sonstroem R.J. (1998). Physical self-concept: assessment and external validity. *Exercise Sport Science. Revue,* 26, 133–64.

Welk, G. J., Corbin, C. B., Nann Dowell, M., Harris, H. (1997). The validity and reliability of two different versions of the Children and Youth Physical Self-Perception Profile. *Measurement in Physical Education and Exercise Science*, 1, 163–177.

Whitehead, J. R., Corbin, C. B. (1997). Self-esteem in children and young: The role of sport and physical education.In, K. R. Fox (Ed.), *The Physical Self*, pp. 175-204. Champaign, Il.: Human Kinetics.

Wichstrom, L. (1995). Harter's Self-Perception Profile for Adolescents: Reliability, validity, and evaluation of the question format. Journal of Personality Assessment, 65, 100-116.

Table 1. *Descriptive statistics of the variables related to physical self-perceptions*

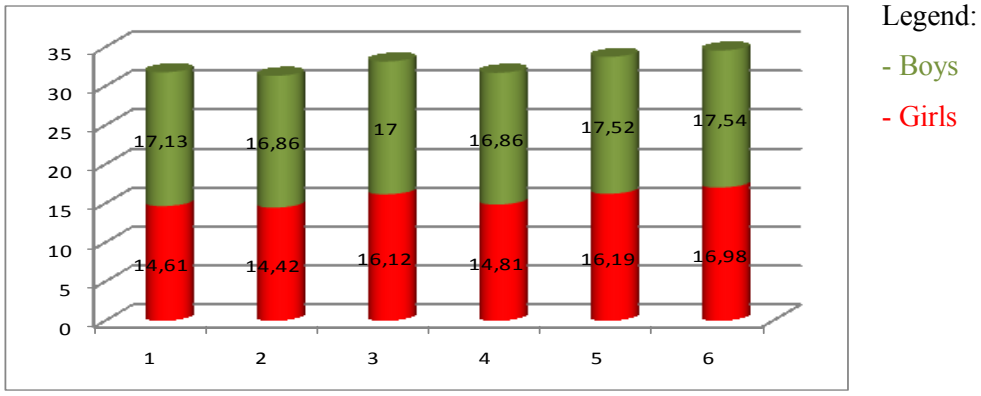
Variable	*Gender*	*N*	*Mean*	*Standard deviation*
1. Physical activity levels perception	Girls	279	14,61	3,82
	Boys	315	17,13	4,01
2. Skills perception	Girls	279	14,42	3,44
	Boys	315	16,86	3,53
3. Body attractiveness perception	Girls	279	16,12	4,54
	Boys	315	17,00	3,77

4. Physical strength perception	Girls	279	14,81	3,33
	Boys	315	16,86	3,58
5. Physical self-worth perception	Girls	279	16,19	4,03
	Boys	315	17,52	3,67
6. Global self-worth perception	Girls	279	16,98	3,41
	Boys	315	17,54	3,45

Table 2. *Results of independent t-test regarding the gender differences related to physical self-perceptions*

Variable	*t-test*	*p*	*d*
1. Physical activity levels perception	-7.80	<.01	-.64
2. Skill perception	-8.52	<.01	-.70
3. Body attractiveness perception	-2.54	<.05	-.21
4. Physical strength perception	-7.17	<.01	-.59
5. Physical self-worth perception	-4.17	<.01	-.34
6. Global self-worth perception	-1.97	<. 05	-.16

Figure 1.



Note: 1 – Physical activity levels perception; 2 – Skills perception; 3 – Body attractiveness perception; 4 – Physical strength perception; 5 – Physical self-worth perception; 6 - Global self-worth

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

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Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. 11, ISSUE 2, 2011, Romania
Our JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning

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Structure of the experiment type paper:

- the title of the paper will be written with Majuscules, Times New Roman, Size 12, Bold, Align Left;

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The structured abstract and 3-5 key words will be written with Times New Roman, Size 10, Justified.

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- the procedures and methods of research subjects, applied tests;
- the results / main results;

-discussions and conclusions;

- key words between 3 and 5 key words, which punctuates the interest areas of the article;

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I**ntroduction**
Procedures and methods of research (subjects, applied tests)
Results
Discussion
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All of its will be written Times New Roman, Size 10, Justified, two columns;
Bibliography
It will be written with Times New Roman, Size 10, two columns, First Line Indent 0 cm, Hanging Indent 1cm, Left Indent 1cm. The names of the articles / book will be written in italics.
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- the content of the research hort summary);
- conclusions main conclusion);
- key words between 3 and 5 key words, which punctuates the interest areas of the article);

Details:

Introduction

The introduction will only contain strict and pertinent references pro and cons) on the studies that have as a common subject the object of the research.

Research methods and procedures

Subjects

The subjects involved in the experiment are described, their distribution in groups, identifying the age, the sex and other important characteristics. The experiments on human subjects are produced in accordance with the national legislation for the human protection and the Helsinki Declaration of 1975, revised in 2004. The names and the surnames of the subjects are not used, especially in the illustrative materials.

The work methods are identified, the apparatus on which the experiment takes place presenting the name of the producer and the address between parentheses) and the statistic methods in detail. The new or considerably modified methods are described, motivating their choice and evaluating their limits. The hypotheses of the paper must be clear and concise.

Statistical analysis

The statistical methods are described with sufficient details, in order to understand and to check the results obtained. The names of the computer programs used for the statistical processing of the data are specified.

Results

The results are presented in a logical sequence, through tables and diagrams. The results expressed through text should not be found in the tables and/or diagrams and the other way around.

Tables

The tables cannot be introduced in the text as photographs. The tables must be numbered in the upper part, in succession in the order of the first text quoting, followed by a conclusive and succinct title.

Table 1. Physical characteristics of the subjects

	Feminine subjects n=21	
Variables	M±DS	CV %
Body height cm)	166,143±5,597	3,369
Body weight kg)	61,524±8,364	13,595
IMC kg/m^2)	22,338±3,282	14,692
Body fat percentage %)	25,329±3,074	12,136
Fat mass kg)	15,182±4,066	25,715

*significant correlated with IMC, r=0,875.
Established significance level at p<0,05.
IMC, body mass index; M, average; DS, standard deviation; CV, variability coefficient; n, number of subjects.

In the lower part of the table the following symbols will be used, in order to emphasize the differences or the significant correlations statistically, in the following order: *, †,‡,§,□□,¶**, ††, ‡‡, etc. Also in the lower part of the tables the significance level established by the researcher will be presented and the unusual abbreviations used in the table will be explained.

Each table must be quoted in the text. The tables from other publications must be used with the permission of the author authors), indicating the bibliographical source from where it was assumed.

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Discussions

In the chapter Discussions the new and important aspects are emphasized, which result from the data processing. The data of other similar studies presented in the introduction chapter cannot repeat in detail. Also, the implications of the results found must be discussed, their limitations and the implications of these results, for the future studies. The observations found must be reported to other similar studies.

Conclusions

The conclusions must be reported directly to the hypotheses of the paper and derive directly from the chapter Discussions. The conclusions that are not fully backed-up by the data found or that are based on unjustified affirmations must be avoided. New hypotheses can be concluded or attach some recommendations, if the case be.

Thanks

In the section Thanks when the case appears) there can appear:
- the contribution of the people that are not co-authors;
- the name and surname of the people that have contributed intellectually to the accomplishment of the paper with their agreement), but that are not co-authors- scientific counselor, data collector etc.;
- the financial help and the material support, specifying the nature of the support;
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The bibliography must be arranged in alphabetical order, the unpublished papers being quoted, but that are registered for publishing. In the bibliography all the authors quoted in the text are written. In the text all the authors are written if there are 6 or less. If there are 7 or more authors, the first three authors are written, followed by "et al." it comes from the latin "et alia" which means "and others"). If in the bibliography there are at least 2 papers that have an identical author authors) and the publishing year, in the text, but in the bibliography as well, immediately after the publishing year, a letter will be written in alphabetical order), in order to distinguish the papers in the bibliography 1998a), 1998b)). The name of the author / authors) must be followed by the initials of the surname.

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- in the phrase T.S. Keller and A.L. Roy 2002), T.T. Gomez, 2003 found significant differences of isometric force...
b) up to including) 6 authors
- at the end of the phrase T.S. Keller, A.L. Roy, Carpenter G, 2002)
- in the phrase "Also, .S. Keller, A.L. Roy, G. Carpenter, 2002) found significant differences of isometric force..."
c) more than 6 authors
- at the end of the phrase T.S. Keller, A.L. Roy, G. Carpenter et al 2002);
- in the phrase "Also, T.S. Keller, A.L. Roy, G. Carpenter et al 2002) found significant differences of isometric force..."

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j) pages in roman numbers
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DEURENBERG, P., WESTSTRATE, J.A., SEIDELL, J.C., 1991, *Body mass index as a measure of body fatness: age- and sex-specific prediction formulas.* British Journal of Nutrition. 65(2):105-114.

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