



❖ SPORT AND PERFORMANCE

ISOKINETIC ANALYSIS OF HAMSTRINGS AND QUADRICEPS MUSCLES IN TURKISH SECOND DIVISION BASKETBALL PLAYERS

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Abstract

Objective. The purpose of this study was to examine the maximal voluntary peak torques of the quadriceps and hamstring muscles, and the torque ratio between these muscle groups in second division basketball players.

Material and Methods. Isokinetic peak torques were measured using the Isomed 2000 dynamometer at 60 and 180°s⁻¹. Twent-three second division basketball players (age: 22,7±4,14 years, height: 195,9±6,59cm, weight: 94,3±13,4kg, BFP: % 11,98±3,6) involved in this study.

Results. Table 1 shows the maximal voluntary peak torques of the quadriceps (Q) and hamstring (H) muscles and the torque ratio between these muscle groups

Table 1 Peak isokinetic knee torques and H/Q Values at 60 and 180°s⁻¹(Concentric /Concentric) (Con/Con) The average right and left H:Q ratios at 60°s⁻¹ were above the normal isokinetic range of 60%–69%. However, at 180°s⁻¹, the mean right and left H: Q ratios were within the normal range.

Conclusion, The normal Hcon/Qcon ratio is 0.60. This ratio has been used to assess thigh muscle imbalance, but the functional Hcon/Qcon ratio is related with velocity of the test it increased above 1.00 with increasing velocity and more extended knee joint positions, it means the more velocity the more ratio (Burkett, 1970; Coombs and Garbutt, 2002).. Coaches and physical therapists may use results of the present study in order to evaluate and plan exercise programs of ankle musculature during training and rehabilitation.

Key Words: Isokinetic muscle function, basketball, the torque ratio.

Introduction:

Many different kind of techniques have conventionally been used for describing knee joint and thigh muscle function in clinical and scientific research (Portes et al, 2007). These consist of the such as single point peak moment (Thorstensson et al., 1976), visual inspection of the moment-joint angle curve (Grace et al., 1984), moment at a specified knee joint angle (Perrine and Edgerton, 1978; Thorstensson et al., 1976), and the flekxor extansor peak moment ratio (Nosse, 1982; Kannus and Jarvinnen, 1990).

The muscular torque and ratio of the quadriceps and hamstrings has been evaluating by using isokinetic tests (H/Q) (Grace et.al, 1984). 'The H/Q ratio is used both clinically and in the laboratory as an indicator of the strength balance between the knee joint muscles and rate of risk of injury (Aagaard et.al, 1995). 'The H/Q ratio is conventionally calculated by dividing the maximum values of the flexion by the maximum values of the extension of the knee joint in angled speed and determined contraction modes (Aagaard et.al, 1998)' (Portes et al, 2007)

The question is ,whether the hamstring weakness or the quadriceps weakness, are related to the knee injuries, or their ratio is more important for injury,

trying to find by sport scientist for many years (Devan et al, 2004; Portes et al, 2007).

Objective: The purpose of this study was to examine the maximal voluntary peak torques of the quadriceps and hamstring muscles, and the torque ratio between these muscle groups in second division basketball players.

Material and Methods

Subjects: Twent-three second division basketball players (age: 22,7±4,14 years, height: 195,9±6,59 cm, weight: 94,3±13,4 kg, BFP: %11,98±3,6) involved in this study.

Procedur: To measure the H:Q ratio, we used the Isomed 2000 isokinetic dynamometer to perform knee concentric flexion and extension movements. We assessed MPT between right and left limbs. Measurements were taken at 60 and 1800 s⁻¹.

Before the isokinetic test, subjects performed a 5-minute warm-up on the bicycle ergometer. Measurements were taken using an Isomed 2000 (Ferstl, Germany) isokinetic dynamometer. The test was performed a seated position; stabilization straps were secured across the trunk, waist, and distal femur



of the tested leg. The leg extensor and leg flexor muscle of each leg were concentrically measured at 60°.s-1 (10 repetitions) and 180°.s-1 (10 repetitions). Verbal encouragement was given to the subjects during the measurement. Before starting the test, subjects were allowed 5 trials.

Results: Table 1 shows the maximal voluntary peak torques of the quadriceps (Q) and hamstring (H)

	Mean	Std. Deviation
Q60 Right	250,43	46,65
Q180 Right	181,52	40,02
Q60 Left	250,00	43,56
Q180 Left	187,86	34,33
H60 Right	178,26	36,89
H60 Left	173,69	31,22
H180 Right	160,17	35,71
H180 Left	153,34	32,47
H/Q60 Right	71,60	10,29
H/Q60 Left	70,03	9,21
H/Q180 Right	88,89	11,26
H/Q180 Left	82,15	11,97

muscles and the torque ratio between these muscle groups

Table 1 Peak isokinetic knee torques and H/Q Values at 60 and 180°.s-1(Concentric /Concentric) (Con/Con)

The average right and left H:Q ratios at 60°.s-1 were above the "normal" isokinetic range of 60%–69%. However, at 180°.s-1, the mean right and left H: Q ratios were within the "normal" range.

Conclusion: The normal Hcon/Qcon ratio is 0.60. This ratio has been used to assess thigh muscle imbalance, but the functional Hcon/Qcon ratio is related with velocity of the test it increased above 1.00 with increasing velocity and more extended knee joint positions, it means the more velocity the more ratio (Burkett, 1970; Coombs and Garbutt, 2002). The present study may be useful as comparison basis for future studies aiming evaluate the isokinetic muscle function in basketball players.

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EXAMINATION OF ADOLESCENTS' RESPONSES TO THE BASIC BASKETBALL TRAINING

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Abstract

Purpose. In the study, it is aimed to examine influence of 12 weeks basic basketball training on some physical characteristics of boys.

Material and method. Study; 9–14 - year old 20 boys of experimental group (E) and 9–14-year old 20 boys of control group (C), that is, total 40 volunteers from Konya Private Bahçeşehir College's basketball school participated in study. Influences of 12 weeks basic basketball training applied in study was attempted to be determined by jump, standing long jump, flexibility, speed and equilibrium levels.

Result: after application, it was seen that there has been an important increase in Height and Body Weights ($p > 0.05$) of groups C and E and that there was no difference in jumping and equilibrium features. It was determined that long jump, flexibility and speed characteristics of Group E significantly developed and that development in Group C was insignificant. When looked at the difference between two groups, it was found that speed development in Group E was more significant than Group C ($p > 0.05$), but there was no significant difference in physical parameters. Minitab package program was used in doing statistical analysis of data. Measured parameters, mean values and standard errors of all the volunteers were calculated. Independent-samples "t" test was used in determining difference between groups and paired-samples "t" test in groups.

Conclusion: as a result, it could be said that 12 weeks practice was effective on the physical characteristics of boys in adolescence period, but compared to the children in the same period, this influence remained unimportant.

Key Words: Adolescent, Basketball, Physical Characters

Introduction

Sportive games aim to develop physical properties like endurance, strength, speed, skill and dynamism in a desired way by starting from youth and with oriented work, and to bring a superior level by reinforcing in adolescence. (S. Mengütay, 1999). Ball games require comprehensive skills including physical, technical, mental and tactical features. Accordingly, in order to be able to perform defense and attack skills in the game, players must especially have physical skills.

These skills are considerably significant to win a basketball game (N. Tusunawake, Y. Tahara, K. Moji, 2003). Basketball sport also requires technical and tactical operations in a disciplined manner besides strength, speed, endurance, skill and dynamism having been developed from childhood and youth. Application arduousness of technical and tactical elements in immediate and fluctuant positions in the game is also a significant factor in development of features like coordination-reaction. Fundamental movements, as we



call the foundation of basketball, are the applications that every player is to learn (J.V. Krause, 1996). Those are the periods that low density initial trainings for aged 6-10 before puberty, basic sportive formations in aged 11-14 puberty period, then aged 15-18 special trainings at the end of puberty and as to adulthood, high performance trainings are performed (H.A. Pekel., L. Aydos, M. Onay, 2006). The aim of this study is to research 12-weeks application in terms of the effects of physical properties (height, weight, vertical jump, standing double-leg long jump, flexibility, 20-meter sprint, flamingo) of male children aged 6-14 who started basketball as beginners collating them with sedentary in the same age group on development of children.

Material. Total 40 male children took part in the research voluntarily as experimental group, age average of which is $9,65 \pm 2,27$, and control group age average of which is $9,75 \pm 2,26$ and playing basketball in twelve weeks period, registered in Konya Private Bahçeşehir College's basketball school. Measurements related with the research were performed in Konya Private Bahçeşehir College Facilities.

Experimental group: 20 male children who started basketball as beginners and playing basketball only for twelve weeks participated voluntarily. After registration works of the experimental group, required negotiations were performed and primary measurements (pre-tests) were taken. After twelve weeks training program of basketball schools, second measurements (post-tests) were taken.

Control Group: Sedentary 20 male students were chosen as control group voluntarily. First measurements (pre-tests) were taken together with the experimental group. And control group only participated in 40-min./week Physical Education Lesson applications during that time.

Method

Training Program

Students were subjected to trainings for twelve weeks under the name of basketball school and these exercises were performed as 1,5 hour/day and 2 days/week. Students were trained by group coaches. The extent of the trainings was generally consisted of basic techniques, equilibrium ability, game info and educational games. In these trainings in which basic techniques of basketball were infused; various competitions such as standing, ball handling, basic passing techniques, dribbling, turnstile, chute, deception, pick, backfield, game rule info, educational games and display of learnt techniques were applied.

Measure of body height and weight

Body heights of the volunteers who participated in the research were measured with height scale branded Holtain and 0.01 sensitivity. Body weights were determined with Tanita TBF 410 (made in Japan).

Results

Table 1. Some physical measures of the control and experimental groups before and after education

Variables	N	Ave.	s.s	t	p
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Vertical jump measure

Subjects were asked to jump above with maximum strength after completing quick knee bending down as akimbo on normal upright posture. Distance was measured and evaluated with cm type in vertical jump test.

Standing double-leg long jump measure

The aim of this test is to determine the strength of the person. The sportsman performed two jumps afoot on a fixed point without speed. At the end; the best ratings of two jumps were accepted and written as cm.

Flexibility measure

It was performed with 0,83 Wells Sit and Reach test. The furthest point was taken by knees on the measure table, sitting adjacent and perpendicular; with two hands, bending three times. A short break was given and second trials were performed. The best ratings were saved from both results and enounced with cm numbers in parts drawn on measure table.

20 M. Sprint measure

In 20m. section, two photocells were positioned in score and finish lines. Applicant started to run behind 1 meter from the score line of his own accord. Passing the score line, electronic chronometer started. In the moment he passed the finish line, electronic chronometer stopped. Gained results were saved.

Flamingo (right-left) Equilibrium Test

Intending to determine static equilibriums of the research group, Flamingo Equilibrium Test was used. According to this test, the research group members balances himself stepping on wooden equilibrium tool 3 cm. in width, 4 cm. in height and 50 cm. in length via dominant leg, twists his foot from knee, pulling it through hip and holding it with the hand on the same side. Standing in balance with one foot in this position, time starts and tries to keep this balanced position for 1 minute. If the balance is disrupted (delivering the foot while holding, falling from the wood, touching somewhere with any of his body parts and etc.) then the time is paused. When the research group ascends to the wood and balances him again, the time continues. This test continues for 1 minute in that way. When the period is completed, every balance attempts of the research group are counted (after falling) and this number is saved as the score of the research group at the end of the test.

Data Analysis

According to the order of normality, parametric tests were used for data that shows normal distributions. Comparison of pre and post test values of the subjects was made with Paired Samples t-test, as for inter-groups comparisons, Independent Sample t-test was used.



Height	Experimental	Pre test	20	138,25	15,15	6,038	,000
		Post test	20	141,30	14,29		
	Control	Pre test	20	138,65	13,19	8,143	,000
		Post test	20	141,50	13,71		
Weight	Experimental	Pre test	20	40,30	17,34	3,404	,003
		Post test	20	41,75	17,68		
	Control	Pre test	20	39,25	12,97	2,557	,019
		Post test	20	39,90	12,66		
Vertical Jump	Experimental	Pre test	20	20,45	7,29	,044	,966
		Post test	20	20,50	6,25		
	Control	Pre test	20	21,60	5,79	1,437	,167
		Post test	20	23,20	5,76		
SDLLJ	Experimental	Pre test	20	128,45	20,34	3,236	,004
		Post test	20	134,45	22,18		
	Control	Pre test	20	130,95	20,95	1,132	,272
		Post test	20	133,65	20,92		
Flexibility	Experimental	Pre test	20	18,20	5,42	3,327	,004
		Post test	20	18,65	5,37		
	Control	Pre test	20	19,35	4,34	,525	,606
		Post test	20	19,45	4,66		
20m sprint	Experimental	Pre test	20	5,47	1,28	4,788	,000
		Post test	20	4,83	1,18		
	Control	Pre test	20	5,38	,91	1,101	,285
		Post test	20	5,54	1,04		
Flamingo right	Experimental	Pre test	20	17,80	21,39	,710	,486
		Post test	20	18,28	23,73		
	Control	Pre test	20	10,47	9,97	1,247	,227
		Post test	20	10,34	9,74		
Flamingo left	Experimental	Pre test	20	10,01	11,20	,516	,612
		Post test	20	9,92	11,13		
	Control	Pre test	20	9,41	8,45	,734	,472
		Post test	20	9,09	9,26		

Analyzing the table, a significant difference in height and weight values $p < 0,05$ of the Control group was observed. While having significant difference in height, weight, sdllj, flexibility and 20 m. sprint values of the experimental group; there could not be found any significant difference in vertical jump, flmg right and left values.

Table 2. Comparison of some inter-group physical measures of Pre Test and Post Test groups

	Variables		N	Ave.	s.s	t	p
Height	Pre test	Control	20	138,65	13,19	,103	,919
		Experimental	20	138,25	15,15		
	Post test	Control	20	141,50	13,71	,052	,959
		Experimental	20	141,30	14,29		
Weight	Pre test	Control	20	39,25	12,97	,281	,782
		Experimental	20	40,30	17,34		
	Post test	Control	20	39,90	12,66	,481	,636
		Experimental	20	41,75	17,68		
Vertical Jump	Pre test	Control	20	21,60	5,79	,619	,543
		Experimental	20	20,45	7,29		
	Post test	Control	20	23,20	5,76	1,690	,107
		Experimental	20	20,50	6,25		
SDLLJ	Pre test	Control	20	130,95	20,95	,446	,661
		Experimental	20	128,45	20,34		
	Post test	Control	20	133,65	20,92	,128	,900
		Experimental	20	134,45	22,18		
Flexibility	Pre test	Control	20	19,35	4,34	,725	,477

		Experimental	20	18,20	5,42		
	Post test	Control	20	19,45	4,66	,475	,640
		Experimental	20	18,65	5,37		
20m sprint	Pre test	Control	20	5,38	,91	,319	,753
		Experimental	20	5,47	1,28		
	Post test	Control	20	5,54	1,04	2,278	,034
		Experimental	20	4,83	1,18		
Flamingo right	Pre test	Control	20	10,47	9,97	1,438	,167
		Experimental	20	17,80	21,39		
	Post test	Control	20	10,34	9,74	1,434	,168
		Experimental	20	18,28	23,73		
Flamingo left	Pre test	Control	20	9,41	8,45	,218	,830
		Experimental	20	10,01	11,20		
	Post test	Control	20	9,09	9,26	,298	,769
		Experimental	20	9,92	11,13		

Analyzing the table, no significant difference on height, weight, vertical jump, sdllj, flexibility, 20 m. sprint and flamingo right and left values, compared with 1st measurements (pre-test) of experimental and control groups, was observed ($p > 0,05$). Compared with 2nd measurements (post-test) of experimental and control groups, the control group was ascertained as significantly low in pursuant of experimental group ($p < 0,05$).

Discussion and Conclusion

In the study, the height average of experimental group after first measure (pre-test) was determined as $138.25 \text{ cm} \pm 15.15$, in the second measurement (post-test) $141.30 \text{ cm} \pm 14.29$, and the height average of control group in the first measurement was $138.65 \text{ cm} \pm 13.19$, in the second measurement $141.50 \text{ cm} \pm 13.71$. These values were considered to be significant statistically ($p < 0.05$). These findings are supported with the study findings by Ö. Hamamioğlu and Y. Kaya (2008) in which significant difference exists on height in the pre and post tests of experimental groups which were performed for children aged 7-12 of basketball education applied for 6 weeks. In the study performed by G. Büyükyazı, and Y. Sevim (2000), height averages of experimental and control groups were determined as 155.21 cm and 156.14 cm. before trainings for 11 weeks applied to 14 male basketball players aged 13-14. As for the second measurements of the subjects committed at the end of 11 weeks, height averages were statistically considered insignificant ($p > 0.05$). In the study in question, while trainings, insignificance of which was made, were commented as having no effect on height averages, inconsiderable changes observed between pre-test and post-test can be expounded as a result of natural growth of that age group. In our study, all the differences between pre and post test measurements of the groups are not advisable to be connected only with exercise trainings. Because the main feature of this age group is their presence in a development period observed clearly (D.A. Bailey, et al. 1986). It is possible to comment that the increase of height average in children is the reflection of the time passing from birth to maturity (S. Mengütay, 2000). The significant increases of height and weight values of children are

notified as the development belonging to childhood and adolescence periods. However, it is notified in certain studies that exercise trainings may also have contributions in increases (U. Yörükoğlu, M.Koz 2007, P. Bale et.

al. 1992, R.M. Malina, C. Bouchard 1991).

In the study, the weight average of experimental group after first measure (pre-test) was determined as $40.30 \text{ kg} \pm 17.34$, in the second measurement (post-test) $41.75 \text{ kg} \pm 17.68$, and the weight average of control group in the first measurement was $39.25 \text{ kg} \pm 12.97$, in the second measurement $39.90 \text{ kg} \pm 12.66$. These values were considered to be significant statistically ($p < 0.05$). These findings show parallelism with the studies in which P.B. Watts et al. (2003) stated there were significant differences between height and weight in the same age group that studied and did not study regular sport education, and in which D.D. Backous et al. (1990) stated there were significant differences in terms of weights of male adolescents who performed and did not perform regular exercises. In addition to showing parallelism with the study findings of Ö. Hamamioğlu, Y. Kaya (2008), U. Yörükoğlu, M. Koz (2007), it displays contrast with the study findings of İ. Yazarer et al. (2004) ve G. Büyükyazı, Y. Sevim (2000) in which no significant difference was observed in average of weight. Height and weight are notified to be used in determination of especially development periods and general health environments, and being a physical measurement; besides having effects of nutrition, environmental and genetic factors on development (V.A. Kanungsukkasen 1983).

In the study, while vertical jump values of the sportsmen comprising experimental group are 20.45 ± 7.29 before the application, post-application values (post-test) are 20.50 ± 6.25 . While vertical jump values of the sportsmen comprising control group are 21.60 ± 5.79 before the application, post-application values (post-test) are 23.20 ± 7.76 . Results were not considered as significant statistically ($p > 0,05$). Having not been seen any significant change on vertical jump values observed between measurement values are considered to be stemmed from exiguity of training time,



and being relatively technical based and applied as a game of the training program performed. It can be said that general increase in values takes form according to general growth factor, and training effect of which is low. Between pre-test values of experimental and control groups performed by Ö. Saygin, Y. Polat, K. Karacabey (2005) for male children aged 10-12, it was notified that there was not come across any significant difference between vertical jump parameters.

Consequently, the fact that the basic basketball program applied for 12 weeks have no significant effect on adolescents can be attested with similar results of control group used in the study and researches and besides with normal growth and development period of the children showing changes in physical properties.

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A COMPARATIVE STUDY REGARDING THE EFFICIENCY OF GAME RELATIONS IN ATTACK AT THE WOMEN'S VOLLEYBALL TEAMS

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Abstract

Research objectives: The main objective of this study is the analysis of game relations in attack, during the women's teams' volleyball games, in order to try to find the best solutions to improve it.

Research methods: the study of specialized literature; video analysis; mathematical; graphical.



Subjects: The subjects of this study are the female volleyball players of Știința Bacău, Penicilina Iași and the CS Volei 2004 Tomis Constanța, teams that participate during the 2009/2010 season in the National Women's Volleyball League.

Rezultatele cercetării: The analysis we made in our study refers, mainly, to the relations established during the attack between: setters and area 4 players, setters and centre players and setters and the area 2 player („false”), aspects that can lead us to an increase in game efficiency in attack for the National League women's volleyball teams.

Following the analysis of the official games data, we observed that the attack relations between the coordinating setter and:

- The players in area 4 have an average efficiency of $0,721 \pm 0,035$ and a variability coefficient of 4,902;
- The centre players have an average efficiency of $0,736 \pm 0,062$ and a variability coefficient of 8,467;
- The player in area 2 has an average efficiency of $0,714 \pm 0,070$ and a variability coefficient of 9,846.

Conclusions: Following the obtained results, we can say that the knowledge of the efficiency level for the attack game relations is necessary and compulsory, and it constitutes itself in main guidelines for the quality of training as the demands of today's volleyball game are concerned.

Keywords: game relations; attack; volleyball.

Introduction

Volleyball is a simple game through multilateral training, the speed of developing spectacular actions and his game has come to enjoy more and more practitioners and supporters. Understanding the game of volleyball continuous improvement both nationally and internationally, through this study we tried to bring a small contribution to the enrichment of specialty materials, by clarifying some aspects of relationships play in attack volleyball teams, the National League.

I highlighted and defined the relationship game, direct collaborations between players who are established within a team game. Relationships play in attack, refers to collaborations to be set in the game of attack between: setters coordinators and players to zone 4 (drag), setters center coordinators and players (zone 3) and setters area coordinators and players 2 ("false") .Up and continued development of volleyball game, eventually leading to an increase in both directions to show more and more complex content and rich in technical processes in the global component of relations play in attack. A troubling aspect of particular importance to specialists in the field, it is clarifying, defining and highlighting the relationship game and finding the best solutions for their efficiency in the game of attack and thereby increase the chances of making a point, set and match by default. Important in high performance volleyball is that players should be preparing for those games in which they are applied within both the number of shares involved in during a game and effort characteristics (volume, intensity and complexity) made for their conduct, especially in those games disputed in small intervals of time (20-28 hours), with value close teams. Knowing the characteristics and applications that are subject to players, is important for programming training. Taking as its starting point a game of volleyball, try to see what happens in terms of application and effectiveness of relationships play in attack (V. Ghenadi et al., 1995). From performances at major competitions, the FIVB's computer, we can see that assessments are based on key issues, the essence of the game of volleyball, presenting findings highlighting effective action game on percentage of gain or loss (V. Ghenadi et al., 1995). And other sports games are the records show effectiveness, but winning or losing the

game of volleyball action game ends immediately and every time with winning or losing a point (V. Ghenadi et al., 1994). This specific feature of essentially volleyball puts mark on each execution of the game, so to increase their effectiveness, it must be made and training. In an objective analysis of the determinants of team or players to lose a game action, could see the true causes of not winning. Most often they are driven by psychological factors, but are in other parts of the game, namely: technical training, tactical, physical or theoretical and is carried by individual mistakes in the relationship game. In all actions during the game, the efficiency is the governing and subject, in the relationship game, each player's intentions and executions in attack or defense. In volleyball action execution performance review, the game or in practice, is accompanied by proper routing to specific implementation that emerged from the weight and effectiveness of game-specific relations, used game for attack. In conclusion, efficiency and overall play of each game relationships and actions of subordinates manage and govern over all its components and concepts that direct the execution from beginning to end. Knowing the ratio and efficiency of the game relations is currently used to track the performance of all teams, and where training is actually conducted by these indicators. Thus, volleyball players must be trained according to the position held within the team, given the weight of player relations for the job and their level of efficiency achieved in a game.

Research objectives: The main objective of this study is the analysis of game relations in attack, during the women's teams' volleyball games, in order to try to find the best solutions to improve it.

The study had the following tasks:

- Collecting specific information about the effectiveness of game relations in attack, from the official matches of a number of National League women's volleyball teams.
- Entabulating the information and emphasizing the most characteristic aspects regarding the ratio and effectiveness of game relations in attack.
- Making a deep analysis of the game relations in attack, interpreting the data and drawing certain conclusions with direct applicability in the training process.

Hypothesis: Knowing the ratio and the effectiveness of game relations in attack will lead to a better organization of the game and training and it will contribute to an increase in the general effectiveness of the team's play.

Research methods: documenting; video analysis; statistical-mathematical; graphical

Subjects: The subjects of this study are the female volleyball players of Știința Bacău, Penicilina Iași and the CS Volei 2004 Tomis Constanța, teams that participate during the 2009/-2010 season in the National Women's Volleyball League.

Results of the research: The analysis we make during our study refers mainly to the relations established during attack between: setters and area 4 players, setters and center players and setters and the area 2 player („false”), aspects that can lead us to an increase in game efficiency in attack for the National League women's volleyball teams.

Data and information collected during official parties, and were processed and evaluated for efficiency calculation relationships play in attack we used a scale with five levels.

The scaling and encoding on 5 levels, used for assessing the effectiveness of game relations in attack (D. Mârza, 2006), is as follows:

„=” lost point, mistake;

„-” playing the ball unfavorably for your own team, almost mistake;

„0” continuing the phase, through indecisive actions;

„+” playing the ball favorably for your own team, optimal conditions for continuing the phase;

„#” point won, positive chance of scoring.

The formula used by the FIVB in establishing the effectiveness of actions and game relations in volleyball, for a 5 level scaling (D. Mârza, 2006), is as follows:

$$E = \frac{x + 0,75y + 0,50z + 0,25q}{x + y + z + q + w}, \text{ where:}$$

x – represents the finalized actions – which have a value of 1;

y – represents the favorably played actions – which have a value of 0.75;

z – represents the indecisive actions – which have a value of 0.50;

q – represents the unfavorably played actions – which have a value of 0.25;

w – represents the lost actions – they do not have a value.

Effectiveness analysis of relationships play in attack, on this basis, highlights the practical ways that lead to winning or losing points, their knowledge by coaches and players can contribute to specific training efficiency and eliminating errors.

After processing data from official games, I found that relationships play in coordinating and Players setter attack of the area 4, had an average efficiency of 0.721 ± 0.035 as can be seen in table and chart no. 1. The match between teams Penicillin Iasi and Science Bacau, number relationships play in attack is approximately the same (57 to 54), which shows that lift both teams have a good and balanced cooperation with both player of the 4, the effectiveness of this collaboration is But for the team in Bacau (0.718 to 0.675). The match between teams Bacau Science and CS Tomis Constanta Volleyball 2004, the share of relationships in the game of attack is clearly in favor of Constanta team (39 to 71), and efficiency is 0.761 to 0.731 for the same team. These issues led to the conclusion that the team used mainly in Constanta Bacau Science game plays that relationship, because both the higher value of their hitters in area 4, and less suppression in area 2, the team Bacau.

Table no1.

Game	Team	Total game relations	#	+	o	-	=	E	Ma±As	Cv
IS-BC	Iași	57	19	16	8	14	0	0.675	0.721±0.035	4.902
	Bacău	54	22	18	3	7	4	0.718		
BC-CT	Bacău	39	11	21	3	1	3	0.731		
	Constanța	71	39	12	9	6	5	0.761		

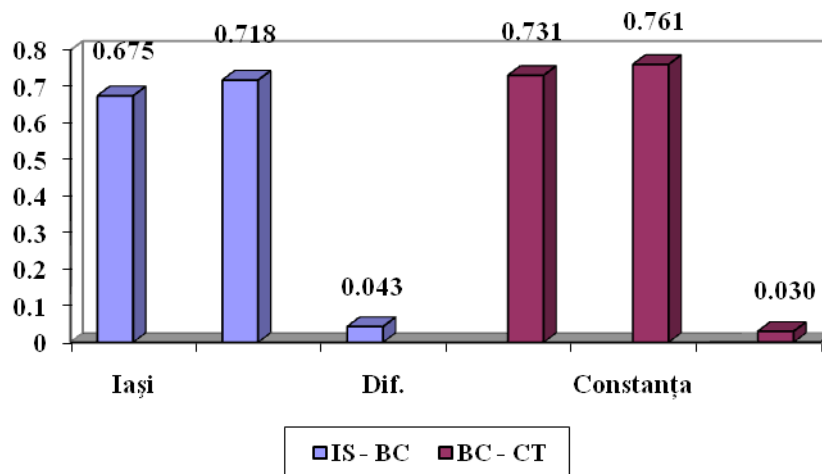


Figure 1

Where cooperation between setter players coordinating center and, after processing the games analyzed, we found that the relationship game (averaging 38-39) are shown effectiveness ± 0.062 0.736 average and a 8.467 coefficient of variability. Largest number of relations game between rising and center, the attack was conducted by Science Team Players Bacau. The match between teams penicillin effectiveness Iasi and Bacau Science review of the relationship game, and Players setter coordinating center, is 0.725 to 0.669 for team science, be critical in

winning the game, taking into account the large number of attacks (40) Players that made the team in Area 3. However, although the match between Bacau Science and CS Tomis Constanta Volleyball 2004, the number of relations between the rising and center players, the team was clearly in favor of science, their lower efficiency compared to 0.820 0.732 (science team has made 17 55 action points and the team made 14 points in Constanta only 25 shares) was not sufficient to win the game.

Table 2

Game	Team	Total game relations	#	+	o	-	=	E	Ma±As	Cv
IS-BC	Iasi	34	15	4	6	7	2	0.669	0.736±0.062	8.467
	Bacau	40	19	8	4	8	1	0.725		
BC-CT	Bacau	55	17	28	2	5	3	0.732		
	Constanta	25	14	8	1	0	2	0.820		

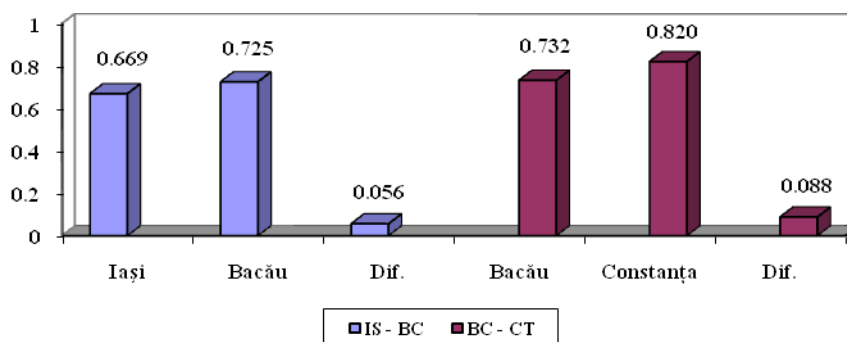


Figure 2

If relations between the game in attack the setter area coordinator and 2, we found that the average efficiency of 0.714 ± 0.070 . It noted the high number of appeals made the player action of area 2 (approximately 36 per match), following relationship with the setter game coordinator, actions that teams 4-5 points per set. The match between teams' effectiveness Penicillin Iasi and Bacau Science relationships play in coordinating and setter attack of the area 2 is 0.715 to

0.632 for Bacau science team, and the match between teams Bacau Science and CS Tomis Constanta Volleyball 2004 effective relationships game is 0.804 to 0.706 for Science team Bacau. Analyzing the data in table and graph # 3, it appears that although the highest efficiency was achieved by the team player Bacau game was lost. This and the results presented above may lead to the conclusion that we lost the game by the team Sscience Bacau with CS Tomis Constanta

Volleyball in 2004, was not due to inefficiency of the game in attack, but defensive errors in the game,

namely: block errors, taking attack and takeover of service.

Table 3

Game	Team	Total game relations	#	+	o	-	=	E	Ma±As	Cv
IS-BC	Iași	36	10	14	1	7	4	0.632	0.714±0.070	9.846
	Bacău	36	15	11	1	8	1	0.715		
BC-CT	Bacău	28	12	11	4	1	0	0.804		
	Constanța	45	18	14	3	7	3	0.706		

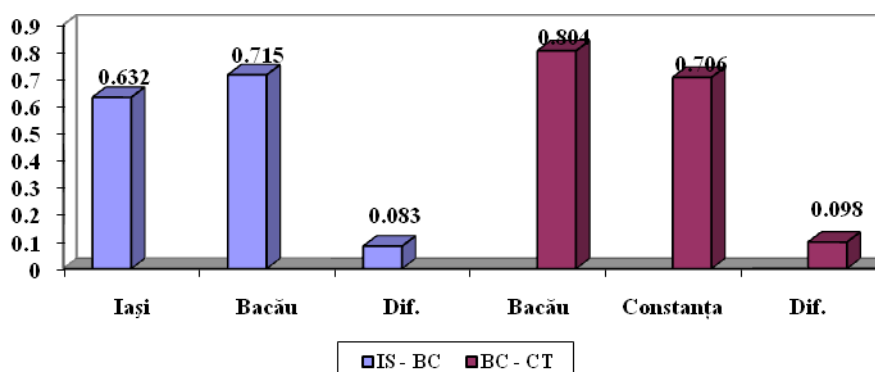


Figure 3

Our results demonstrate that effective relationships between the setter as attack game coordinator and other players participating in the attack, is often teams win games favorable. If the games we examined relations between the setter game in attack and coordinating and Players 4 Players of the center are good teams that have won the match (Volleyball 2004 Science Bacau and CS Tomis Constanta) and effective relationships between the game in attack the setter as the player area coordinator and 2 were positive both in Bacau Science team won the match with Penicillin Science and the match lost to CS Tomis Constanta Volleyball 2004.

Conclusions: Following the obtained results, we can say that the knowledge of the efficiency level for the attack game relations is necessary and compulsory, and it constitutes itself in main guidelines for the quality of training as the demands of today's volleyball game are concerned. The elaboration of all the efficiency models, the defense components, must have as a basis the competitive game, so it will be elaborated according to the data and information that the official game, the competition, offers. The models and parameters regarding the effectiveness of game relations in attack must constitute initial guidelines for the game and training, obtaining valuable results being conditioned by

permanently overcoming these game relations. The full planning and programming of the training must respect the importance of the components of the content competition model with efficiency indexes as high as possible.

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THE IMPACT OF HATHA YOGA PRACTICES AND SURYA NAMASKAR FOR DEVELOPING WOMEN PHYSIOLOGICAL PARAMETERS

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Abstract

Traditional Hatha Yoga is a holistic yogic path, including moral disciplines, physical postures (asana), purification procedures (shatkriya), poses (mudra), yogic breathing (pranayama), and meditation. The Hatha yoga predominantly practiced in the West consists of mostly asanas understood as physical exercises. It is also recognized as a stress-reducing practice. Influenced our way of living and we have tended to drastically deviate from those well established ancient principles practiced and professed by our sages. We are trying to seek apparently comfortable living conditions where physical activities have been replaced by labour saving machines and appliances and thus have grossly confronted the nature. Food habits, on the other hand, have changed. Eating of more and more artificially preserved and processed food items lacking ingredients essential for maintaining good health is on the increase. Our exaggerated expectations remaining unfulfilled, have resulted into elevated stress levels in our life. All these have given rise to so many disorders like high blood pressure, diabetes and obesity. In the promotion of physical and mental health and prevention of many of these disorders, yoga is supposed to play a vital role (O. P. Jaggi). Yoga - practitioner's integrated personality changes for the better as yoga has got holistic approach. In the promotion of physical & mental health and prevention of many of these disorders, yoga is supposed to play a vital role. Yoga practitioner's integrated personality changes for the better as yoga has got holistic approach. Dr. Gharote from Lonavala studied the therapeutic effect of yoga on cases of obesity and the results were assessed - through measurements of skin - fold at various points. Results showed significant decrease in skin - fold measurement both in males and females (M.L. Gharote, 1973). However, we have studied in the present work the effects of yogic practices on fat accumulating parameters by measuring weight, waist - line, hips etc. in a group of women.

Key words: yoga, meditation, mudra

Introduction

A large number of persons attend clinics or follow other practices for reducing obesity and for improving physical look. These are the cases in which influence of the state of mind of the persons on their bodies are fairly predominant. In the case of women it is seen that with increasing age there is increase in fat accumulation mainly at the hip regions. Our aim was study the long term effects (at least for 6 month duration) of yogic practices on weight, waist - line, hips and chest flexibility in case of a group of women who performed yogasanas and pranayamas regularly.

Method

There has been a regular class of yoga practices in Brindavan Yoga Hall at Thilai Nagar in Trichy from 10:30 hours to 12:00 hours in the morning for women for the last 17 years. In this study, in the beginning of admission and thereafter every month, the measurements of weight, waist, hips, maximum value for the chest after complete inhalation and minimum value of the chest after exhalation were recorded. The women covered in the present study were in the age group of 22 to 69 years. Participants were taught yoga practices and were supervised by the trained and experienced yoga teacher. They practiced yogasanas and pranayamas followed by 20 minutes of relaxation techniques like Shavasana, Makarasana or Yoganidra. The asanas taught in this study were vajrasana, suryanamaskara, pavanmuktasana, bhujangasana,

salabhasana, trikonasana, hastapadasana, cakrasana, dhanurasana, viparitarani, sarvangasana and pranayamas followed by relaxation postures. In this group, there were women who were overweight and some were having different ailments like asthma, spondylosis (neck and back) and some were having no complaint. Due care was taken for yoga - practices contraindicated in some individual subjects depending upon their physical conditions. In the present study, in the beginning of admission and thereafter every month, the measurements of weight, waistline, hips, maximum value of chest after complete inhalation and minimum value after exhalation were recorded. They were told the importance of balanced diet and were instructed to follow moderation in dietary habits.

Results and discussions

In this paper we have complied the data for 26 women who had been coming continuously at least for 6 months daily except Saturdays and Sundays. Though originally we have collected data for 32 women, but six women for personal reasons could not maintain regularity and they reported to the yoga teacher after a gap of two or three months in between the fixed span of six months decided in the present study. All these irregular yoga - practitioners showed gain in body weights and increase in other parameters as compared to the general trend shown in case of regular yoga practitioners. It is worth mentioning here that the yoga practitioners were told the importance of balanced diet

and they were instructed to do normal daily activity as before joining yoga class.

The data obtained during the present study are shown in Table - 1. Statistical analysis was carried out with respect to weight-parameter in order to study its distribution in the subjects. The % cumulative probability less than the weight (as shown in Table-2)

plotted against the weight revealed that the entire population of subjects is composed of two different groups, one of subjects from S.No. 1 to 14 (normal group) and another Serial No. 15 to 17. Incidentally only 3 subjects having body weight 84 kg and 94 kg fell in the obese group.

Serial No.	Weight Before	Weight After	Waist		Hips		Chest		Chest	
			Before	After	Before	After	Before	After	Before	After
1	65	67	90	88	102	103	99	100	94	93
2	65	59	95	92	109	104	97	95	95	93
3	73	73	98	99	121	122	103	103	101	100
4	63	63	92	93	114	114	91	90	89	87
5	57	55	93	92	101	95	96	98	95	95
6	54	55	94	90	105	101	88	89	85	85
7	68	68	90	88	107	108	100	99	98	97
8	60	57	87	83	100	96	89	88	87	86
9	94	87	108	100	123	117	110	105	108	103
10	87	82	95	96	127	124	107	106	105	104
11	60	57	88	82	101	97	98	99	96	96
12	84	78	106	104	123	118	115	111	114	109
13	54	53	84	85	100	97	93	94	91	90
14	51	48	90	85	100	94	90	85	89	89
15	50	49	73	72	100	100	83	83	81	81
16	59	57	77	77	110	105	90	92	88	86
17	63	60	80	81	107	106	95	94	93	90
18	68	62	84	79	107	102	100	98	97	92
19	74	72	102	100	126	122	104	103	103	101
20	58	56	87	88	106	105	92	94	90	90
21	55	55	88	88	104	14	94	93	90	88
22	67	65	87	84	105	102	95	95	94	92
23	67	66	97	95	108	108	102	102	101	100
24	63	62	95	92	106	107	100	99	98	97
25	73	73	94	94	109	109	100	103	98	100
26	65	64	97	97	108	106	103	103	102	100

Table 1: Initial and final measurements for the various Parameters in case of a group of women who practiced Yoga for 6 months regularly.

he results show that in all three women body weight, hips and waistline measurements had decreased. Some more data are needed to prove the statistical significance of these observations. The percentage changes in body weight, waistline, hips and chest flexibility are shown in Table-3 in the same order of serial number as shown in Table-1.

Serial No.	Weight (kg)	No. of persons	Cumulative Frequency (n)	% Cumulative Probability less than the weight (2n-1)/N, N=26
1	50	1	1	1.92
2	51	1	2	5.77
3	54	2	4	13.46
4	55	1	5	17.31
5	57	1	6	21.15
6	58	1	7	25.00
7	59	1	8	28.85
8	60	2	10	36.54
9	63	3	13	48.08
10	65	3	16	59.61
11	67	2	20	67.31
12	68	2	20	75.00
13	73	2	22	82.69
14	74	1	23	86.54
15	84	1	24	90.38
16	87	1	25	94.23
17	94	1	26	98.08

Table 2: Data for the distribution of population for statistical analysis

% Reduction in Weight	% Reduction in Waistline	%Increase in Chest Flexibility	%Reduction in Hips
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-3.07	1.12	0	-0.98
9.23	3.16	0	4.59
0	-2.04	0	-0.83
0	-1.09	50	0
3.51	1.08	200	5.94
-1.85	4.26	33	3.85
0	2.22	0	-0.93
5	4.6	0	4
7.44	2.91	0	4.09
5.74	-1.05	0	2.36
5	6.82	50	3.96
7.14	1.89	100	4.06
1.85	-1.19	100	3
5.88	5.55	0	6
2	1.36	0	0
3.39	0	200	3.66
5	-1.25	100	0.93
8.82	5.95	100	4.67
2.7	1.96	100	3.17
3.45	-1.14	100	0.94
0	0	25	0
2.98	2.98	200	2.85
1.49	1.49	100	0
1.59	1.59	50	-0.94
0	9	0	0
1.53	1.53	400	1.85

Table 3: Percentage reduction in various parameters after 6 months.

I. Reduction in weight

The bar chart on data of Table-3 is shown in Fig.-1 and depicts the percentage reduction in weight after doing yogic practices for 6 months. Out of 26 ladies in this group, 19 practitioners lost the body-weights while 2 women gained the weight (of the order of 4%) due to dietary indiscretion during festivals. There were 5 women, in whose case there were no change in body-weight. Arithmetic average of % reduction in body-weight works out to be 3.03 while taking all the 26 women into consideration. In 93% of yoga practitioners covered in this study, either the body-weight has remained stable or there were reduction in body-weights.

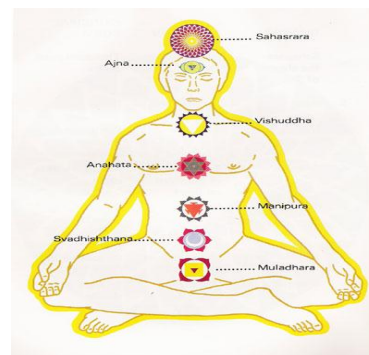
II Reduction in waist -line

The bar chart depicting the percentage change in waist line is shown in Fig-2.

From the data collected for the waist line measurements, it is seen that there is reduction in waistline for 18 women while in case of 6 women there is slight increase in waist (of the order of a centimeter in each case). For two women there was found to be no change in this parameter. The average percentage reduction in waistline was found to be 2.11. In 81 % of the cases, the waistline parameter either decreased or remained stable.

III Reduction in hips

The percentage reduction in circumference at hipline for all 26 women is shown in Fig.-3. There



was decrease for 17 women and increase for 4 women circumference at hip points while in case of 5 women there was no change observed in this parameter as found in the study. In 85% of the participants who have come regularly for yoga class, either the same parameter was stable or it got decreased.

IV. Increase in lung flexibility

The bar chart depicting % changes in lung-flexibility is shown in Fig-4.

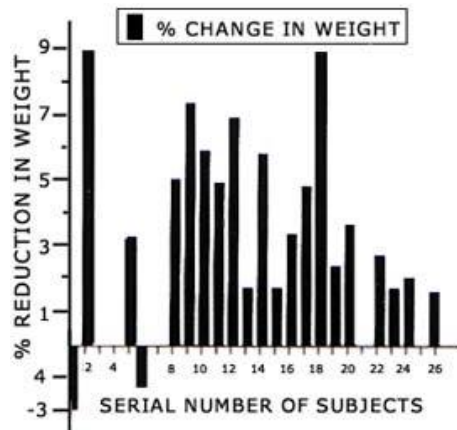
For 16 women there was increase in percentage lung flexibility and for 10 women there was no change in this parameter. None of them, however, showed decrease in their lung-flexibility.

No restriction on diet, behavior or other activities were advised in particular to be observed by yoga practitioners during the course of this study. Yoga is believed to have holistic approach and it imparts an all round improvement in our personalities. Habits covering ahar, vihar, acar and vicar are getting transformed in positive direction. It has been shown that there is general improvement in well-being among the yoga practitioners at physical and mental levels.

Their interpersonal relationship with the family members and in the society is improved considerably. The general reduction in mental stress due to relaxation, helps the body to cope up with the day to day activity efficiently. The yogic postures increase the blood circulation which reduces the toxicity in the body for

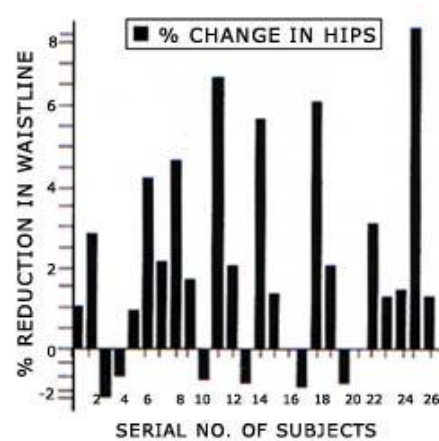
the overall healthy growth like improved functioning of various glands, kidney and liver. The percentage increase in positive attributes are supposed to be due to the holistic approach that is the outcome of yogic attitude people feel while undergoing yogic training.

Fig. 1



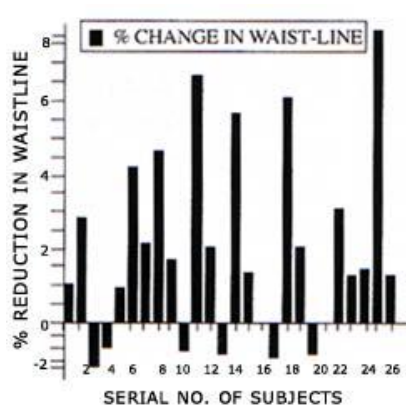
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Fig. 2



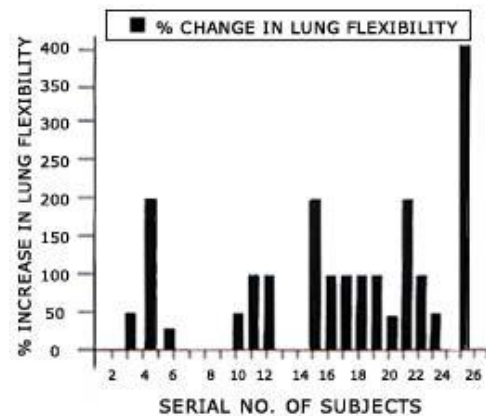
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Fig. 3



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Fig. 4



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COACHING QUALIFICATIONS OF THE COACHES IN TURKISH WOMEN'S BASKETBALL FIRST LEAGUE

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Abstract

In the present study, it is aimed to determine the coaching qualifications of the coaches in the Turkish Women's Basketball First League. The related domestic and foreign literatures were reviewed for collecting data; the questionnaire developed by the researcher was administered to the whole universe and 20 questionnaire forms were



analyzed. The data obtained as a result of the application were subjected to a non-parametric statistical analysis using the SPSS software.

Consequently; it was found that all the coaches of the women's basketball teams included under the scope of this research are male and most of them perform coaching as their primary profession which causes intensive work tempo for them. In addition, it is seen that the coaches follow the developments and the scientific publications about basketball, and they continually participate in the training programs related to basketball. Moreover, they perform the first player choice benefiting from their past experiences and considering the physical characteristics of players.

The coaches with a good coaching quality are of great importance as they improve the performance of a team and they play a significant role in the growth of skilful basketball players and thus the development of the basketball in the country. In order to enhance their coaching qualifications, they need to be satisfied in economical terms, which can allow them to follow the related publications about basketball, participate in seminars, make analysis and comparisons about the philosophies of other coaches, support their studies with scientific data, seeing the qualified coaches are conscious about continually improving themselves.

Key Words: Coaching Qualifications, Basketball, Coaches

Introduction

The main purpose of sports is to show and sustain the highest performance individually or as a team. Performance is a physical process and is maximized with an appropriate guidance and psychological preparation (U. Abakay, 2010). However, a player cannot be successful if he/she is not appropriately guided and not trained in technical and tactical terms no matter how talented and hardworking he/she is (O. Doğan, 2004). A player needs sophisticated coaches who help players to accomplish their aims for success, continually improve themselves about their profession and coaches who are responsible and open to innovations (F. Korkmaz et al. 2006; D. Brown, 2003 and S. Hatchell, 2006). The coaches who consider all the data revealed by researchers, use scientific methods the most efficiently, seek to provide a training of the highest standard to their players and form the basis of sports (E. Başer, 1998). A coach is a person who takes players to the highest point in terms of performance and their potential, helps them to realize their physical, social, emotional and mental capacities, and use the methods peculiar to him/her in order to accomplish these aims (E. Konter, 1996). What to teach, when to teach, how much to teach and how to teach are important factors as well as technical strategy knowledge of a coach. The way of coaching and a good choice of the titles such as what kind of decisions are taken, what kind of a system will be thought, which methods will be applied for the players to take decisions and which roles will be given to players are the determinant factors for success (Y. Sevim, 2006a).

Coaching is of great importance in terms of sports performance. Accordingly, a coach who is strong in psychological terms and who supports his players continuously and who has a vision is required to achieve the desired performance. In addition, coaches should have such characteristics that they could establish a balance between their own

requirements, the player's and also the performed sports' requirements (Y. Sevim, 2007). If coaches make plans properly in parallel to a team's goals by including training processes, presumably this will improve the players' skills (O. Sevim, 2007). The improvement of coaching quality shows parallelism with the improvement of the qualities of players. Therefore it plays a vital role in the improvement of the quality of the sports in the country. The aim of the present study is to reveal the coaching qualifications of the coaches in the Turkish Women's Basketball First League and to determine whether these qualities vary depending on certain variables or not. It is thought that the findings to be obtained at the end of the study will contribute to the improvement and the development of basketball coaches and therefore the sports of basketball.

Material and Methods

Group of the Survey

The universe of the research is consisted of 12 head coaches and 13 assistant coaches, in total 25 coaches (subjects of this survey), in the Turkish Women's Basketball First League. As the whole universe was reached, the researcher did not take samples. The number of the questionnaire forms analyzed at the end of the study is 20, nine of them are filled by assistant coaches and eleven of them are filled by head coaches.

Data Collection Method

In this research, a questionnaire was used to collect data from all basketball coaches in Turkish Women's Basketball First League. Cronbach's alpha coefficient was used in order to determine the reliability of the questionnaire ($\alpha=0.74$). Data analysis: The data collected in this were analyzed with SPSS program. The analyses results were evaluated by means of %, frequency and q-square. The significance level in the survey has been accepted as 0.5.

Results

As a result of the analysis of the questionnaires administered to the coaches in the Turkish Women's Basketball First League, the data related to the coaching qualities are given in this part.

Table 1: The distribution of the subjects by their coaching positions

Position in Team	Number	%
Head Coach	11	55.0
Assistant Coach	9	45.0
TOTAL	20	100.0

According to the data in Table 1, it is realised that 55 % of the research group are head coaches and 45 % of the research group are assistant coaches.

Table 2: The distribution of the subjects by the age range

Age Groups	Number	%
26-33	6	30.0
34-41	9	45.0
42-49	3	15.0
50-57	2	10.0
TOTAL	20	100.0

As seen in Table 2, 45 % of the subjects included within the scope of the research are between 34-41 and 10 % are between 50-57 age range.

Table 3: The distribution of the subjects by the certificates of coaching

Coaching Level	Number	%
Level C	1	5.0
Level B	9	45.0
Level A (Highest)	10	50.0
TOTAL	20	100.0

In Table 3, it is found that 50 % of the subjects has Level A and 45 % of them has Level B certificate of coaching.

Table 4: The distribution of the subjects by the occupational status and duty periods

		The Period During Which Coaching is Performed Actively				TOTAL
		6-11 Years	12-17 Years	18-23 Years	24 Years and Over	
My Primary Profession	N	3	7	2	5	17
	%	15.0	35.0	10.0	25.0	85.0
My Secondary Profession	N	1	-	-	2	3
	%	5.0	-	-	10.0	15.0
TOTAL	N	4	7	2	7	20
	%	20.0	35.0	10.0	35.0	100.0

As seen in Table 4, 85 % of the subjects performs coaching as their primary profession, and 35 % of them has been coaching for 24 years and more.

Table 5: The distribution of the subjects by the work hours per week

Work Hours per Week	Number	%
1-10 Hours	2	10.0
11-15 Hours	1	5.0
21-25 Hours	2	10.0
26 Hours and Over	15	75.0
TOTAL	20	100.0

Table 5 revealed that 75 % of the subjects work 26 hours and more per week, 10 % of them work for less than 10 hours per week.

Table 6: The distributions of the subjects by their position in following the improvements in their fields, the training programs and basketball games

	Watching Basketball Games on TV		Following the Developments and Scientific Publications on Basketball		Participating to the Training Programs on Basketball	
	N	%	N	%	N	%
Frequently	20	100.0	19	95.0	16	80.0
Sometimes	-	-	1	5.0	4	20.0
Never	-	-	-	-	-	-
TOTAL	20	100.0	20	100.0	20	100.0

In Table 6, it is found that all subjects watch basketball games on television, a significant proportion of them (95 %) continuously follow the developments and the scientific publications and 80 % of them continuously participate in the training programs on basketball.

Table 7: The distribution of the subjects by the extra time they spare for their players and the money they spend from their own budgets

	Extra Time Spared for the Players		The Expenditures spend on the Players by the Coaches	
	N	%	N	%
Yes	17	85.0	15	75.0
Sometimes	3	15.0	5	25.0
No	-	-	-	-
TOTAL	20	100.0	20	100.0

As seen in Table 7, 85 % of the subjects spare time for their players except for the trainings, 75 % of them spend for their players from their own budgets.

Table 8: The distribution of the subjects by the methods used for the first selection of players

Player Selection	Number	%
Using Scientific Methods	1	5.0
Benefiting from their Past Experiences	8	40.0
Considering the Ambitious Players	3	15.0
Considering the Physical Characteristics of Players	8	40.0
TOTAL	20	100.0

From the Table 8, it can be concluded that 40 % of the subjects perform the first selection of the players based on the physical characteristics, again 40 % of them make this selection by benefiting from their coaching experiences, and 5 % do the same by using scientific methods.

Table 9: The distribution of the subjects by the variable of professional status according to how they describe the profession of coaching

	A Profession which Requires Special Effort		A Quite Difficult Profession		TOTAL	
	N	%	N	%	N	%
My Primary Profession	13	65.0	4	20.0	17	85.0
My Secondary Profession	3	15.0	-	-	3	15.0
TOTAL	16	80.0	4	20.0	20	100.0

$\chi^2 = 0.882$, $Sd: 1$, $p = 0.348 > 0.05$

In Table 9, it is found that 80 % of the subjects describe the profession of coaching as “a profession which requires special effort”, while 20 % of them describe coaching as “a quite difficult profession”. When considered from the variable of professional status, no meaningful relationship has been found about their opinions on coaching profession ($P > 0,05$).

Table 10: The distribution of the data related to the work hours of the subjects by the variable of professional status

	1-10 Hours		11-15 Hours		21-25 Hours		26 Hours and Over		TOTAL	
	N	%	N	%	N	%	N	%	N	%
My Primary Profession	-	-	1	5.0	2	10.0	14	70.0	17	85.0
My Secondary Profession	2	10.0	-	-	-	-	1	5.0	3	15.0
TOTAL	2	10.0	1	5.0	2	10.0	15	75.0	20	100.0

$\chi^2 = 12.680$, Sd:3, $p = 0.005 < 0.01$

Table 10 displays that there is a statistical difference with a significance level of $p < 0.05$, when considered the professional statuses and the work hours per week of the subjects.

Table 11: The distribution of the subjects by the age groups based on their preferred methods for the first selection of the players

Age Group	Using Scientific Methods		Benefiting from their Past Experiences		Considering the Ambitious Players		Considering the Physical Characteristics of Players		TOTAL	
	N	%	N	%	N	%	N	%	N	%
26-33	-	-	2	10.0	-	-	4	20.0	6	30.0
34-41	1	5.0	1	5.0	3	15.0	4	20.0	9	45.0
42-49	-	-	3	15.0	-	-	-	-	3	15.0
50-57	-	-	2	10.0	-	-	-	-	2	10.0
TOTAL	1	5.0	8	40.0	3	15.0	8	40.0	20	100.0

$\chi^2 = 14.444$, Sd:9, $p = 0.107 > 0.05$

In Table 11, it is found that 20 % of the subjects between 26-33 and 34-41 age groups primarily consider “the physical characteristics of players” in their first selection of the players, 15 % and 10 % of them between 42-49 and 50-57 respectively make their selections only “benefiting from their coaching experiences”. No statistically significant difference is found between the player selection methods and the coaches’ ages.

Discussion and Conclusion

As a result of the study, it is found that virtually all of the coaches perform coaching as their primary profession. This finding might show that the salaries of the coaches in the Turkish Women’s Basketball 1st League are satisfactory. It is seen that 55 % of the research group work as a head coach, 45 % as an assistant coach; 45 % are in the 34-41 age group, 10 % are in the 50-57 age group; and 50 % has Level A, and 45 % Level B coaching certificate. In the study by the Sevim 2007, the women’s teams’ average age of the coaches was found 37 (O. Sevim, 2007). This data is parallel with the results of our research. Moreover,

half of the subjects has the highest level, Level A certificate, which may reflect the fact that they are experienced and have a certain amount of background.

It is found that 35 % of the subjects worked as a coach for 24 years and more. The coaches participating in the study by Corso stated that the experience-linked learning processes and coaching practices are the most important experiences in completing their personal skills (M.E. Corso, 1992). It is seen that the 75 % of the coaches who participated in the study work 26 hours and more, while 10 % of them work less than 10 hours per week. It is determined that all of the coaches watch the basketball games on TV and a significant majority of them (95 %) always follow the developments and scientific publications and 80 % of them continually participates in the training programs on basketball. Manuel stated that coaches should improve their systems by following new studies and should be more diligent in participating in the coaching seminars and receiving a certificate (T.L. Mabuel, 1988). However, an adequate training may not be provided because of the fact that



the duration of these courses opened with the purpose of educating basketball coaches in Turkey are not long enough to train coaches, while the term of the same type training is 3 years in Russia where a great progress has been made in basketball (S.C. Ergüleç, 1996). In the present study, it is noticed that the coaches are open to the developments in regards to their field and are in a continuous development process in order to perform their coaching profession and to be successful at the highest level. It is seen that the 85 % of the research group spare time for their players apart from the trainings, and the 75 % of them spend money for their players from their own budgets. Coaches are the trainers who play the biggest role in the development of athletes. Coaches are also responsible for solving certain problems which will prevent players from reaching to and proving their highest performance (Y. Sevim, 2006b). A great majority of the subjects sparing extra time and spending money for their players may prove that they focus on success and draw an idealist image. In this context, it is imperative that coaches communicate with their players not only in the court but also out of the court. Moreover it is discovered that 40 % of the subjects perform the first selection of the players based on the physical characteristics, again 40 % of them make this selection by benefiting from their coaching experiences, and 5 % do the same by using scientific methods. In his study, Kalyon showed that strengthening players in physical and psychological terms and enabling them to gain qualities superior to their rivals are important factors (T.A. Kalyon, 1990). Therefore, in the first player selection, the physical and psychological characteristics required by basketball should be considered. However, a priority shall be given to scientific methods for accurate selections. It is detected that while 80 % of the subjects regard coaching as a "profession that requires special effort", 20 % of them consider it as a "quite difficult profession". It is found that 20 % of the subjects who are in the age groups of 26-33 and 34-41 take the "physical characteristics" into consideration in the first player selection, 10 % and 15 % of those with the age groups of 42-49 and 50-57 respectively make their choices benefitting only from their "coaching experiences". Consequently, coaches who have good coaching qualifications play an important role in not only improving the performance of a team, but also in developing talented basketball players and improving the basketball in that country. This can be done by the coaches who are economically satisfied, follow the publications on basketball, participate in seminars, make comparisons and analysis on the philosophy's of other coaches, who are conscious about continuously improving themselves and support their studies with scientific data.

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THE EVALUATION OF BODY-BALL COORDINATION FOR PROFESSIONAL SOCCER PLAYERS

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Abstract

The purpose of this study was to evaluate the coordination of the ball with the body of the professional soccer players. A total of 180 soccer players were examined. These soccer players are playing at the super, second (A, B) and third leagues of Turkey. The F-MARC test battery, which was designed by FIFA, is used for soccer players. The mean age, height and the body weigh of the players playing in the super league were $22,53 \pm 2,78$ (years), $1,77 \pm 0,05$ (m), and $70,40 \pm 4,99$ (kg) respectively. These parameters were, $25,05 \pm 3,60$ (years), $1,79 \pm 0,05$ (m), and $74,55 \pm 5,35$ (kg) for the players playing in the 2nd division category A, $21,05 \pm 1,71$ (year), $1,80 \pm 0,03$ (m), $73,15 \pm 4,01$ (kg) for the players playing in the 2nd division category B and $22,20 \pm 2,75$ (year), $1,78 \pm 0,04$ (m) and $72,45 \pm 3,98$ (kg) for the players playing in the division 3rd. In the research, we summarized data and evaluate means, standard deviations. Anova tests have been used according to the normalcy trials. The data were evaluated and the calculated values were determined with the use of SPSS 13.0 statistics package program. There were statistically significant differences in chest-foot-head and foot-chest-head tests between the groups investigated in the study (Super league, 2nd division category A, 2nd division category B and 3rd division ($P < 0,05$). There were statistically significant differences observed regarding to head-left foot-right foot scores which measures the coordination of the ball with the body ($P > 0,05$). The investigation of the chest-foot-head and foot-chest-head tests scores revealed that the scores of the super league players were significantly higher than the players playing in other divisions ($P < 0,05$). There were no meaningful differences observed between the other groups ($P > 0,05$).

In conclusion, professional players must be able to dominate the ball. The coordination of the ball with the body is of utmost importance and one of the primary criteria in the selection of players by the professional soccer teams.

Key Words: Soccer, Coordination, Technical, soccer player.

Introduction

Soccer, regarded as the most popular sport on the earth attracting millions of people, is a collective, fun team based and a coordinated game where the players exhibit their individual skills by the use of their muscle power (M. Günay, A. Yüce, 2001). Reaching the basic targets in soccer depends of some factors. Among these factors one of the most important one is the technique of the player (A. Lees, L. Nolan, 1998). Ball technique is the general name for the movements of the soccer player, when the ball is in his possession. These moves are either offensive to score goals which is the prime objective of the game or defensive to stop conceding goals (M. Karanfilci, 1998). Among the typical features of games such as soccer are consecutive and fast movements, short sprints, and jumps, hitting the ball in various ways, sudden change of directions, marking, distraction and fakes (A. Arnason et al. 2004, J. Bangsbo, L. Michalsik, 2002, S. Harris, T. Reilly, 1998, U. Wisloff et al. 1998). The performance in soccer is largely dependent upon the diversified use of skills. One has to practice shooting for prolonged periods. The parameters such as the speed of the ball and accuracy of the direction are directly related to the technical level of the player. Same goes for the features such as speed of the players, faking, marking, and the movements with and without the ball (A. Lees, L. Nolan, 1998). Ball control is

described as the skill to stop and possess the ball in motion. It should not be regarded solely to stop the moving ball. It is sequence of actions to stop a moving ball coming towards you and prepare it for a second action according to your position. Ball control is essential to direct a moving ball. In order to maintain the flow of the game ball control should be performed and the consecutive move should be started as quickly as possible (K. Davids et al. 2000). Ball control is made with foot (inside, outside and bottom of the foot), chest, head or different parts of the body according to the position of the ball in the game. The part of the body to be used to stop the ball is determined by the speed, height and the direction of the ball and the technique of the player. Acquiring good ball control techniques is highly dependent upon theoretical knowledge and repetitions (K. Davids et al. 2000).

The aim of this study is to evaluate the coordination of the ball with the body of professional soccer players.

Material and method

The study was carried out by the voluntary participation 32 professional players from the Turkish Super league with mean age of $22,53 \pm 2,78$ (years), mean height of $1,77 \pm 0,05$ (m) and mean weight of $70,40 \pm 4,99$ (kg), 49 soccer players with mean age of $25,05 \pm 3,60$ (years), mean height of $1,79 \pm 0,05$ (m) and mean weight of $74,55 \pm 5,35$ (kg), from the Turkish 2nd

League category (A), 45 soccer players with mean age of $21,05 \pm 1,71$ (years), mean height of $1,80 \pm 0,03$ (m) and mean weight of $73,15 \pm 4,01$ (kg) the Turkish 2nd League category (B) and 54 soccer players with mean age of $22,20 \pm 2,75$ (years), mean height of $1,78 \pm 0,04$ (m), mean weight of $72,45 \pm 3,98$ (kg) from the Turkish 3rd League. There were criteria in the selection of the players such as the positions in the game the any factor which was taken into the account was that they sustained no injury.

The test were carried out by giving an utmost attention to keep the weather conditions constant on a grass pitch under the supervision of 1 referee and 2 experts. During the tests footballs with the weight of 0,396–0,453 kg (14–16 oz), the perimeter of 0,685–0,711 meters (27–28 inches) and the pressure of 60,6–111,1 kPas (0,6–1,1 atmospheres) (Lees and Nolan 1998) were used and the distance was measured in Rösch et. al 2000).

meters. The condition of the pitch was checked by the referee prior to the tests in order to make sure that it was suitable to play on and the participants were adequately briefed about the goals of the test. The tests were started with a 30 minutes warm-up session. The F-MARC Manual Test Battery 1997 (D. Rösch et. al 2000) was employed to measure the coordination of the ball with the body developed by the FIFA.

Test protocoll

Test of Playing the Ball with the Body

This test enables to evaluate the football coordination of various parts of the body. The researcher throws the ball to the player from a distance of 5 meters. The player starts to play with ball in the order of chest-foot-head, head-left foot-right foot and foot-chest-head. The researcher measures them and every successful play brings 1 point (D.

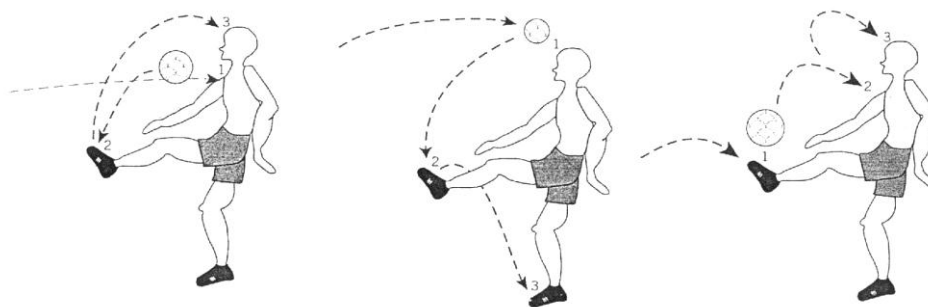


Figure 1. Juggling (body) test (D. Rösch et al. 2000).

Statistical analysis

The evaluation process was carried out with SPSS 13.0 statistics package. According to the normality examination, One – Way ANOVA parametric tests was employed for the data showing normal deviation and Kruskal Wallis H tests of non-parametric test was utilized for the data not showing normal variation. Based upon the variance homogeneity Tamhane and Tukey tests of Post Hoc Multiple Comparisons tests were used. The level of significance was taken as 0, 05.

Results

Table 1. Data summary for soccer players by their playing league.

Variables			Age (years)	Height (m)	Weight (kg)
Super League	N = 32	Mean±Sd	22,53±2,78	1,77±0,05	70,40±4,99
2 nd League A Division	N = 49	Mean±Sd	25,08±3,60	1,79±0,05	74,5±5,35
2 nd League B Division	N = 45	Mean±Sd	21,62±1,71	1,80±0,03	73,15±4,01
3 rd League	N = 54	Mean±Sd	22,20±2,75	1,78±0,04	72,45±3,98
Total	N = 180	Mean±Sd	22,90±3,11	1,79±0,04	72,83±4,75

The mean age, height and weight of Super League professional soccer players were determined as 22,53±2,78 years, 1,77±0,05 (m) and 70,40±4,99 (kg) respectively. These values were found as 25,05±3,60 (years) , 1,79±0,05 (m) and 74,55±5,35 (kg) for the 2nd League category A, 21,05±1,71 (years), 1,80±0,03 (m) and 73,15±4,01 (kg) for the 2nd League category B and 22,20±2,75 (years), 1,78±0,04 (m) and 72,45±3,98 (kg) for the 3rd league professional soccer players. The average age, height and the weight of the whole 180 participants were 2,90±3,11 (years), 1,79±0,04 (m) and 72,83±4,75 (kg) respectively .

Table 2. Comparison of head – left foot – right foot, chest – foot – head and foot – chest - head tests with respect to players’ playing league

variables	Groups	N	Means±SD	Chi-square	P
Head - left foot – right foot	Super League	32	2,84±0,45	7,090	0,069
	2 nd League (A)	49	2,78±0,62		
	2 nd League (B)	45	2,62±0,78		
	3 rd League	54	2,50±0,80		
Chest – foot - head	Super League	32	2,97±0,18	9,904	0,019*
	2 nd League (A)	49	2,67±0,75		
	2 nd League (B)	45	2,71±0,69		
	3 rd League	54	2,48±0,86		
Foot – chest - head	Super League	32	2,88±0,34	16,999	0,001*
	2 nd League (A)	49	2,24±0,97		
	2 nd League (B)	45	2,09±0,95		
	3 rd League	54	2,17±0,88		

P<0,05*

Examining the table there was a statistically significant difference on a %95 reliability level concerning the chest–foot–head and foot–chest–head tests among the groups investigated (Super League, 2nd League (A), 2nd League (B) and 3 League) (P<0,05). In the Head–left foot–right foot test there was no statistically significant difference noticed among the groups (P>0,05).

Table 3. Multiple comparison of Chest-Foot-Head test results with respect to players’ Playing league

(I) Groups	(J) Groups	Mean difference (I-J)	St. Error	P
Super League	2 nd League (A)	0,30	0,16	0,060
	2 nd League (B)	0,26	0,16	0,119
	3 rd League	0,49	0,16	0,001*
2 nd League (A)	Super League	-0,30	0,16	0,060



	2 nd League (B)	-0,04	0,15	1,000
	3 rd League	0,19	0,14	0,790
	Super League	-0,26	0,16	0,119
2 nd League (B)	2 nd League (A)	0,04	0,15	1,000
	3 rd League	0,23	0,14	0,612
	Super League	-0,49	0,16	0,001*
3 rd League	2 nd League (A)	-0,19	0,14	0,790
	2 nd League (B)	-0,23	0,14	0,612

P<0,05*

As shown the table, Super League chest-foot-head test results are significantly higher than the results from the 3rd League at a %95 reliability level (P<0,05). No significant difference was found between other groups (P>0,05).

Table 4. Multiple comparison of Foot-Chest-Head Test results with respect to players' Playing league

(I) Groups	(J) Groups	Mean difference (I-J)	St. Error	P
Super League	2 nd League (A)	0,63	0,20	0,001*
	2 nd League (B)	0,79	0,20	0,000*
	3 rd League	0,71	0,19	0,000*
2 nd League (A)	Super League	-0,63	0,20	0,001*
	2 nd League (B)	0,16	0,18	0,967
	3 rd League	0,78	0,17	0,999
2 nd League (B)	Super League	-0,79	0,20	0,000*
	2 nd League (A)	-0,16	0,18	0,967
	3 rd League	-0,79	0,17	0,999
3 rd League	Super League	-0,71	0,19	0,000*
	2 nd League (A)	-0,78	0,17	0,999
	2 nd League (B)	7,79	0,17	0,999

P<0,05*

Looking at the data on the table, the differences concerning the foot-chest-head test are statistically significant between the Super League and the 2nd League A Division, Super League and the 2nd League B Division, Super League and the 3rd League (P<0,05). The Super League measurements are significantly higher than other leagues at a %95 reliability level (P<0,05).

Discussions

Studying the chest-foot-head test results, which measure the coordination of the ball with the body the mean obtained were 2,97±0,18 for the Super League players, 2,67±0,75 for the 2nd League category A players, 2,71±0,69 for the 2nd League category B players and 2,48±0,86 for 3rd League players (Table 2). Table 2 shows that there is a statistically significant difference concerning the chest-foot-head and foot-chest-head tests among the groups examined in the study (Super League, 2nd League category A, 2nd League category B and 3rd League) (P<0,05). Super League soccer players' chest-foot-head test results are noted to be significantly higher

than those of the 3rd League players (P<0,05). No statistically significant difference is found between other groups (P>0,05). Chest-foot-head and ball coordination points' mean of high-level soccer players is 2,7±0,6. These values were found as 2,7±0,6 for 3rd League and 2,8±0,4 for amateur players (D. Rösch et al. 2000). The only statistical difference was observed between the Super League and the 3rd League soccer players. The ball playing skills of the players playing in the same league were found to be similar. Means points obtained for head-left foot-right foot test were 2,84±0,45 for the super league players, 2,78±0,62 for the 2nd league category A players, 2,62±0,78 for the 2nd league category B players and 2,50±0,80 for the 3rd league players (Table 2). There were no statistically significant differences between them (P>0,05), (Table 2). D. Rösch et al. (2000) computed the head-left foot-right foot and ball coordination points' means as 2,6±0,6, 2,6±0,6 and 2,6±0,8 points for the high-level, 3rd League and, amateur soccer players. Results in newer obtained in newer studies are in good accordance with ours. Table 2 figures indicate that



foot-chest-head test results averages in the Super League, 2nd League A division, 2nd League B division, 3rd League as $2,88 \pm 0,34$, $2,24 \pm 0,97$, $2,09 \pm 0,95$, $2,17 \pm 0,88$ points respectively. Super League measurement results are significantly higher than the other leagues ($P < 0,05$). There are significant differences between the Super League and 2nd League A division, Super League and 2nd League category B division, Super League and 3rd League players ($P < 0,05$). The comparison made between other between other groups does not show any difference with statistical significance ($P > 0,05$), (Table 4). In another study D. Rösch et al. (2000) found the average foot-chest-head and ball coordination points for high-level, 3rd League and amateur soccer players as $1,5 \pm 1,0$ and $1,7 \pm 1,0$, and $1,7 \pm 1,2$ points, respectively. Ball-body coordination results measured with foot-chest-head tests indicate that soccer players in our country scored higher points those of in D. Rösch et al. (2000) study showing that those Turkish footballers are more technically gifted than the ones in Europe.

Other related literatures are as follows:

Average right foot ball-playing points scored by high-level, 3rd League and amateur soccer players were determined as $24,7 \pm 1,8$, and $24,1 \pm 3,5$ and $22,8 \pm 4,3$ respectively (D. Rösch et al. 2000). Primary, secondary and high school football competitions finalists' technical success levels were investigated with football skills tests, such as Mor and Christian (passing, shooting and "dripping") and Yeagley ("dripping", "ball bouncing", "passing with wall"). The results obtained from the winners were found to be significantly higher ($P < 0,01$) than the finalist team (O. Mülazımoğlu et al. 2002). These results are in good accordance with the present study.

Conclusion

Among the tests measuring the coordination of the ball with the body, high-level soccer players are proved to be more successful in more difficult tests, whereas in easier tests, no difference is noted among professional soccer players. For any professional, to be able to play in a higher league or division, a better ball control and for high-level soccer payers, ball-body coordination is considered to be important according to this study.

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ANALYSIS OF THE ELITE SPORTS MEN'S LIFE QUALITY IN DIFFERENT SPORTS BRANCHES

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Abstract

It is thought that quality of life which means a person's physical and mental healthiness in appearance, wellness for him/her, his/her happiness and enjoy his/her life by doing his/her jobs as freely, can be affected by being a international. For this reason, searchment was carried out for the purpose of searching the life quality of internationals who take course at Karamanoglu Mehmetbey University Physical Education and Sport Academy.

Study's environment involves students whose branches are different at 1, 2, 3 and 4class at Karamanoglu Mehmetbey University Physical Education and Sport Academy. At the end we reach all 29 internationals.

The average of the participants age 21.79+- 1.93. It was determined that 51.7 percent of sportive are internationals in wrestle, 3.4 percent of them in cycle, 10.3 percent of them in box, 10.3 of them in taekwondo, 6.9 percent of them in field hockey, 6.9 percent of them in athleticism, 6.9 percent of them in judo and 3.4 percent of them in gymnastic branches. The average of year's participants' being an internationals is 5.62+-2.11. It was determined that there is a significant relationship between internationals' branches and quality of life functional condition subordinate area social function ($p<0.05$). It was determined that being male of internationals has a significant relationship between life quality and social area ($p<0.05$). It was determined that there is a significant relationship between students' spending time for themselves in residual time after sport and life quality, social and environmental areas ($p<0.05$).

For internationals males' soundness grade is higher. Sex has no effect on perceived social support. The person who lives in county has more family support. Global life qualities were not affected by the place where people live. As a result of our searchment, being an international has bad effects on physical, psychology, social and environment areas which are subordinate area of quality of life. Therefore being an Internationale should not affect the students and the time which they spend for near surroundings people.

Keywords: internationals, quality of life, branches.

Introduction

It is hard to describe the concept of life quality which has a dynamic property because the consistent development and change, it depends on persons, what the persons like, what they want to be and how they want to live can be effected by psychological, economical and cultural factor (A. Akyol, 1993), the concept of life quality was described many times in the view of its nominative form. However there is no common idea to describe life quality, it is described as the nominative sense if the persons feels his or her life is perfect (T. Telatar, H. Özcebe, 2004). DSO has described it as the sense of their aims, expectations, standarts and anxiety and their sense for the positions in the view of the values and culture in where they live (H. Şahin, 1997).

Sport is an important instrument to cultivate healthy generations and to create contemporary societies (G.J. Yost, W.D. Schmoll, 1995). While it helps the children and teenagers to get a healthy body, socialized individauls, it also helps to be constructive, creative, productive, self confident, polite, prudent, indulgent, ethic, good mannered, self-esttem, good mortal and marital relations, a good example for everbody (G. Ersoy, A. Hasbay, 2006).

Sport has positive contribution with friendship and peace for country's economy. Also, either the press or the people started to give more

attention as a result of keeping the stress away, international success. When we assess generally the sport is an activity which can not be ignored and given up (G.J. Yost, W.D. Schmoll, 1995). 27 percent of the population is 12-24 ages group in turkey. The rest of the population as middle age, old and the young population need sport. Developments in science and technology made the age limit higher. The need of sport increased. As a result of this the necessity of sport increased (H. Sunay, 2002).

In today's life style sport is an event which has growing importance. Sport is an effective instrument and method in life style, the development of the sport's popularity and international sportive relations widely, it made the sport gain importance in cultural and prestige way (R. Özel, 1995).

It is shown that life quality tends to be distorted with passing time, life style and working atmosphere (H. Mikami, T. Ogihara, 1999). It is possible that the distortion on this area with the intense life style is responsible for the decrease in life quality. This areas are health, functional conditions, psychological conditions, cognitive conditions and social communication (L.F. Pascual-Millan, 1998).

The aim of research: It is thought that quality of life which means a person's physical and mental healthiness in appearance, wellness for the person, the person happiness and enjoy the person life by doing the

person jobs as freely, can be affected by being a national. For this reason, research was carried out for the purpose of searching the life quality of national athletes who are studying at Karamanoglu Mehmetbey University Physical Education and Sport Academy. In this direction we searched replies for these questions:

- 1- Does being a national athlete affect the life quality of individuals?
- 2- Does the sex affect the life quality of national athletes?
- 3- Does the different branches affect the life quality?
- 4- Does being a national affect their leisure time?
- 5- Does being a national athlete affect their leisure time with their relatives and friends?
- 6- Does being a national athlete create a difference between the place where they live and their life quality?

Material and method

Universe and sample: Work- Group at the study involves students whose branches are different at 1., 2., 3., and 4. class at Karamanoglu Mehmetbey University Physical Education and Sport Academy. At the end we reach all 29 national athletes.

Scale equipments: As data collecting device in study, question form related with socio-demographic features and "WHOQOL-BREF measure of life quality" were used. While analyzing the data SPSS 10.0 programme were used. In statistical evaluating numeral-percent distributions, Mann Whitney U and One-Way Anova were used.

Whoqol-Bref (TR) Life Quality Scale

First form is a kind of form which questionize their age, sex, branch, family, hometown, parents and how long are they an athlete as a national. Second form WHOQOL-BREF (TR) (Shorly, DSÖ life quality form for Turks). WHOQOL-BREF (TR) includes 26 questions which questionize widespread life quality and health condition. Finally there are 27 questions after an international question was added. Questions should be replied by taking last 15 days into consideration (E. Tüzün, L. Eker, 2003). The other questions except first and second were asked to calculate physical, psychological, social, environmental and national environmental area points. After WHOQOL-BREF was carried out, physical,

psychological, social, environmental and national environmental area points are calculated between 0-20 points and if the points are high, the life quality is high. Personal and Correlational quotients of the individuals' subjective healthiness point and branch points of WHQOL-BREF (TR) are found as 0.62 for physical, 0.40 for psychological, 0.30 social, 0.25 environmental area. Totally, correlational quotients between the healthiness and life quality points and general health problems were found as 0.34 and 0.64 (Y.S. Eser, H. Fidaner et al., 1999).

Form of collecting personal information:

Survey's changes about athletes were developed with the aim of getting information. The form collected information about their age, sex, branch, how long are they an athlete as a national, family, hometown, parents and their leisure time.

The kind and time of the survey: This work is a descriptive type and its statistics were collected between 6-24 October 2008.

Analysis of the statistics: In statistical evaluating numeral-percent distributions, Mann Whitney U and One-Way Anova were used.

Findings

The average age of the participants was 21.79±1.93. The 17.2 % percentage of athletes are women and 82.8 % percentage of athletes are men. It was determined that 51.7% percent of athletes are national in wrestle, 3.4% percent of them in bicycle, 10.3% percent of them in box, 10.3% of them in taekwondo, 6.9% percent of them in grass hockey, 6.9% percent of them in athletics, 6.9% percent of them in judo and 3.4% percent of them in gymnastic branches. The average years of participants' being a national is 5.62±2.11. It was determined that 6.9% percent of their family lives in village, 20.7% lives in township, 72.4% lives in cities. The 82.7% percent of their mothers graduated from primary school, 17.3% percent secondary school, high school and university. The 55.1% percent of their fathers graduated from primary school, 44.9% percent of them graduated from secondary school, high school and university. The 17.2% percent of the athletes can not find time for themselves because of the sports and 72.4% percent of them said they can not find time for the people around them.

Table 1 Comparing the average points of sex and life quality of national athletes.

Point type	Female N=5	Male N=24	P *
	$\bar{x} \pm SD$	$\bar{x} \pm SD$	
Physical area	10.52 ± 1.13	12.05 ± 1.19	0.53
Psychological area	9.86 ± 2.33	11.27 ± 3.17	0.01 *
Social area	10.48 ± 1.77	12.83 ± 2.37	0.04 *
environmental area	10.42 ± 1.98	12.03 ± 1.86	0.42 *

Males have higher physical, psychological, social, environmental and national environmental area points than females when we compared their sex and

life quality points. There was a statistical difference between life quality, psychological, social area points average and sex area (p<0.05) (Table1).

Table 2. Comparing The Average Points Of Branches And Life Quality Of National Athletes

Branches	N	Point type			
		Physical	Psychological	Social	Environmental
		$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$
Wrestling	15	10.44±2.23	9.42±1.76	11.32±2.32	12.54±2.87
Boxing	3	11.83±1.57	10.41±2.17	9.38±3.15	11.75±1.23
Taekwondo	3	11.76±2.05	10.89±2.27	11.78±2.74	12.54±3.13
Grass hockey	2	10.37±2.36	12.63±2.72	9.14±2.43	9.46±2.92
Athletism	2	9.42±1.65	10.36±1.44	12.87±2.34	9.32±1.38
Judo	2	11.67±1.46	11.48±2.53	9.79±2.54	12.75±3.54
Cycle	1	11.86±2.54	11.86±2.62	9.34±3.76	12.53±3.75
Gymnastic	1	11.77±1.18	10.53±1.72	11.19±3.01	11.42±2.63
P*		0.52	0.01*	0.02*	0.74

No significant difference in physical and environmental area when we compared internationale's branches and life quality points of natinal athletes but there is a difference between psychological and social area points ($p < 0.05$). It was found that national wrestlers have the lowest psychological area life

quality points. Athletism national's have higher social are life quality points than the national wrestler's, taekwondo, boxing, judo, bicycle and gymnastic have. National boxers have the lowest social area life quality points among the others (Table 2).

Table 3. Comparing the average points of leisure time after sport and life quality of national athletes

Point type	Who has enough time for themselves N=24	Who has not enough time for themselves N=5	P*
	$\bar{x} \pm SD$	$\bar{x} \pm SD$	
Physical area	12.74±2.26	11.46±1.62	0.86
Psychological area	11.74±2.88	10.95±1.74	0.00*
Social area	10.86±3.84	9.84±2.98	0.01*
Environmental area	12.94±1.82	10.73±2.33	0.00*

There is no significant difference was found in leisure time for themselves and life quality points average. There is a statistical difference between the persons who have enough time for themselves after

sport and who have not time for themselves after sport in life quality, social, psychological and environmental area ($p < 0.05$) (Table 3).

Table 4. Comparing the average points of leisure time and life quality of national athletes.

POINT TYPE	Who has enough time for themselves	Who has not enough time for themselves	P*
	$\bar{x} \pm SD$	$\bar{x} \pm SD$	
Physical area	12.47±2.65	11.65±3.26	0.78
Psychological area	11.56±2.38	9.24±1.28	0.01*
Social area	10.74±2.26	9.78±2.16	0.04*
Environmental area	12.36± 1.84	10.38±2.18	0.01*

The difference between national's leisure time for the people around them and their life quality was

found eloquently. The difference between national athletes who have time for the people around them and



who have no time for themselves was found eloquent statistically ($p < 0.05$) (Table 4). The difference between the parents education conditions and life quality was not found eloquent statistically. Another result of this survey is life quality point average of athletes was not effected by place in which they live.

Discussion. When we compare the sex and life quality point, men have higher physical psychological, environmental and social area point averages. The difference between life quality social, psychological area point average and sex area was found eloquent statistically ($p < 0.05$). As a result men are more powerful while struggling with the daily life.

When we check the branches of national athletes, the national Grass hockey players have higher psychological area life quality points than the national wrestlers, taekwondo, boxing, judo, bicycle and gymnastic have ($p < 0.05$). As a result of this, Grass hockey branch is the most least stressful branch. National wrestlers have the most least psychological area life quality when we compare with the other branches ($p < 0.05$). National athletes have higher social area life quality points than the national wrestlers, taekwondo, boxing, judo, bicycle and gymnastic have. Boxers have the lowest social area life quality points among the others. The difference between the athletics and boxing was eloquent statistically result with social support between these two branches was different.

There was an eloquent relation between national athlete's leisure time for themselves and life quality in social and environmental area ($p < 0.05$). There was a statistical difference between the people who have enough time for themselves after sport and who have not time for themselves after sport in life quality, social, Psychological and environmental area ($p < 0.05$). It does not matter how long a person is a national athlete for life quality. In the survey carried out by W.J. Rejeski and S.L. Mihalko (2001), the difference life quality physical area according to sex was not eloquent, life quality point average was eloquent for male in social, psychological and environmental area. In our survey sex has difference in life quality point average. In physical and environmental area, the difference between the life quality and sex area points was not eloquent. In social area the difference was a result of being an international. In the survey carried out by M.E. Ustun and G. Karadeniz (2006), the difference between life quality and sex was not eloquent, in our survey the difference between the sex and life quality was eloquent in physical, social, psychological and environmental area.

Results

In our survey, as a result, being a national athletes has not negative effect on life quality physical, social, psychological and environmental area. So, being

a national does not effect the leisure time of nationals for the people around them. The difference between the parents education condition and life quality point average is not eloquent statistically. By enlarging the study groups of our survey and applying it to nationals may support the survey.

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PERCEPTIONS OF PROFESSIONAL FOOTBALL PLAYERS ON SOME CODES OF ETHICS IN TURKISH SPORT MEDIA

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Abstract

Purpose. The purpose of this study was to examine public perceptions of the extent to which professional football players and Turkish sport media abide by the ethical codes.

Methods. This study was executed in 2008-2009 football season. The sample was consisted randomly selected 138 male professional football players. Their ages ranged from $20 \leq (N=30)$, $21-30 (N=53)$ and $31 \geq (N= 55)$ years. Four items (gossip, honesty, encourage violence, private lives) related to ethical issues were used for measuring professional football players' perceptions of the ethical codes in Turkish Sports Media. The participants were rated the four research statements ranging from 1 (never) to 5 (always).

In the statistical evaluation of the study, the following methods were used: the frequency of following the media (6-7 days per week, 3-5 days per week, 1-2 days per week and never), and the frequency of players', teams', coaches' and managers' appearing in the media (6-7 days per week, 3-5 days per week, 1-2 days per week and no coverage). These factors were analyzed in terms of frequency (f) and percentage (%). Perceptual differences between players were tested via one way analysis of variance (ANOVA) in terms of 'media coverage' and via Kruskal Vallis Non Parametric test in terms of 'following media tools'.

Results. Professional football players perceived that the Turkish sports media does not abide by ethical codes. There were meaningful differences between the groups regarding the items of "Honesty" [$F_{(2-135)} = 4.889$; $p < .01$] as covered in the media. The analysis also indicates that "private life" scores of participants differentiate meaningfully regarding their status of "following media tools" ($X^2(2) = 6.78$, $p < .01$).

Conclusions. The most important finding of this study is that professional football players perceive that the Turkish sports media continually violates the ethical codes.

Key words: Ethics, Sport Media, Football Players.

Introduction

The media plays a significant role in today's world. The most important being its effect on the general perception within a society (F.L.F. Lee, 2005; S. Hughes, M. Shank, 2005) and the provision of a public forum for debate about important social issues (P. Moy et al, 2003). The media's ability to function constructively in these roles is directly related with its acceptance of, and adherence to certain ethical codes. Therefore, all media workers are required to abide by the official ethical codes regardless of the country from which they report as governed by the members of various regional and international media associations. Similar lists of ethical codes are issued by the associations and are directed to specific fields of the media, such as sports. The members of these associations are requested to abide by these ethical codes. These ethical codes may include similar or different items. For example, cultural differences and the uncertainty of the ethical codes do not allow the formation of a guideline that can be wholly understood. For this reason, media employees must evaluate their professional practices within the framework of socially accepted ethical standards, the ethical codes that govern their professional study areas, as well as their own consciences. The issue of ethical reporting is further complicated by the fact that there is not a general consensus on the issue. As a result, journalists may implement different principles that can be

defended morally (W. Nichols et al, 2002). In journalism, as with other media, common ethical value manifests generally determine the written ethical codes. By agreeing on these standards, organizations provide a solid ethically foundation for the journalists. It is important to remember that ethical codes are not related only to journalists. They also apply to educators in the field of journalism, as well as to the society as a whole (W. Lo, et al 2005). However, according to M. Hardin (2005), while the list of ethical codes helps to explain ethical issues, determine preliminary and behavior standards and, is accepted as valuable for journalism, it cannot guarantee the ethical behaviors and cannot resolve ethical problems. For this reason, ethical codes remain a problematic area in journalism.

In the light of this generally weak image of journalism, as well as the daily violations of the media's ethical codes (T.K. Wulfemeyer, 1985), sports journalism is widely viewed, as the media discipline in which the majority of these ethical problems are experienced (M. Hardin, 2005^a). Similar observations are noted Turkish sports media and sports journalism. The practice is widely tolerated since media outlets are conveying non-ethical news, especially by the sports clubs, coaches, managers and players (R. Uzun, 2004). Many of the ethical code violations are related to football, the most popular sport in Turkey. These infractions take their toil on football clubs, players,

coaches and club managers. Unfortunately, there is little effort made to either verify sources or confirm the accuracy of information about the players who are the source and subject of the news. Therefore, the purpose of this study was to examine public perceptions of the extent to which professional football players and Turkish sport media abide by the ethical codes.

Research Hypotheses

Perceptions of football players for four items about the codes of ethics in Turkish sport media tools were showed some meaningful differences on statements according to the level of following the media tools; the level of appearing in the media tools and Turkish sports media continually violates the ethical codes.

Method

In this study four statements which were based on Turkish Press Council Media Principles and literature, were used for data collection. The statements of this study were as follows:

1. Sports media makes the private lives of sport-related persons the subject of the news even though their private lives do not benefit the public.
2. Sports media makes news from incorrect or inaccurate information, and does not attach importance to honesty.
3. Sports media encourages violence.
4. Sports media provides a forum gossip.

Participants. This study was executed in 2008-2009 football season. The sample consisted of 138 (approximately 30% of the players in Turkish Football Super League) male professional football players from 10 different TFSL teams in Turkey. Their ages ranged from $20 \leq (N=30)$, $21-30 (N=53)$ and $31 \geq (N= 55)$ years. The participants of this study were randomly selected.

Measures. The sixteen Media Principles recognized by the Turkish Press Council were examined, and a literature survey on media ethics was undertaken. From this work, various issues were determined and discussed with experts ($N = 7$) in this field. Following this, based on recommendations from the experts, four items (gossip, honesty, encourage violence, private lives) related to ethical issues were deemed to be sufficient in measuring professional football players' perceptions of the ethical codes in Turkish Sports Media. The participants were rated the four research statements ranging from 1 (indicating never) to 5 (indicating always).

Analyses. In the statistical evaluation of the study, the following methods were used: the frequency of following the media (6-7 days per week, 3-5 days per week, 1-2 days per week and never), and the frequency of players', teams', coaches' and managers' appearing in the media (6-7 days per week, 3-5 days per week, 1-2 days per week and no coverage). These factors were analyzed in terms of frequency (f) and percentage (%). Perceptual differences between players were tested via one way analysis of variance (ANOVA) in terms of 'media coverage' and via

Kruskal Vallis Non Parametric test in terms of 'following media tools'. SPSS 16.0 pocket statistical program was used for statistical analysis.

Results

Descriptive Statistics. As for following sports media tools; 77 players (55.8%) follow the media for 6-7 days per week, 47 players (34.1%) follow the media for 3-5 days per week and 14 players follow the media (10.1%) for 1-2 days per week. Of the subjects themselves, their teams, coaches and their managers, any of them become the subject of news in sport media on 3-5 days per week (46%), 6-7 days per week (30%) and 1-2 days per week (24%) respectively.

According to Table 1, the football players generally marked "frequently" and "always" regarding their perceptions about the violation of the above ethical codes by Turkish sports media. When the total of the "frequently" and "always" choices were evaluated; the lowest percentage value (76.0%) was seen in the item of stimulating violence, the highest percentage level (84.7%) was in the item of private life; the lowest average value ($\bar{X} = 3.92$) again was observed in the item of stimulating violence whereas the highest average value ($\bar{X} = 4.16$) was seen in the item of gossip news. According to the results of table 2, there were meaningful differences between the groups regarding the items of "Honesty" [$F_{(2-135)} = 4.889$; $p < .01$] as covered in the media. According to the results of the post hoc multiple comparison test, a meaningful difference was found between the points of those appearing in the media on "6-7 days" per week ($\bar{X} = 4.23$), for "3-5 days" per week ($\bar{X} = 4.16$) and on "1-2 days" per week ($\bar{X} = 3.74$) for the item of "Honesty". It was determined that the participants who appeared in the media more ("6-7 days" per week and "3-5 days" per week) scored higher than those who appear less in media (1-2 days).

Table 3 indicates that "private life" scores of participants differentiate meaningfully regarding their status of "following media tools" ($X^2 (2) = 6.78$, $p < .01$). This finding shows that the duration of following media has different effects in the aspect of "Private Life".

Discussion and Conclusion

The most important aspect of this study is that it is based on the perceptions of professional football players who themselves often appear in the media as the subject and source of the news and follow sports media as reader/audience. The most important finding of this study is that professional football players perceive that the Turkish sports media continually violates the ethical codes ($\bar{X} = 4.05$). According to the perceptions of professional football players, treating gossip as factual news is the most often violated ethical code by the Turkish sports media ($\bar{X} = 4.16$). The most important factor of the coverage of gossip news on the Turkish sport media is that clubs and football players whose numbers of fans are high, appear more



frequently in the sports media. Media employees who cannot find adequate news about these clubs and football players attempt to remedy this shortfall by using gossip as news. As a result the ethical code is violated. The private lives of people who appear in the public eye are always of interest. The objective of the media in making news about these people is to increase the interest in their media tools. However, in the news made regarding these people, it should not be forgotten that the confidentiality of a person's private life should always be respected. Football players whose private lives become the subject of the news believe that this ethical code is severely violated ($\bar{X} = 4.08$). Furthermore, football players who follow sport media more (6-7 days per week and 3-5 days per week) and those who follow less (1-2 days per week) perceive that the ethical code of private life was continually violated. This stems from the fact that football players, who have the opportunity to follow the news closely on sports media, can evaluate the current situation better.

According to the perceptions of professional football players, the ethical code of honesty, which is seen as the basis for the ethical codes in general, is frequently violated by Turkish sports media ($\bar{X} = 4.07$). Furthermore, it is considerably meaningful that football players whose team's or own life is frequently subjected to news (6-7 days per week and 3-5 per week days) find sports media to have more issues in the ethical code of honesty. This finding corresponds to the general conviction of the public that "falsified and sensational news" concerning football is fabricated in order for the Turkish sports media to increase interest and market share in media. In fact, it would not be wrong to state that the commercialization of the media is the reason for the perception that these four ethical codes are violated so frequently due. The public is aware that news is often made as the attempt of sports media outlets to attract more interest and to increase its sales or ratings. The findings of the study correspond to a statement by Mr. K. Baçum (2004), one of the Turkey most important sports media journalists. He said "with the commercialization of the media, sensation has got ahead of accurate and high-quality reporting in the sport media, too". While the media is being commercialized, the emerging media culture has started to accept the sport, particularly football, as a commercial tool and abandoned its social and cultural importance (R. Boyle, R. Haynes, 2002). Therefore, sports have begun to be seen as purely a commercial commodity which attracts the interest of the customer and increases the consumption. Thus, economic policies drive the need to increase sales and advertisement incomes for the media outlets (J. Horne, 2005). When journalism studies are examined, variables related to commercialization such as news organization ownership, news room influences,

competition, subjects and sources, advertisers, audience, and organization size (R. Coleman, 2006) all affected the ethical decisions of media employees.

The ethical code which was believed as to be violated the least in this study was the idea that sport media encourages violence ($\bar{X} = 3.92$). These perceptions of the football players are very interesting since the sports media is often the first element blamed by the coaches, club managers, football circles, even politicians and the general society for inciting violence.

Some events experienced after the 1990's with the media and sports media contribute to the beliefs and perceptions of the football players about the fact that Turkish sport media frequently violates the ethical codes. The first and the most important reason is the increase in the number of media tools and the circulation/rating concerns caused by the competition between them. That is, commercial concerns stimulate owners of media tools to earn more and the employees ignore the ethical codes in order to maintain their positions. The second reason is that the football circles, those people who are interested in professional football, want the commercialization of the sport as much as the media. It is in their interest for the game to remain popular. Therefore, they are complicit in maintaining the unethical news and methods of the media. For similar commercial concerns, professional football and football circles shift be the focus of interest to sensational news serve to ensure that professional football retains a high position in the minds of the public. As with other media outlets around the world, the task of sports media in Turkey should be to inform, educate, entertain and provide the formation of a healthy society through the news it delivers. Its goal should be to be increase the popularity of sports in general and contribute to its spread in society (A. Girgin, 2000; TGNA, 2005: 53). It can be said that the realization of these tasks and the benefits of the media for society is directly proportional to its adherence to the ethical codes. In conclusion, this study has shown that professional football players perceive that Turkish sports media frequently violates ethical codes. This result supports the determinations of the Commission Report of Research Violence in Sport of the Turkish Grand National Assembly (TGNA, 2005: 54) and Uzun's (2004) opinions; "reasons such as preventing promotion of some responsible journalists who do not make sensational news due to commercial concerns, the presence of many journalists who are not concerned about the validity of the information and research, and the inconsistency of the news and comments, some sport reporters behaving like they are the friends of the club inadequacy of the sports knowledge and culture are seen as the most criticized issues and the obstacles to behaving in accordance with ethical codes".

Table 1. Ethical Codes Perceptions of Football Players in Relation to Turkish Sports Media

Ethical Codes		Never	Rarely	Sometimes	Frequently	Always	Mean	SD
Private life	F	-	3	18	83	34	4.08	.68

	%	-	2.2	13.0	60.1	24.6		
Honesty	F	1	3	19	77	38	4.07	.75
	%	0.7	2.2	13.8	55.8	27.5		
Stimulate/Encourage Violence	F	-	4	29	79	26	3.92	.72
	%	-	2.9	21.0	57.2	18.8		
Gossip	F	-	1	24	65	48	4.16	.73
	%	-	0.7	17.4	47.1	34.8		

Table 2. ANOVA Results According to Coverage in Media

Ethical Codes	6-7 days per week (n=39)		3-5 days per week (n=64)		1-2 days per week (n=35)		Mean Diff* (ANOVA)
	M	SD	M	SD	M	SD	
Private life	4.17	.64	4.03	.69	4.03	.71	4.889*
Honesty /Truthfulness	4.23	.63	4.16	.72	3.74	.85	3.095*
Stimulate/Encourage Violence	3.87	.92	4.03	.62	3.77	.60	
Gossip	4.18	.72	4.20	.69	4.06	.80	

* F-Values from ANOVA

* Significant at the 0.05 level

Table 3. Kruskal Vallis Test Results According to Following of Media Tools

Ethical Codes	6-7 days per week (n=77)		3-5 days per week (n=47)		1-2 days per week (n=14)		X ²
	MR	df	MR	df	MR	df	
Private life	74.47	2	67.65	2	48.39	2	6.78*
Honesty /Truthfulness	69.16	2	71.48	2	64.71	2	
Stimulate/ Encourage Violence	71.85	2	65.82	2	68.93	2	
Gossip	73.65	2	64.16	2	64.61	2	

* Significant at the 0.05 level

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ACTIVITY OF SUPEROXIDE DISMUTASE DURING ACUTE EXERCISE IN ATHLETES

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Abstract

Many evidences show that physical activity increases oxygen consumption by 10- to 15-fold over common consumption and it resulting on produces an "oxidative stress" with excessive generation of free radicals and lipid peroxidation. On the other side, a defense system of free radical scavengers minimizes these dangerous radicals. One of the main antioxidative enzyme is superoxide dismutase (SOD), enzyme involve in decomposing superoxide radicals to hydrogen peroxide and play a significant role against oxidant stress, especially in the state of hypoxia, as a consequence of intense exercise. The effects of acute exercise on SOD activity and malondialdehyde (MDA - marker of lipid peroxidation), were determinate in plasma of athletes and compared with non-athletes (healthy volunteers). Activity of SOD was measured by commercial UV spectrophotometry test, while MDA was measured by *Andreeva* spectrophotometry method. Acute exercise showed effect on increased concentration of MDA after exercise in both investigated groups ($p < 0.001$), but with higher increase in non-athletes. Simultaneously, we noted statistical negligible differences in SOD activity before and after exercise, but we noted the greater base level of SOD activity in athletes vs. non-athletes (1356.5 ± 456.8 U/gHb vs. 1189.7 ± 358.7 U/gHb; $p < 0.05$). The presence of high MDA level in athletes suggests an increased formation of free radicals in exercise. Increase of SOD activity is a consequence of subsequently compensated by an increase of antioxidants enzymes as a compensatory mechanism to prevent skeletal muscle damage because the enhanced production of superoxides and oxyradicals during exhaustive exercise.

Introduction

Many studies showed that exercise promotes free radical formation and lipid peroxidation in skeletal muscle and erythrocytes. Physical activity increases oxygen consumption by 10- to 15-fold over common consumption and it resulting on produces an "oxidative stress" with excessive generation of free radicals and lipid peroxidation. A defense system of free radical scavengers try to minimizes damage from radicals and during exercise preserve muscle action. Antioxidant consist of enzymatic and non-enzymatic defence. One of the main antioxidant enzyme is superoxide dismutase (SOD). The role of SOD is decomposing superoxide radicals to H_2O_2 and play a significant role against oxidant stress, especially during acute exercise. There are three different SODs: intracellular copper-zinc SOD (CuZnSOD), mitochondrial manganese SOD (MnSOD) and extracellular SOD (ECSOD). Simultaneously, the rise in oxygen consumption during acute exercise may lead to increase in metabolic leakage of damaging free radicals of oxygen from the mitochondria into the cytosol, resulting in the formation of lipid peroxide. Lipid peroxide production has been considered as first action in the membrane modification due to free radical interaction with

polyunsaturated fatty acids. All of these undesirable processes influence on muscle activity and may decrease ability of athletes. The aim of this article is estimate the effect of free radical production via production of lipid peroxide product and activity of the main antioxidant enzyme, SOD, in athletes and compared this results with matched control group.

Material and methods

We tested 26 athletes and 24 nonathletes before and after exercise. The exercise test that was conducted was 3-minute step test witch is used to measure aerobic fitness (cardiovascular endurance). Subject were told to step up and down on the platform (height 30cm, 12 inches) at a given rate for 3 minutes. Stepping rate was conditioned by the metronom. At the end of 3 minutes, subjects remain standing while there heart rate was checked.

Capillary blood was taken in tube with heparin just before and 15 min. after test. These samples were prepared immediately and we determinate activity of SOD in erythrocytes by commercial UV test (Randox) on biochemical analyzer Olympus DU 680. In this test superoxide anion radical, generated by xanthin/xanthin oxidize system react with acceptor of electron 2-(p-



indophenols)-3-(*p*-nitro phenol)-5-phenyl tetrazolium chloride (I.N.T.) and forming red formazan *color*. Level of lipid peroxidation we measured as malondialdehyde (MDA) in plasma of subjects. MDA was measured by *Andreeva* spectrophotometry method. Statistical significance of difference was estimated using the Student's *t* test. the results are expressed as mean \pm SE.

Results

Determination of MDA was marker of the lipid peroxidation process and estimated indirectly level of oxidants stress during the test load in athletes. Acute exercise showed effect on increased concentration of MDA after exercise in both investigated groups ($p < 0.001$), but with higher increase in non-athletes (*Table 1*).

Table 1. Concentration of MDA before and after exercise in athletes and in non-athletes

Group	Athletes	Non-athletes
MDA before ($\mu\text{mol/l}$)	2.89 ± 0.35	2.35 ± 0.37
MDA after ($\mu\text{mol/l}$)	$6.48 \pm 1.33^{a,b}$	8.25 ± 1.13^a

Results are expressed as $x \pm SD$

^a $p < 0.001$ vs. before test

^b $p < 0.05$ vs. non-athletes after test

Activity of SOD showed enzyme antioxidant defense. We noted statistical negligible differences in SOD activity before and after exercise, but we noted the greater base level of SOD activity in athletes vs. non-athletes (1356.5 ± 456.8 U/gHb vs. 1189.7 ± 358.7 U/gHb; $p < 0.05$) (*Table 2*).

Table 2. Activity of SOD before and after exercise in athletes and in non-athletes

Group	Athletes	Non-athletes
SOD before (U/gHb)	1356.5 ± 456.8^a	1189.7 ± 358.7
SOD after (U/gHb)	1489.2 ± 689.4	1358.5 ± 569.7

Results are expressed as $x \pm SD$

^a $p < 0.05$ vs. non-athletes before test

Discussion and conclusion

The values of lipid peroxide showed that during exercise present enhanced oxidative stress. In fact, increased production of free radicals during muscle activity is results of *oxidative phosphorylation* in mitochondrial, synthesis of eicosanoid and by some enzymatic reactions (primarily xanthin oxidase) and these processes lead to oxidative modification of proteins, including the antioxidant enzymes, and at the same time reducing their protective care which results in pro-antioxidants imbalance. The presence of high MDA level in athletes suggests an increased formation of free radicals in exercise. We noted higher level of MDA in non-athletes after test, vs. athletes and this results suggest present of increase compensate mechanism in athletes as a consequence permanent physical activity. Results of SOD indicate the same conclusion: higher basal level of SOD activity in athletes show better compensated and better antioxidant capacity than SOD activity in non-athletes. These compensatory mechanisms try to prevent skeletal muscle damage because the enhanced production of superoxides and oxyradicals during exhaustive exercise.

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❖ PHYSICAL EDUCATION AND SPORT

EFFECTS OF MENTHA PIPERITA INHALATION ON SOME FACTORS OF PHYSICAL AND MOVEMENT PERFORMANCE OF MALE ATHLETES STUDENTS

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Abstract

Current research performed on male athlete students of Tabriz university with average age of (23/30±3/492) average weight of (71/15±9/005 kg) Average height (175/25±1/949cm). In order to examine the effect of Mentha piperita inhalation on some factors of physical and movement performance of these students. 20 male students voluntarily participated in the study. First, reaction time, strength of back muscles and sit-up tests performed upon participants, Respectively, and then Bruce test was inducted, separately. Regarding the Maximum amount of consumed oxygen obtained from Bruce test results participants divided into two groups of 10 (Experimental and control). Participants of experimental group inhaled the peppermint (pumped in experiment room) in which the 2 ml of pumped peppermint mixed with white alcohol in area of 35m², temperature of 28 c and humidity of 45-55% and used in strength of back and abdominal muscles and reaction time tests and then two drops of peppermint odor examined for the tests. Similar tests were performed on control group too, but the only difference was that peppermint replaced with white alcohol. T.test analysis used in whether results were meaningful or not current. Results suggest that there is a meaningful relationship between the administration of Mentha Piperita with aerobic performance (p≤001) and reaction time (p≤0/05)

Key words: Maximum aerobic performance, Reaction time, Abdominal muscle resistance, Back muscle strength, Male athlete, Mentha piperita

Introduction

Good nutrition and use of allowed steroids are among factors affecting individual function and efficiency. For example, use of Creatine, carbohydrate and Na₂Co₃ supplements enhances functions of speed athletes (A. Habibinia, 2001) or use of HMB supplement (1/5 to 3g/daily) increases strength in non-athlete men and women (H.W. Ludvigson, T.R. Rottman, 1989). However, Kerksick suggested that administration of the combined supplements (creatine, l.carnitin, Q10 coenzyme and colostrum) has increased effect on chest press power in strength exercises (Y.T. Millot, et. al., 2002). In order to improve the endurance, power, speed and strength, some athletes use steroids drugs and compounds which may cause health problems and side effects in athletes. Recent studies on herbal odors suggested that these compounds have various effects on mental and physical abilities (B. Raudenbush). According to psychological tests of Ludvigson and Rottman, Lavender affects the mood and increases one's alertness and freshness. (M.L. Pollock, et al., 1984)

Atheroleum as a natural Ergogenic Aid can be used to increase function and performance (V.S. Toller, 1998). Obvious effects on essentials is stimulation of olfactory. Odors greatly affect our feelings and also directly affect the brain. Olfactory system connected to Limbic system which is the control center of excitement, memory and sexual desires and also involves in the control of heart beat, blood pressure, stress, respiration and hormonal balance. After topical administration or inhalation, these essentials are absorbed in the blood and affect the body. (G.S. Velague, 1987)

Peppermint with its major material, menthol (50%), contains other compounds such as Methyl ester (20%), Menthon (12%), bitter odors and Theanine (G. Burton, 1993; J.A., Duke, 1985).

Efficient materials of these herbs are used in relaxation of Neural System and treatment of respiratory disorders. (B.J. Gardner, A. Teddy, 1997)

In addition to Antibacterial properties, these herbs are useful in treatment of headaches, decreasing

excitement and stress and respiratory problems. (E.J. Sawyer, 1991)

Peppermint is among drug stimulants, so it stimulates and accelerates the activities of body systems. it also contains Volatile materials which is discharged through respiratory system and stimulates the mucus and facilitates the mucus function and It`s discharge facilitates. Recent studies also suggest that these compounds have various effects on individual functions. Several studies reported the positive effects and egrogenic Aids along with increased efficiency of athlete associated with the use these compounds (M.H. Naimi, 2001) for example it is reported that inhalation of peppermint odor would be on stimulant to increase the energy of athletes and non-athletes during exercise. (C., KERKSICK, et al. 2001) or in another study, it is reported that inhalation of peppermint essence while exercising , increases athletes function. However, few evidence exists to support or deny there results. Inhalation of peppermint may be efficient in increasing athletes performance and functions.

Methods

Since the current research examines the scientific relations, so it is considered as an empirical research. But all influential factors on dependent variable are not controlled, so it can also be considered as a semi-empirical research. Here the objective is to examine the peppermint effects along with placebo effects, so the design used in the research would pre-test and post-test the control group. Descriptive statistics is used for classification and arrangement of data. Also, comparing the obtained results from experimental and control groups in pre and post –test, T-test used for dependent groups and T-test statistical used to indicate that whether results were meaningful.

Sample analysis

Among statistical community, 20 Athlete students of Tabriz University who took part in Championship plays of Iran students 2004-2005 were selected.

After measurements, average height (175/25+1/949cm), weight (71/15+9/00kg), age

(22/30+3/492) determined .No participant had any experience of physical problems and was not under medications.

Results

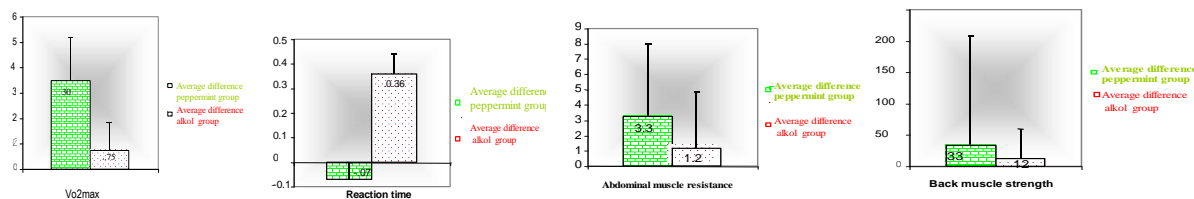
After comparing pretest (Vo2 max), reaction time, back muscle and abdominal muscle strength of experimental and control groups, it was determined that there was no meaningful relationship between the two pre-tests. On the other hand, after ranking process, it is determined that samples are selected from particular community which have similar variance and average. In fact, the homogenous presumption of variances is confirmed.

1) Comparing the average difference of pre-test and post-test of (vo2max) in two groups. There was no meaningful relationship between average difference of control and experimental groups. ($\alpha \leq 0/001$). On the other hand, inhalation of peppermint odor had meaningful effect on aerobic performance.

2) Comparing the average difference of pretest and post-test of reaction time in the 2 groups. And also considering the obtained t and $\alpha \leq 0/005$, there was a meaningful difference between control and experimental groups. i.e, inhalation of peppermint odor has meaningful effects on reaction time of athlete males of Tabriz University.

3) Comparing the average difference of pre-test and post-test of abdominal muscle resistance in 2 groups), it was determined that considering the obtained t and $\alpha \leq 0/275$, there is no meaningful difference between control and experimental groups. i.e , inhalation of peppermint odor has no meaningful effect on the resistance of abdominal muscle.

4) Comparing the average difference of pre-test and post-test of back muscle strength in 2 groups and considering the obtained t and $\alpha \leq 0/318$, there was no meaningful difference between control and experimental groups . i.e. , inhalation of peppermint odor has no meaningful effect on the strength of back muscle of athlete males of Tabriz university.



Discussion

Results of the current study, conforms with the findings of Barton & Goldberg (1993) and Reudenbasch & et.al (2001) who examined the effect: of inhalation of peppermint odor on the performance rate of athletes and non-athletes during exercise. (W.F.

Simpson, et al., 2001, I. Savic, 2001), but is in contrast with the studies of Simon & et.al (2001) who examined the effect of aromatics on physical activities which probably is due to fewer participants in Simon & et.al research. In current research, inhalation of peppermint odor increased the aerobic performance of



experimental group. According to calculations, the aerobic performance was 82% that considering the standard range, the test is of acceptable performance (J.M. Ronald, 2001) and regarding peppermint functional mechanism which causes the expansion and relaxation of respiratory muscles in contraction state and also affects the opening of upper respiratory tracts and regulation of cardiopulmonary system, conforms with the current results. (W. Hay, 2000)

The results of the study conforms with findings of Reudenbasch and et.al (2001) who examined the effects of inhalation of aromatics of peppermint odor on athletes performance, but in contrast with findings of Mill at and et.al (2002) who examined the aromatics effects on reaction time (B. Raudenbush, et al., 2001). However, the results of the study conforms with findings of Barton and Goldberg (1993) who examined the inhalation of peppermint odor on functional rate of athletes and non-athletes during exercise. Investigating the average pretest and post-test of reaction time, it is determined that average reaction time increased compared to pre-test and the result was statistically meaningful on the other hand, inhalation of 1mm of peppermint odor caused meaningful increase in reaction time of participants ($p \leq 0/011$). However, comparing pre-test and post test, reaction time in control group increased, which indicates that inhalation of 2ml of white Alcohol wouldn't cause meaningful increase in reaction time of participants ($p \leq 0/179$). However, decrease in reaction time of experimental group may be due to the effects of peppermint odors on neural system which these odors may cause relaxation and decreased stress and result in decreased heart beat during maximum activities.

In the current study, inhalation of peppermint odors increased the aerobic performance in experimental group. But the functional mechanism of these aromatics is uncertain. In the current study, based on available facilities, we performed the study to the current level.

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AQUA SYSTEM – EFFICIENT METHOD OF DEVELOPING THE PHYSICAL EDUCATION CLASSES FOR GIRL STUDENTS

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Abstract

Purpose: The purpose of the paper in question is to prove the efficiency of the Aqua System for the physical education classes to what girl students are concerned.

Methods: The main research method represented the longitudinal pedagogical experiment.

Results: After the final tests there was significant differences between experimental and control groups regarding: speed develop, abdominal strength, biceps and triceps strength and explosive strength.

Conclusion: The physiological advantages are due to the simultaneous combination of all the Fitness components: the Cardio Resistance and the Innervations with new programs, in this way diversifying the traditional methods of practice and proposing a “least boring” and highly entertaining, dynamic and attractive activity.

Key words: aqua system, physical education class, girl students.

Introduction

The past years, water gymnastics has earned an increased importance, mostly because the “pool” phenomenon is now part of the common baggage of experiences shared by a large number of people who are used to practicing a sporting activity both at an amatory level and a therapeutic one. It is common knowledge that the current way of working is constantly compelling people to choose different habits and positions that are not so adequate form the physical health point of view. Furthermore, for many people, it is absolutely necessary to empty the tensions accumulated during the day through physical exercises (C. Horve-Willoughby, 2003). Basically it was an outdoor activity which allowed this type of physical and mental advantage; afterwards appeared the increasing number of gyms with the most various types of activities starting from body building and up to fitness in its most various combinations. Presently, to all of these activities one has added the ones that were always there but which have made a comeback along with fashion, such as riding the bike, even a mountain bike in a simple race on the field or in the woods (A.S.D FITEDUCATION). Among all of these activities, the pool has always been a source of “swimming initiation”, and for a lot of years to come, besides swimming and diving, few things have been learned in it. The equipment development, the competition between fitness gyms, the mass-media and publicity, in general, from the numerous magazines showing science fictional images undergone in water, have “compelled” the pool world to add to the common activities the ones that in the beginning have been “reserved” to the rehabilitation and esthetic centers, holiday

campuses, such as water gymnastics with its various ramifications, hydro kinetic therapy, the activities perambulator to birth, the recovery of the handicapped people. Even though it is extremely difficult to evaluate the technical and quantitative value, form the physiological point of view, and to make comparisons with the effectuated activities on land, to what the operations and work hours are concerned, it is obvious that the movement in water can offer a lot of benefits to those that practice it, as long as the trainer or instructor is highly qualified and ready tot unveil correctly and with enthusiasm what he has in mind. There are a lot of similarities between the various activities done on land and those done in the water, but the duration and especially the way of execution can be very different. For these reasons alone an instructor must know, both theoretically and practically, which are the effects a certain activity may generate and what methods he can take in account to make the training class as practical, useful and fun as possible. In order to do a good job in this activity the knowledge of certain theoretical and practical aspects of the sea world becomes indispensable (K. Katz, 1981). Presently, in the sea world, one can identify three types of activities (Aquatic Exercise Association. 2006):

1. water gymnastics with a sporting and strengthening purpose;
2. activity in the water related to fitness and other choreographically activities;
3. functional recovery – rehabilitation

In any of the activities mentioned above the characteristics generated by the water resistance and the movement inside the middle of the liquid will always remain constant (A. Luca, 2001).



These are characterized by a delicate but constant resistance of water, which, on one hand allows a continuous and efficient activity for improving the muscular tonus and on the other hand does not allow the appearance of hypertrophy, a certain effect which is not always wanted by the water users.

The premises of the research

Aqua system is based on the concept of training treating simultaneously all of the Fitness components in the water: the Cardio Vascular Resistance and the Muscular Innervations. The objective for this method is giving theoretical and practical support to the professionals who want to develop their activities within the "Aqua Fitness" world. The workshop provides efficient combined training: Innervations exercises with Cardio Vascular ones, all distributed in a dynamic and complete training session (A.S.D FITEDUCATION, J. Mason, 1999). The latter may offer:

- a global activity combining trainings
- more motivating and fun lessons creating a new, innovative method

The **purpose** of this paper states the role of the man's physical qualities as essential in improving the organism's qualities and, implicitly, in fighting stress and daily issues. The paper in question aims to develop a study regarding the acquisition of certain better physical qualities even from the beginning of practicing the Aqua System exercises. This has become really important, especially in developed countries, where the method has proved to be beneficial, simply due to its efficiency and non agonizing aspects.

Hypothesis: one begins from the premise that through Aqua System, in a single session one can obtain remarkable physiological benefits "combining" simultaneously all of the Fitness components: the Cardio Resistance and Innervations with new programs, diversifying the traditional training methods and proposing a "least boring" activity that is a dynamic, ecstatic and fun one.

Methods used

Apparatuses and objects used

Talking about apparatuses, one can refer to different types and models. One can define and divided them as follows: resistant, floating and mixed. The apparatuses have different degrees of

difficulty and different execution speeds (J.D. MAC. DOUGAL, & COL).

The main apparatuses used in aqua-fitness are: the pool's edge, palm shaped gloves, floating belts, hydro protective ankles, pole, swimming fins, rubber bands, scissors, hydro step, aqua flap, water bikes. To all of these one can add (with a certain reduced using) the equipment of the swimming school: fins, disks, floats, life buoys, ball.

Aqua System Means

Cardio Aqua: consists of a series of general exercises of about 25-35 minutes followed by muscular resistance exercises executed especially for the superior and inferior extremities (A. Kock, T. Dargatz, 1995). This program offers the possibility of achieving a general conditioning effect. The resistance activity must be balanced and dynamic executing a single exercise for each muscular group, eventually modifying only the execution speed and the force application (table 1 and 2).

Water gymnastics: represents the traditional water gymnastics lesson, developed with or without music and especially addressed to a feminine target (easy aqua gym for third age women, pregnant women, as well as animating the organism, etc.) and has the following characteristics: music is not indispensable, does not have physical counter indications, can be done both in deep and shallow water, can be done with or without auxiliary equipment, can integrate the athletic training in different sports, the muscular strengthening is one of its many functions (E. McEvoy, P. Josep, 1985)

Water Aerobic: refers to all water activities done on music which aim not only to improve the general innervations and coordination capacities but also to act on the respiratory capacities of each individual with increasing respiratory performance through an adequate training. Among the water aerobic objectives one may find (D. Ott, N. Shmidt, 1995):

- stimulating the cardio respiratory apparatus
- improving the coordination capacities
- using the systems of producing respiratory energy
- using choreographies and movement combinations (with or without equipment) on music

Table 1

Classical Fitness moves used in the lessons with girl students in the sea world

REDUCED IMPACT:	GREAT IMPACT:	DANCING STEPS
<ul style="list-style-type: none"> Walking March Touching the foot Touching the toes Extensions Feints Leaning on the heel Lifting up the knees LEG CURL Kicking forwards, on the side and backwards Dwarf walking V steps Ext-Ext –In-In 	<ul style="list-style-type: none"> Jogging/Running Jumping (and while sitting) Feints Lifting up the knees Leaning forwards Leaning backwards Jumping while lifting up the heels Kicking Kicking whit your foot up Jumping while joining the heels Tail slide Swinging on the side Jumping whit your foot on the side 	<ul style="list-style-type: none"> MAMBO CHA CHA SWIVELLING CHASSE' JAZZ SQUARE KICK BOWL CHANGE PAS DE BOURREE PONY TWIST

Table 2

The basic steps of water aerobic gymnastics and the sea rhythms used in the girl students lessons

LOW IMPACT STEPS	GREAT IMPACT STEPS
<ul style="list-style-type: none"> Walking Touching the toes Knees to the chest Hitting/Kicking Running with the heels to the bottom Leaning forwards while touching the leg Dwarf walking forwards/backwards Coiling the torso Jumping like a ball 	<ul style="list-style-type: none"> Crossed steps Lifting up the knees Kicking (high or low) Jumping (and while sitting) Jumping while sitting with crossed ankles Airy crane Jumping whit your feet on the side Riding position Tail slide Scissors Skiing Curling position Butterfly walk

Continuous water activity

The choreographic water activities are numerous and aim different aspects of the gymnastic movement in the water. It is difficult to establish for each of them a correct way of name identification because, in this case, the free interpreting of the instructors has generated a diversity of programs around a certain name (R. Sova, 2000). This is the reason, just to simplify and draw an important pilot line, for which all of these

activities have united under the general term of aqua gym, the activities in question following the musical rhythm, creating a succession of gymnastic movements on land and in the water, with or without equipment. All of these combined generate a certain choreography. Therefore, "Water aerobic gymnastics" or Aqua Gym is a conventional name for identifying the type of water activity, but any type of water gymnastics can be named aerobic (WWW.FITEDUCATION.IT) (table 3).

Table 3

Elements and exercises used

Articulate movements	Low intensity	Medium intensity	High intensity	Combinations
<ul style="list-style-type: none"> Head Shoulders Pelvis Knees Ankles 	<ul style="list-style-type: none"> Walking Side curling Tail slide Leaning on the heels Feints Squat Curling Running with the knees to the chest 	<ul style="list-style-type: none"> Frontal low kick Side low kick Tail slide Leaning on the heels Jumping pace Scissors Jumping with a curl 	<ul style="list-style-type: none"> Frontal high kick Side high kick Tall scissors Crane Riding position Jumping: with the legs glued/departed/side to side/forwards/backwards Floating crane 	<ul style="list-style-type: none"> 8t Crane 8t High kick 16t Jumping with curl Repeat everything SX

Organizing and developing the research

The research has been conducted within the physical education classes with the girl students of the Transylvania University, during one semester (14 weeks x 60 minutes). The girls chose from a list of 11 educational activities swimming. The sample included 20 girl students (10 gathering the experiment group, 10 the control group). The main research method represented the longitudinal pedagogical experiment. The experiment group developed lessons of Aqua System Fitness while the control group developed normal swimming lessons. We have organized 2 testing parts at the beginning and end of the semester. The testing consisted of 4 attempts:

1. speed running in the water on a 10 meters distance
2. maintaining the legs at 90° to the trellis form hanging
3. push ups on the clock – number of repetitions in 20 seconds
4. 5 jumps with the knees to the chest in the water on the clock

To the initial testing of the first attempt - **speed running in the water on a 10 meters distance** – the average scores of the experimental group varied from 8, 87+/- 0, 09s, with a 0, 29 miscalculation, while the control group varied from 8, 78+/-0, 09s, with a 0, 29 repeat miscalculation. The Student testing value for the initial testing was of 0, 68 which proves that between the two groups, in the beginning of the experiment, there weren't considerable differences for a significance step of P>0, 05 (table 4). To the final testing the average scores for the experimental group varied from 8, 23+/- 0, 06s, with a 0, 19 repeat

miscalculation, while the control group varied from 8, 68+/- 0, 08s, with a 0, 25 repeat miscalculation. The Student testing value for the final testing was of 4, 34 which proves that at the end of the experiment there were considerable differences between the two groups for a significance step of 99% for P<0, 01. Considering the initial testing, the values of the experimental group improved with 0, 8s while the values of the control group improved with only 0, 1s (table5).

Obtained results

To the initial testing of the second attempt - **maintaining the legs at 90° to the trellis form hanging** – the average score of the experimental group varied from 4, 05+/-0, 05s, with a 0, 16 repeat miscalculation, while the control group varied from 4,0+/-0, 03s, with a 0, 1s repeat miscalculation. The Student testing value was of 0, 77 which proves there weren't considerable differences between the two groups in the beginning of the experiment, congruent to a significance step of P>0, 05. To the final testing the average scores for the experimental group varied from 4, 31+/-0, 02, with a 0, 08 repeat miscalculation, while the control group varied from 4, 10+/-0, 02s, with a 0, 09 repeat miscalculation. The Student testing value for the final testing was of 5, 63 which proves that at the end of the experiment there were considerable differences between the two groups for a significance step of 99% for P<0, 001. Considering the initial testing, the values of the experimental group improved with 0, 26s while the values of the control group improved with only 0, 10s (tables 4 and 5).

Table 4

Statistical indicators for the TI general physical education training attempts – girl students (10)

Nr.	Parameters	Initial testing/girl students n=10			
		Experiment group	Control group	Authenticity	
		\bar{X}	\bar{X}	t	p
1.	Speed running in the water on a 10 meters distance. (sec.)	8,87 ± 0,09	8,78 ± 0,09	0,68	>0,05
2	Abdominal isometric contraction from hanging to the trellis (sec.)	4,05 ± 0,05	4,00 ± 0,03	0,77	>0,05
3	Push ups (number of repetitions/20 sec.)	10,2 ± 0,41	10,1 ± 0,51	0,15	>0,05
4	5 jumps with the knees to the chest on the clock (sec.)	7,03 ± 0,06	7,08 ± 0,07	0,52	>0,05

Table 5

Statistical indicators for the TF general physical education training – girl students (n.10)

Nr.	Parameters	Final testing/girl students n=10			
		Experiment group	Control group	Authenticity	
		\bar{X}	\bar{X}	t	p
1.	Speed running in the water on a 10 meters distance. (sec.)	8,23 ± 0,06	8,68 ± 0,08	4,34	<0,01
2	Abdominal isometric contraction from hanging to the trellis (sec.)	4,31 ± 0,02	4,10 ± 0,02	5,63	<0,001
3	Push ups (number of repetitions/20 sec.)	13,6 ± 0,30	11 ± 0,30	5,98	<0,001



4	5 jumps with the knees to the chest on the clock (sec.)	6,34 ± 0,01	7,03 ± 0,06	10,3	<0,001
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To the initial testing of the third attempt - **push ups on the clock – number of repetitions in 20 seconds** – the average score of the experimental group varied from 10, 2+/-0, 41s, with a 0, 29 repeat miscalculation, while the control group varied from 10,10+/-0, 51s, with a 1,62 repeat miscalculation. The Student testing value was of 0, 15 which proves there weren't considerable differences between the two groups in the beginning of the experiment, congruent to a significance step of $P > 0, 05$. To the final testing the average scores for the experimental group varied from 13, 6+/-0, 30, with a 0, 97 repeat miscalculation, while the control group varied from 11+/-0, 30s, with a 0, 97 repeat miscalculation. The Student testing value for the final testing was of 5, 98 which proves that at the end of the experiment there were considerable differences between the two groups for a significance step of 99% for $P < 0, 001$. Considering the initial and final testing, the values of the experimental group made a progress of 3, 4 s , while the control group only a 1s progress (tables4 and 5). To the initial testing of the forth attempt -**5 jumps with the knees to the chest in the water on the clock** – the average score of the experimental group varied from 7, 03+/-0, 06s, with a 0, 21s repeat miscalculation, while the control group varied from 7, 84+/-0, 07s, with a 0, 22s repeat miscalculation. The Student testing value was of 0, 15 which proves there weren't considerable differences between the two groups in the beginning of the experiment, congruent to a significance step of $P > 0, 05$. To the final testing the average scores for the experimental group varied from 6, 43+/-0, 01s, with a 0 ,05s repeat miscalculation, while the control group varied from 7, 03s, with a 0, 2s repeat miscalculation. The Student testing value for the final testing was of 10, 3 which proves that at the end of the experiment there were considerable differences between the two groups for a significance step of 99% for $P < 0, 001$. Considering the initial testing, the values of the experimental group improved with 0, 27s while the values of the control group improved with only 0 ,05s (tables 4 and 5).

Conclusions

Advantages and benefits of water fitness:

- Water movement can result in an efficient relaxation of the spine and various articulations, innervating the tendons, the ligaments and the muscles avoiding the risk of overcharging the muscles or traumatizing the various articulate apparatuses
- Water movement can result in the innervations of the muscularity without provoking hyper trophy
- Opposing a much bigger resistance to going further than that of air, water will allow the harmonious, balanced and significant use of the entire muscularity of calf and torso with the respective improvement of the efficient cardio vascular apparatus

- Compelled to reorganize and adapt the driven schemes to water, every exercise that is being done in the water will improve the receptive sensibility and balance
- In the water one can correct the position flaws
- There are no same tiring symptoms with that of the land activities
- One does not accumulate lactic acid
- In the water one can maintain longer the body temperature
- The training effects will be much more faster than those on land
- The water's continuous massage will lead to an improvement of the blood and lymphatic circulation with the drained respective effect
- The psycho driven abilities create a sensation of control and personal satisfaction produced by the training and improving the kinesthetic and aquatic knowledge
- The psycho physical abilities relate to the good physical sensation induced by the movement in the water and generate a mentally well being and relaxation.

The negative aspects of the water activities

- To a water temperature below 28°, the vascular constriction will appear with a possible cold sensation
- The variety of movements and choreographies induced by water are limited to what those effectuated on land are concerned
- In the water one will have a greater difficulty in executing the correct moves (the greatest challenge will be in deep water).

Fundamental parameters of water gymnastics

We are talking about the ones that we consider being important and accountable with the purpose of developing a certain activity that leads to obtaining the provided results, without taking any chances to what the incorrect execution of some students is concerned, situation which might compromise the validity of the provided exercises.

We are taking in account the following:

- Positioning, that is the correct position adapted to the developing of the exercises
- The water's depth, depending on which we can modify the pupils' arrangement in the pool
- The water temperature, a fundamental factor in the rehabilitation sector, as well as in the Fitness frame
- The type of movement, the direction and the richness of the latter, as well as the execution speed, subordinated, more or less to a musical rhythm.



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RESEARCH FOR DETERMINING ON WHAT LEVEL PHYSICAL EDUCATION AND SPORT LESSON, CARRIED OUT IN ELEMANTERY SCHOOLS, REACHES ITS AIMS

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Abstract

The research has been carried out to determine on what level physical education and sport lesson, carried out in elementary schools, reaches its aims.

A survey has been developed in accordance with the aim. The comprehensibility, content validity and reliability of the research have been tested. The Cronbach's Alpha reliability coefficient of the survey has been found as 0,84. According to researchers, this is a valid coefficient, too.

The survey scope includes Physical Education and Sport lesson teachers working in elementary schools in Ankara, Çorum and Kırşehir city-centrums. The survey has been tried to be applied for all Physical Education and Sport lesson teachers within whole scope. So, a total of 276 participators, 198 of whom are males and 78 of whom are females, have been reached.

To the data obtained, as statistical operation; frequency (f), percentage (%), cross table (crosstab), and to distinguish the differences; chi Square (X^2) operations have been applied. After the operation, (%) distribution has been shown for each question and to differences between views, interpretations have been made taking 0,05 as confidence interval.

As result of evaluation of the data, the curriculum program of Physical Education and Sport lesson, carried out in primary schools, generally reaches its aims on medium level and female participators are more positive in inter-gender views when they are compared to male participators.

Key Word: Elementary, Physical Education and Sport, Aim

Introduction

One of the most striking features of mankind is to renew themselves and convey their knowledge and experiences, which they adopted, to new generations. They fulfill this through education and teaching process. Education is the process that leads individuals and communities to a proper life style and transferring the gained knowledge, ability and values to coming generations and at the same time changing man's behaviors through life experiences. (A. Yetim, 2000). It is the row of continuous activities that are applied to

develop and gain knowledge, behavior and abilities. (M.M. Erkal, 1998). When it is taken from this aspect, we can say that education continues from the birth until the death of human. The only aim of education is to bring up individuals of high quality. To bring a qualified man is possible by intellectual development as well as physical, social and emotional development. That's why physical education and sport is taken as a part of contemporary education. When we look back to history, we see that the importance of Physical Education and Sport within common education was



perceived in and worked on from different ways depending on social, economical, political and cultural changes and development. Especially in 20th C., people accepted physical education and sport as the exit door of expressing, fulfilling and improving themselves (A. Yetim, 2000). So, this shows that physical education and sport has an important function in bringing up qualified individual within the frame of general education. Today, Physical Education and Sport is accepted as the conscious and planned activities which aim at the physical, intellectual, social and emotional development of human that is the basic source of growing generation and as supplemental and an indispensable part of common education. (I. Yildiran, A. Yetim, 1996). In elementary education period, children should learn to increase movement ability along with intellectual education. In that, they pass to a social environment from house environment in this period. They add new habits of their school life to those that they gained at home. The importance of habits of individuals which they adopt in school is of great importance in the actions of them within the phase from birth to death. However, so that s/he can show a healthy improvement for all aspects, it is only possible for a child to have a qualified education that is perfectly prepared. Since education is a completely intellectual-physical relationship concerning all organisms, intellect and body should be taken as one. To aim at and fulfill an education in contemporary sense, it can be conducted through implementing the physical education as well as intellectual education of the student. Physical education should be interpreted as part of the general education. Intellectual and physical educations present a parallelism in terms of their goals. Both educations have the quality of completing one another. (K. Tamer, 1987). Because of this, in our schools, especially in elementary schools, we should give importance to the physical education and sport lessons in the education of children who are present as organized and come to learn something. Government seniors who are aware of this fact state in the 59th article of the constitution that "State takes all precautions to improve physical and mental health of individuals of all age groups, encourages sport's being prevalent to the masses and protects successful sportsman." (E.B. Milli, 2000). Within the main aims of National Education too, there is the passage declaring that the youth must be educated as balanced and healthily in terms of body, intellect, moral, mental and emotion; having independent and scientific thinking power and a wide world sight; respectful to human rights, giving importance to personality and enterprise, feeling responsibility for the society, maker and creative and productive individuals. (E.B. Milli, 2001). In our country, since the foundation of the republic until present time, many laws and decisions have been made to protect and educate children and young people. But, these acts and laws have not been completely implemented. We can attribute this to the lack of a radical state policy in our education system.

Ruling governments are implementing an education system in parallel with their program. As a result, they have different sight for education. If we look at how Physical Education and Sport lessons are carried out in education institutions, when the plan and program of Physical Education and Sport lessons are prepared, the program which is decided and sent to schools by the ministry of national education is taken as the main program, the feasibility of which is disregarded, and because of the fact that the other cultural lessons in the program are envisaged to be dealt more; it is seen that no sufficient time is spared to physical education and sport lessons and as a common view, the idea, that this course is only the movements of arm and foot which is to be passed over, is widespread. We can attribute the reasons of these to the fact that the importance of Physical Education and Sport, in upbringing children, is not completely understood.

However, as being a state policy in developed countries, the importance of Physical Education and Sport for child's education and health has been understood and therefore we see that Physical Education and Sport are given importance in all ages and levels. In our country too, the importance that our country must give for Physical Education and Sport encounters us in all dimensions. The next generation's being healthy, successful and powerful in all aspects will be possible with a good education that will be given to them. Physical Education and Sport education is an important means so that this comes true. That's why the importance which will be given to Physical Education and Sport is an important investment for the next generations to be grown as strong, healthy, reliable, moral (Y. Çobanoğlu, 1992). This can only be done with the importance we will give to Physical Education and Sport in our education institutions. In our research, the carrying out of Physical Education and Sport lessons, which have an important role in bringing up qualified individual, in elementary schools and on what level do they reach their aims are dealt.

Material and method

In the research, it is aimed to bring out on what level do Physical Education and Sport lessons, carrying out in primary schools, reach their aims. A survey has been developed in accordance with the aim. The comprehensibility, content validity and reliability of the survey have been tested. The reliability coefficient, Cronbach Alfa reliability of the survey has been found out to be 0,84. According to researches and works on this matter, this coefficient seems to be sufficient for the reliability of the scale. The survey scale of the research has been tried to be conducted on all Physical Education and Sport teachers who work in primary schools in Ankara, Çorum and Kırşehir city centers. In this way, it has been applied to a total of 276 participators, 198 of whom are males and 78 of whom are females. As statistical operation to the obtained data, cross table (crosstab), frequency and percentage (%) and to test the differences chi-Square (X^2) techniques have been applied. After the operation, for each

question (%) distribution has been shown and for detecting the differences between the views

interpretations have been made taking 0,05 as confidence interval.

Findings

Chart 1. Personal Information Distribution of the Attendants

Changeable	N (Share)	% (Share)	
Gender	Male	198	71,7
	Female	78	28,3
	Total	276	100,0
Service Years in Schools	Less than 5 years	102	37,0
	6-10 years	108	39,1
	11-15 years	36	13,0
	16-20 years	18	6,5
	21-25 years	12	4,3
	Total	276	100,0
Weekly Lesson Loads Distribution	Less than 10 hours	36	13,0
	11-15 hours	72	26,1
	16-20 hours	72	26,1
	21-25 hours	48	17,4
	More than 26 hours	48	17,4
	Total	276	100,0

In Chart 1; the gender, their service years in the school, weekly lesson loads distribution of the participants are questioned. According to this inquiry, a total of 276 people have been participated to the survey. %71,7 of these are males and %28,3 are females. When we examine the participants' service years in schools and their weekly lesson loads distribution, we see, about service years; %39,1 of

them have 6–10 years, %37 have less than 5 years, %13 have 11-15 years, %6,5 have 16-20 years, %4,3 have 20-25 years of work and about their weekly lesson loads; %26,1 have 11-15 hours, %26,1 have 16-20 hours, %17,4 have 21-25 hours, %17,4 have 26 hours and more and %13 of them have less than 10 hours of lesson.

Chart 2. Education Types Distribution of the Surveyed Schools

Changeable	N (Share)	% (Share)
Single Education	156	56,5
Double Education	120	43,5
Total	276	100,0

As can be seen in the table above, %56,5 of the schools have single-education and %43,5 apply double education. This result shows us that we have not yet been able to completely pass to single education which is one of the necessities of contemporary education.

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Chart 3. The Distribution of Participants' View on the Question "On Which Proportion Does the Lesson Willingness of the Students Who Participate in Physical Education and Sport lessons happens?"

Changeable	Quite Much	Much	A little	Total
Male	90	72	36	198
	45,5%	36,4%	18,2%	100,0%
Female	66	12	-	78
	84,6%	15,4%	-	100,0%
Total	156	84	36	276
	56,5%	30,5%	13%	100,0%

In Chart 3, the question "on which proportion does the lesson willingness of the students who participate in physical education and sport lessons

happen?" is inquired. When we examine the views of the participants according to their genders; we see that %45,5 of male participants say "quite

much”, %36,4 say “much” and %18,2 say “a little”; whereas %84,6 of the female participators say “quite

much”, %15,4 say “much” and %13 say “a little”.

Chart 4. The Share of Attendants’ View on the Question “Do you think Physical Education and Sport Lessons are Enough for the Kid’s Movement Necessity?”

Changeable	Quite Enough	Enough	A Little Enough	Insufficient	Rather Insufficient	Total
Male		12	18	108	60	198
		6,1%	9,1%	54,5%	30,3%	100,0%
Female	12		18	24	24	78
	15,4%		23,1%	30,8%	30,8%	100,0%
Total	12	12	36	132	84	276
	4,3%	4,3%	13%	47,8%	30,4%	100,0%

In Chart 4, the question “Do you think if Physical Education and Sport lessons are enough for the Kid’s Movement Necessity?” is inquired. When we examine the views of the participators’ according to their genders; we see that %6,1 of the male participators say “enough”, %9,1 say “a little enough”, %54,5 say “insufficient”, %30,3 say “rather

insufficient” while %15,4 of the female participators say “enough”, %23,1 say “a little enough”, %30,8 say “insufficient” and %30,8 say “rather insufficient” and the answers in total show us that %4,3 of them say “quite enough”, %4,3 say “enough”, %47,8 say “insufficient” and %30,4 of them say “rather insufficient”.

Chart 5. The Distribution of Attendants’ View on the Question “If Physical Education and Sport Lesson is exercised in accordance with its aim?”

Changeable	Quite Agree	Agree	Little Agree	Disagree	Rather Disagree	Total
Male	6	60	66	54	12	198
	3,0%	30,3%	33,3%	27,3%	6,1%	100,0%
Female	-	18	48	12	-	78
	-	23,1%	61,5%	15,4%	-	100,0%
Total	6	78	114	66	12	276
	2,1%	28,2%	41,3%	24%	4,3%	100,0%

In Chart 5. The question “If Physical Education and Sport Lesson is exercised in accordance with its aim?” is inquired. When we examine participators’ views to the question according to their sexes; we see that, %33,3 of the male participators say “I am a little agree”, %27,3 say “I am disagree” %6,1 say “I am rather disagree”, %3 say “I am quite agree”

while %61,5 of the female participators say “I am a little agree”, %23,1 “I am quite agree”, %15,4 “I am disagree” and in total %41,3 “I am a little agree”, %28,2 “I am agree”, %24 “I am disagree”, %4,3 “I am rather disagree” and %2,1 “I am quite agree”.

Chart 6. The Share of Participators’ View on the Question “Do You Think Physical Education and Sport Lessons satisfy (Physiological, Social and Psychological) needs of the students?”

Changeable	Very Much	Much	Average	Little	Doesn’t Satisfy	Total
Male	30	30	78	60	-	198
	15,2%	15,2%	39,4%	30,3%	-	100,0%
Female	24	6	42	6	-	78
	30,8%	7,7%	53,8%	7,7%	-	100,0%
Total	54	36	120	66	-	276
	19,5%	13%	43,4%	24%	-	100,0%

In Chart 6, the question “Do You Think Physical Education and Sport Lessons satisfy (Physiological, Social and Psychological) needs of the students?” is inquired. When we examine participators’

views on the question according to their genders; %39,4 of male participators tick

“average”, %30,3 choose “little”, %15,2 choose “very much” while % 53,8 of the female participators choose “average”, %30,8 of them choose “very much” ,%7,7 choose “much” and %7,7 tick “little” options and in total; %43,4 choose “average”, %24 choose “little”, %19,5 choose “very much” and %13 of them tick “much” options.

Chart 7. The Distribution of Participators’ Views on the aims of Physical Education and Sport Lesson and on What Level It Reaches Its Aims.

The Aims of Physical Education an Sport Lessons		Completely	Average	Little	Never Reach	Total	X ² / P
The ability to explain the speeches of Ataturk and other philosophers on Physical Education and Sport.	Male	60 30,3%	84 42,4%	42 21,2	12 6,1%	198 100,0%	26,503 0,000
	Female	48 61,5%	24 30,8%	6 7,7%	0 ,0%	78 100,0%	
	Total	108 39,1%	108 39,1%	48 17,4%	12 4,3%	276 100,0%	
To strengthen and develop suitable for the levels of all Organs and Systems.	Male	30 15,2%	114 57,6%	48 24,2%	6 3,0%	198 100,0%	12,802 0,005
	Female	18 23,1%	48 61,5%	6 7,7%	6 7,7%	78 100,0%	
	Total	48 17,4%	162 58,7%	54 19,6%	12 4,3%	276 100,0%	
To be able to adopt good posture habit.	Male	60 30,3%	108 54,5%	30 15,2%	0 ,0%	198 100,0%	7,184 0,028
	Female	36 46,2%	36 46,2%	6 7,7%	0 ,0%	78 100,0%	
	Total	96 34,8%	144 52,2%	36 13,0%	0 ,0%	276 100,0%	
The distribution of participators’ view for presenting on which level it reaches its aim of being able to adopt basic knowledge and skill about Physical Education and Sport.	Male	48 25,0%	114 59,4%	30 15,6%	0 ,0%	192 100,0%	17,115 0,000
	Female	36 50,0%	24 33,3%	12 16,7%	0 ,0%	72 100,0%	
	Total	84 31,8%	138 52,3%	42 15,9%	0 ,0%	264 100,0%	
To be able to move in parallel with the rhythm and music.	Male	24 12,1%	66 33,3%	96 48,5%	12 6,1%	198 100,0%	41,875 0,000
	Female	24 30,8%	24 30,8%	12 15,4%	18 23,1%	78 100,0%	
	Total	48 17,4%	90 32,6%	108 39,1%	30 10,9%	276 100,0%	
To adopt knowledge and skill on our folk dance and be willing to apply them.	Male	12 6,3%	72 37,5%	60 31,3%	48 25,0%	192 100,0%	48,771 0,000
	Female	30 38,5%	18 23,1%	24 30,8%	6 7,7%	78 100,0%	
	Total	42 15,6%	90 33,3%	84 31,1%	54 20,0%	270 100,0%	

P<0,05



Chart 7. Continuation

To be able to understand the meaning and the importance of national festivals and independence days.	Male	72 38,7%	78 41,9%	18 9,7%	18 9,7%	186 100,0%	45,762 0,000
	Female	54 69,2%	6 7,7%	18 23,1%	0 ,0%	78 100,0%	
	Total	126 47,7%	84 31,8%	36 13,6%	18 6,8%	264 100,0%	
To evaluate the spare times with sport activities by comprehending the benefits of Physical Education and Sport to health.	Male	48 24,2%	108 54,5%	42 21,2%	0 ,0%	198 100,0%	7,969 0,019
	Female	18 23,1%	54 69,2%	6 7,7%	0 ,0%	78 100,0%	
	Total	66 23,9%	162 58,7%	48 17,4%	0 ,0%	276 100,0%	
To be able to adopt knowledge, skill, manner and habits about basic first aid rules.	Male	24 12,1%	108 54,5%	66 33,3%	0 ,0%	198 100,0%	39,740 0,000
	Female	24 33,3%	18 25,0%	24 33,3%	6 8,3%	72 100,0%	
	Total	48 17,8%	126 46,7%	90 33,3%	6 2,2%	270 100,0%	
To love nature and be able to make use of the sun	Male	60 30,3%	78 39,4%	54 27,3%	6 3,0%	198 100,0%	10,931 0,012
	Female	36 46,2%	18 23,1%	24 30,8%	0 ,0%	78 100,0%	
	Total	96 34,8%	96 34,8%	78 28,3%	6 2,2%	276 100,0%	
To adopt the habit of working in co-operation and acting together.	Male	54 27,3%	102 51,5%	36 18,2%	6 3,0%	198 100,0%	8,678 0,034
	Female	24 30,8%	30 38,5%	24 30,8%	0 ,0%	78 100,0%	
	Total	78 28,3%	132 47,8%	60 21,7%	6 2,2%	276 100,0%	
The distribution of participators' view for presenting on what level they reach their aims of taking duty and responsibility, conforming to the leader and giving urgent decision.	Male	42 21,2%	84 42,4%	66 33,3%	6 3,0%	198 100,0%	10,893 0,012
	Female	30 38,5%	30 38,5%	18 23,1%	0 ,0%	78 100,0%	
	Total	72 26,1%	114 41,3%	84 30,4%	6 2,2%	276 100,0%	
The distribution of participators' view for presenting on what level it reaches its aim of self-confidence and deciding on place and urgently.	Male	42 21,2%	84 42,4%	66 33,3%	6 3,0%	198 100,0%	14,151 0,003
	Female	12 16,7%	48 66,7%	12 16,7%	0 ,0%	72 100,0%	
	Total	54 20,0%	132 48,9%	78 28,9%	6 2,2%	270 100,0%	

P<0,05

Chart 7. Continuation

The distribution of participators' view for presenting on what level it reaches its aim of adopting	Male	18 9,1%	102 51,5%	78 39,4%	0 ,0%	198 100,0%	20,401 0,000
	Female	24 30,8%	30 38,5%	24 30,8%	0 ,0%	78 100,0%	

manners and habits that democratic life requires.	Total	42 15,2%	132 47,8%	102 37,0	0 ,0%	276 100,0%	
The distribution of participators' view for presenting on what it reaches its aim of providing nerve, muscle and joint coordination.	Male	30 15,2%	114 57,6%	48 24,2%	6 3,0%	198 100,0%	4,554
	Female	18 23,1%	42 53,8%	18 23,1%	0 ,0%	78 100,0%	0,208
	Total	48 17,4%	156 56,5%	66 23,9%	6 2,2%	276 100,0%	
The distribution of participators' view for presenting on what level it reaches its aim of playing friendly, appreciating the winner of the competition, accepting to lose and being against injustice.	Male	42 21,2%	84 42,4%	60 30,3%	12 6,1%	198 100,0%	3,612
	Female	24 30,8%	30 38,5%	18 23,1%	6 7,7%	78 100,0%	0,306
	Total	66 23,9%	114 41,3%	78 28,3%	18 6,5%	276 100,0%	
The distribution of participators' view for presenting on what level it reaches its aim of using the public equipments well and saving them.	Male	36 18,2%	66 33,3%	84 42,4%	12 6,1%	198 100,0%	6,048
	Female	18 23,1%	30 38,5%	30 38,5%	0 ,0%	78 100,0%	0,109
	Total	54 19,6%	96 34,8%	114 41,3%	12 4,3%	276 100,0%	

P<0,05

In Chart 7, the proposal which is one of the aims of Physical Education and Sport lesson, “the ability to explain the speeches of Ataturk and other philosophers on Physical Education and Sport”, is inquired. When we examine the views of the attendants, we see that, %42,4 of male participators say “completely”, %21,2 say “little”, %6,1 say “none” while %61,5 of female participators say “completely”, %30,8 of them say “average”, %7,7 say “little”. In the comparative analysis of the participators' view, X^2 value is found as 26,503. This value has meaning in 0,5 significance level ($P<0,05$). That means, there is a meaningful difference of opinion among participators. When we compare the participators' opinions in detail, we see that females focus on “completely” option more than males. In Chart 7, one of the aims of Physical Education and Sport lesson, “to be able to strengthen and develop suitable for the levels of all organs and systems”, is inquired. To this question, %57,6 of male participators say “average”, %24,2 say “little”, %15,2 say “completely”, %3 say “none” while %61,5 of female say “average”, %23,1 say “completely”, %7,7 say “little”, %7,7 say “none” answers. Comparative X^2 value of the answers is found as 12,802. This value has meaning in 0,5 significance level ($P<0,05$). That means, there is difference of opinion in participators views. When compared to male, female participators' opinions mainly focus on “average” and “completely” options when compared to males. In Chart 7, one of the aims of Physical Education and Sport lesson, “to be able to adopt good posture habit”, is inquired. When we examine the participators' answers to the questionnaire,

we see that, %54,5 of male participators say “average”, %30,3 say “completely”, %15,2 say “little” while %46,2 of female participators say “average”, %46,2 say “completely and %7,7 of them tick “little” option. In the comparative analysis of the participators' view, X^2 value is found as 7,184. This value has meaning in the 0,5 significance level ($P<0,05$). That means, there is a meaningful difference of opinion among participators' views. Males mainly choose “little” option while female participators have the majority in “completely” option. As it can be seen in the table above, one of the aims of Physical Education and Sport lessons, “being able to adopt basic knowledge and skill about Physical Education and Sport” questionnaire is inquired. To this question, %59,4 of male participators think “average”, %25 think “completely”, %15,6 think “little” while %50 of female participators think they “completely” reach their aims, %33,3 think “average”, %16,7 think “little”. In the comparative analysis of the participators' view, X^2 value is found as 17,115. This value has meaning in 0,5 significance level ($P<0,05$). That means, there is a meaningful difference of opinion among participators' views. When we compare the participators' view in detail, we see that females focus on “completely” option more than males. In Chart 7, one of the aims of Physical Education and Sport lessons, “to be able to move in parallel with the rhythm and music” is inquired. To this question, %48,5 of male participators think “little”, %33,3 think “average”, %12,1 think “completely”, %6,1 think it “never” reaches its aim while %30,8 of female participators think



“completely”, %30,8 think “average”, %23,1 think “never”, %15,4 think that it reaches its aim on “little” level. In the comparative analysis of the participators’ view, X^2 value is found as 41,875. This value shows us there is a meaningful view difference. When the table is examined in detail, male participators are on the opinion that it reaches its aims on “average” and “little” levels in comparison with females. In Chart 7, one of the aims of Physical Education and Sport lessons, “to adopt knowledge and skill on our folk dance and be willing to apply them” is inquired. To this question, %37,5 of male participators reply as “average”, %31,3 reply “little”, %25 reply, “never” and %6,3 reply “completely while %38,5 of female participators reply “completely”, %30,8 reply “little”, %23,1 say “average” and %7,7 of them give the answer of “never”. In the comparative analysis of the participators’ view, X^2 value is found 48,771. This value shows us there is a quite meaningful difference of opinion. ($P < 0,05$). In detailed examination of the answers, female participators mainly focus on “completely” option whereas male participators generally focus on “average” and “little” options. In Chart 7, one of the aims of Physical Education and Sport, “to be able to understand the meaning and the importance of national festivals and independence days” is inquired, for presenting on what level it reaches its aim; %41,9 of male participators say “average”, %38,7 say “completely”, %9,7 say “little” %9,7 say “never” while %69,2 of female participators say “completely”, %23,1 say “little”, %7,7 of them say “average”. In the comparative analysis of the participators’ views, X^2 value is found 45,762. This value is quite meaningful ($P < 0,05$). That is, there is a quite meaningful difference of opinion. In detailed examination of the table, females mainly focus on “completely” option when they are compared to male participators.

In the chart above, one of the aims of Physical Education and Sport lessons, “to evaluate the spare times with sport activities by comprehending the benefits of Physical Education and Sport to health” questionnaire is inquired. When we examine participators view for presenting on what level it reaches its aim, we see that %54,5 of male participators say “average”, %24,2 say “completely”, %21,2 say “little” while % 69,2 of female participators say “average”, 23,1 say “completely”, %17,4 of them say “little”. In the comparative analysis of the participators’ view, X^2 value is found 7,969. This value shows there is a meaningful difference of opinion ($P < 0,05$). When answer columns are examined in detail, female participators seem to focus on mainly “average” option in comparison with males. In Chart 7, “to be able to adopt knowledge, skill, manner and habits about basic first aid rules” questionnaire is inquired. When we examine participators’ answers, %54,5 of male participators think “average”, %33,3 think “little”, %12,1 think “completely” while %33,3 of female participators think “completely”, %33,3 think

“little”, %24 think “never” and %8,3 think that it “never” reaches its aims. In the comparative analysis of the participators’ view, X^2 value is found 39,740. This value shows there is a meaningful difference of opinion ($P < 0,05$). In detailed examination of the answers, it is seen that female participators mainly focus on “completely” option whereas male participators generally focus on “average” option. In Chart 7, one of the aims of Physical Education and Sport lessons, “to love nature and be able to make use of the sun, fresh air” questionnaire is inquired. When we examine participators’ answers in detail, for presenting on what level it reaches its aim, we see that, %39,4 of male participators state “average”, %30,3 say “completely”, %27,3 say “little” and %3 state “never” while % 46,2 of female participators state “completely”, %30,8 state “little”, %23,1 say “average”. In the comparative analysis of the participators’ view, X^2 value is found 10,931. This value shows there is a meaningful difference of opinion ($P < 0,05$). In detailed examination of the answer columns, it is seen that female participators mainly focus on “completely” option whereas male participators generally focus on “average” option.

In Chart 7, when the questionnaire, “to adopt the habit of working in co-operation and acting together”, which is one of the aims of Physical Education and Sport lessons, is examined for presenting on what level it reaches its aim, we see that % 51,5 of male participators say “average”, %27,3 say “completely, %18,2 say “little”, %3 say “never” while %30,8 of female participators say “completely”, %38,5 say “average”, %30,8 say “little”. In the comparative analysis of the participators’ view, X^2 value is found 8,678. This value shows there is a meaningful difference of opinion ($P < 0,05$). In detailed examination of the answer holes, it is seen that female participators show distribution on “average”, “completely” and “little” options whereas male participators generally focus on “average” option. In Chart 7, one of the aims of Physical Education and Sport lessons, “taking duty and responsibility, conforming to the leader and giving urgent decision” questionnaire is inquired for presenting on what level it reaches its aim. When we examine participators’ answers to determine on what level reaches it this aim, we see that %42,4 of male participators think “average”, %33,3 think “little”, %21,2 think “completely”, and %3 think “never” while %38,5 of female participators think “completely”, %38,5 think “average”, %23,1 think “little”. In the comparative analysis of the participators’ view, X^2 value is found 10,893. This value shows a meaningful difference of opinion among participators ($P < 0,05$). In detailed examination of the table, females mainly focus on “completely” and “average” options while male participators mainly focus on “average” option. In Chart 7, one of the aims of Physical Education and Sport lessons, “feeling self-confidence and deciding on place and urgently” questionnaire is inquired for



presenting on what level it reaches its aim. When we examine participants' answers on this questionnaire, %42,4 of male participants say "average", %33,3 say "little", %21,2 say "completely" and %3 say "never" while %66,7 of female participants say "average", %16,7 say "completely" and %16,7 say "little". In the comparative analysis of the participants' view, X^2 value is found 14,151. This value shows a meaningful difference of opinion among the participants ($P < 0,05$). In detailed examination of attendants' answers, females mainly focus on "completely" when compared to male participants. In Chart 7, one of the aims of Physical Education and Sport lessons, "adopting manners and habits that democratic life requires" is inquired. When we examine participants' answers to determine on what level this aim reaches, we see that %51,5 of male participants choose "average", %39,4 tick "little", %9,1 tick "completely" option while %38,5 of female participants choose "average" option, %30,8 tick "completely", %30,8 tick "little" option. In the comparative analysis of the participants' view, X^2 value is found 20,401. This value shows a meaningful difference of opinion ($P < 0,05$). That is, there is a difference of opinion among the participants. In detailed examination of the table, male participants mainly focus on "completely" when compared to female participants. Female participants' opinions show an equal distribution. In Chart 7, one of the aims of Physical Education and Sport lessons, "providing nerve, muscle and joint coordination" questionnaire is inquired. When we examine participants' answers on this questionnaire, %57,6 of male participants tick "average", %24,2 tick "little", %15,2 tick "completely" and %3 tick "never" while %53,8 of female participants tick "average", %23,1 tick completely and %23,1 tick "little" option. In the comparative analysis of opinions, X^2 value is found 4,554. This values is meaningless in significance level ($P > 0,05$). That is, there is no meaningful difference of opinion among participants. In Chart 7, one of the aims of Physical Education and Sport lessons, "playing friendly, appreciating the winner of the competition, accepting to lose and being against injustice" questionnaire is inquired for presenting on what level it reaches its aim. When participants' answers on this questionnaire are examined, we see that, %42,4 of male participants tick "average", %30,3 tick " little", %21,2 tick "completely" and %6,1 tick "never" option while %38,5 of female participants tick "average", %30,8 tick "completely," %23,1 tick "little" and %7,7 of them choose "never" options. In the comparative analysis of opinions, X^2 value is found 3,612. This values is meaningless in significance level ($P > 0,05$). That is, there is no meaningful difference of opinion among participants. In Chart 7, one of the aims of Physical Education and Sport lessons, "using the public equipments well and saving them" questionnaire is inquired. When the participants' answers, related to what level it reaches its aim, are examined, it can be

seen that %42,4 of male participants tick "little", %33,3 tick "average", %18,2 tick "completely" and %6,1 tick "never" option while %38,5 of female participants tick "average", %38,5 tick "little", %23,1 of them tick "completely" option. In the comparative analysis of opinions, X^2 value is found 6,048. This values is meaningless in significance level ($P > 0,05$). That is, there is no meaningful difference of opinion among participants.

Discussion and conclusion

Being 198 male and 78 female, a total of 276 Physical Education and Sport lesson teachers have been participated in the survey. Service years of the participants vary between 5-10 years and their weekly lesson distribution shows intensity between 11-20 hours (Chart 1). According to the data obtained, we can say that the number of male Physical Education and Sport lesson teachers are more than the number of females and most of the participants are young and their lessons are generally 12 hours, which is of lesson load that is charged for salary. %56 of the schools, where the survey was applied, carry out single education and %43,5 carry out double education. (Chart 2). This result shows us full day education hasn't been passed and ideal education hasn't been reached yet. We can attribute the reasons of these to the insufficiency of school, infra-structure, education equipments and excessive number of students. We see that, in general, the view of the students attending Physical Education and Sport lessons carried out at schools focus on "quite more" option while "more" option follows it however female participants focus more on "quite more" option when compared to males in terms of the gender-views (Chart 3). This result shows us students have interest in and wish for Physical Education and Sport lessons at schools. Participants find the number of Physical Education and Sport lessons carried out at schools rather insufficient in general in responding the necessity of movement of children. Although there is no meaningful difference of opinion in the answers given according to genders, female participants focus more on "a little sufficient" and "quite sufficient" when compared to male participants (Chart 4). According to this result, we can say two hours of Physical Education and Sport lessons are not enough in responding the movement necessity of children. Participants are generally on the opinion that Physical Education and Sport Lessons at schools are barely carried out in accordance with their aims. We see that male participants have the majority on "I agree" option when compared to the female in the answers according to genders (Table 5). So that a lesson can be carried out according to its aim, there have to be enough facilities and equipments and education materials. (B. Çumralıgil, 1995, N.F. Kishali, 1999), in the research they made, determined one of the most important reasons why Physical Education and Sport lessons at educational institutions cannot reach their aims are the facility, equipment and material. According to many



researchers, limited number of students, density of program content, classroom management, exams, state of course books, lack of equipment – material and other physical conditions of school are the main reasons why lessons cannot reach their aims. (R.D. Kimpston 1985, K. Tobin, 1987, J.J. Gallagher, 2000, H. Öztaş, E. Özay, 2004). (G.S. Kenyon, M.C. Pherson, 1973) are on the opinion that the more you find the opportunity and ground to do sport, the more the individuals' habit of doing sports increases. (F.A. İmamoğlu, 1989) declares a suitable ground for an effective Physical Education and Sport Lesson as a precondition. Participants state that Physical Education and Sport lessons at schools meet the psychological, sociological and physiological necessities of student on medium level in general. In the answers given according to genders, female participants have the majority in “very much” option and male participants have majority in “little” options. (Table 6). According to researchers, elementary school period is the period when the necessity of children for movement is on utmost level. This necessity has to be provided before so that children can focus on their lessons. With movement activity, child will adopt both physical and mental improvement. Since child will be with his peers, he will be educated sociologically and psychologically as well. According to the educators, education is a whole unit and physical, social and psychological education has to be given as well as mental education of students. Yaka, 1991), in one of his research that he carried out, states that such lessons as drawing, music and physical education, which have an important place in emotional improvement of a young, in his creativity, socialization and moreover in providing body – intellect, are made unnecessary and useless lessons. This view has the quality to support the finding of the survey. We have to give importance, at least as much as the other lessons, to Physical Education and Sport lesson which is so important for children and provides an important contribution for their development. (I. Yıldıran, et al., 1996) in their work, think that Physical Education and Sport lesson provides positively for students in terms of physical, mental and emotional aspects. Of general aims of Physical Education and Sport lessons; The ability to explain the speeches of Atatürk and other philosophers on Physical Education and Sport, strengthen and develop suitable for the levels of all organs and systems, adopt good posture habit, adopt basic knowledge and skill about Physical Education and Sport, to move in parallel with the rhythm and music, to adopt knowledge and skill on our folk dance and be willing to apply them, to understand the meaning and the importance of national festivals and independence days, to evaluate the spare times with sport activities by comprehending the benefits of Physical Education and Sport to the health, to adopt knowledge, skill, manner and habits about basic first aid rules, to be able to make use of the sun and love nature, to adopt the habit of working in co-operation and acting together, to

take duty and responsibility, conform to the leader and give urgent decision, to adopt manners and habits that democratic life requires proposals are seen mainly in medium level. Comparative X^2 analysis of participants' view is meaningful in 0,05 significance level. ($P < 0,05$). That means, there is a meaningful difference of opinion in inter-gender views. When charts are examined in detail, female participants in comparison with male participants think positively on what level Physical Education and Sport lessons reaches (Chart 7). While being able to provide nerve and muscle coordination, playing friendly and accepting to merit the winner of competition, being against cheating and injustice, using state sources positively and being able to protect them are mainly seen on medium level; the comparative X^2 analysis of inter – gender views is not meaningful according to 0,05 significance level ($P > 0,05$). That means, there is no meaningful difference of opinion with the views of participants (Chart 7).

The reasons why Physical Education and Sport lessons reach their aims generally on medium level are lack of infrastructure for courses, saloon and equipment, hours of lesson and lack of teachers, not telling the importance of Physical Education and Sport for all ages to parents and school managers, since children are made ready for an exam marathon from the 4th grade of elementary school on, and since Physical Education and Sport lessons are thought to take child's time in vain and prevent them from studying lesson. According to researchers, the inability to carry out curriculum activity as it was originally aimed stems from outer factors and the thought, comprehension, attitude, knowledge, belief and expectation of the teacher are important factors in implementing the program. (E. Öztürk, H. Demircioğlu, 2002, B. Altunoğlu, E. Atav, 2005, O.D. Schremer, 1991, L.L. Cronin-Jones, 1991). As a result of all the data obtained;

We can say the level of Physical Education and Sport Lesson is generally on medium at schools within the scope of the survey. But for us, this level isn't sufficient. This level, at least, has to be close to “completely reach” level.

Suggestions

- Understructure, saloon, pitch and equipment opportunities through which the lessons are done have to be provided
- Education staff of schools has to be provided.
- Number of hour of lessons has to be increased.
- The importance Physical Education and Sport lessons especially in the development of child has to be explained to students and families as a government policy.
- Aims and goals have to be determined well and program has to be prepared according to them.

- Ministry of National Education has to deal with practice as well as theoretic.
- Physical Education and Sport lessons have to be given due importance firstly by the managers.
- Assembling school sport clubs has to be encouraged and widened.
- District saloons and pitches where more than one schools can do lesson have to be set up in big cities.
- By investigating whether Physical Education and Sport lessons reach their aims in certain intervals, the faults and problem have to be decided and necessary precautions have to be taken.

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COMPARISON OF UNIVERSITY STUDENTS AGAINST TO ANATOMY LESSON

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Abstract

The aim of this study is to evaluate that approach of Karamanoglu Mehmet Bey University Physical Education Sports High school and Nursing students to anatomy lesson.

Study which is descriptive is carried out in Karamanoglu Mehmet Bey University 2008-09 academic year during fall. The type of descriptive study was made in Karamanoglu University Education Mehmetbey in the fall semester in the 2008-2009 school year. Totally 272 students studying in the first, second, third and fourth classes in nursing and physical education and sports have constituted the universe of research. While the datum's were being collected, age and sex from socia-demographic datum's were put into practice for students, for measurement devotion to anatomy lesson, negative and positive behaviors which are performed during anatomy lessons, prejudice for anatomy lesson and the equal periodic liker anatomy attitude criterion in which the belief for necessity of anatomy lesson is discussed were put into practice. While analyzing the datum's number percent distribution and T test were used.

Students whose branches is nursing ($X=78.94$) are more positive than the students whose branch is physical education and sport teaching ($X=67.35$) in the view of attitude to anatomy lesson. Students' attitude to anatomy lesson has a difference according to students' different branch.

In this research, nursing students have higher attitude to anatomy lesson than Physical Education Sports High school students. This difference may be derived from requirement to anatomy lesson of two distinct professions.

Key word: Students, nursing, physical education and sport teaching, anatomy lesson attitude criterion

Introduction

Societies try to make individuals have desired features by means of education. The desired features change with the education. The more they change, the more they change the environment (J. Lacknet, 1998), because education is an interaction. Knowledge, ability and attitudes change and improve with the interaction. In this duration the individuals' different features called *learning* can effect the duration of the behavioural change in a positive or negative way (M.S. Adegbenga, 2001). One of the features effecting the learnings of the individuals is cognitive entry behaviours (S.H. Randall, 1992). Cognitive entry behaviours can be explained as a degree of having preconditional behaviours necessary for the individual (A.M. Aladwani and P.C. Palvia, 2002). During the learning another feature effecting the learning of the individual is sensual entry features (R.N. Caine and G. Caine, 1991). Attitude is seen as an important explanatory of the behaviour with the cognitive, sensual and behavioral dimensions. Determining the attitudes aimed at defined activities is essential to determine the success of these activities (G. Ekici, 1996). Biological studies, in which alternative evaluating systems are used, are carried out in order to teach the evolution and circulation system notions and to identify attitudes related to the sex difference and the effect of interpretation ability (J. Lacknet, 1998).

Occurance, change or replacement and measurement of attitudes are important issues of psychology in general, but in particular they are social

psychology's issues. Attitude, as many other psychological variables (intelligence, motivation etc.) is variant, not directly observed theoretical variable with some observed behavioral indicators by default (A. Erkuş, 2003). According to Anderson, attitude is an excitement having medium level of intensity and providing individuals tendency or readiness to respond in an appropriate manner or inappropriate manner when encountered with a specific object (A. Erkuş, 2003). Allport described the attitude in that way; attitude is a mental or neural preparation case which has dynamic or router effect on individual's reaction related to relevant situation or objects (C. Kağıtçıbaşı, 1988; A. Erkuş, 2003). Allport pointed out that attitude is not an observable behavior. Doob described the attitude as an incentive and covered reaction which is taught to be important in society where the individual lives. (E. Tavşancıl, 2002). According to another description, attitude is a case which is gained by learning, directs the individual's behavior and causes the bias in decision-making process (E. Tavşancıl, 2002). Attitude is in the individual's mind and constitutes the basis for a lot of thoughts and behaviors. Phillips has indicated that attitude can occur in two ways. Individuals constitute their own behaviors by interacting with an attitude object or being affected by others' attitudes (S.L. Phillips, 2003). When taken into consideration Phillips' definition of forming an attitude, it is reached that attitudes are created at the end of the experiences and are directed with them. When all these definitions are examined, it can be seen that attitudes may change or may be changed. According to this



negative attitude can change as positive attitude and positive attitude can change as negative attitude. When it is taken into consideration that attitudes provide a basis and direct for thoughts and behaviors, necessity of developing positive attitude for the individual's success can be seen directly (E. Tavşancıl 2002). The aim of this study is to measure the attitudes of the students having anatomy lesson and attending to the nursing and physical education and sports teaching departments in Karaman oğlu Mehmet Bey University.

Material and method

The kind and place of the research: The type of descriptive study was made in Karamanoğlu Mehmetbey University in the fall semester in the 2008-2009 academic year. *The working group of the research:* Totally 272 students studying in the first, second, third and fourth classes in nursing and physical education and sports have constituted the universe of research. At first stage the aim was to reach all of the students in the institutions of higher education. 112 students attending to the department of physical education and sports and 160 student attending to the department of nursing participated in the research. As there are two departments in the university having anatomy lesson, only these schools has been taken into the scope of the research. *Method and tools of collecting data:* while getting the datum, age and sex which are social demographic datum, were applied to the students. And also, to question the devotion to the lesson, positive and negative behaviours acted in anatomy lesson, prejudices related to the anatomy lesson and the belief in the need of the anatomy lesson, the equal periodic likert anatomy attitude criterion was applied to the students. D. Bahçeci, 2006, said in the doctorate thesis that 34 sentences thought to have effected the attitude of the student towards the lesson were defined and they were converted the Likert criterion (same- spaced five-branched classification criterion). The criterion was decreased to 27 items in order to evaluate the structure and scope validity and

while the statements of some items were changed, some were removed completely by the help of the views of the experts. After the factor analysis of the materials had been made, the statements showing the material load below 0,40 were removed and then there were 24 items at the criterion. The rest of the materials were attached to the 24 items. These are;

Factor 1: devotion to Anatomy lesson

Factor 2: positive and negative behaviours acted in Anatomy lesson

Factor 3: prejudices related to the Anatomy lesson

Factor 4: the belief in the need of the Anatomy lesson.

The inner consistency of the criterion was calculated as Cronbach alfa(α)=0,75, and as it provided enough reliability, the criterion was used in the research (D. Bahçeci, 2006).

The research datum were collected as a group in the classroom on 12-25, January 2009 and based on the student's own-declaration as a researcher-controlled with the survey method.

Independent variants: Age, sex, department and which grade at university
Dependent variants: 24 questions directed at the scale

Statistical analyses: In data analysis the range of the number percentage and t test were used. While being evaluated datum, SPSS 10.0 programm was benefitted.

Findings and discussion

The age average of the students joining the research is 22.79. 66.2 % of the students is female and 33.8 % is male. 58.8 % of the students is in the department of nursing; 23.0 % in the second class, 18.5 % in the third class, 17.3 % in the fourth class; 41.2 % of students in department of the physical education and sports, 16.7 % of students in the second class, 11.7 % of students in the third class and 12.8 % of students in the fourth class.

Table 1. T Test Results of Anatomy lesson attitude points of Nursing and Physical Education and Sports Departments

Measurement	Method	N	X(ort)	S	sd	t	P
Attitude	physical education teaching	112	71.98	11.34	274	8.76	0.000*
	Nursing	160	87.34	7.43			
	Total	272	79.66	10.46			

*p<0,01 meaningful

As seen in Table-1, attitudes of the students towards anatomy lesson show a meaningful difference as they are attending to the different departments [t (274)=8,76, p<,01]. The attitude of the nursing students

(X = 87.24) is more positive than than the physical education and sports students' (X =71.98). This situation can be interpreted as a meaningful relation between the department and the attitude to the lesson

Table 2. According to the Departments of Students' Attitude Points Towards Anatomy Lesson to the Factors

Attitude factors	Group	N	X	S	Sd	t	P
1-Devotion to the anatomy lesson	physical education teaching	112	67.35	11.75	274	4.08	0,001*
	Hemşirelik	160	78.94	6.87			
	Total	272	73.15	9.78			
2-Behaviours in the anatomy lesson	physical education teaching	112	69.78	14.98		6.77	0,000*
	Nursing	160	83.76	7.06			
	Total	272	76.74	11.86			
3-Prejudices related to the anatomy lesson	physical education teaching	112	77.84	14.83		3.92	0,003*
	Nursing	160	69.70	8.58			
	Total	272	73.77	10.38			
4-Belief in the need of the lesson	physical education teaching	112	73.86	9.82		1.64	0,001*
	Nursing	160	84.36	13.48			
	Total	272	79.11	10.96			

*p<0,01 meaningful

The first factor effecting the attitude related to anatomy lesson is "Devotion to Anatomy Lesson". As seen in the first part of the Table-2, because of having training in different departments, there is a meaningful difference in this stage[t(274)=4,7, p<,01]. With regard to the devotion to anatomy lesson (X = 78.94) the nursing students are more positive than the physical education and sports students (X=67.35). This situation can be interpreted as a meaningful relation between getting training in different departments and the devotion to anatomy lesson. The second factor effecting the attitude related to anatomy lesson is "Attitudes in Anatomy Lesson". As seen in the second part of the Table-2, the attitudes of the students have meaningful differences due to being in different departments [t (274)=6.77, p<,01]. The attitudes of the students in nursing department (X =83.76) are more positive than the students' in the physical education and sports (X =69.78). The third factor effecting the attitude related to anatomy lesson is "Prejudices Related to Anatomy Lesson". As seen in the third part of the Table-2, the attitudes of the students, because of getting education in different departments, show a meaningful difference [t (274)=3.92,p<,01]. The prejudice attitudes related to

the lesson of the students in nursing department (X = 69.70) are less than the students' in the physical education and sports (X=77.84). The fourth factor effecting the attitude related to anatomy lesson is "The Belief in the Need of the Lesson". As seen in the fourth part of the Table-2, owing to being in different departments, in terms of the belief in the need of the lesson, there is a meaningful difference [t (274)=1.64, p<,01]. The attitudes of the students in nursing department (X = 84.36) are more than the students' in the physical education and sports (X =73.86) in the way of the belief in the need of the lesson. H. Daniş and H. Genç (2007) show in their research that there is a link between the attitudes of students to the lesson and the importance they give to the lesson. In this study the attitudes of nursing students show meaningfulness when compared to the physical education and sports students. This situation may be attributed to the usage of the lesson among the departments.

Conclusion

Lesson enjoyment is a good start for the active learning (R. Ozer, 1999). People usually want to be more engaged in the topic they interested in and therefore, they will be more successful in that area. If



a student develops a good attitude towards a lesson he acts in the same way to that lesson. Not seeing a lesson as a need and thinking "where and how these issues will be useful for our business" may cause student to be bored and show negative attitudes towards lesson (M. Demirbaş and R. Yağbasan, 2006). For the students studying in nursing and physical education, the importance of anatomy lesson is as important as not to be discussed. Besides many factors, this is closely related with the attitude towards anatomy lesson. Anatomy lesson is essential for Nursing profession because Nursing department students graduate from their departments and start to work and while they are performing their professions in many areas such as injection, signs of life, first aid practices, they will need anatomy information a lot. Students, training in physical education department and sport teaching, will also need the anatomy information against the accidents which may occur during the training or different situations. It can be said that the students' attitudes towards anatomy lesson at the nursing occupation are higher than the students' attending to the physical education and sports training because of the fact that there is a difference between the jobs according to the need.

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CARDIOVASCULAR RISK FACTORS, CALORIC INTAKE AND PRACTICE OF PHYSICAL ACTIVITY IN COLLEGE STUDENTS. A PRELIMINARY STUDY.

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Abstract

The aim of this investigation were to determine the level of physical activity practice and to define the presence of cardiovascular risk factors associated with body composition and caloric intake in college students. A total of 81 college students (38 and 41 females and males, respectively) were submitted to a complete evaluation that consisted of an analysis of food-intake behavior, measures of several body composition variables (height, weight, body mass index, fat and muscle mass, waist and hip circumferences, waist-hip ratio, and sum of 6 skinfolds), blood pressure assessment,



and physical activity level calculation. The results show sex differences in blood pressure and body composition variables; although an optimal food-intake patterns, a high level of physical activity practice and the absence of cardiovascular risk factors seem to generate healthy profiles in this population.

Key words: cardiovascular risk factors, food-intake patterns, physical activity, college students.

Introduction

Cardiovascular diseases are growing at an alarming way (D.B. Panagiotakos, et al, 2009), representing the leading cause of death worldwide and is thus also one of the most important causes of disability. These diseases have a complex etiology and, in general, they are not due to a single risk factor (F.Y. Chen, et al, 2009) being prevented by controlling them (I.F. Palomo, et al, 2006). It is considered a cardiovascular risk factor (M. Hernández, et al, 2004) to any property or condition that occurs most often in people with certain diseases than those who do not suffer. Provides information related to the kind of conditions associated directly or indirectly to a particular disease or disorder. Hypertension, hypercholesterolemia, diabetes, obesity, smoking and physical inactivity are considered major risk factors for development of such cardiovascular disorders (D.B. Panagiotakos, et al, 2009). In this sense, risk factors can be classified as: inherent (the result of genetic or physical conditions that cannot be modified through changes in lifestyle, age, family history or sex), psychosocial (anxiety, educational level and incomes), physiological and psychophysiological (hypertension, cholesterol level in blood, cardiovascular reactivity to perceived stress, elevated heart rate), and behavioral (these are alterable, so they are those that indicate the individual's lifestyle: smoking, diet, physical inactivity) (M.A. Hernández, H.L. García, 2007). These last factors can have a direct effect on body composition, which represents a new added risk factor. In this regard, several studies have established a relationship between body mass index (BMI) and various epidemiological factors that mark the lifestyles of the population; in fact, it has found a direct relationship between BMI and sedentary jobs, and also with alcohol consumption. BMI has also been linked, but conversely, to physical exercise, educational level, consumption of tobacco and socioeconomic status (M. Ishizaki, et al, 2004; L.A. Moreno, et al 2005). In contrast, a healthy lifestyle is an important factor in shaping the security profile. Speaking of healthy lifestyle, we refer to behaviours that reduce the risk of disease, ie. protective factors, such as proper control and management of stress and negative emotions, sleep and recreation; the control and avoidance abuse of substances such as caffeine, nicotine and alcohol; nutrition according to calorie requirements, regular exercise, and so on. The latter is particularly important since it is one of the habits most influential in controlling obesity: a

practice level of 300 min per week (60 min per day for 5 days) is generally recommended for population (J.M. Jakicic, 2003; P.T., Katzmarzyk, et al., 2003; M. Akbartabartoori, 2008)

These positive lifestyles should be formed from the earliest ages of the individual and to extend it throughout his life. However, and although this statement seems obvious, studies show that the reality is quite different, for example, in the case of college students. In this population in which certain habits and lifestyles have been consolidated, it has suggested that smoking habits may be related to the intention of losing weight, unhealthy diets and sedentary attitudes that generate obesity (S.L. Carroll, 2006). In this same vein, and in relation to the notion that these subjects has about positive habits that impact favourably on health, it has been observed that increased knowledge in nutrition does not necessarily mean changes to diet and healthy lifestyles (A. Montero, 2006). Similarly, R.I. Martínez, (2008) points out how about half of the subjects participating in his investigation did not recognize his inactivity as a disease or as a factor conducive to disease development, while recognizing that they find themselves in a situation of no willingness to change attitudes regarding their level of physical activity practice. In addition, and consistent with all previously mentioned aspects, it seems that there are clear differences between sexes related to behavioural patterns in this population (R.I. Martínez, 2008; C. Rodríguez, Martín, et al, 2009; V. Colares, et al., 2009).

Considering all above mentioned, the objectives of this study were to determine the level of physical activity practice and to define the presence of cardiovascular risk factors associated with body composition and caloric intake in college students.

Material and methods

Subjects

The total sample consists of 257 subjects, all students at the Faculty of Educational Sciences, University of Seville (Spain). In this preliminary study and respecting the proportional distribution used in the total sample, it has been selected 81 subjects, 38 females (age, mean \pm sd: 22.24 \pm 4.73 years) and 43 males (21.74 \pm 3.36 years).

Procedures.

In the first instance and once in the laboratory, subjects rested seated for 10 min, whereas they were informed, orally and in writing about the nature, purpose and possible social benefits of the study, obtaining informed consent for all of them. After that and in the position described above, we proceeded to the taking of blood pressure (OMRON MX3PLUS) in dominant arm. Subsequently Then we conducted anthropometric measurements: height and body mass (Seca mod. D400), and the corresponding body mass index (BMI) according to the formula proposed by J.A. Faulkner (1968); waist and hip circumferences (Holtain anthropometric tape), and



the corresponding waist-hip ratio, and finally we calculated the sum of 6 skin folds (Holtain skin fold calliper) (triceps, subscapular, supraspinal, abdominal, thigh and leg). For the recording of all these anthropometric measurements we followed the protocol proposed by ISAK and GREC (F. Esparza, 1993). Furthermore, in a self-administered format, subjects completed two questionnaires: the Short-Form International Physical Activity Questionnaire (IPAQ-<http://www.ipaq.ki.se/ipaq.htm>.) and the Short-Form Frequency and Food Consumption Questionnaire (CFCA) (I. Trinidad, et al., 2008)

The data obtained were subjected to basic descriptive analysis, expressing all them as mean \pm standard deviation (sd). Moreover, and after verifying normal distribution of each variable through the Kolmogorov-Smirnov test, T – test for independent samples was carried out considering sex variable as a factor. Also, we calculated Pearson correlation coefficients between the variables under study. In any case, the confidence interval was set at 95%.

Results

Descriptive data obtained from this study are shown in Table 1. As is reflected in it, and considering the sex of the subjects as independent variable, significant differences were found in the following variables: systolic blood pressure (120.4 vs. 134.28 mmHg for females and males, respectively), diastolic blood pressure (73.67 vs. 77.02 mmHg for females and males, respectively), weight (59.05 vs. 72.9 kg for females and males, respectively), height (163.61 vs. 177.5 cm for females and males, respectively), sum of 6 skin folds (103.48 vs. 76.58 mm for females and males, respectively), percentage of fat mass (15.49 vs. 13.56%, for females and males, respectively), percentage of muscle mass (48.09 vs. 44.5% for females and males, respectively), waist-hip ratio (0.75 vs. 0.83 for females and males, respectively) and waist circumference (70.16 vs. 78.62 cm for females and males, respectively).

Moreover, as it can be seen in Table 2, significant relationships were observed between study variables common in female and male students, while exclusive relationships have been noted taken into account the sex factor. Thus, in the case of female students we can observe remarkable relationships such as those between diastolic blood pressure and waist circumference ($r = 0.404$, $P \leq 0.05$) and BMI ($r = 0.337$, $P \leq 0.05$); between age and percentage of fat mass ($r = 0.453$, $P \leq 0.01$), between BMI and age ($r = 0.456$, $P \leq 0.01$), BMI and fat intake ($r = 0.428$, $p \leq 0.05$), and BMI and waist-hip ratio ($r = 0.453$, $P \leq 0.01$). For male students the relationship established between the sum of 6 skin folds and waist-hip ratio showed statistical significance ($r = 0.370$, $P \leq 0.05$).

Discussion

One of the aspects to highlight in this study is that it has been conducted with college students, who have consolidated certain eating and physical activity habits that impact on their health and quality of life. In any case, and if not, these subjects are exposed to different factors that can cause changes in both feeding behaviours and physical activity practice. The descriptive results are in line with other previous papers, such as those published by N. MacMillan (2007) and C. Martinez et al.(2005), where participants' BMI values are under normal classification (BMI: 18.5-24.9 Kg/m²; SEEDO, Sociedad Española para el Estudio de la Obesidad, 2000). Moreover, similar results (under a normal range of reference interval) were found in waist-hip ratio, body fat percentage (although a greater percentage of body fat was observed in females) (C. Martínez, et al., 2005) and waist circumference.

According to the normal blood pressure values proposed by the European Society of Arterial Hypertension (G. Mancía, et al, 2007) our subjects showed an optimal diastolic blood pressure in both sexes, whereas in the case of the systolic blood pressure, we registered statistical differences between them, since although females showed normal values, males students showed values that can be classified as normal-high (range: 80-84 mmHg; G. Mancía et al., 2007).

On the other hand, and attending to the dietary pattern of our subjects we observed that the total calories per day consumed by female and male students was 1841.51 ± 777.74 and 1657.46 ± 465.31 kcal, respectively, and the macronutrient intake was 21.65% and 24.01% for proteins, 26.54% and 26.77% for lipids, and 51.80% and 49.22% for carbohydrates, respectively. In this case, our data differ with those of other investigations (C. Martinez, et al., 2005; L.L. Serra, J. Aranceta, 2002; F. Capdevilla, et al, 2003; P. Bollat, T. Durá, 2008), in which the highest energy intake of macronutrients was represented by lipids, proteins and in last place by carbohydrates.

Regarding the level of physical activity practice, subjects in our study showed an average of 3963.04 ± 3351.77 METs-min/week for females and 4870.52 ± 3860.7 METs-min/week for males, a results that implies a high level of physical activity practice, especially if they are compared to those reported by C. Martínez et al.(2005) who registered a light-moderate level of physical activity in subjects evaluated. I.F. Palomo (2006) and N. R.I. MacMillan (2007) noted that a 91.5% and 53% of subjects analyzed were sedentary, respectively- Also, R.I. Martínez (2008) found a presence of sedentary behaviour in a 50% of 772 students analyzed. Considering these data, it is necessary to clarify that although the proportional distribution used in the total sample was respected, physical education students took part in our investigation probably leading to overestimate the level of physical activity practice described.

Finally, it can be concluded that despite the sex differences in blood pressure and body composition variables, both female and male Sevillian college students seem to show an optimal food-intake and physical activity balances.

Table 1. Results obtained on each variable analyzed.

Variables	Mean (sd)	
	Females	Males
AGE (years)	22,24(4,73)	21,74(3,36)
IPAQ (METs-min/week)	3963,04(3351,77)	4870,52(3860,7)
CAL (Kcal/day)	1841,51(777,74)	1657,46(465,31)
PR (g/day)	74,33(27,12)	72,69(24,71)
FT (g/day)	91,14(32,56)	81,04(27,56)
CH (g/day)	177,86(119,12)	149,00(52,51)
SYSTÓLIC P. (mmHg)	120,4(10,4)	134,28*** (11,17)
DIASTÓLIC P. (mmHg)	73,67(7,63)	77,02*(7,86)
WEIGHT (Kg)	59,05(8,64)	72,9*** (8,14)
HEIGHT (cm)	163,61(6,30)	177,5*** (6,2)
SKINFOLDS (mm)	103,48*** (23,27)	76,58(23,47)
FAT MASS (%)	15,49** (2,16)	13,56(3,05)
MUSCLE MASS (%)	48,09* (3,3)	44,5(7,02)
WAIST-HIP RATIO	0,75(0,1)	0,83*** (0,1)
WAIST (cm)	70,16(7,77)	78,62*** (5,87)
BMI (kg/m ²)	22,0(3,19)	23,13(2,24)

*p≤ 0,05; **p≤ 0,01; ***p≤0,001.

Table 2. Correlation coefficients between common variables for female and male students.

Variables		r _f	r _m
Age	Waist	0,488**	0,544***
	Weight	0,604***	0,663***
Weight	Skinfolds	0,608***	0,609***
	Fat mass	0,743***	0,777***
	Waist	0,425**	0,740***
Skinfolds	Waist	0,710***	0,721***
	BMI	0,431**	0,642***
Fat mass	Waist	0,717***	0,612***
	BMI	0,698***	0,818***
Waist	BMI		

r_f and r_m: Pearson correlation coefficients for female and male students, respectively.

*p≤ 0,05; **p≤ 0,01; ***p≤0,001.

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NON-FORMAL EDUCATION - THE CORE DIMENSION OF THE INSTRUCTIVE AND EDUCATIVE PROCESS

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Abstract

We live now the important result of the educational activities' growth. Our study configure that in our time the new educational borders, extended to a new European vision, reach the non-formal education, by the values and principles regarding the building of all three features - body, spirit and nature. The formal education touch also the new quality indicators concerning continuous learning and other European criteria witch relate the complementary education. Acknowledging non-formal education as an essential part of education and stimulating children and young people to get involved in promoting different values and ethical principles: justice, tolerance, peace, active citizenship, respecting the human rights, all of these represent key elements which have determined the importance of elaborating a developing strategy.

Key words: new European vision, non-formal education, body, spirit, nature.



Introduction

The twentieth century has marked a turning point in the evolution of the formal and non-formal education concepts, the latter being even more commonly used in the international educational speech. Speaking from an European point of view, the initiative for promoting curricular and extracurricular educative activity belongs to the European Council, more precisely to the Council of Ministers, which has embodied its steps into the recommendations addressed for this particular field to the member states. The most relevant document is the Recommendation from 30th of April 2003 which mentions the effective direction towards the acknowledgement of the equivalent status of the non-formal education with that of the formal education from the point of view of the equal contribution to the young person's personality development and his/her social integration (Manual on Human Rights Education with young people, Analyzing national politics in the field of education: Romania European Council, 2000).

The continuous education – informal and non-formal, as well as the yielding – is part of the political priorities package within a society of knowledge. The acquisition, the continuous updating and the increasing level of knowledge, skills and habits represent a preliminary condition for the development of all citizens as well as for their participation in all society's domains, from the active citizenship to the integration in the labor market. The 2000 March European Council from Lisbon draws up the strategic purposes for Europe until 2010. The strategic objectives defined in these documents are meant to influence the development of the educational and yield systems around Europe during this decade (European Commission, 2000). The quality and efficiency progress of these educational and yield systems within the European Union refer to: making the access to all educational and yield systems more easy for all the people to follow; broaden the educational and yield systems horizon to the world. According to the conclusions mentioned above, The Minister of Education, Research and Innovation has defined the major purpose of the strategy: increasing the qualitative standard of formal and non-formal education by complementing them in order to value the pupils' potential and yielding as proactive European citizens (A Manual on Human Rights Education with young people, 2000).

The developing strategy of the formal and non-formal activity designed by the Minister of Education, Research and Innovation starts from the assumption that formal/non-formal educational complementary approach assures a plus to the value of the educational system. Thus, one makes the best out of the defining role the education has in preparing all the children for becoming active

citizens within a dynamic and always changing society, nevertheless contributing to the permanent process of improving the quality of life. The wording of some clear and coherent objectives in the light of the European Constitutional Treaty regarding the importance of respecting the person's fundamental rights, such as the right to his freedoms, to democracy and equality, as well as the compression to the European educational standards, all of these represent the strategic base of the document in question. Acknowledging non-formal education as an essential part of education and stimulating children and young people to get involved in promoting different values and ethical principles: justice, tolerance, peace, active citizenship, respecting the human rights, all of these represent key elements which have determined the importance of elaborating a developing strategy. Through its specific forms, the non-formal educative activity develops critical thinking, moulds skills and stimulates the involvement of the young generation in the decisional act in the context of respecting the human rights and of taking social responsibility, thus constructing a certain symbiosis between the cognitive and the behaviorist components. Elaborating the Strategy is determined by the necessity of propelling the actual non-formal educative system which is situated at a an early stage of development, because up to this very moment there isn't a clear concept of non-formal education, there aren't any pre established efficient methods of recognizing non-formal education and a stable financial mechanism (European report on quality indicators, 2004.). Acknowledging non-formal education as an essential part of education and stimulating children and young people to get involved in promoting different values and ethical principles: justice, tolerance, peace, active citizenship, respecting the human rights, all of these represent key elements which have determined the importance of elaborating a developing strategy. Through its specific forms, the non-formal educative activity develops critical thinking, moulds skills and stimulates the involvement of the young generation in the decisional act in the context of respecting the human rights and of taking social responsibility, thus constructing a certain symbiosis between the cognitive and the behaviorist components. Nevertheless, the approval and the implementing of a national strategy regarding non-formal education:

- will establish the complementary connection between all three types of education (formal, non-formal and informal)
- will integrate the non-formal educative activities in the action plans of education and young generation
- will coordinate the process of efficient using and yielding of the human resources within the non-formal education domain
- will establish a clear financial mechanism of the non-formal educative activities for the nongovernmental organizations specialized in the field in question, depending on the configuration of the beneficiaries' needs
- will ensure non-formal educative activities according to the qualitative standards and unique mechanisms so as to



provide quality and efficiency in the social and educational services

Non-formal education offers a set of necessary social practices useful for every child, youngster or grown-up, complementing the other forms of education by making the best out of free time from the educational point of view and by promoting life experiences through the voluntary, individual or group involvement. Non-formal education will offer children and young people opportunities of choosing different activities depending on interests and preferences with an emphasis on developing skills for becoming active citizens. Furthermore, non-formal education will create better opportunities of developing organizational capacities, self suggestion, time management, critical thinking in taking a decision or solving a problem, assuring the respect for the fundamental human rights and the equality of genres (Validation of Non formal and informal Learning Progress Report. European Commission, November, 2003). The strategy follows the qualitative improvement of the absolutely necessary educational level in the context of complex changes within family life, work force, community, multicultural society and globalization. Good quality education presumes applying the diversity model through the differentiate approach, initiating different projects which involve pupils, faculty, educational partners, as well as parents, civil society, media and community. In the Romanian educational system, the non-formal educative activity frame represents the space capable of answering the contemporaneous challenges of society, in the sense in which its flexible conceiving allows a continuous updating of the educational content and the didactical methods centered on the pupil, as well as a quality monitoring and evaluation of the educational results. Nevertheless, the specific characteristics simplify the implementing of the new didactical approach through which the pupil becomes a resource, a producer, an opinion leader, therefore an active participant (National Actions to Implement Lifelong Learning in Europe. European Commission, CEDEFOP, Eurydice Survey, 2001). To stimulate the cognitive, spiritual, interpersonal and social development, the curricular and extracurricular educative activity always bears in mind the need to adapt to the diverse and individual necessities of the children, to the their potential and interest in knowledge. The contexts created by the diverse ways of materialization to what this type of education is concerned, that is projects, punctual manifestations, thematic applications, all of these offer the possibility for interdisciplinary, cross-curricular and trans disciplinary approaches, exercising life capacities and skills in an integrated manner, for example the holistic development of the personality. The

strategy emphasizes the importance of multiplying the positive experiences registered in the curricular and extracurricular educative activity and imposes the extension of the intervention space in the educational curricular process, in order to make the best out of all the educational content valences, all in the best interest of the child (Joint Employment Report. European Commission, 2001).

Principles and values

The curricular and extracurricular educative activity strategy is designed according to the following set of principles:

- the principle of priority education, as an assumed responsibility by the Romanian government
- the principle of equal access to education – according to the Constitution and the UN Convention on the Rights of Child, every child has the right to education
- the principle of intercultural
- the principle of activity continuance which has a permanent character and is based on the previous experience
- the formal/non-formal complementary principle
- the principle of organizational and informational flexibility
- the principle of decentralizing educational authority and of assuring the unity of the local educational steps through coordination
- the principle of global, unitary, multidisciplinary and integrate approach
- the principle of transparency while implementing the strategy with the participation of the civil society along with the governmental institutions as to accomplish the objectives
- the principle of cooperation – implementing the strategy is based on the institutional cooperation both at the national and the international level

Along with respecting and promoting these principles, the strategy is also based on the principle of education centered on values: respect, non-discrimination, equality, solidarity, tolerance, truth, freedom, integrity, dignity, honor, sincerity, originality, trust, love.

In this context, the values ensure the frame in which the social norms are established and explained. They stand at the core of forming attitudes, of taking decisions and have a great impact on behavior patterns. It is important to identify the values of pupils, teachers and grown-ups in order to find a common denominator of the representative values of the community which can produce positive changes in the educational system at the efficiency level. Children, teachers and parents together can make the school a better place for all those involved in the educational process, can create an environment based on trust, communication, respect and flexibility (O. Costea, 2004).



A. Quality indicators for continuous education in Europe

A Zone	- Functional literacy
	- Economical literacy
	- New habits in the educational society (adaptive habits).
	- Habits of learning how to learn (Instrumental thinking).
	- Habits of active/cultural citizenship; social habits
B Zone	- Access to continuous education
	-Participation to continuous education
C Zone	-Intervention in continuous education
	-Educators and Yielding
	- ICT in education
D Zone	- Strategies of continuous education
	- The coherence of supporting continuous education
	- Consultancy and orientation
	- Accreditation and Certification
	- Assurance of quality

Types of complementary education

Domain	Cultural and artistic	Civic	Technical and scientific	Sporting
Types of education	Education for personal development The cultural and artistic domain Communication Media	Education for human rights Education for the rights of the child Health education Preventing school abandon Preventing human trafficking Preventing child labor exploitation Preventing child violence and abuse Promoting equality of chances (non-discrimination disadvantaged groups)	Education for personal development The technical and scientific domain Communication Media	Education through sport
	Multi and intercultural education Folklore, popular art Romanian and foreign culture and civilization	Multi and intercultural education Romanian and foreign culture and civilization European studies	Ecological education Protecting the environment Ecotourism Tourist orientation Agro tourism	
	Education for peace	Education for communitarian development Communitarian development Voluntary		
		Global education (projects)		

B. The European validation process for non-formal and informal education European criteria of validation

The Copenhagen Declaration, November 2002, points out the necessity of a common set of principles through the validation of non-formal and informal education with the purpose of ensuring a greater comparability

between the habits from different countries and at different levels. From the continuous education Communication (November 2001), one sees that the main priority is the valorization of education emphasizing the need for mutual education in Europe. In the other European consecutive documents one signals the pertinent idea that the development of the



official validation methods of non-formal learning experiences has been identified as the key result which makes the education more attractive and more relevant for the individual. This new hint of educational politics is taken into account by the Norwegian and Irish initiative at the informal Conference, June 2004. The initiatives of these European countries reflect a powerful European moment which exists in the particular zone of validating education within a society. The most important elements, which can be shared by all the European countries, are those related to the continuous education (The Copenhagen Declaration, November 2002, European Commission).

Contextualizing and operating non-formal education on medium and long term

Relating the participation in the European space to what the non-formal and informal education is concerned, the combined procedure of soft and hard – validation related to the evaluative assurance of quality to the respective voluntary and the validation of the non-formal and informal education in relation with secondary superior education and yielding – would lead to the elimination of the territorial and social disparities, would reaffirm the tradition regarding non-formal and informal education in the Romanian society starting with the modern period (National Actions to Implement Lifelong Learning in Europe. European Commission, CEDEFOP, Eurydice Survey, 2001).

The infrastructure is possible by setting up a new national agency and developing a new reference national frame for non-formal and informal education, program which is based on lifetime learning and quality indicators; by specifying the domain of the non-formal and informal education from the European validation point of view: in relation with the formal education and yielding the yielder, in relation with the work force, in relation with the voluntary activity; by creating, multiplying and diversifying the opportunities for non-formal education, both in schools and society, depending on the beneficiaries, young people and grown-ups, such as: work stages, distance learning, house learning, summer schools, etc.; by identifying and increasing the voluntary potential and the financial sources for the non-formal education on a local, national, regional, European and international level; by the local financial sustaining of the actual non-formal education infrastructure (clubs and children workshops, community centers, popular universities); by enlarging the TIC scholar infrastructure and by opening the TIC service offer to the local community; by identifying and enlarging the active networks and partnerships, by involving the informal educational factors of social connection: family, mass media; by educating and cultivating voluntary work, by taking opportunities and consecutive risks derived from school and society projects; by correlating the school activity with the actions of the nongovernmental organizations, social, philanthropic and religious services, in the sense of the contemporary European practice; by recording and transferring the good practices and the assumed

participation exercises in the societal experience and the positive attitude (Quality Education for All (EFA) and Action Plan, (document UNESCO, 2003).

In a nutshell, a vision of context and infrastructure includes:

- the reassessment and coherence of the relation between the educational politics vision, the allocation of funds and the long term strategies;
- the quantitative allocation and the optimization of quality regarding human and material resources destined for non-formal education
- the adequacy, the efficiency, the distribution on temporal units of the allocated resources (segmental developing plan)

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DYNAMIC AND PREPARATORY GAMES, EFFECTIVE MEANS OF TEACHING HANDBALL AT THE 5th GRADE

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Abstract

Purpose. The rise of the sports class attractiveness at the 1st to 4th grade, could be increased by using appropriate means to the training level and needs of the children. Dynamic and preparatory games are an important way of education at this age, helping to improve the motric qualities, number of motor skills enrichment and in the same time satisfying the children's need of playing and competing.

Methods. To achieve the research purpose we used the experimental method, the test method and the statistical method.

Results. The data from the experiment show that subjects who used the methods proposed by us (dynamic and preparatory games) have achieved superior performance in a statistically significant way compared with those who used classical methods.

Conclusion. Selected according to the requirements of the curriculum content, games accelerate the acquisition of the specific handball techniques and lead to faster learning of the bilateral game. To all these are added the educational aspects of the game, using common rules of behavior, cooperation and team work, achieving a fair play behavior.

Key words: handbal, dynamic and preparatory games, Primary cycle.

Introduction

The school's current conditions, with dense program of education to all objects, with increased intellectual demands and independent activity, in order to assimilate knowledge, the concern for the physical development of children of school age, to maintain health and general effort capacity is one of the main tasks of the educational system and the sports teacher (N. Alexe, 1993).

Sedentary activity imposed by attending classes, do homework at home, and other static activities (television, computer) affects the normal processes of children's growth and development. It is necessary therefore that sports education classes have a certain content in order to help build the capacity to practice some sports games, namely handball - not only during school activities, but also later in life, as a “loisir” activity. (C. Rizescu, 2010).

I choosed this topic because students are eager to learn new things, it is specific for them the state of emulation, the competition, and handball game offers a wide range of possibilities of this kind (E. Baștiurea, 2005; P. Ghervan, 2003). Also, getting used to respect certain rules, it familiarizes the students with the assumption of responsibilities according with the laws of behavior in everyday life (I. Kunst-Ghermănescu, V. Gogâltan, E. Jianu, I. Negulescu, 1983). This theme is present in everyday life, being one of the most important concern of

specialists. In order to realize this research we started from the following assumption:

1. In what percentage preparatory games have led to an increased efficiency of achieving (by students) the basic elements and techniques of the handball game;

Method

The research was conducted at the School. 5 of Mangalia and for the experiment we used two 4th grade classes of boys. I choosed the 4th grade class because students are at the end of the primary cycle and the final model of the student to physical education activity will foreshadow the next cycle of study. In order to realize the experiment I made operational models composed from dynamic and preparatory games so that the following handball techniques be seen: movement on the ground, school ball, grip and poultry, dribble and throwing the gate (G. Csüdör, 1983, C. Rizescu, 2003). Performance evaluation was realized in three tests: passing the two-place (number of passes in 30 sec), dribble in a straight line 25 m (sec) and handball throwing gate divided into nine squares, four shoots to 7 m, number of points (C. Rizescu, 2008). There were two trials, first in late October 2009 and the second in early May 2010. To achieve the research purpose we used experimental method, test method and statistical method (Ș. Tüdöși, 1993).



Results

The two test results were statistically analyzed and are presented in Table 1. The values obtained were analyzed based on the following statistical indices: the arithmetic mean (\bar{x}), standard deviation (SD), coefficient of variation (CV), the Student test ("t") and statistical significance (p).

Discussion and conclusion

Passing the ball from one student to another (two students) in a static position

The experimental group performed at the initial testing an average of 13.66 passes and 20.16 passes at the final testing. Average difference between the two tests is 6.5 passes. Standard deviation ($T_i = \pm 2.74$, $T_f = \pm 2.40$) indicates the average scattering of individual results from both tests. The variability coefficient confirmed the lack of homogeneity of the initial group testing, and at the final testing it can be seen an average homogeneity in this group. The control group performed the initial testing an average of 9 passes and 11.86 passes at the final testing. Average difference between the two tests is 2.86 passes. Standard deviation ($T_i = \pm 1.13$, $T_f = \pm 1.59$) indicates the average scattering results at both trials. Homogeneity of variability coefficient indicates the group average in both tests. The difference between the final testing indicates a value at the test "Student" of 8.48 at a significance level of $p < 0.0005$. Progress made by the experiment can be attributed to the improving of the working methodology.

The dribble trial in a straight line

The experimental group achieved an average of 7.10 sec at the initial testing and 6.02 sec to the final one. Average difference between the two tests was 1.08 sec. Standard deviation from both tests indicate the average scattering of individual results. The value of average coefficient of homogeneity indicates homogeneity in the initial testing and lack of homogeneity in the final. The control group achieved an average of 7.44 sec at the initial testing and 7.11 sec at the final. Average difference is 0.33 sec. There is an average dispersion of individual performance and an average group homogeneity in both tests.

Statistical significance of difference between the average final test between the two groups, certifies

a progress at the experimental group ($t = 2.09$ to $p < 0.025$). It is relevant the fact that working with the experimental group different from the control group it was realised firstly the increasing of the motric quality development and secondly the acquisition of the basic technical procedure correctly.

Throwing the ball at the gate (divided into 9 squares)

The experimental group performed at the initial testing 58.75 points and 102.50 points in the final. There is an average difference of 44.58 points for the final testing. We have to conclude that the standard deviation ($T_i = \pm 27.39$ points, $T_f = \pm 20.05$ points) in both tests indicate high dispersion of individual values from the average. The coefficient of variation in growth performance conditions, confirms the total lack of homogeneity in the initial testing and final medium uniformity. The control group achieved an improvement of 23.33 points from initial testing and final testing. And in these circumstances is also very high scattering results from both tests, as evidenced by the lack of homogeneity ($T_i = 44.01\%$, $T_f = 21.28\%$) of them. Calculating the significance of the difference between the averages of two groups at the final testing, we find that the value of the experimental group is statistically significant to the test value "Student" of 3.36 at a significance level of $p < 0.005$, and in the test the experimental group obtained superior results compared with the control group where the working methodology for the study of throwing the ball at the gate was the classic one. I insisted very much on the experimental group for the ball throwing technique and only after that we practiced the throwing accuracy. In conclusion we consider that the work is validated by experimental results obtained by the experimental group meaning that handball dynamic and preparatory games, respecting the particularities of children's age (the game is still one of the main activity of children), contributes to a faster accurate acquisition (in terms of competing) of the handball technical procedures game set in the curriculum.

Applying additional motric tests showed that experimental group students achieved better statistically significant results than the control group. This indicates that the methods used also had influence on the development of motor qualities.

Table 1: Tabel 1: The results of the two groups during the experiment

Compared index	group	Initial testing		Final testing			
		x±Ds	Cv%	x±Ds	Cv%	"t"	P
Passing the two-place (nr/30sec)	exp.	13,66±2,74	20,06	20,16±2,40	11,90	8,48	<0,0005
	contr.	9,00±1,13	12,55	11,86±1,59	13,47		
Dribble in a straight line (sec)	exp.	7,10±1,35	19,01	6,02±1,55	25,81	2,09	<0,025
	contr.	7,44±1,00	13,44	7,11±0,93	13,11		
Throwing the ball at the gate divided into 9 squares (nr)	exp.	58,75±27,39	46,62	102,50±20,05	19,56	3,36	<0,005
	contr.	56±5,64	44,1	77,33±21,28	21,28		

Legend: x – arithmetic average, Ds – standard deviation, Cv – coefficient of variability, "t" – the value of the test "Student", p – significance threshold.

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❖ KINETOTHERAPY

ROLE OF KINETOTHERAPY IN ACUTE HEMORRHAGIC STROKE

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Abstract

Hemorrhagic stroke represents 10% of total stroke number, with high mortality and devastating impact on patients life's. Because hemorrhagic stroke is associated with severe invalidity and high costs for hospitalization and recovery it is important to now first and second stroke prevention.

Our study included 30 patients diagnosed and treated in our clinic over a period of 4 months. We measured the volume of hemorrhage and assessed the impact of disease with FMA (Fugl-Meyer Assessment) scale.

Our study proved a high mortality among hemorrhagic stroke patients. The majority number of patients involved in study have shown an improvement of initial clinical state after kynetotherapy in early days of stroke.

Mortality in hemorrhagic stroke is high, comparable with that cited in literature.

The volume of hemorrhage is a predictable factor for the evolution of patient.

Kynetotherapy in early days of hemorrhagic stroke proved to be useful.

Key words: hemorrhagic stroke, CT, kynetotherapy

Introduction

Cerebral hemorrhage represents approximately 10% of all strokes. The main etiology of cerebral hemorrhage is arterial hypertension, specially that without treatment. Other clinical conditions involved are: aneurisms, angiomas, drug abuse (cocaine, amphetamines) or alcohol, sanguine dyscrasias, ant clotting therapy, amyloid angiosis and cerebral tumors (P.B. Gorelick, 1987; Hypertension Detection and Follow-up Program Cooperative Group, 1982). Clinical features of cerebral hemorrhage depends on localization and volume of bleeding. To formulate a complete stroke diagnosis means to establish the etiopathogeny, topography and outcome. In generally, clinical diagnosis is usually referred as a syndrome diagnosis, the ischemic or hemorrhage nature of stroke being supposed on clinical signs, but for an adequate therapeutic strategy it is necessary to perform imaging investigation such as computerized tomography (CT) and magnetic resonance imaging (MRI). Considering the gravity of a stroke, the high mortality associated with this condition, the degree of invalidity and difficulties of social rehabilitation combined with high costs of treatment it is obvious why first and second prophylaxis is so important. Another goal is to have a better organization of medical services for being able to diagnose and treat most rapidly possible this kind of pathology and also making the rehabilitation of these patients easier (H. Iso et al., 1989).

Material and method

Our study is a prospective analysis of 30 cases diagnosed and treated for Hemorrhagic Stroke for a period of four months in 2009 (15 June-15 October),

who took place in Neurology Clinic of General County Hospital of Constanta. Using imaging investigation, such as computerized tomography, we have been able to identify patients with intracerebral hemorrhage; were admitted only patients with supratentorial hemorrhage. In order to calculate hemorrhagic volume we used a formula based on multiplying maximum diameters of hemorrhage with number of CT slices (in which the hemorrhage can be seen), all of that divided by two. Based on the volume of hemorrhage we performed the following classification: small, medium and large (Adams). To appreciate the impact of hemorrhage on patients performance we used the FMA scale (Fugl-Meyer Assessment), a stroke-specific, performance-based impairment index. It is designed to assess motor functioning, balance, sensation and joint functioning in hemiplegic post-stroke patients. It is applied clinically and in research to determine disease severity, describe motor recovery, and to plan and assess treatment. The scale is comprised of five domains and has 155 items in total. The domains are: motor functioning (in the upper and lower extremities), sensory functioning (evaluates light touch on two surfaces of the arm and leg, and position sense for 8 joints), balance (contains 7 tests, 3 seated and 4 standing), joint range of motion (8 joints) and joint pain. Scoring is based on direct observation of performance. Scale items are scored on the basis of ability to complete the item using a 3-point

ordinal scale where 0=cannot perform, 1=performs partially and 2=performs fully. The total possible scale score is 226. Classifications for impairment severity have been proposed based on FMA Total motor scores (out of 100 points): under 50 severe; 50-84 hemiplegia, 85-94 hemiparesis, 95-99 slight motor dyscoordination. There are few studies in literature that refer to clinical features and prognosis in patients with supratentorial haemorrhage, using volume and localization (S.M. Davis et al., 2006; J.P. Broderick et al., 2007), our study correlating hemorrhagic volume (calculated on CT) with early rehabilitation methods.

Results and discussion

Between 15 June 2009 and 15 October 2009 in Neurology Clinic of Emergency Clinical County Hospital of Constanta were admitted and diagnosed with hemorrhagic stroke 52 patients, of whom 19 have deceased, 3 patients in critical condition were discharged at family request, and the other 30 were treated in our clinic.(figure 1).

The results of our study, based on measuring the volume of cerebral hemorrhage on CT scan, in all 30 patients treated for this condition in our clinic, showed that the volumes were mostly medium (10-50

ml). We illustrated the dimension of hemorrhage in graphic 1. Related to brain localization of hemorrhage our analysis showed a preponderance of lobar hemorrhage (46%), as it is seen in graphic 2. The outcome for those 30 patients admitted in our study was the following: 18 were discharged recovered, 10 patients were stationary and 2 were agravated, as it can be seen in graphic 3. Of the all 30 patients only 15 followed an individual kinetotherapy program, started on the first days after stroke, of those 13 patients were discharged recovered and 2 clinical stationary. This results prove the importance of early kinetotherapy in cerebral hemorrhage (figure 2, graphic 5). Considering the results of our study, we affirm that kinetotherapy has proved satisfactory, specially for small and medium cerebral hemorrhage (graphic 4). Motor deficit, quantified by FMA scale, had improved after kinetotherapy, see graphic 6.

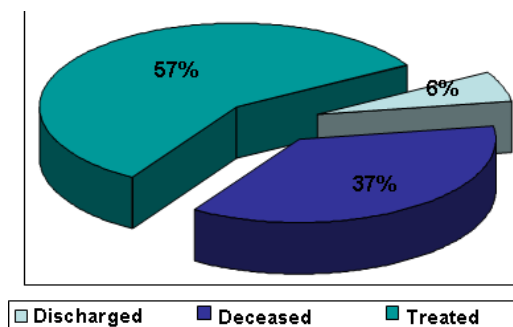
Conclusions

In our study the mortality of hemorrhagic stroke proved to be high, comparable with other studies.

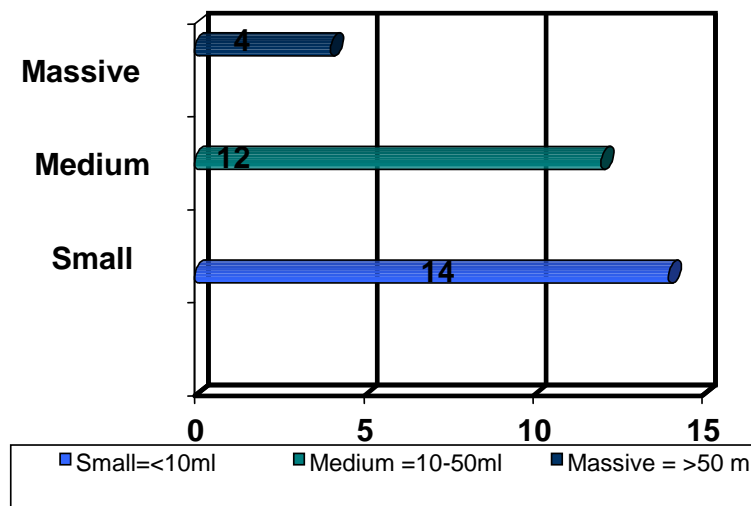
The hemorrhage volume is a predictive factor for the clinical prognosis.

The use of kinetotherapy in acute hemorrhagic stroke proves to be useful.

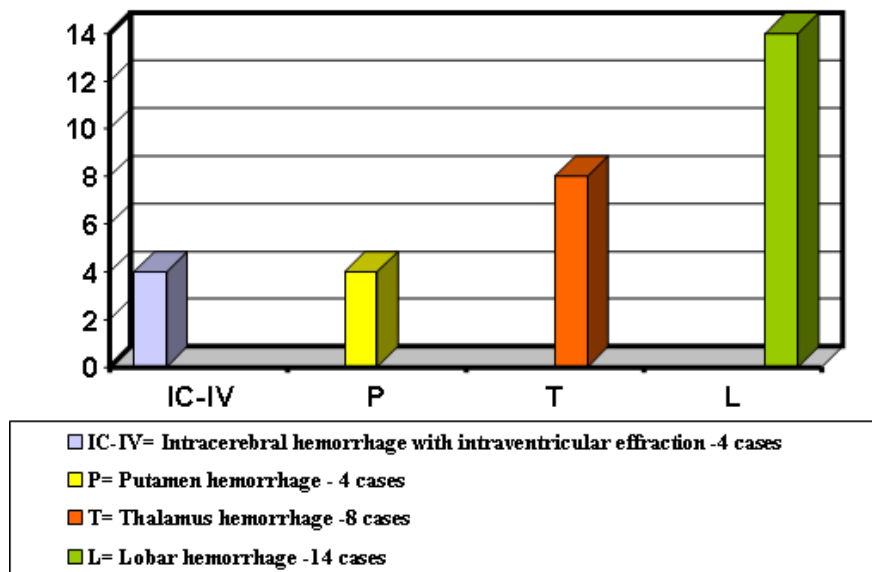
Fig. 1 Patients with hemorrhagic stroke in our study



Graph 1. Hemorrhage volume calculated on CT.



Graph 2. Hemorrhagic stroke localisation



Graph 3. Patients outcome in our study.

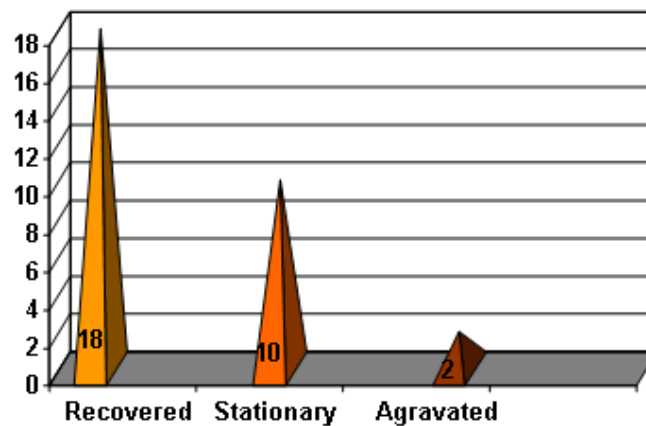
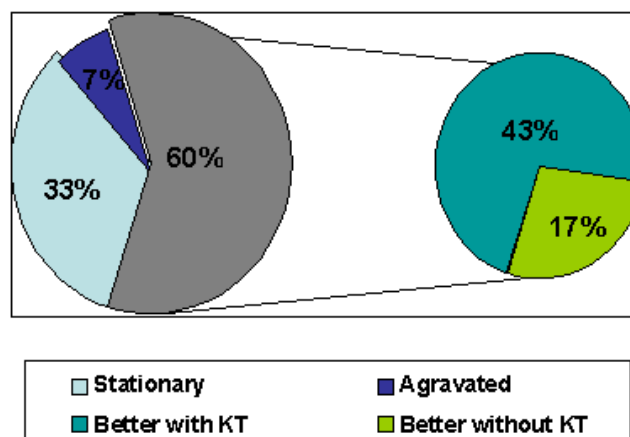
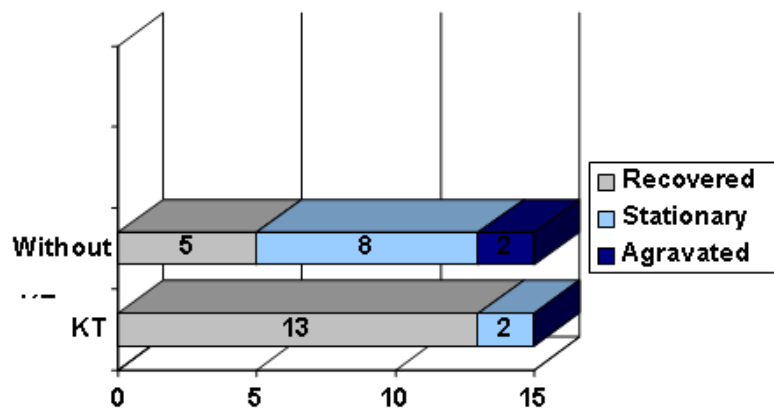


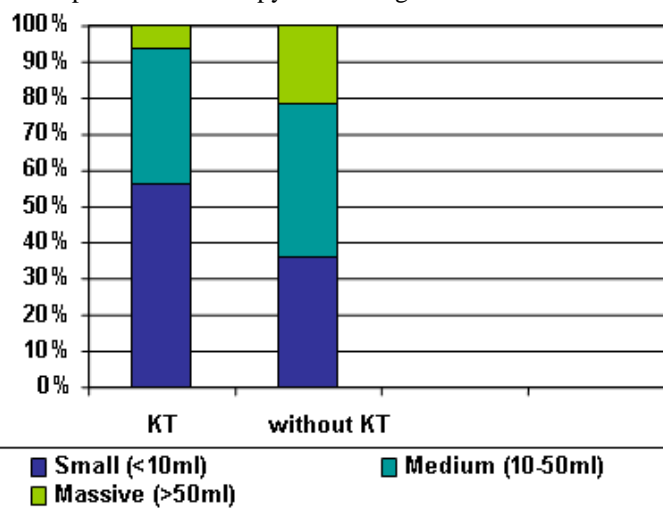
Fig 2. Outcome in correlation with kinetotherapy



Graph 5. Outcome in correlation with kinetotherapy



Graph 4. Kinetotherapy-hemorrhage volume correlation



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Engl J Med, 320:904-910



OPTIMIZING HEALTH STATUS IN AEROBIC GYMNASTICS

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Abstract

Aim of study

This work is intended to be a plea for what negative effects of sedentary life represent, but also of the manner they could be prevented and removed, for optimizing body health status, through training in which effort shall be dosed, depending on a series of individual traits (age, sex, trouble).

Methods

The study has been performed on a number of 10 persons, of feminine sex (5 from the control lot and 5 from the experimental one) aged between 34 and 46 years old. For better emphasizing the favorable dynamic to subjects from experimental lot, as compared with control lot, initial and final results obtained from subjects in the two lots have been analyzed by Hettinger and Ruffer tests.

Results

Final testing of the subjects from experimental lot shows an improvement in rates for mobility, strength and resistance, as opposed to initial testing. The subjects from the control lot who developed a normal daily activity, with no aerobic training, obtained feeble results, both in initial, and in final testing, not being registered any significant modification of rates following both tests.

Conclusions

Aerobic gymnastics training within weekly training program leads, in time, to individual health status improvement. Training on a regular basis and in an organized manner contributes to removal of some effects induced by sedentary life: negative physical conditions, low effort capacity and to improvement of motor qualities (strength, resistance, mobility).

Key words: health status, aerobic gymnastics, effects of sedentary life

Introduction

This work is intended to be a plea for what negative effects of sedentary life represent, but also of the manner they could be prevented and removed, in order to optimize body health status, through training in which effort shall be dosed, depending on a series of individual traits (age, sex, trouble).

The effects of sedentary life

Many of current professions are considered as being sedentary, in the sense that they are defined by minimum energy expenditure. At a muscular level, lack of physical exercise can lead, in time, to muscle atrophy as well as to their strength weakening. A percentage of 35 to 42% of body weight is represented by muscles, and body's vertical line is supported by them and by skeletal system. An individual with weak muscles will suffer from deficiency in posture, movement, physical strength. Vicious working postures are one of the most serious consequences of sedentary jobs (T. Ogawa et al., 1992). Prolonged body bending forward, its binding on the right or on the left side, too low or too high posture at the table leads to spinal distortion. In time, much more serious deficiencies could appear: osteoporosis, arthrosis, sprains, and lombosciatalgy. At a digestive level, for sedentary individuals digestive disorders are tormenting: constipation, biliary calculus, colitis, hemorrhoids, favored by static posture and especially by sitting down.

At the level of urinary apparatus and of annex glands are noticed, due to static postures specific to

sedentary work, a stasis in the small pelvis with annexitis resurgence or triggering and of other genital inflammations (D. Swart, M. Pollock, W. Brechue, 1996).

At the heart level, dropping of VO_2 max. lies at the basis of brutal drop of beat volume and of cardiac flow (consequently, a net increase of cardiac rhythm is established). Cardiac vagal tone drops and catecholamines secretion increases as well as cardiac beta-receptors' sensitivity. At a circulatory level, sanguine circulatory volume drops, venous return (drops translated by decreasing of heartbeat volume). Muscular sanguine flux, capillarization, erythrocyte volume and oxidative enzymes drop (L. Braun, 1991). At a respiratory level, lungs are insufficiently oxygenized, respiratory ability is low and resistance to weather changes and to infections lacks. At a nervous system level, fatigue, overtension of nervous centers and others' languor set in, unbalance of inhibition-excitation processes with setting in of inertia states or pathological excitation appears and other deviations that manifest especially under the shape of neuroses. At a metabolic level, a serious consequence of sedentary life is obesity.

1. Producing energy in the body is a vital need, without which life couldn't exist. This energy results from catabolisation of the three groups of food principles: sugars, fats and proteins (R.G. McMurray, et al., 1985). Following nourishment entering the body through digestion process in the tube, complex carbohydrates pass in glucosis, fructosis, in

galactosis, fat into fatty acids and proteins in amino acids. From there they are absorbed under this shape and converted to hepatic and muscular tissue level. To these levels, through processes of total oxidation, release of energy needed for living takes place. When physical activity is performed, energy consumption of the muscles can reach important values, as opposed to sedentary life, case in which it is reduced (C.A. Milesis, et al., 1976). Naturally, the excess of material deposits under the shape of fat. This depositing takes place over the entire body, but especially under the skin of certain body regions and around viscera. The increase by 10-20 % from the ideal weight is considered overweight (obesity), by the uncomfortable state of disease or function disturbance (A. Thorstensson, B. Hulthen, et al., 1976). Obesity can be of android type and could cause atherosclerosis, diabetes mellitus, etc. and of ginoïd type and could cause pain to the spine, ankles, knees and hips level. Cellulite is sediment, a summing up of wear substances and fat cells, subcutaneous, on the level of the abdomen, of the buttocks, lower limbs, characterized by cell infiltration of interstitial liquids. Production mechanism: in sedentary individuals, gas exchange from tissues level is reduced, fixed tissue oxygen is not enough, and elimination of carbonic acid is reduced, which produces humoral acidity: muscular masses' mobility favors mechanically infiltration. The result of fattening, of the increase of adipose tissue is the stimulation of insulin secretion. This hyperinsulinism maintains obesity's vicious circle. In time, stimulated pancreatic cells continue producing excess insulin, get tired and reach to diminishing of insulin secretion under normal conditions of carbohydrates' metabolism. Glucose in the blood increases and appears in urine, which means setting in of diabetes that could lead to a series of serious co-

implications: myocardial infarction, cerebral hemorrhage, retinopathy, nephropathy, etc. All these perturbances could be avoided by kinetic prophylaxis programs composed by aerobic exercises, adapted to and dosed depending on individual particularities. In theory, it is known the fact that in order to improve the quality of motricity and of effort capacity it is necessary to combine within aerobic gymnastics exercises of strength, mobility and resistance. In practice, very few individuals do various physical activities. Generally, sedentary persons prefer stretching or cycloergometer, not being informed of the importance of associating more types of aerobic exercises for the development of all the qualities of motricity and last, but not least, for the increase of effort capacity. Being aware of these aspects I have formulated two hypotheses to allow me to start this experiment in a fitness and aerobic gymnastics center:

1. If an aerobic gymnastics training shall be practiced within weekly programs this shall lead, in time, to the improvement of individual's health status;

2. If an aerobic training shall be practiced on a regular basis and in an organized manner, this shall contribute to abolishment of some effects induced by sedentary life: negative physical conditions, low effort capacity and motricity qualities shall be improved (strength, resistance, mobility).

Methods

The study was performed on a number of 10 females (5 from the control lot and 5 from the experimental one) aged between 34 and 46 years old. For better emphasizing the favorable dynamic to subjects from experimental lot, as compared with control lot, initial and final results obtained from subjects in the two lots have been analyzed by Hettinger and Ruffier tests.

Table no. 1- Subjects belonging to experimental lot

No.	Name	Sex	Age
1.	A.M.	F	46
2.	S.E.	F	40
3.	C.C.	F	38
4.	B.A.	F	42
5.	B.N	F	38

Table no. 2 – Subjects belonging to control lot

No.	Name	Sex	Age
1.	M.D.	F	45
2.	A.B.	F	34
3.	L.M.	F	41
4.	N.O.	F	38
5.	R.P.	F	39

Subjects in experimental lot took aerobic sessions by a mutual agreement pre-established program with all participants in the experiment, and those in control lot

developed a normal physical activity and didn't participate in any type of aerobic training that leads to effort capacity increase.

Admission criteria to experimental and control lots were:

- a sedentary life regimen;
- lack of diseases that counter-indicate effort or other invalidant diseases;
- females.

Subjects' final testing in the experimental lot shows an improvement of scores for mobility, strength

and resistance, as opposed to initial testing. Subjects in the control lot who developed a normal physical activity, with no type of aerobic training, obtained low results both in initial testing and in final testing, not being registered any significant modification of scores following both tests.

Table centralizing scores no. 3- initial values in Hettinger and Ruffer tests

Experimental lot	Mobility ex. 1, 2, 3	Balance ex. 4, 5	Strength ex. 6, 7	S + R* ex. 8, 9, 10	Ruffier index
A. M.	15 p	20 p	4 p	2 p	Medium
S. E.	21p	18 p	10 p	4 p	Medium
C. C.	20 p	20 p	10 p	4 p	Medium
B. A.	17 p	20 p	9 p	2 p	Medium
B. N.	12p	18 p	9 p	8 p	medium

- S= strength; R= resistance

Table centralizing scores no. 4- final values in Hettinger and Ruffer tests

Experimental Lot	Mobility ex. 1, 2, 3	Balance ex.4, 5	Strength ex. 6, 7	S + R ex. 8, 9, 10	Ruffier index
A. M.	28 p	20 p	8 p	7 p	Good
S. E.	25p	20 p	16 p	10p	Good
C. C.	29 p	20p	17 p	16 p	good
B. A.	28 p	20p	17 p	16 p	Medium
B. N.	28 p	20 p	17 p	19p	good

Table centralizing scores no. 5- initial values in Hettinger and Ruffer test

Control lot	Mobility ex. 1, 2, 3	Balance ex. 4, 5	Strength ex. 6, 7	S + R ex 8, 9, 10	Ruffier index
M. D.	17 p	20 p	7 p	2 p	Medium
A. B.	15 p	18 p	4 p	1 p	Satisfactory
L. M.	19 p	20 p	8 p	3 p	Medium
N. O.	20 p	20 p	10p	4p	satisfactory
R. P.	20 p	20 p	10 p	4 p	satisfactory

Table centralizing scores no. 5- initial values in Hettinger and Ruffer test

Control lot	Mobility ex. 1, 2, 3	Balance ex. 4, 5	Strength ex. 6, 7	S + R ex. 8, 9, 10	Ruffier index
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M. D.	19 p	20 p	7 p	2 p	Medium
A. B.	13 p	18 p	4 p	2 p	Satisfactory
L. M.	14 p	18 p	7 p	2 p	Medium
N. O.	14 p	14 p	9 p	3 p	Medium
R. P.	17 p	20 p	8 p	3 p	Satisfactory

Conclusions

The results of the experiment confirm the hypotheses from which the research started. Analyzing all data obtained from the subjects in experimental lot related to physical and psychical adaptations that occurred following systematic practice of physical activities, we can conclude:

- Aerobic gymnastics program determines, in time, the improvement of motricity qualities and of effort capacity;
- Optimal effects on psychical, cardiovascular and locomotive level are obtained only by sustained and regular practice of aerobic training.
- Subjects who participated in this experiment enjoy, at present, a series of advantages: numerous favorable modifications from psychical and physical points of view, they have more energy and resistance to efforts and they benefit from that wellbeing that practicing aerobic physical exercise can induce.
- In sedentary individuals physical exercise shouldn't miss from daily program, given the fact that they have a predisposition for a series of negative psychical and physical conditions.
- Practicing an aerobic gymnastics training within weekly training programs leads, in time, to individual health status improvement.
 - Training on a regular basis on in an organized manner contributes to abolishment of some

effects induced by sedentary life: negative physical conditions, low effort capacity and to improvement of motricity qualities (strength, resistance, mobility).

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STRENGTH AND MYOELECTRIC ACTIVITY OF VARIOUS MUSCLES IN RELATION TO THE VARIOUS MOVEMENTS PERFORMED AT THE LEVEL OF THE SPINE – A LITERATURE REVIEW

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Abstract

Background: Knowing the value of maximum isometric strength and myoelectrical activity in every movement for the spine muscles for sedentary subjects and athletes, may be important in designing rehabilitation programs and training programs, especially in designing the optimal volume of training.

Aim: The setting of maximal isometric strength generation and myoelectrical activity of antagonist muscle that support the spine, realised in various movements at the level of the spine and the implications of the data found.

Key words: spine, muscle, maximal isometric strength.

Introduction

Instability of the trunk muscles can lead to biomechanical overload of the spine, which is due to control movement and suboptimal muscle recruitment

(D.C. Guzik, T.S. Keller, M. Szpalski, J.H. Park, D.M. Spengler, 1996). Therefore, a closer analysis of strength generation and myoelectrical activity of antagonist muscle that support the spine can lead to a correct and

efficient implementation of training and rehabilitation programs at the level of the trunk.

Strength and myoelectric activity of various muscles in relation to the various movements performed at the level of the spine.

Maximum voluntary muscle contraction of the cervical spine generates high electromyographic signal intensity for most muscles which participate in lateral rotation movements. The highest level of electromyographic signal was recorded for trapezius muscle in lateral rotation movement in all subjects tested. Also, isometric peaks force for the movement of extension was $28,3 \pm 3,3\text{Nm}$ (Newton*meters), for the movement of flexion was $17,7 \pm 3,1\text{Nm}$, for right lateral flexion movement was $17 \pm 2,9\text{Nm}$, and for left lateral flexion movement was $16,9 \pm 2,9\text{Nm}$ (H. Choi, R.Jr. Vanderby, 2000). A.N. Vasavada, S. Li, S.L. Delpi, (2001), showed that the cervical extensor muscles exert a force of $52 \pm 11\text{Nm}$ for male subjects and $21 \pm 12\text{Nm}$ for female subjects, the cervical musculature required making the movement of flexion exert a force of $30 \pm 5\text{Nm}$ for male subjects and $15 \pm 4\text{Nm}$ for female subjects, the muscles necessary to carry out cervical lateral flexion movement exert a force of $36 \pm 8\text{Nm}$ for male subjects and $16 \pm 8\text{Nm}$ for female subjects and cervical muscles necessary to carry out lateral rotational movement exert a force of $15 \pm 4\text{Nm}$ for male subjects and $6 \pm 3\text{Nm}$ for female subjects. Romanian female subjects, with an average age of $34^6 \pm 8^4$ (years^{months}), presents a balanced cervical girdle muscle strength for performing movements in sagittal plane and frontal plane, which recorded a maximal isometric strength of $13,6 \pm 11\text{Nm}$ for the movement of flexion, $27,53 \pm 14,37\text{Nm}$ for the movement of extension, $19,4 \pm 9,16\text{Nm}$ for the movement of right lateral flexion and $20,26 \pm 11,42\text{Nm}$ for the movement of left lateral flexion. Romanian male subjects, with an average age of $35^5 \pm 13^{10}$ (years^{months}), develops a maximum isometric strength significantly higher compared to female subjects, for the movements of flexion, extension, right lateral flexion and left lateral flexion at the level of the cervical spine (A. Straton, 2007a).

Much of the literature showed that the maximal isometric strength necessary to carry out the movement of extension is significantly higher than the maximal isometric strength necessary to carry out the movements of flexion (S. Kumar, Y. Narayan, T. Amell, 2001; K.Y. Seng, V.S. Lee Peter, P.M. Lam, 2002; A. Straton, 2007a; L. Suryanarayana, S. Kumar, 2005) and anterior-lateral flexion, at the level of cervical spine. Also, male subjects develop a maximal isometric strength significantly higher at the level of the cervical spine than female subjects (S. Kumar, Y. Narayan, T. Amell, 2001), with a magnitude of 1,2-1,7 times higher (T.T. Chiu, T.H. Lam, A.J. Hedley, 2002).

S. Kumar, Y. Narayan, T. Amell, R. Ferrari, (2002), showed that the results estimation of maximal isometric strength at the level of cervical spine, performed in a neutral position, were the largest in

extension and the lowest in flexion, showing a gradual decrease in maximum isometric strength results from the movement of extension, continued with the results obtained in posterior-lateral movement, lateral flexion movement, anterior-lateral flexion movement and ending with results from the movement of flexion. Also, electromyographic intensity was approximately 66% higher for muscles necessary to carry out the movement of flexion then the muscles necessary to carry out the extension movement (even if the maximal isometric strength was higher by about 30% for muscle which carried out extension movement, then the muscles which carried out movement of flexion), suggesting a higher relative myoelectrical activity of muscles performing the movement of flexion then muscles performing the movement of extension, towards the generation of certain forces. T.T. Chiu, T.H. Lam, A.J. Hedley, (2002), showed that male subjects develop a maximal isometric strength at the level of the cervical spine, significantly higher for muscles required for right lateral flexion movement then muscles needed to realise left lateral flexion movement. Also, female subjects do not have disbalances of isometric muscles strength peaks between right lateral flexion movement and left lateral flexion movement.

Female subjects trend to present similar levels of maximal isometric strength, reported to age groups between 20 and 59 years old, for muscles of the cervical spine, for movements of flexion ($73,8 \pm 20\text{N}$), extension ($190,8 \pm 31,3\text{ N}$), right lateral rotation ($8,1 \pm 2,3\text{ Nm}$) and left lateral rotation ($7,9 \pm 2,3\text{ Nm}$) (P.K. Salo, J.J. Ylinen, E.A. Mälkiä, H. Kautiainen, A.H. Häkkinen, 2006). A gradual increase of muscle contraction in lateral rotation movement at the level of thoraco-lumbar spine, is performed concomitantly with significantly increasing the force developed by the great dorsal muscle and external oblique abdominal muscle and decreasing the force developed by extensor muscles of the spine, suggesting the role of extensor muscles of the spine as stabilizer and not as rotator (S. Kumar, Y. Narayan, D. Garand, 2002). Muscles that contribute to the lateral rotation movement, is participating with a contribution of about 65% of the total myoelectric activity and the return to neutral position can be attributed to elastic controlled rebound of the same muscles. Abdominal oblique muscles, latissimus dorsi muscles and spine extensors, were the first muscles which presented myoelectric activity in lateral rotation movement. In an amplitude of lateral rotation movement in both directions for about 10° - 15° , muscle contraction for executing those movements is reduced; over this amplitude osteo-ligament structures become rigid, and muscle contraction increases for the execution of rotational movements (S. Kumar, Y. Narayan, M. Zedka, 1996). W.S. Marras, K.G. Davis, K.P. Granata, (1998), showed that lateral rotation movement executed in standing position is generated by contraction of internal and external oblique abdominal muscles and of the latissimus dorsi muscles contraction. Also, lateral rotation movement, with

trunk flexed, produce an increase in myoelectric activity of spine extensors by 10-15% and a decrease in myoelectric activity of the external oblique abdominal muscles with approximately 3-5%. A. Toren, (2001) showed that the external oblique abdominal muscles and spine extensor muscles presents a pattern of myoelectric activation significantly different in relation to the direction of rotation. These results suggest a careful choice of methods to assess muscle activity, reported to occupational (W.S. Marras, K.G. Davis, K.P. Granata, 1998) and sporting activities. Production capacity of trunk muscles strength is dependent on posture and decreases with increasing lateral rotation angle. Increasing the angle of lateral rotation and lateral flexion is reflected by the increase of electromyographic signal. This shows that asymmetrical movement requires more muscular effort to generate a lower force. Asymmetrical movement tends to destabilize the osteo-ligament and muscles system from the level of spine, increasing, in this way, the chances of injury (S. Kumar, Y. Narayan, 2006). The results obtained by W.S. Marras and K.P. Granata, (1995), for different dynamic movements performed in the spine may help explain, from biomechanics perspectives, why the vast majority of epidemiological studies have identified rotation movement as a risk factor for problems at the lumbar spine. Anyway, these imbalances can be corrected by applying a corrective exercise program in the lumbar muscles (T. Renkawitz, D. Boluki, O. Linhardt, J. Grifka, 2007).

Simultaneous activation of antagonistic muscles required for flexion and extension movements is present in maintaining neutral spine posture. Simultaneous activation of antagonistic muscles required for flexion and extension movements increases by applying the torso an additional weight. This simultaneous activation of antagonistic muscles required for flexion and extension movements, can be explained entirely by the need of neuromuscular system to provide mechanical stability to the spine (J. Cholewicki, M.M. Panjabi, A. Khachatryan, 1997). Also, spine posture is affected by the force developed by thoraco-lumbar extensor muscles, which, mainly, decreases with age (M.S. Eagan, D.A. Sedlock, 2001; P.J. Limburg, M. Sinaki, J.W. Rogers, P.E. Caskey, B.K. Pierskalla, 1991; M. Sinaki, S. Khosla, P.J. Limburg, J.W. Rogers, P.A. Murtaugh, 1993). Spine extensor muscles weakness can be the result, in respect with age, by motor units number decline, by progressive habitual inactivity, by reduced recruitment of motor units (R.G. Miller, 1995) or by the inhibition caused by pain. In addition to the role of muscle activity, to maintain the correct posture of the spine, should be taken into account the control of muscle activity. Muscles that support the spine, should provide stability and controlled movement of the structure. To provide stability and optimal control of movements, the muscles of the spine must have sufficient strength and resistance, and correct and adequate model of muscle recruitment (M.M. Panjabi, 1992). Neuromuscular

control is associated directly with the central nervous system to ensure optimal muscle performance. Generation of force at the level of antagonistic muscles which support the spine, in athletes, depends primarily on the specific movements, corresponding to the sport practiced, realised at the level of the trunk. K. Iwai, T. Okada, K. Nakazato et al., (2008), showed that the maximum force produced by extensor and flexor muscles of the trunk is stronger in wrestlers than judokas. Also, the cross sectional area of abdominal muscle is significantly greater in wrestlers than judokas, and the cross sectional area of oblique abdominal muscles and quadratus lumborum is significantly higher in judokas than wrestlers. Therefore, the development of muscle strength in athletes is appropriate to the sport specific movements practiced. In most cases, maximal isometric strength recorded at the level of the trunk muscles in sedentary subjects is significantly lower compared with performance athletes. In the study of M. Hasue, M. Fujiwara, S. Kikuchi, (1980), is showing that female subjects, aged between 30 and 39 years, develops a maximal isometric strength of trunk extensors of $137,3 \pm 21,4$ Nm and a maximal isometric strength of flexor muscles of the trunk of $90 \pm 18,3$ Nm; in addition male subjects, aged between 30 and 39 years, develops a maximal isometric strength of trunk extensors of $209,5 \pm 25,5$ Nm and a maximal isometric strength of flexor muscles of the trunk of $168,9 \pm 34,4$ Nm. T. McNeill, D. Warwick, G. Andersson, A. Schultz, (1980), showed, after the test of maximal isometric strength in standing position, that the female subjects generates in extension movement of 117 Nm, and a maximal isometric strength for flexion movement of 87 Nm; also, male subjects generates a maximal isometric strength in extension movement of 210 Nm and a maximal isometric strength in flexion movement of 149 Nm.

A. Straton, (2007b) showed that extensor muscles from the thoraco-lumbar spine developed a maximal isometric strength of $266,041 \pm 82,744$ Nm for male subjects and $141,333 \pm 84,886$ Nm for female subjects, at the angle of 30° , and flexor muscles at the level of thoraco-lumbar spine developed a maximal isometric strength of $184,291 \pm 47,760$ Nm for male subjects and $98,133 \pm 52,787$ Nm for female subjects, at the angle of 0° . In female subjects, maximal isometric strength exerted by the muscles necessary to carry out the movement of left lateral flexion ($115,266 \pm 44,117$ Nm) was significantly higher than the maximum isometric strength exerted by the muscles necessary to carry out right lateral flexion movement ($103,600 \pm 54,517$ Nm), at the angle of -30° . In male subjects, no significant differences were found between maximal isometric strength exerted by the muscles necessary to carry out right lateral flexion movement ($189,291 \pm 63.358$ Nm) and left lateral flexion (194.291 ± 61.940 Nm) at the same angle. However, in a study realised on 16 male subjects, significant differences were found between maximal isometric strength developed by muscles necessary to carry out right lateral flexion



movement and muscles necessary to carry out the left lateral flexion movement (D.C. Guzik, T.S. Keller, M. Szpalski, J.H. Park, D.M. Spengler, 1996). In both sexes, maximal isometric strength exerted by the muscles responsible for right lateral rotation movement ($131,666 \pm 62,741\text{Nm}$ for male subjects and $62,466 \pm 24,189\text{Nm}$ for female subjects) was not significantly different from maximal isometric strength exerted by muscles responsible for left lateral rotation movement ($134,625 \pm 58,560\text{Nm}$ for male subjects and $63,866 \pm 30,123\text{Nm}$ for female subjects) (A. Straton, 2007b). Also, the female subjects aged between 30 and 40 years, exerted a maximal isometric strength by the muscles necessary to carry out the left side flexion movement at all angles tested ($82,286 \pm 24,688\text{Nm}$ at -30° angle, $101,333 \pm 25,784\text{Nm}$ at 0° angle, and $73,095 \pm 21,624\text{Nm}$ at 30° angle) significantly higher than the maximal isometric strength exerted by the muscles necessary to carry out right lateral flexion movement ($73,524 \pm 23,183\text{Nm}$ at -30° angle, $87,714 \pm 24,956\text{Nm}$ at 0° angle, and $65,905 \pm 21,84\text{Nm}$ at 30° angle). Maximal isometric strength exerted by the muscles necessary to carry out the right rotational movement at all angles tested ($59,571 \pm 17,509\text{Nm}$ at -30° angle, $49,143 \pm 15,841\text{Nm}$ at 0° angle, and $35,905 \pm 12,124\text{Nm}$ at 30° angle) is not significant different than maximal isometric strength exerted by the muscles necessary to carry out the left rotational movement ($54,333 \pm 18,386\text{Nm}$ at -30° angle, $44,238 \pm 16,655\text{Nm}$ at 0° angle, and $32,238 \pm 13,206\text{Nm}$ at 30° angle). In the same study, the toraco-lumbar spine extensor muscles has developed a maximal isometric strength of $99,857 \pm 29,294\text{Nm}$ at 0° angle and $123,571 \pm 34,661\text{Nm}$ at 30° angle and flexor muscles has developed a maximal isometric strength of $80,381 \pm 18,829\text{Nm}$ at 0° angle and $86,667 \pm 19,51\text{Nm}$ at 30° angle (A. Straton, G. Cismaş, 2009).

Conclusions

Data presented in this paperwork review establish some directions in implementing programs for training and rehabilitation programs at the level of the spine. However, this paperwork review requires a closer analysis of maximal isometric strength generation and myoelectric activity of antagonistic muscles that support the spine, for the setting of optimal training or rehabilitation programs.

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❖ SPORT AND HEALTH

EFFECTS OF EIGHT WEEKS PILATES EXERCISES ON BODY COMPOSITION OF MIDDLE AGED SEDENTARY WOMEN

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Abstract

Purpose. The purpose of this study was to assess the effects of 8 weeks regular Pilates mat-work exercises program on body composition of sedentary middle aged women.

Method. The total of 20 healthy middle aged sedentary women voluntarily participated in this study. The mean age and body weight of subjects in control and experiment group were $41,2 \pm 8,67$ years and $67,1 \pm 16,106$ kg. , $38,5 \pm 3,89$ years and $62,8 \pm 8,766$ kg respectively. While experiment group performed three exercise sessions per week and each session lasted 45 minutes at %40-60 intensity, control group did not participate in any activity during study. All subjects', height, weight, waist-hip ratio, body mass index, body fat percentage and lean body mass were measured by standardized tests and equipments before and after exercise program. The data were analyzed with Wilcoxon Signed Rank Test by using SPSS 10.0 Package Program.

Results. As a results of this study; significant decrements were observed in percent body fat of women in Pilates exercise group ($p < 0,05$).

Conclusions. As conclusion it could be said that; this type of regular pilates exercises are effective on reducing percent body fat of middle aged sedentary women.

Key words: Pilates, sedentary women, body composition

Introduction

Pilates is an exercise system developed over a period of approximately 50 years, beginning in the 1920s by Joseph H. Pilates (B.D. Anderson, A. Spector, 2000) and Pilates is popular among women (Y. Chang, 2000). The Pilates method incorporates six key principles: centering, concentration, control, precision, breath, and flow (J.E. Muscolino, S. Cipriani, 2004). Pilates is a series of low impact muscle contraction exercises. The activities train the muscles in the core of the body (Y. Chang, 2000). The exercises can be carried in two different ways namely Pilates mat work and the use of Pilates apparatus. Among these apparatus are trapeze table, cadillac, wunda chair, reformer, barrel, spine corrector (A. Owsley, 2005). The Pilates exercises done on a mat on the floor are called "mat work" (M. Bryan 2003, J. Kloubec 2004).

Although Pilates exercises are lower in intensity compared to aerobic and dance exercises they have an important role for a healthy body. It decreases the cardiovascular risk, prevents osteoporosis, shapes the body and promotes balance and flexibility (L. Robinson 2003, L. Solomon 2003). Pilates are amongst the few exercises which develop balance, flexibility and muscular endurance (D.M. Cozen, 2000). The major techniques which develop flexibility are ballistic stretching, static stretching and PNF (proprioceptive neuromuscular facilitation). The techniques like Pilates are being developed as alternatives to those (F. Bertolla et al., 2007).

The major cause of mortality and morbidity in the industrialized world is cardiovascular diseases. The major parameters which can be controlled among the

risk factors causing Coronary Artery Disease are diabetes, hypertension, hyperlipidemia, smoking and lack of physical activity and these are quickly replacing the infectious diseases as the major causes of mortality in the industrialized world. (B.P. Griffin, E.J. Topol, 2004, WHO 1994). Limited number of studies on the physical benefits on Pilates exercises in literature are noticeable. The purpose of this 8-week regular prospective longitudinal study was to investigate the effects of Modern Pilates mat-work exercises program on body composition of middle aged sedentary women.

Methods

Twenty subjects were randomized into control ($N=10$) and experimental (10) groups with each group. The experimental group completed Pilates sessions within 8-week period. While experiment group performed three exercise sessions per week and each session lasted 45 minutes at %40-60 intensity, control group did not participate in any activity during study. Control group was instructed to refrain from beginning a new exercise program. The participants in the experimental group took physical fitness report from a physician before starting the study. They also filled a personal information form. The music used during

sessions were selected according to the rhythm of exercise.

Table 1. Physical characteristics of subjects

	Experimental group (n=10)	Control Group (n=10)
Age (year)	38,5 ± 3,894	41,2 ± 8,676
Height (cm)	156,7 ± 5,121	160,8 ± 3,614

Table 2. Training program

Week	1	2	3	4	5	6	7	8
Training duration (min)	45	45	45	45	45	45	45	45
Training intensity (%)	40	45	45	50	50	55	55	60
Training frequency (day/ week)	3	3	3	3	3	3	3	3

All subjects', height, weight, waist-hip ratio, body mass index, body fat percentage, body fat weight and lean body mass were measured by standardized tests and equipments before and after exercise program at the Gazi University Athlete Performance Laboratory.

The data were analyzed with Wilcoxon Signed Rank Test by using SPSS 10.0 Package Program.

- *Height* was measured to the nearest 0.1 cm on a stadiometer,
- *Body weight* was measured to the nearest 0.1 kg SECA electronic scale,
- *Waist and hip ratio* was recorded to the nearest 0.1cm by Gullick strip,
- *Body mass index (BMI)* was calculated (kg/m^2),

- *Body composition;*

Subjects' skinfold thickness were measured by Holtain skinfold caliper in millimetres. The measurements were taken from two regions of the body (suprailiac, triceps) and right side.

- *Body fat percentage* was calculated by Sloan Weir Formula as follows;
- $\text{Body density}(\text{gm}/\text{ml}) = 1,0764 - 0,00081(\text{suprailiac}) - 0,00088(\text{triceps})$
- $\text{Body Percent body fat}(\%) = (4,57 / \text{Density} - 4,142) \times 100$
- *Lean body mass* was calculated as; *body weight (kg) - body fat weight (kg)*.

- Pilates Matwork Exercises

Table 3. Exercises

Warm-up Exercises	Exercises
1. Breathing	8. The Hundred
	9. The Shoulder Bridge
	10. Single Leg Circle
2. Imprint and release	11. Swimming
	12. One Leg Stretch
	13. Double Leg Stretch
3. Hip rolls	14. Rolling Like a Ball
	15. The Saw
4. Spinal rotation	16. Roll Up
	17. Spine Stretch
5. Cat stretch	18. Leg Pull Down
	19. Leg Pull Up
6. Scapula isolation	20. Push Up
	21. Pelvic Curl
7. Arm circle	22. Side Bend
	23. Side Kick Front
	24. Side Kick Back

Results

Table 4. Pre-test results of experimental and control group

Variables	Group	Pre-test	Difference	P
Body weight (kg)	Experimental	62,8 ± 8,76	-4,3	0,444
	Control	67,10 ± 16,10		
Waist-hip ratio	Experimental	0,74 ± 6,54	-0,036	0,397
	Control	0,77 ± 9,60		
BMI (Kg / cm ²)	Experimental	25,54 ± 3,05	-0,462	0,799
	Control	26,00 ± 6,54		
Body fat percentage %	Experimental	22,65 ± 2,28	-2,416	0,285
	Control	25,06 ± 4,05		
Lean body mass (kg)	Experimental	48,46 ± 5,93	-1,245	0,721
	Control	49,71 ± 9,03		

* p<0,05

According to the results of pre-test, there were no differences in any variables.

Table 5. Post-test results of experimental and control group

Variables	Group	Post-test	Difference	P
Body weight (kg)	Experimental	62,4 ± 8,47	-6,3	0,386
	Control	68,7 ± 16,76		
Waist-hip ratio	Experimental	0,732 ± 6,98	-0,06	0,332
	Control	0,799 ± 9,75		
BMI (Kg / cm ²)	Experimental	25,380 ± 2,91	-1,23	0,508
	Control	26,615 ± 6,73		
Body fat percentage %	Experimental	22,045 ± 2,05	-3,47	0,050 *
	Control	25,519 ± 4,26		
Lean body mass (kg)	Experimental	48,563 ± 5,96	-1,97	0,646
	Control	50,541 ± 9,20		

* p<0,05

Significant decrements were observed in percent body fat of women in Pilates exercise group (Table 5).

Discussion

R. Jago et al. (2006) observed significant decreases in BMI after 4 week pilates exercises in young girls. In another study, B. Sekendiz et al. (2007) studied on the effects of 5 weeks Pilates training on sedentary women. They did not find any changes in BMI and body fat percentage of subjects. N.A. Segal et al. (2004), have examined the effect of pilates body composition, muscle endurance and flexibility. (K. Rogers, A.L. Gibson, 2009). Physical exercises such as Pilates have positive benefits of on body composition. As conclusion it could be said that; this type of regular pilates exercises has positive effect on reducing body fat percentage of middle aged sedentary women.

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MOTOR COMPETENCES OF CHILDREN AT THE AGE OF SIX AS THE BASIS FOR MOTOR EDUCATION ACCOMPLISHMENT WITHIN INTEGRATED EDUCATION

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Abstract

Purpose. Movement abilities involve human possibilities of efficient, fast and accurate performance of motor activities. They are acquired during individual development as well as in the process of education and activities based on appropriate level of motor abilities and movement experiences. The skills condition precisely determined structure of movement and are visible in the course of a particular activity. Purpose of the research was to determine the level of basic movement skills mastered by children until they reach the age of six who begin and complete education in so called "0" classes preparing them for schooling within randomly selected kindergartens and primary schools in Poland.

Methods. The study material is based on the results of research conducted among children attending "0" classes (preparing them for school education) in randomly selected kindergartens and primary schools in Poland. As part of module assessing the level of physical fitness, 33,459 girls and boys (97,8% of all the children) were examined in the first stage of the research; in the second one – 34,355 children (97,2% of all the children examined). In the assessment of motor abilities the following skills were evaluated: one-hand/both-hands throw and grasp one-leg/both-legs jump, ball kicks, fast running, as well as general coordination while performing the exercises.

Results. There were significant differences between preschool children from cities and villages and from kindergartens and schools.

Conclusions. Lowering the school entry age ought to be connected with preparing suitable educational programmes including motor abilities development which satisfy natural needs for movement specific to this age group.

Key words. 6 year old children, motor abilities, school readiness.

Purpose

Every child who begins school education is equipped with a extensive set of skills which helps him/her to begin the school career (J. Budínková, P. Krušínová, P. Kuncová, 2006, p. 60). However, a high level of personal individuality as well as diverse experience from family environment, preschool education and peer relations largely determine successful existence in a new environment even in 6- or 7-year-old children. The relation between diverse

developmental spheres is unquestionable and indisputable. It has won the reputation of a key importance problem in situations which are crucial to child's further development. One of these moments is when a child begins school education. It is relatively easy to define maturity or "school readiness" with reference to such basic skills as reading, writing, or a proper level of intellectual and emotional development, however, when it comes to defining the level of



physical development, health and motor skills in terms of a child's readiness for becoming a pupil the interpretation is frequently troublesome (A. Kopik, M. Zatorska, 2009). The most popular view presented in the literature states that a child should be equipped with such a set of gross and fine motor skills as to allow for writing, painting and performing global movements with their proper and smooth coordination (W. Brejnak 2006, p.27, W. Osiński, 2003, p. 64). Currently, school education begins according to children's chronological age. In Poland children may start attending primary schools (elementary schools) at the age of seven. This age limit is going to be changed in 2011 and, similarly to the majority of European countries, six-year-old children will begin integrated education in the first form. Providing all pupils with a possibility to acquire key competences, whose adequately high level may in the future contribute to a successful life in a knowledge society became the very basis of education in a contemporary school (A. Kopik, M. Zatorska, 2009, p.21). Particular attention is given to proper physical and motor development expressed through creating suitable conditions for games and plays involving physical movement, providing encouragement to regular physical activity, overall developmental exercises and expanding motor skills. Motor activities largely contribute to the development of skills in all competences, as movement is a manifestation of every activity. Thus, the aim of the research is to determine the level of mastering basic motor activities in children who finish and begin a year-long preparation to school education in randomly chosen "0" classes and kindergartens in Poland. It is assumed to be the expression of their motor maturity, which is crucial in order to function properly at school.

Method

The study material comprised children born in 1999 and 2000 who finish or begin a year-long preparation to school education in different places of living in Poland. As a method, stratified random and cluster sampling without replacement was used. Stratification was expressed with a province, type of institution, place of living (city, village – division on the basis of the structure, cities in urban-rural districts, rural areas in urban-rural districts). Sampling was conducted by PhD B. Walasek (A. Kopik, B. Walasek, 2007, p. 12). Sampling frame was a set of institutions which accomplish a one-year preparation to school education. It was created on the basis of SIO-MEN system updated with a list of six-year-old children, which was provided by province education offices. The data base was complemented with GUS (Main Statistical Offices) codes provided by the Ministry for each province and district a given institution belongs to. For sampling, schools and kindergartens with groups with average more than 5 and fewer than 70 children were selected (ed. E. Cieśla, 2007, p.10). Altogether 66,129 children; 32,128 girls and 34,001 boys were examined. There were two stages of the research. The first one was conducted in April-May 2006. It

comprised 33,459 children finishing their education in „0” classes. The second one comprised 32,670 children beginning a year-long preparation to school education. The date of the research procedure was dictated by the date of introduction of a project “A six-year-old child on the threshold of school education”. The project was implemented as part of the European Social Fund and its accomplishment was intended to be in December 2006. Overall 18% of the population of six-year-olds was examined. There were 64 physical education teachers engaged in the assessment of the level of physical fitness, motor skills and lateralization. They were previously trained during special meetings in particular provinces. The aim of the research project was to assess selected motor skills such as: left/right-handed sack throw and grasp, both-handed ball throw and grasp from 4-5 meter distance, left/right-legged jump and both-legged jump at 5 meter distance, left/right-legged ball kick to the goal from 5 meter distance, and fast running at the distance of 10x5m. Additionally, the physical education teachers made an overall assessment of movement coordination during exercises. The prepared a 4-grade scale, based on the teachers' subjective assessment, took into account the guidelines from the instruction concerning sampling and its assessment. The scale involved qualitative description and allowed to determine the number of children who had difficulties in the proper performance of physical exercise elements which were important in school physical education. Sampling was determined by the assumed possibility of conducting the research in a variety of conditions offered by schools and kindergartens (E. Cieśla, 2007, p.85). The survey addressed to parents provided information on social and economic variables concerning the examined children's families. The overall material was verified and gathered into statistics. The data were grouped based on sex, place of living and the type of institution a given child attended to. The data were presented in tables and on pictures. Statistical significance was calculated with the chi-square test.

Results

The examined children were evaluated in their ability to throw a ball with both hands as well as throwing a sack at a target with one hand (right and left hand) pic.1-3. According to physical education teachers most six-year-olds performed the 'both-hands' throws well. About 50 % of children, in both the first and second stage of the investigation, were graded as 'good'. The second part of the investigation shows that the number of children performing throws very well is on the slight increase. Differences in grading were noted, especially in the frequency of giving the 'very good' grade, to girls' disadvantage. This phenomenon came to light in the first stage of the investigation (statistical evidence $p \leq 0.001$). Only 1 % of children, both in the first and the second stage of the investigation, could not do this trick. Similarly to the 'both-hands' throw, over 47% of the investigated threw the sack with the right hand well. Only 1.5% in the first



and 2.4% of six-year-olds in the second part of the investigation had visible problems with the right-handed throw at a target. It should be noted that boys more often than girls were given the 'very good' grade (pic.2). Differences between sexes were statistically evident in both parts of the investigation on the level $p \geq 0.001$. A 'left-handed' sack throw was evaluated in a slightly different way. Children were given 'good' and 'average' grades much more often. The percentage of children who couldn't perform the 'left-handed' throw was different in both parts of the investigation. According to physical education teachers the children who began a year-long preparation for school education (stage II) got the lowest grade 'can't perform' (4%) much more often than their friends who were examined at the end of the year-long stage of preparation for school (stage I – 2.5%). A higher percentage of those who had problems with doing this trick came to light among the group of boys. The differences between boys and girls in grading the quality of the 'left-handed' throw were statistically evident in both parts of the investigation (pic.3).

The investigative program was also supposed to evaluate the quality of performing 'one-handed' and 'both-handed' grasps (pic.4-6). The percentage variation in this respect was similar to that in the case of 'throws'. A significant majority of the investigated was given good grades by teachers. The percentage of children who could not grasp the ball with both hands is insignificant, it is significantly lower in the case of six-year-olds examined in the first stage. It should also be noted that boys more often than girls got extreme grades (performing very well and not able to perform). Whereas girls get good and average grades for performing this trick more often (pic.4). In the case of 'right-handed grasps' there are more children who have problems with this trick. In the second part of the investigation the percentage of children in this category was similar (girls and boys), in the first stage it was smaller by 3 percentage points. The statistical evidence as the manifestation of grade differences between boys and girls $p \geq 0.001$ was observed only in the first part of the investigation (pic.5). Analysing the 'left-handed' sack grasps a higher percentage of 'average' and 'not able to perform' grades than in the case of 'right-handed' grasps can be observed. This is evident in both parts of the investigation. It was boys who got very good and good grades more often than girls (pic.6).

The results of the investigation of 'both-legged' and 'one-legged' jumps were shown in pic.7-9. About 50% of children did those jumps well. Differences in evaluation between children beginning (2 stage) and finishing a 'year-long' preparation for school were observed. Those children who were completing class '0' got higher grades more often. The percentage of six-year-olds who did not master the skill of jumping on the 'average' level is 4.3% for left-legged jumps in the second stage of the investigation (the result refers all those who were investigated (5.3% in the group of boys and 3.2% in the group of

girls), for right-legged jumps – 2.4% for all those who were examined (3.2% for boys and 1.6% for girls) and for both-legged jumps – 3.2% - all those who were examined (4.3% - boys and 2.1% - girls). It should also be noted that in the group of boys in comparison to the group of girls the grades 'very well' and 'not able to perform' were given much more often. While considering the results of 'right-legged' and 'left-legged' kicks it was discovered that, similarly to most exercises evaluating movement skills of children realizing a year-long preparation for school, most children were able to perform 'left-legged' and 'right-legged' kicks. In the case of 'right-legged' kicks the results show that they were performed very well. 'Left-legged' kicks got lower grades (good and average), even in the groups of boys. Pic.10-11. The percentage of children (boys and girls) who could not perform kicks was low, 0.6% - 1.8%. As was expected it was higher among girls than boys. Also there were more good results in the first stage of the investigation, girls and boys, meaning those children who were completing kindergarten education on the level of "0" class. While running the distance of 10x5 m, besides timing it, physical education teachers were grading its correctness (pic.12). The analysis of the data shown in the picture proves that six-year-olds run technically good and very well. Children who were completing the year-long preparation for school got the highest grades (81% of six-year-olds got grades like that). On the average 0.6% of the examined could not run properly. A difference between sexes was noted while grading. Boys more often than girls were doing it very well. Girls got 'good' or 'average' grades most often (sex differences were on the level $p \geq 0.001$). The tests that were done allowed a general evaluation of children's coordination of movement in the process of doing the exercises (pic.13). The examined six-year-olds got very high grades. Over 70% of all examined in every stage of the investigation got very good and good grades. The percentage of children who got 'below the average' grades was very low (about 0.3%). Big differences in grades between the groups of boys and girls were discovered. Especially in the case of high grades. In the first stage it was boys and in the second stage it was girls who got a high level of coordination. Boys more often than girls had problems with coordination while doing the exercises. In each stage of the investigation this difference was statistically proved ($p \geq 0.001$).

Discussion and conclusion

The findings of the study allowed to assess basic motor abilities of children who start (the 2nd stage) and finish (the 1st stage) a year-long preparation for learning at school. Six-year-old children are characterized by a high level of motor abilities. This is proved not only by the high marks given by physical education teachers in individual motor trials but also by the complex assessment of physical coordination of a child while doing exercises. It is necessary to stress that abilities based on whole-body movements such as

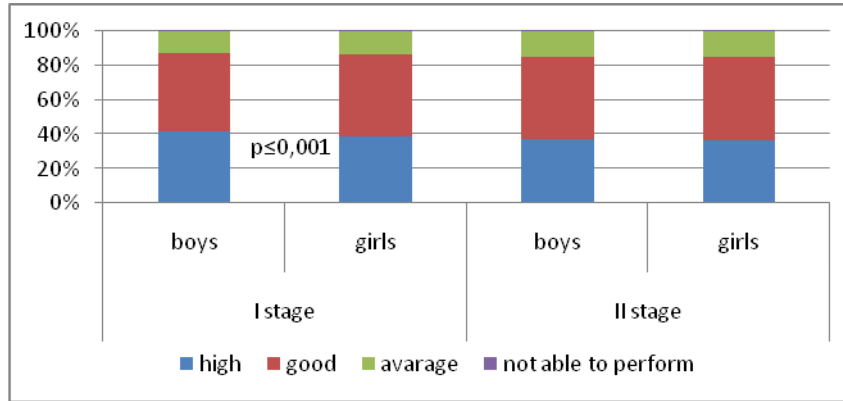


running were not difficult for children while practising them. Throwing a ball with both hands, throwing a bag with one hand as well as kicking a ball at a selected goal were also easy motor activities. However, catching a ball or a sack, especially with one hand, was definitely more difficult for children. It should be stressed that in the study group of six-year-old children there were differences in the quality of the performed motor tasks. The girls were more often assessed in the categories: they performed “moderately” and “good”, but the boys in the categories: “well” and “very well”. As for one-legged and both-legged jumps, it was also stated that the girls of the study group performed better than the boys. Nevertheless, the physical education teachers assessed higher other abilities, especially those concerning kicking with a right foot in the study group of the boys. The noticed differences between the sexes confirm the previous studies on motor efficiency of children at the nursery school age. B. Sekita (1985, p.12-23) observed significant differences in results of the basic efficiency trials connected with a run, a long jump and a throw. There are also other studies which are the basis for such a statement (R. Przewęda, J. Dobosz, 2003, p. 35-46). The conducted large-scale research with the specified two stages, thanks to which it was possible to observe abilities of a child completing and starting their education in so called “a reception class”, gave an opportunity to notice some progressive changes concerning not only the quantity but also the quality of the produced movements (J.E. Rink, 2004). This results in the fact that a bit lower categories of marks are given for performing tasks by the younger children (the 2nd stage) in comparison with the older ones (the 1st stage). The stage of mastering these activities is spread out over the time and distinctly individualized (Kelso, Clark, 1982, quoted after R. Malina, 1991). A child at the nursery school age is characterized by a high level of readiness to take up various challenges. It is also the period of time which is particularly intensive for developing basic motor abilities (R. Przewęda, 1985, p. 101). Because of a child’s natural curiosity about getting to know the surroundings, a passion for games and plays involving physical movement, and limitation of fear of new abilities as well as joy derived from movement, a child easily masters new sequences of the movement and also arranges them into motor complexes of a different level of difficulty. The wealth of the mastered motor activities determines a necessary condition for undertaking actions aimed at learning to write and draw. The vast store of motor activities enables children to participate in an optimal way in the future lessons as well as sports and recreational classes. It also gives an opportunity to maintain a good relationship with their peers. Their lowered potential may be a signal of developmental disorders, various dysfunctions. The findings of the studies suggest formulating the following observations:

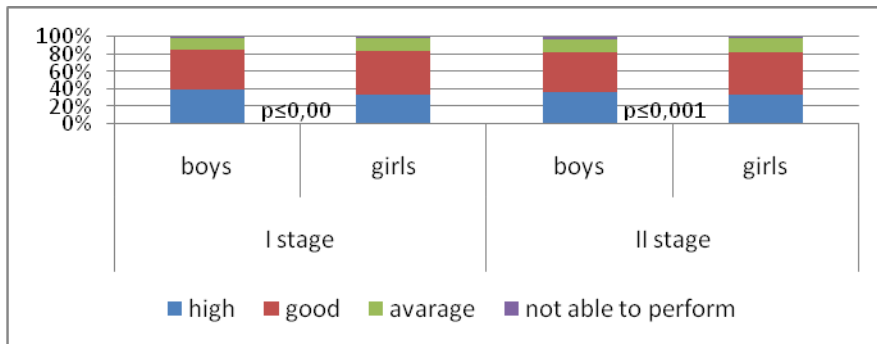
1. Children performed at good and very good level of movement abilities. Those completing preschool education were assessed significantly higher.
 2. Children more properly mastered the exercises based on whole-body movements (e.g. running) and right-hand/leg movements. However, they had problems with opposite-limb movements and complex coordination activities (e.g. one-hand grasp).
 3. Lowering the school entry age ought to be connected with preparing suitable educational programmes including motor abilities development which satisfy natural need for movement specific to this age group.
- The research was conducted as part of the project “Six-year-old child on the threshold of school education” – the project financed by Ministry of National Education (No 5/2.1a/2004/2939) and co-financed by the European Union within the European Social Fund.

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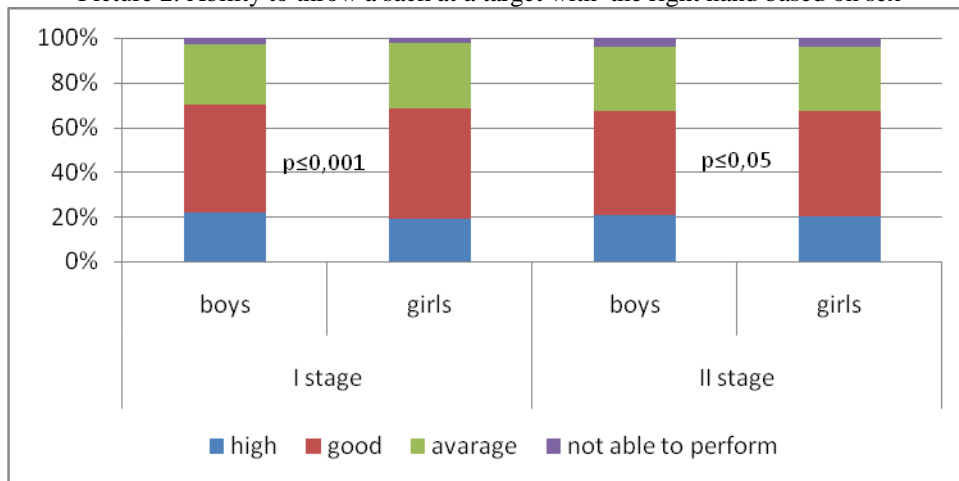
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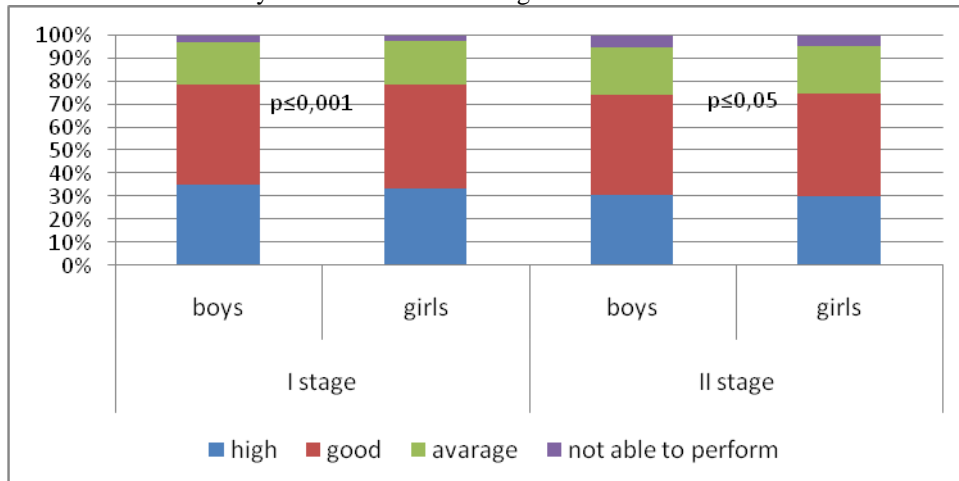
Picture 1. Ability to throw a ball with both hands based on sex



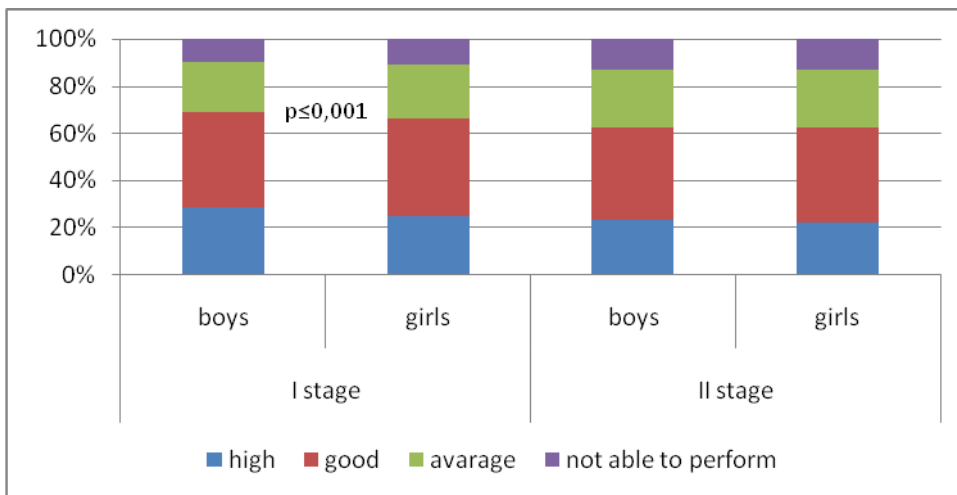
Picture 2. Ability to throw a sack at a target with the right hand based on sex



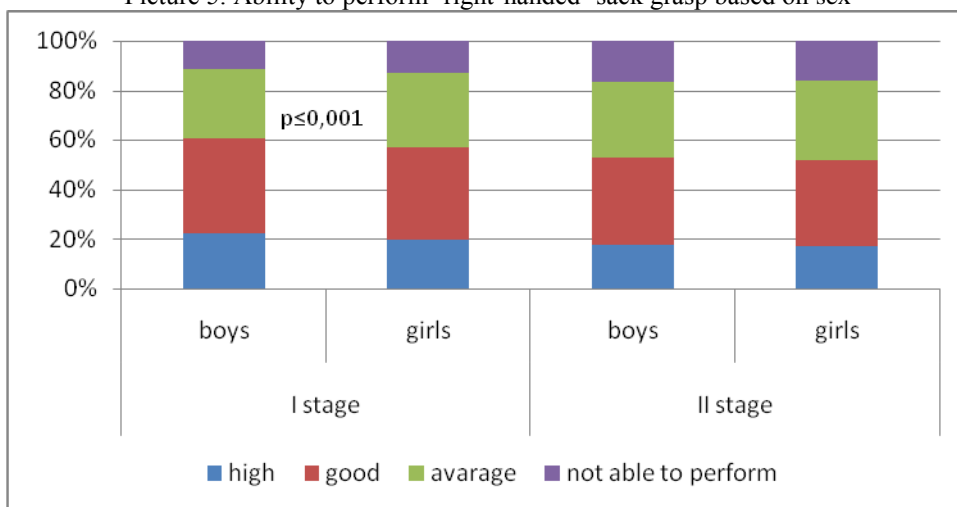
Picture 3. Ability to throw a sack at a target with the left hand based on sex



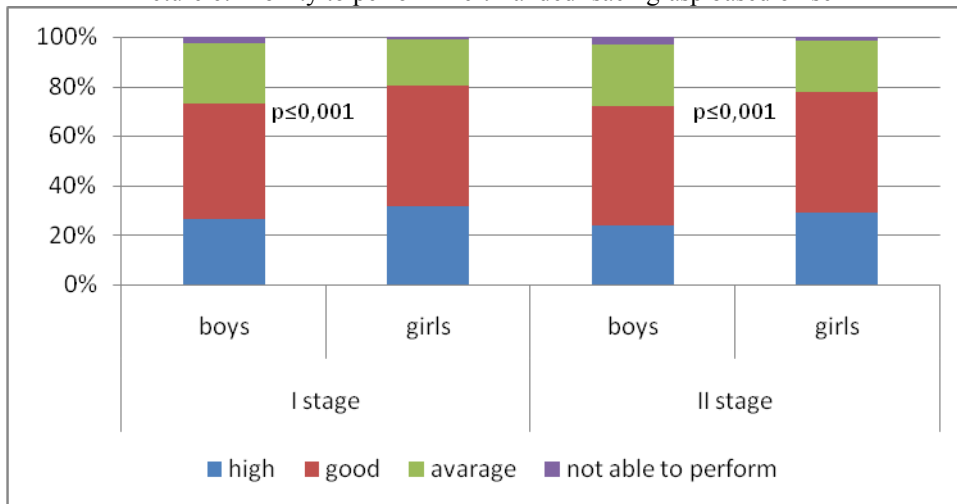
Picture 4. Ability to perform 'both-handed' grasp based on sex



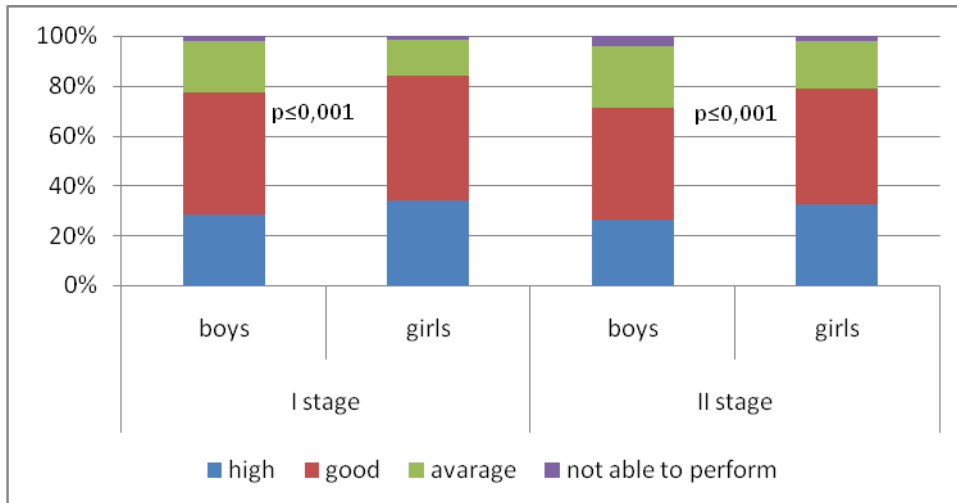
Picture 5. Ability to perform 'right-handed' sack grasp based on sex



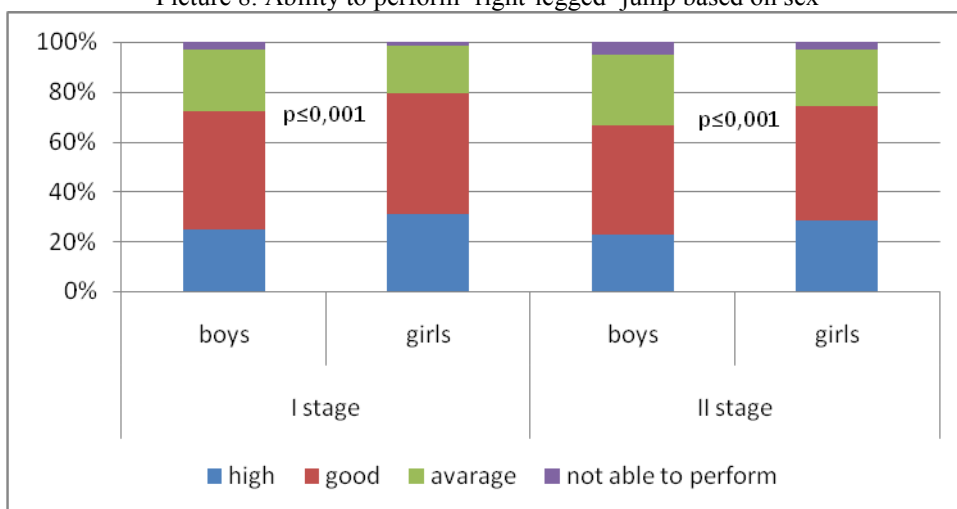
Picture 6. Ability to perform 'left-handed' sack grasp based on sex



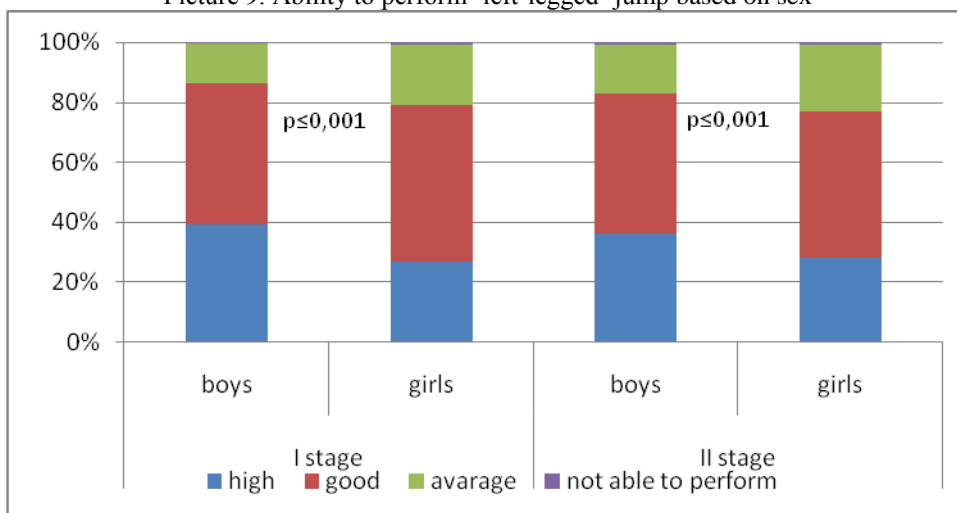
Picture 7. Ability to perform 'both-legged' jump based on sex



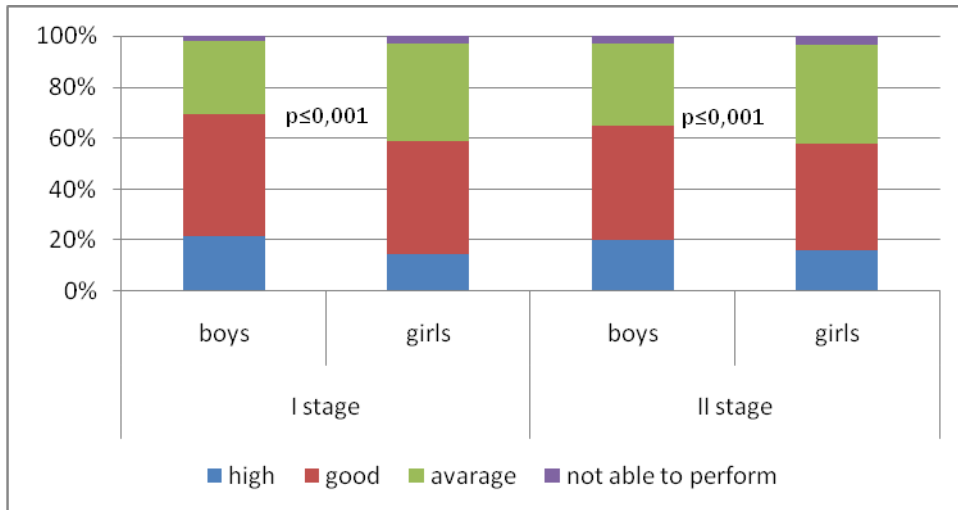
Picture 8. Ability to perform 'right-legged' jump based on sex



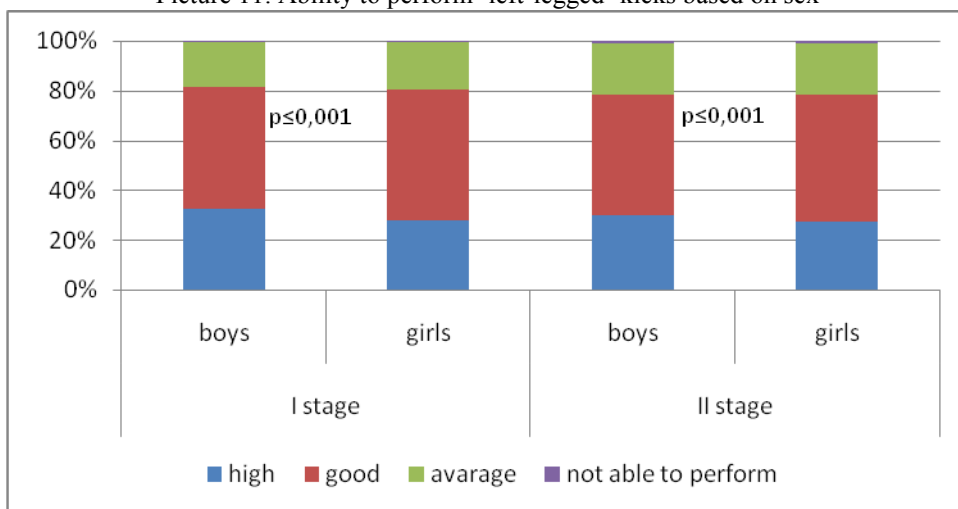
Picture 9. Ability to perform 'left-legged' jump based on sex



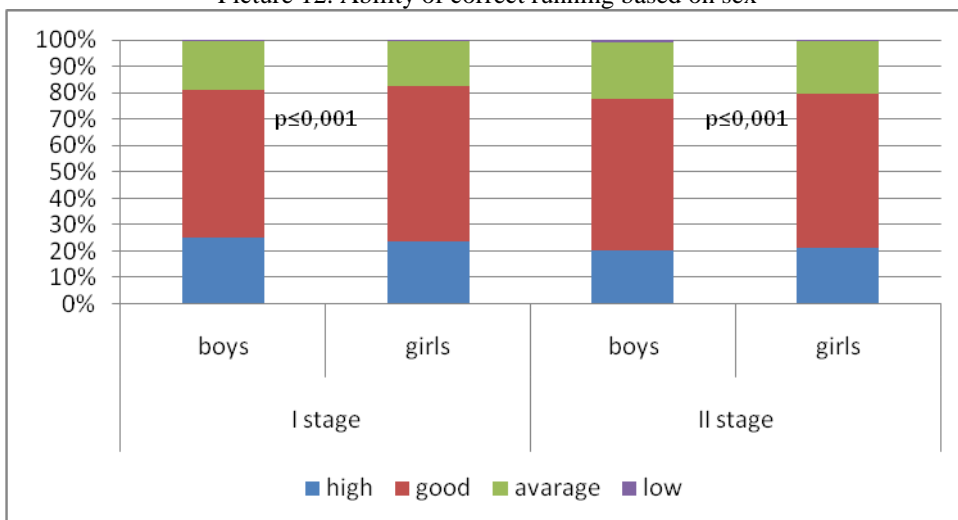
Picture 10. Ability to perform 'right-legged' kicks based on sex



Picture 11. Ability to perform 'left-legged' kicks based on sex



Picture 12. Ability of correct running based on sex



Picture 13. Coordination of movements in the process of doing the exercises based on sex



THE EFFECT OF 8 WEEKS STEP-AEROBIC EXERCISE PROGRAM ON BODY COMPOSITION AND QUALITY OF LIFE OF SEDANTERY WOMEN

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Abstract

Objective: The purpose of this study was to determine the effects of 8 weeks step-aerobic exercise program on body composition and quality of life of sedantery women.

Material: 70 women volunteers (age $35,1 \pm 9,11$, weight $68,55 \pm 6,72$, height $160,59 \pm 5,20$) with stable general health were included into this study. Their quality of life was assessed by World Health Organization's Turkish version of WHOQOL-BREF scale. Also to understand the body composition of the women; flexibility, body fat percentage, body weight and body height were assessed. As statistical analysis of datas, were done by t test and ANOVA test ($p < 0.05$) for understand relation between body composition and quality of life areas.

Method: During 8 weeks, women participated in a step-aerobic exercise program during 30 minutes and 3 times per week. Before the exercise program and at the end of the program measurements of flexibility, body fat percentage, body weight, body height and the scale of quality of life were assessed.

Result: According to the analysis, the general results of the present study indicated that there was a significant relationship between the body composition and quality of life areas, especially body fat percentage.

Key Words: Sedantery Women, Step-Aerobic Exercise Program, Body Composition, Quality of Life,

Introductions

Quality of life is a complex concept. It conjures up pleasant notions of how people want to be and how they want to live. Unfortunately, it is extremely difficult to define quality of living. Its uses vary between individuals, though each individual rarely discloses what is meant by the phrase. As a concept, quality of life is open to a myriad of ideological uses, as well as potential abuses (G.A. Meeberg, 1993, M. Edlund, L.R. Tancredi, 1985).

Quality of life is commonly measured with a complex collection of items, scales, domains, and instruments. The general concept of quality of life was initially considered a useful adjunct to traditional concepts of health and functional status. An ideal health assessment, therefore, should include a measure of a person's physical health; a measure of physical, social, and psychological functioning; and a measure of quality of life. Such an assessment should cover key physical, psychological, social, and spiritual domains of life (T.M. Gill, A.R. Feinstein 1994, The WHOQOL Group 1998). Quality of life was defined by the World Health Organization Quality of Life (WHOQOL) Group as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns." It is a broad ranging concept affecting a persons' physical health, psychological state, level of independence, social relationships, and relationships with salient features of his or her environment (The WHOQOL Group 1993, The WHOQOL Group 1995). Questionnaires are commonly used to measure quality of life since a person's quality of life is best explained from a personal level (A. Bowling et al, 2002). Many inventories have been developed and used for this

purpose (R.T. Anderson et al, 1993, X.T. Zhang et al, 2005). The Brief Version of The World Health Organization's Quality of Life Questionnaire (WHOQOL - BREF) is a useful alternative and is considered as reliable as other instruments (R.E. O'Carroll et al 2000, P. Dündar et al, 2002). This instrument produces internal consistency, discriminate validity, criterion validity, concurrent validity, and test-retest reliability (The WHOQOL Group 1998). The WHOQOL-BREF is most useful in studies that require a brief assessment of quality of life. For example, it is most beneficial in large epidemiological studies. However, it has rarely been used among elderly people without specific illnesses (M.R. Lin et al, 2002) and, according to a search of past studies, a study related to the subject has never been conducted in Turkey. In Turkey, professional homecare foundations and professionals for elderly people are insufficient and rare. Therefore, older people without access to family caregivers or who are incapable of self-care tend to live in assisted living facilities. In this study, the aim was to use the WHOQOLBREF to assess and compare health related quality of life in elderly people who live at home and elderly people who live in elderly assisted living facilities. (S. Bodur, C.D. Dayanır, 2009). Exercise improves mood and QOL by increasing overall health through socialization, goal setting, participation, decreased body weight, or decreased fatigue (J. Midtgaard et al, 2006). The quality of life (QOL) reflects how a person takes his or her position in the world in the context of culture and value systems in which they live, and in relation to their aims, expectations, lifestyle, and interests (E. Dragomirecka, C. Skoda, 1997). Even if correlation between increased performance and improved quality of life can be expected, this relation is not obvious.



Material

The choice of subjects

70 sedentary women whose mean age was: 35.10 ± 9.11 years, mean height: 160.59 ± 5.20 cm and average body weight (BW) was : 68.55 ± 6.72 kg, taking part in the step aerobic exercise program run by KOMEK (Konya Vocational Course) were included in the study.

The subjects were informed about the parameters and their written consents were obtained and then examined physically. The completely healthy individuals who had no diabetic, cardiac and chronic systemic and metabolism diseases, and the diseases affecting immune functions in their clinical examinations and history were included in the study. The subjects were asked to follow their usual normal nutrition habits and to avoid excessive physical activities during the study.

Metod

We had the subjects do warm-up exercises for 10 minutes, active step aerobic exercises for 45 min. and finally stretching cooling exercises for 10 min. at the 60-70% severity of their target pulse rate three days a week for 8 weeks, and the rates before and after the exercises were recorded. The severity of the aerobic exercise was determined according to Karvonen protocol.

Pulse Rate (PR)= $60-70\% \text{ PR}(\text{PR}_{\text{max}}-\text{PR}_{\text{min}})+\text{PR}_{\text{min}}$

Maximal PR= $220-\text{age}$ (K. Özer, 2006).

Measuring/measurement means:

Before the subjects started training, the initial tests and at the end of the training after 8 weeks the final tests of height(H), body weight(BW), systolic blood pressure (SBP), diastolic blood pressure (DBP), body fat percentage (BFP), waist and hip rate (WHR), elasticity (E), body mass index(BMI) and WHOQOL-BREF Turkish version were obtained and recorded.

Anthropometric Measurements:

The body weights of the individuals included in the study were measured in kilogram (kg) with NAN scale in their casual home clothes with bare feet before the exercises began. Their heights were measured in meters with studio meter and recorded. Body mass index (BMI) was calculated with $\text{Weight} / \text{height}^2$ (kg/m^2) formula. The contour of the body was measured in cm. with a fiberglass tape measure which is 0.6cm wide, rigid but flexible. The steps taken during the measurements were mentioned below.

Waist circumference was measured horizontally from the narrowest point of the distance between xiphoid prominence and umbilicus, and hip circumference was measured from the trochanters horizontally as the widest diameter while the legs were 20-30cm apart. Moreover, the values of waist and hip circumferences were divided to each other and waist/hip ratio was obtained. The thickness of skin pleat was measured from triceps, biceps, subscapular and suprailiac zones using Holtain T/W Skinfold Caliper. In order to measure the thickness of the skin pleat, the fold between thumb and index finger was separated

from the muscular tissue removing the skin with its hypodermic fat tissues and slightly compressing it between the ends of caliper and the values on the dial was read and recorded.

Total Body Fat Percentage:

Body density was calculated using Durnin-Womersley formula with triceps, biceps, subscapular and suprailiac SF Total body fat percentage was calculated applying Siri equation to this body density.

Durnin-Womersley Formulas:

Female= $1,1581 - (0,0720 \times (\text{LOG} \square \square))$ (triceps, biceps, subscapular and suprailiac SF) (J.V. Durnin and J. Womersley, 1974)

Total Body Fat Percentage= $(4.95/\text{body density} - 4.50) \times 100$ Siri (N.E. Siri, 1956)

Blood Pressures: the SBP and DBP of the subjects were taken in mmHg with stethoscope and sphygmomanometer (B.N. Roohi, 2008).

Sit and Reach Test was used to measure the elasticity of the individuals. The test was repeated twice and the highest score was recorded (K. Tamer, 2000).

Measuring the quality of life: WHOQOL-BREF Turkish version was used to measure the life quality of the individuals. The test was used before and at the end of 8 weeks.

Statistic Analyzes: The arithmetic means and standard deviations of all statistical data in the study were calculated with SPSS 15.0 packet program. The comparison of test assessments of the subjects with each other before the training and after 8-week training was performed with Paired Samples t-test.

Results

Table 1:

	Mean	Std. Deviation	T	P
Age (year)	35.10	9.11		
Height(cm)	160.59	5.20		
BW(kg)1	68.55	6.727	7.376	.000*
BW 2	66.00	6.164		
BMI 1 (kg/m2)	26.57	2.257	7.502	.000*
BMI 2 (kg/m2)	25.58	2.027		
WHR 1(%)	,7919	,05723	2,092	,046*
WHR2 (%)	,7744	,04781		
BFP1(%)	36.12	2.739	5.448	.000*
BFP 2 (%)	33.41	3.772		
Elasticity (cm)1	28.90	5.492	-2.727	.011*
Elasticity(cm2)	30.07	5.675		

In Table 1, according to the values of first and last tests of the subjects, there was significant difference in the parameters of BW, BMI, WHR, BFP, E, respectively in favor of the last tests (Table: 1 P<0.05*)

Table2:

	Mean	Std. Deviation	T	P
Age (year)	35.10	9.11		
Height(cm)	160.59	5.20		
Percieved General Life Quality 1	3.05	0.95	0.772	.020*
Percieved General Life Quality 2	3.80	0.86		
Percieved Health Condition 1	3.25	0.83	0.574	.020*
Percieved Health Condition 2	3.90	0.85		
Pysical Health 1	11.88	1.17	2.580	.015*
Pysical Health 2	14.15	1.54		
Psychological 1	10.95	3.69	1.457	.000*
Psychological 2	12.54	3.25		
Social 1	11.14	2.26	0.859	.124
Social 2	11.21	2.38		
Envorinment 1	11.50	2.01	0.965	.094
Envorinment 2	12.01	2.15		

In Table 2, according to the values of first and last tests of the subjects, there was significant difference in the parameters of PGLQ, PHQ, PH, P respectively in favor of the last tests (Table: 2 P<0.05*)

Discussion

Exercise improves mood and QOL by increasing overall health through socialization, goal setting, participation, decreased body weight, or decreased fatigue (M. Edlund, L.R. Tancredi, 1985, T.M. Gill, A.R. Feinstein, 1994).

As many issues contribute to decreased QOL, our review examined solely exercise interventions to improve overall QOL in women. McNeely et al. (The WHOQOL Group 1998) examined the effect of exercise primarily on QOL, physical functioning or cardiorespiratory fitness and secondarily on fatigue and body composition in women, whereas our review focused solely on QOL and body composition.

Physical exercises performed regularly have effects on obesity, cardiovascular system, blood pressure, physical fitness, body fat rate and healthy life of the middle-aged individuals (D.E. Laaksonen et al, 2002; A.S. Ryan et al, 1996; I.S. Ockene et al. 2004; G. Charach et al. 2004).

B.N. Roohi et al. (2008) found in a study carried out on 37 females that BFP was 28.68 ± 5.33 kg and BMI was 26.59 ± 4.02 kg. M. Egana and B.

Done (2004) applied (n=7) treadmill, n=(8) elliptical and n=(7) stepper exercises on 24 females for 12 weeks and the groups were given BFP and BW pre tests before starting exercises and they found that the rate of the BFP in the last tests was significantly different in favor of the last tests. I.S. Ockene et al. (2004) found no statistically significant difference in the values of BFP, and E of the sedentary males after 6-week aerobic exercises.

F.F. Çolakoğlu and S. Karacan (2006) applied 30 min run-walk training program 3 days a week for 12 weeks and established that the results of BMI and BW in the first and last tests before and after 12 weeks were significantly different in favor of the last tests.

M.E. Kafkas et al. (2009) are of the opinion that 12-week regular aerobic and stress exercises have positive effects on BW, BMI, BFP, WHR and blood pressure. Pressue et al. (1997) have found in their study carried out on 97 sedentary male-female subjects that regular aerobic exercises have positive effects on BMI and BFP. E. Zorba et al. (2000) established significant increase in the values of elasticity after the exercises



performed 45 min 3 days a week for 8 weeks in the middle-aged sedentary females.

In this study, it has been determined that there is significant difference ($p < 0.05$) between the tests of BW, BFP, BMI, WHR, SBP and DBP given after 8-week aerobic-step exercise protocol in favor of the last test. We too have demonstrated in this study that exercises have affected positively BW, BFP, BMI and WHR compatible with other studies.

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EFFECT OF MODERATE WALKING EXERCISE ON BODY WATER IN SEDENTARY OBESE AND THIN WOMEN

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Summary

The purpose of the present study was to examine the effect of a walking exercise on body water in order to restore body water and reduction dehydration among sedentary obese and thin women. Forty young untrained girls between the age of 20-25 years (obese n=20, BMI>30 and thin n=20, BMI <20) volunteered to participate in this study. Participants were randomly assigned to two exercises (obese=10, thin=10) and two control (obese=10, thin=10) groups matched by BMI. DXA was used to measure each subject's body water, percentage body fat and lean mass. Serum estrogen level by radioimmunoassay (RIA) was assessed. Each walking session was 30 min long at an intensity corresponding to 50-75% of maximal age adjusted heart rate, 3 days per week for 2 months. Percent body fat and lean mass were affected positively by exercise program (all p = 0.000) and significant change was observed in Serum estrogen and body water in both exercise group (p<0.05). In conclusion this study this study demonstrated to 30 minutes walking exercise improved adaptation of body fluids and to exercise training in both obese and thin sedentary women.

Key words: Walking Exercise, Body Water, Obese and Thin Women.

Introduction

During exercise, increased capillary hydrostatic pressure caused by elevation of arterial pressure produces plasma volume shifts from the vascular space to the interstitial fluids. Following a rapid efflux of vascular fluid within minutes of exercise, there is very little further reduction in plasma volume during exercise. Recall that body water content regulates sweating, and sweating provides our best method of heat loss during exercise. So, adequate body water is essential to avoid heat injury (e.g., heat exhaustion or heat stroke) (V.A. Convertino, 1991). Body water retention is common in high estrogen states. There are a number of "fluid retention" hormones that exert a profound control over this fluid regulatory system. Hormones are substances in the body that act

to promote certain activity by specific organs. The fluid regulatory hormones act primarily on the brain and kidney to control both intake and output of water. The most important hormone of this type is the antidiuretic hormone, which responds rapidly to changes in body water status, and is responsible for controlling the rate of water retention by the kidneys. To complicate matters, antidiuretic hormone regulation maybe modified by a variety of factors, one of which may be the female sex hormone estrogen (T. Akaiishi et al 1990). Early research suggests that the greater body water content in high estrogen states is likely due to changes in both water intake and output in premenopausal women. In addition, fluctuations in antidiuretic hormone parallels those of estrogen throughout the menstrual cycle, and are increased



following estrogen administration in postmenopausal women, suggesting that fluid retention is also likely to be increased. Thus, the combination of enhanced fluid intake and retention causes the increase in total body water content during high estrogen states. Some of this excess water is retained in the blood vessels (i.e., in the plasma), leading to plasma volume expansion, which has potent effects on physical performance during heat stress (N.S. Stachenfeld et al. 2009). Most people walk every day but it is often overlooked as an exercise activity. Walking is one of the easiest, and cheapest, ways to improve your fitness and increase specific hormones in young individual. It is a light cardiovascular exercise, which means it improves the condition of your heart and lungs (S.I. Barr, 1999). W.C. Chumlea et al., (2007) concluded that there is inadequate timely information on measured total and extra-cellular water volumes for the population. Distributional body water relationships within the body have been considered fixed, but there was evidence these relationships were affected by the level of fatness, body composition models and to our knowledge, no study has shown the effect of an exercise program on body water in obese and thin women with a mean age of 20 years simultaneously that were performing the same exercise program. The purpose of this study was to investigate whether two months program of closely supervised walking exercise would be beneficial for increasing body water among healthy sedentary obese and thin women.

Material and methods

Forty young untrained girls between the age of 20-25 years (obese n=20, BMI>30 and thin n=20, BMI <20) volunteered to participate in this study. Participants were randomly assigned to two exercises (obese=10, thin=10) and two control (obese=10, thin=10) groups matched by BMI. Written informed consent for all procedures was obtained from all participants prior to entering the study and this study was approved by local Committee of Ethics. The criteria for the invitation were being willing to participate, clinically healthy (no cardiovascular, musculoskeletal, respiratory, or other chronic diseases that might limit training or testing), no menstrual irregularities, not using medication and no beta-blockers, sedentary life style (no regular sports activities for at least 2 years), non dieting, and no apparent occupational or leisure time responsibilities that could impede their participation. The following measurements were made at baseline prior to the start of the exercise program and at after completion of the 2- month training program.

Anthropometric measurement

Table1. Mean value (\pm SD) of variables before (Pre) and (Post) training program

*Exe=Exercise

*Con=Control

Significantly different from the 'Pre' value: * p < 0.05; ***

Discussion

This is the first study to assess the effect of exercise on body water in young women. This difference may be due to

Body weight and height were recorded and body mass index (BMI) was calculated as weight (kg) divided by height (m) squared. DXA (Lunar DPX-L, software version 1.31, USA) was used to measure each subject's body water, percentage body fat and lean mass. The DXA scans were performed in the Orthopaedic Diagnostic Centre at the National University Hospital, Guilan. In addition, all subjects were weighed every week.

Estrogen assessment

Blood samples were collected after an overnight fast (>12 h) in a sitting position and centrifuged at 1500 rpm for 30 minutes at 4° C within 2 h. Serum sample from each participant were stored frozen at -20° C until analyzed. Serum estrogen level was assessed by radioimmunoassay (Amersham Biosciences, Piscataway, NJ, USA) in follicular stage in each subject's menstrual cycle.

Exercise program

The program included warm-up phase for 5 minutes that included stretching exercises, 30 minutes walking at 50-75% of maximum heart rate and cooling-down phase for 5 minutes of stretching, three times a week for 2 months in indoor place. A target heart rate range between 55-70% of age adjusted maximum heart rate intensity was calculated by each walker from her age and walking supine resting heart rate (D.P. Swain et al., 1994). Heart rate was measured with an electronic heart rate monitor (Sport Tester PE, Polar Electro, Oy, Finland). The exercise program was accompanied by drinking water in every 10 minutes.

Data analysis: The data were analyzed using the SPSS statistical package (SPSS 11.5 for Windows; SPSS, Chicago, IL, USA). Mean and standard deviation (SD) was used as descriptive statistic. Student's t-test was used to assess the change in BMI, body weight, serum estrogen and body water before and after the exercise intervention. A significance level of set at p<0.05 was used for all comparisons.

Results

Forty subjects (100%) completed the training program. No major change in menstrual status was observed during the study. Table (1) shows the changes in data on both exercise and control groups. There were no significant differences in mean age, height between the groups. There is notable differences between the groups were body weight, BMI in obese and thin groups. Percent body fat and lean mass were affected positively by exercise program (all p = 0.000) and significant change was observed in Serum estrogen and body water in both exercise group (p<0.05).

the younger age of subjects in our study and the nature of the mechanical load. In our patient a simple 30 minutes of walking exercise at the range of 50-75% maximum heart rate was enough to decreasing the fat mass and increasing lean body weight. "Lean mass" means muscle. "Lean mass," the researchers conclude, "is the major determinant of body size, providing further evidence that body size is adapted to the dynamic load imposed by muscle force rather than passive



loading" by fat. On the other hand Muscle mass able to hold *more water* weight to fat mass (L.D. Thompson et al., 2004). Increase in serum estrogen and total body water in both exercise obese and thin group is good responses to walking program. These mechanisms probably include increasing plasma protein oncotic pressure, differences in peripheral vasoconstriction in active muscles and inactive tissues, and elevated lymph flow. The interaction of these factors provides optimal thermoregulatory and cardiovascular stability. The beneficial effects of hyperhydration and subsequent hypervolemia are manifest in the adaptation of body fluids and electrolytes to exercise training. Thus, with regard to fluid receiving shifts during exercise, training is an effective way to become hyper hydrated and to reduce the dehydration (V.A. Convertino, 1987). Stachenfeld et al similarly indicates water retention was the primary

(N.S. Stachenfeld et al., 2009). E.M. Weinheimer et al supported that young, physically active women can completely compensate for exercise-induced sweat losses by increasing adequate water intake (E.M. Weinheimer et al., 2008). Bossingham et al showed that healthy older adults maintain water input and balance comparable to those of younger adults and have no apparent changes in hydration status. To prevent dehydration, consume plenty of fluids is helpful. In conclusion this study this study demonstrated to 30 minutes walking exercise improved adaptation of body fluids and to exercise training in both obese and thin sedentary women.

Acknowledgment

The work was supported by grants from the University of Guilan. The authors also gratefully acknowledge the all subjects whom cooperated in this

variable	Obese(Exe)		Obese(Con)		Thin(Exe)		Thin(Con)	
	pre	post	pre	post	pre	post	pre	post
Age (year)	22.2 ± 1.9	-	22.6±1.5	-	21.1 ±1.7	-	21.9±1.2	-
Height (cm)	157.7 ±5.1	-	159.1±1.5	-	159.9 ± 7.5	-	162.7 ±6.6	-
Weight (kg)	74.9 ± 8.1	73.2±7.7***	78.1±10.8	78.0 ±10.1	45.8 ± 5.3	46.4 ±5.1***	46.4 ±5.7	46.3±5.2
BMI (kg/m ²)	30.2 ± 1.8	28.8 ±2.1***	30.9 ±3.5	30.4±3.0	17.7 ± 1.0	17.8 ±1.4	17.5±1.0	17.2 ± 0.9
estrogens (pg/ml)	30.4 ± 15.6	61.0 ±18.6***	23.9 ± 13.15	41.5 ± 17.2*	25.6 ± 8.4	60.2 ± 18.8***	33.0 ± 14.3	38.0 ± 10.6
Body fat content (%)	38.8 ± 4	36.4 ± 6.8	39.7 ± 3.5	39.0 ± 5.2	21.8 ± 3.1	20.1± 3.6	22.4± 2.9	22.4 ± 3.2
Lean body mass (kg)	43.3 ± 5.3	44.4 ± 6.2	43.9 ± 6.0	44.3 ± 6.7	33.5 ± 3.7	34.5 ± 4.0***	33.9 ± 4.3	33.7 ± 4.1
Total Body water (L)	30.26±78	33.155±99***	30.11±22	30.00±10	19.81 ± 9.3	21.59± 8.25***	19.18 ± 9.3	19.11± 7.32

contributor to increasing estrogens during endurance exercise

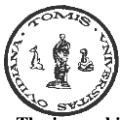
investigation.

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EFFECT OF CARDIO KARATE ON SOME OF TENSION AND PSYCHOLOGICAL SECURITY INDICATIONS AND ITS RELATIONSHIP WITH THE ASPIRATION LEVEL TO THE ORPHANS

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ABSTRACT

This study aims to Construct a psychological security measure for the orphan children (unknown parents or loss of father or mother) for the age group of (12-14) years, Knowing the effect of Cardio Karate on Some physical variables of Karate sport, some tension indications, Psychological security and the level of aspiration and its relationship between the psychological security and the level of aspiration of the orphan children in the orphans' houses, This study includes (46) children of orphans (unknown parents or loss of father or mother), the physical variables Which Were measured (agility, coordination, balance, muscular power), the physiological variables Which Were measured (pulsation, diastolic, systolic blood pressure and Vanillymandelic Acid), The psychological variables which were measured to know the level of aspiration and constructing the measure of Psychological security Its axes are (body security - social security – emotional security), According to the results of analyzing, There are statistical significant differences between the pre and the post measure in some of the physical variables, the tension indications, the axes of the psychological security in the favor of the post measure and all of the aspiration level axes except the axis of satisfaction status and deciding aims of the orphan children in the orphans' houses and There is a statistical significant relationship between achieving psychological security and the aspiration level of the orphan children in the orphans' houses.

Keywords: Orphans houses – Level of aspiration – Cardio Karate – Psychological security.

Introduction

The orphan child is in a bad need of care and interest from the part of the society so as to providing all his wants, seeking his interests and needs, taking care of them and not neglecting them in order not to affect the personality of this child negatively for he is one of the human forces that develop society.

The specialists see that the child, who is brought up far from his family as the orphan child, is usually retarded in the emotional, mental and physical growth because it is difficult for any institution whatever its level is to compensate the child for the care and interest provided by his family. Therefore, any disturbances in his general personality formation, will lead to dealing with him as a retarded and less than his counterparts and this affects his social and psychological adjustment generally (A.M. Amal, 1991)

Despite the family importance to the child, we find all societies children who are deprived from the family well fare and are put into orphans houses to provide them with faster care, so there must be sound well fare inside these institutions to provide for the children adjustment with themselves and with others in the society so as to contribute in achieving their sound psychological growth. The children in the institution suffer from extensive reaction and tend to anxiety and aggression, they don't accept the

others and tend to centralize around self with non-feeling of security and lack of the ability of concentration. The deprivation from love and affection in child hood leads to retarding the mental functioning of the child (A. M. Nagla , 1999 ; E. T. Mahmud, 1989)

A. Maslow (1970) points to the importance of feeling security and the need for it so as to reach a given goal because security is one of the basic needs for man. He defined it as the need of satisfaction, satisfaction, stability, protection and getting rid of fear, anxiety, confusion and so. He added that security is the most demanding need related to the individual especially in case of exposing to real threat that causes several psychological troubles to him.

E. Erikson (1980) considers that feeling psychological security is the corner stone in the sound personality. The psychological security arises from satisfying the basic needs of the child of food, warmth and other forms of parental care that create feeling security and absolute confidence in the child's self so he realizes himself as deserving well fare and estimation. He will see his family as donors and he can trust them. This feeling of psychological security is a basis for the person's success, his achievements and his ability to bear frustration.

M. Rutter (1990) and H.G. Muhammad (2006) point out that feeling psychological insecurity results from exposing the child to the



emotional and psychological abuse through rejecting him, and threatening him with preventing love and comparing him to his counterparts and ignoring him, that lead to his feeling of insecurity and decreasing his freedom and his spontaneity in exploring the world. This hinders his learning ability thus affecting his level of aspiration which is one of the most important principles that must be cultivated inside our children selves. It is a motive for the child in order to strive so as to achieve his target.

S. Mamdoha (1985) points out that anxiety in childhood arises from fear of a loss or threat of losing the parental love. Anxiety is represented in organic complaints and it appears in extensive apprehension and expecting disasters, disease, excitement, non focusing attention, fatigue and unjustified tiredness. The child who has anxiety gets disappointed rapidly and it is easy to reduce his will.

F. W. Ganong (1991) points out that the symptoms that related to anxiety and tension can be appeared and measured by Vanillymandelic acid (V.M.A.) that appears in the urine and its proportion is an indicator for secreting Adrenaline and noradrenalin the more its secretion, the more the (V.M.A) and its proportion in the urine that reflects tension and anxiety. Its percentage in the urine is directly related to the degree of tension.

C. Jayme (2005) agrees that cardio karate training is one of the best aerobic fighting arts training that provides the individual with the methods of self defense, and helps in improving the efficiency of the breathing circular system, increasing the physical fitness, getting rid of extra weight, contributing in reducing the psychological pressures and increasing the feeling of trust and security. It does not need experience for every individual trains according to his speed and his special capacity.

The present study deals with children staying at orphans houses who are deprived from parental care because of the death of the parents or one of them or the children with unknown parents. These children usually suffer from some of social and economic problems that may affect them negatively. These problems may lead the child to feel anxiety, tension, lowness, reduced self-esteem and non-feeling of psychological security and their level of aspiration may be affected too. The statistic pointed out that, since the setting too. The statistic pointed out that, since the setting up of education institution for boys in (1937) in El Sharkya (Orphans house) about 551 orphans graduated and only 24 jointed the university and this is a very few number that reaches 4,3% of the total number of the orphans house. This indicates the level of aspiration which is

reduced for the orphans who are staying permanently inside the orphans' houses.

Practicing sport contributes positively in increasing the feeling of satisfactory and psychological security for the orphan children especially the fighting activities "sports of self defense" that gives the child the self trust, security and satisfaction. Thus, the two researches see that cardio karate trainings is the best way that increases the feeling of psychological security for the orphan children through what it involves of excitement and suspension. It contributes in achieving the self and social and psychological equilibrium, increasing the drive for success and satisfying all of the individual needs.

Thus, the importance of the study is shown in attempting setting a proposed shape for the training of Cardio Karate that achieves the psychological security in the inner structure and raises the aspiration level of the orphan children in the orphans houses in Sharkeya Governorate and treating the psychological and social troubles of which these children suffer that represented in isolate, anxiety, tension, hatred, non conforming with the group, envy, jealousy and negative unacceptable aspects that deprive the child from feeling warmth and security. This depriving may reflect negatively on the growth of the child's personality and on his social and psychological health. It may overshadow his trends, his thinking style and his level of aspiration directly or indirectly. It is important to build a well social and psychological personality of the orphan that will contribute in building and developing the society and the environment considering this class of children among the main pillars that contribute in developing societies and human environment.

The purpose of the study:

This study aims at deciding group of Cardio Karate training and knowing their effect on some of the indications of tension and psychological security of the orphan children and their relation with their aspiration level and this is done through the following:

- 1- Constructing a psychological security measure for the orphan children (unknown parents or loss of father or mother) for the age group of (12-14) years.
- 2- Knowing the effect of Cardio Karate on Some physical variables of Karate sport, some tension indications of the orphan children in the orphan's houses, Psychological security and the level of aspiration of the orphan children in orphans' houses.
- 3- The relationship between the psychological security and the level of aspiration of the orphan children in the orphans' houses.



Methods and procedures

This study includes (46) children of orphans (unknown parents or loss of father or mother), (12) children were chosen on purpose as an experimental sample of the study from the Education Institution for boys Zagazig- Sharkeya Governorate because of the full permanent staying in the institution. They do not practice any sport activity regularly. (19) children were chosen from the education institution for boys Mansoura, Dakahlia Governorate and (15) children from Education institution for boys Tanta, Gharbia Governorate as a pioneer sample in order to construct the measure and generalize its results on the orphans community.

The two researches performed homogeneity procedure for the community of the study in some of the physical and psychological variables targeted. The age 13.26 ± 2.23 years, height 151.45 ± 4.18 cm, weight 45.12 ± 6.51 kg, intelligent 32.47 ± 5.15 degree and the level of aspiration 29.33 ± 4.11 degree.

The pre and post measures were performed in the same circumstances of the physical variables which were test of zigzag running to measure agility in seconds, test of digital circles to measure coordination in seconds, test of standing on the foot toe to measure the stability balance in seconds (H. A. Muhammad, and N. E. Muhammad, 1994), broad jump of stability test to measure the muscular power estimated distance (S.H. Muhammad, 1999), the physiological variables for pulse rate frequency to heart estimated the number of pulses in a minute, measuring the diastolic and systolic blood pressure by using the Sphyg Manometer. A urine sample was taken from the children to analyze the Vanillylmandelic acid (V.M.A).

The psychological variables were measured to know the level of aspiration. This measure is prepared by (A. E. Camellia, 1992). It measures the level of aspiration of individuals. It includes in its final form 79 questions titled fewer than seven basic traits. Each trait has ten questions except the trait of (including to struggle) which has only nine questions. There are ten questions for revision distributed among the other traits of the measure. These traits are (outlook at life – direction towards excellence – deciding aims – inclining to struggle – responsibility bearing – self-depending – insistence – satisfaction of the present status – believing in luck). The answer is by yes or no. The scientific correlations were calculated validity through the inner consistency. (The reliability of the measure is calculated through test and retest) on the introductory sample that consisted of (34) children from the society and out of the basic sample of the

orphans children. The psychological security was measured by a constructed measure.

Steps of constructing the measure of (Psychological security)

Deciding the basic axes of the measure: Some personal interviews were performed with some of the orphan children (unknown parents, loss of father or mother) in the orphans' houses and some of supervisors and social and psychological specialists who are staying and dealing with them permanently or temporarily, the theory S. Milton (2006) considers the psychological security is the most needed necessity after the physiological needs. He divides the psychological security into (body security - social security – emotional security). This theory helped in adopting these axes as basic dimensions to form the main structure of building the measure and through it, we could put the axes in its first shape in a form that was shown to a group of specialist experts who approved these axes.

The scientific correlations of the measure of (Psychological security):

The validity of the measure of (Psychological security)

1- The validity of the experts (the logical validity): The two researches showed the axes of the measure and the phrases of each axis to the experts of educational psychology, sport psychology and psychological health. They were 9 experts. The two researches considered the agreement ratio of the experts on the phrases of the measure a criterion of its validity.

2- The validity of the inner consistency of the phrases of the measure and its axes: The co-efficient correlation value was calculated between the score each phrase alone and the total score of this axis on the introductory study sample which consisted of (34) orphan children (unknown parents, loss of father or mother) in the orphans houses in the governorates of El Dakahlia and El Gharbia.

Reliability of the measure:

In order to find the reliability coefficient of the measure axes whose number is (3) and their phrases whose number is (48), the two researches used the method of the half partition for the answers of the introductory study sample for each axis by using the formula of (Spearman- Prawn and Guttman) to find the correlative coefficient among the double and the single phrases.

The method of correcting the measure: The scores of the measure responses are calculated on a tri-estimation balance so, the positive phrases is represented in a few score (one point), a middle score (two points), a big score (three points). The

negative phrases are represented in a big score (one point), a middle score (two points) and a few score (three points). Thus, the maximum and the minimum of the orphan children responses on the measure as follows: From 43 to 64 accepted feeling of psychological security, from 65 to 89 a middle feeling of psychological security and from 90 to 164 a tense feeling of psychological security. Thus, the measure is ready in its final form and the number of the phrases became (48) phrases.

Cardio karate program:

On performing Cardio Karate training, some special bases were followed Taking into account, doing loads gradually through arranging the content so as to start from the easy to the difficult and from the simple to the compound, variation in training, good warming up and taking care of the elasticity of the spine and the ligaments because the tissues, ligaments and the hamstrings having less resistance for the muscular effort (G. ALI,1994), taking care of individual differences and the overall balanced development of all the body parts.

The content and the study program:

The total period of the program was decided to be (12) weeks in (36) training units daily and (3) units in the week. The time of the training daily unit in the beginning of the program is (40) minutes divided into (15) minutes warm up, (20) minutes main part, (5) minutes claming up that increases gradually till it study to (60) minutes divided into (10) minutes warm up (45) minutes main part (5) minutes claming up in the end of the program. The training unit was distributed as follows:

1- **Warming up:** This part of the training unit aims at preparing the different body systems of the individual to perform the basic part of the training unit. The time period for this part (15) minutes at the beginning of each training unit daily in the first and the second month and it is reduced in the third month to reach (10) minutes. It includes the group of training for all parts of the body .This study made this part including the longing exercises that increase elasticity and helps to warm the muscles and avoid injury.

Results

Table 23. The significance of differences among the pre and the post measures in the physical variables:

N= 12

Variables	Pre M ± SD	Post M ± SD	T	Improvement Percentage %
Coordination	10.35±3.22	9.02±2.81	2.79*	12.85
Balance	4.74±2.18	7.12±2.56	3.15*	50.21

2- **The basic part:** this is the most important part of the program and through which the main goal of the study is achieved. This part includes the training of Cardio Karate that involves the basic skills of karate of defense methods (blocking – feet movements) and attack methods (punching – hitting – kicking). The two researches chose the suitable skills for this program.

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 forearm block (Chudan Uchi-uke) , Outward forearm 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)

This method starts with a daily training unit for (20) minutes with taking time gradually in the rate of (5) minutes every two weeks till it reaches (45) minutes in the end of the third month.

The two researches took into account that the proposed training load intensity ranges from (50% to 70%) of the maximum capacity of the individual and cope with the special age stage nature of the study sample. The rest time should be enough whether it is among the repetitions in the daily training unit or among the weekly training units. The positive rest period (the timing in the place) was (10) seconds among the repetitions in the daily units and the weekly training units for (48) hours.

The part of calming: This part of the training unit aims at taking the systems and organs of the body back to their natural state. The two researches saw that this part should contain exercises to organize breathing and relaxation. The time period of this part (5) minutes in the end of every daily training unit.



Agility	11.2±4.16	9.81±3.19	3.83*	12.41
Muscular power	160.71±2.47	197±2.98	5.71*	22.95

T value at 0.05 = 2.20.

Table 24. The significance of differences among the pre and the post measures in the physiological measures of the tension indications

N = 12

Variables	Pre M ± SD	Post M ± SD	T	Improvement Percentage %
Pulsation	77.24±3.06	74.31±2.87	2.87*	3.79
Diastolic blood pressure	118.6±7.61	115.41±5.92	2.96*	2.68
Systolic blood pressure	73.33±5.13	69.46±4.13	4.03*	5.27
V.M.A	4.86±1.32	3.6±1.57	5.02*	25.93

T value at the level of 0.05 = 2.20.

Table 25. The significance of the differences among the pre and post measures of the axes of psychological security

N = 12.

Variables	Pre M ± SD	Post M ± SD	T	Improvement Percentage %
Social security	25.23±3.21	28.24±2.45	3.69*	11.93
Body security	21.14±2.63	25.36±2.57	6.84*	19.96
Emotional security	27.35±3.02	31.14±2.71	4.57*	13.86

T value at the level of 0.05 = 2.20.

Table 26 . The significance of differences among the pre and post measures of the axes of aspiration measure N = 12.

Variables	Pre M ± SD	Post M ± SD	T	Improvement Percentage %
Satisfaction of the present status	5.62±1.52	5.75±1.48	1.92*	5.87
Insistence	4.34±2.36	6.41±2.56	3.44*	47.69
Responsibility bearing	5.12±1.29	7.62±1,84	4.13*	57.60
Inclining to struggle	5.33±1.66	7±1.21	2.48*	31.33
Deciding aims	5.16±1.40	5.58±1.53	2.03*	8.13
Direction towards excellence	5.24±1.85	6.71±1.34	3.11*	28.05
Outlook at life	3.58±1.02	5.33±1.13	4.03*	46.08

T-value at the level of (0.05) = (2.20).

Table 27. The correlation coefficient among the axes of psychological security measure and the dimensions of the aspiration axis

N = 12.



psychological security	Aspiration	Satisfaction of the present status	Insistence	Responsibility bearing	Inclining to struggle	Deciding aims	Direction towards excellence	Outlook at life
Social security		0.605	0.638	0.787	0.779	0.857	0.815	0.624
Body security		0.654	0.713	0.591	0.658	0.635	0.757	0.587
Emotional security		0.582	0.713	0.640	0.761	0.812	0.709	0.653

The significance of the correlation coefficient at the level of (0.05) = (0.578).

Discussion

Table (23) shows the differences significance among the pre and the post measures of the study sample points out that there are statistical significant differences for the favor of the post measure in the physical variables. The two researchers see that these differences and the percentages of the improvement of the post measures rather than pre measures are due to the practice of the training of Cardio Karate which are performed three times weekly accompanied by music and including several of punching, kicking and blocking skills that helped in improving the physical variables (coordination – balance - agility - muscular power) of the orphan children and this agrees what shown by both of S. A. Muhammad (1999) ; A.E. Naglaa (2006) who pointed out that employing training similar to the motion performance is one of the best ways to improve the physical sides that are accompanied by advancement in performance .This also accords with what C. Jaymee (2005) pointed that the Cardio Karate trainings is one of the best aerobic fighting arts trainings that provides the individual with the self-defense methods and helps in improving the physical fitness and getting rid of the extra weight. They do not need experience as each individual practices according to his speed and his special capacity.

Table (24) shows the significance of the differences among the pre and the post measure of the study sample points out that there are statistical significant differences for the favor of the post measure in the physiological variables of the tension indications in improving percentages ranged from (2.68%) to (25.93%) which showed that the highest improving percentage was (V.M.A) and the lowest improving percentage was the contracting blood pressure. The two researchers see that these differences and the percentage of improving the post measures rather than the pre measures are due to practicing Cardio Karate training which are performed three times weekly accompanied by music and which helped in making physiological adjustment led to raising the efficacy of the vital systems of the body. This led to the increasing of the heart pushing of blood per minute and has its

positive effect on the pulsation and the diastolic and systolic blood pressure. This agrees with what shown by R. Osama and K. Ibrahim (1998) that regularity in training affects the heart so the heart rate improves through the widening of its rooms and increasing the pulse volume and as a result the heart beating rate decreases during the rest that leads to making the main arteries to feed the heart muscle better rather than the successive heart beatings, The reduction in the amount of V.M.A in the urine is due to the effect of practicing the Cardio Karate training regularly accompanied by various and funny music that led to improving the psychological sides of the orphan children such as anxiety, tension, anger and disturbance that reflected on improving the results of the acid, The results of the study agree in improving the amount of V.M.A in the urine agrees with what shown by F.W. Gangong (1991) that the amount of V.M.A in the urine is correlated directly with the state of anxiety and tension that the individual exposes to. The more of Adrenaline and the noradrenalin and also the increasing of the amount the acid in the urine, the less the tension and anxiety, the less the secretion of Adrenaline and the noradrenalin and the amount of the acid in the urine, This also accords with the results of the studies of N. Nashwa and M. Salwa (2004) ; A.A Elham and M. Amal (2004) which pointed out that regularity in training and practicing the various sport programs help in reducing the amount of V.M.A in urine which is directly correlated with the state of tension and anxiety to which the individual exposed. Table (25) shows the significance differences between the pre and the post measures of the study sample points out that there are statistical significant differences for the favor of the post measure in the axes of the psychological security in improving percentages ranged from (11.93% to 13.86%) and which showed that the highest improving percentage was in the body security axis and the lowest was in the social security axis. Table (26) shows the significance differences between the pre and the post measures of the study sample points out that there are statistical significant differences for the favor of the post measure in all the axes of the aspiration measure except the axis of satisfaction status and deciding goals in percentages ranged from (57.60% to 5.87%)



that showed that the highest improving percentage was in the responsibility bearing axis and the lowest was in the satisfaction status axis. This improvement is due to the regularity of the children in practicing Cardio karate training which includes teaching methods of self-defense (methods of punching – kicking – pushing) that helped the children in providing them with pleasant positive emotional experiences having the spirit of optimism, harmony, fun, feeling self-trust, getting rid of psychological pressures and the ability to face the anxiety symptoms that faces them as the result of the troubled social and family life because of the non-existence of the father, the mother and the natural family. This agrees with what pointed out by S. Eric & S. Jennifer (2002) of the National Union of the fighting arts professionals and Everson (2010) that practicing Cardio Karate training is the most safety ways for the individual to perform regardless the level of the previous experience of the individual. The main advantage of the practice is the increasing of the fitness level and strengthening the muscles and the elasticity through learning the self-defense methods. It also helps in increasing self-trust feeling and contributes in lightening pressures that the individual exposed to. It increases also the motive for achievement and increasing the academic aspiration level of the children. This agrees as well with the results of the studies of A. M. Nagla (1999) , A.K. Ali (2003) ; M. K. Samira (2004) ; R.W. Taimour (2006) that pointed out that practicing sport activities and the regularity in training is one of the important factors in improving several psychological sides of the orphan children.

Table (27) of the correlative coefficients among the axes of the psychological security measures and aspiration measure points out that there is a direct correlative relationship which means, the more the feeling of psychological security of the orphan children, the more the improvement of their aspiration level. The two researches see that the more the feeling of the psychological security of the orphan child, the more

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- The conclusions:**
- 1- There are statistical significant differences between the pre and the post measure in some of the physical variables of the orphan children in the orphans' houses.
 - 2- There are statistical significant differences between the pre and the post measure in some of the tension indications of the orphan children in the orphans-houses.
 - 3- There are statistical significant differences between the pre and the post measure in the axes of the psychological security in the favor of the post measure of the orphan children in the orphans' houses.
 - 4- There are statistical significant differences between the pre and the post measure in all of the aspiration level axes except the axis of satisfaction status and deciding goals of the orphan children in the orphans' houses.
 - 5- There is a statistical significant relationship between achieving psychological security and the aspiration level of the orphan children in the orphans' houses
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STATE AND DYNAMICS OF THE SOMATIC TYPES INDEXES AND THE FATTY TISSUE FOR WOMEN, PRACTISING STRENGTH EXERCISES WITH WEIGHTS

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Abstract

The methods of the somatic scientific research work usually do not include individual analysis of the interrelations among the various skin flaps and the rest of the indexes. More often than not these interrelations are commented through the indexes of bodily fat and the absolute amount of bodily fat. Such approach is of great importance to women, who practice strength exercises with weights, because it gives information about fat accumulation. The method enables us to define precisely the character and degree not only of fat depots, but also the eventual type of corpulence. All this makes it possible for us to find out adequate means and methods of overcoming such unwanted states through physical overtaxing, diets, hormone intervention, etc.

Key words: fat tissue, overtaxing, thigh muscle measurements, women

Introduction

The present experimental investigation of the influence of systematical functional overtaxing with strength exercises with weights on the body of the investigated persons, aged 16 – 22, was organized by the Department of Physical Education and Sport at Ruse University "Angel Kanchev". The experimental training lessons cover two periods of nine months each. Two groups were included in the experiment – an experimental group and a monitoring one. There were 30 women in each group. Before the experiment started, the women underwent a preliminary medical check. No deviations from the normal biological constant values were observed for the relevant population. (V. Georgiev, 1973) At the end of the 9-th and the 18-th months monitoring measurements were carried out in both groups. The monitoring figures gave us information about the initial data and the somatic type indexes and the fatty tissue. All measurements were taken by the same persons, using the same apparatuses. There were three monitoring measurements throughout the experiment.

1. Initial data
2. Results from the first phase of the functional overtaxing.
3. Final results from the two-year functional overtaxing.

The training lessons were held in the weight lifting gym of the sports complex "Yalta" as

well as in the gymnasium of Ruse University "Angel Kanchev". They were supervised by Mr. Obreshkov, a senior lecturer at the University.

We applied the following statistic methods of processing the results of SPSS-16 system (Q. Brogly, L. Petkova, 1988).

1. Variation analysis. Through it we found out the average level of the indexes, the way in which they vary (change) and their deviation from the average values. The reliability of the obtained differences during the monitoring measurements in both groups was established with the help of Student's 't' criterion.

2. Correlative analysis. We applied a linear correlative analysis to establish the type and character of interdependence between the tested indexes and their absolute values as well as to define the type and character of interdependence between the development rate and the regress of certain indexes, correlating the increase and the regress interrelations at the same time.

We set ourselves the task to find out whether it is possible to influence and reduce the per cent of fat tissue (%FT) and build firm, shapely and attractive women's figure.

Research methods and procedures

The relative quantity of fat tissue for the persons in the experimental group is expressed through the index %BF in Table 1, compared to those of some of the Bulgarian sportswomen, practicing various sports.

Table 1. Comparative somatic data for the persons in the experimental group, compared to those of some of the Bulgarian sportswomen, practicing various sports.

Sports events	% BF	AQBF, kg	AMM, kg	TMM, kg	ABM, kg
Biathlon	15,90	9,00	21,40	49,10	47,20
Academic rowing	18,60	13,10	22,20	53,60	56,10
Volleyball	13,10	9,30	22,40	52,40	59,70
Wrestling	10,80	6,40	26,00	53,30	49,80
Aerobics	9,00	5,00	22,50	52,40	49,50
Experimental group	11,88	10,1	19,52	49,53	46,90

BF = per cent of bodily fat

AQBF, kg = absolute quantity of bodily fat

AMM, kg = armpit muscle measurement

TMM, kg = thigh muscle measurement

ABM, kg = active bodily mass

FT = fat tissue

AQMM = absolute quantity of muscle mass

We were impressed to discover that the women in the experimental group differ greatly from the sportswomen with respect to the per cent of fat tissue. All of the above-mentioned sports events are very popular in Bulgaria. It is obvious that the women from the experimental group have lower level of fat tissue than the tested sportswomen, who go in for volleyball, academic rowing and biathlon. For these sportswomen the relative strength is of great importance, while the presence of fat tissue might be a problem. Only the sportswomen, going for wrestling and aerobics, have better %FT indexes. The results from the variation analysis show that both indexes of fat accumulation - %BF and AQBF, for the

experimental group mark lower values of variability. The decrease is especially great for AQBF – from 24,10 %V for the first investigation to 19,55%V for the third investigation. The value of %FT index for the first investigation is 20,59 %V and for the third investigation it is 17,96%V (Table 2). These explicit data give us enough ground to say that guided overtaxing with weights leads to decrease of the indexes' values and their grouping about the average values. The ABM and AQMM indexes, which give us information about muscle accumulation, also decrease their variability but to a lesser degree. This leads us to the conclusion that when overtaxed with strength exercises with weights, women are inclined to lose fat tissue rather than accumulating muscle tissue.

Table 2. Average data about the variation values of the indexes, related to fat and muscle mass, experimental group

Indexes	I investigation %V	II investigation %V	III investigation %V
%BF	20,59	19,79	17,96
AQBF	24,10	23,07	19,55
ABM	15,19	15,03	14,39
AQMM	17,74	17,20	15,84

The relative level of bodily fat for the persons in the experimental group can be defined as extremely positive, because most authorities are of the opinion that for women, who do not go in for any sport, the average portion of %BF may be 23-25% (M. Toteva, 1990). The analysis of the absolute quality of bodily fat (AQBF) logically shows a similar tendency, because AQBF appears to be a function of %BF and the person's weight.

Interesting is the fact that the AMM and TMM measurements slightly differ from the correspondent anthropometrical measurements. What follows is that the muscle component considerably exceeds fat accumulation in the limbs of the persons practicing strength exercises with weights. Table 3 shows the somatic peculiarities for the various sports events (V. Georgiev, 1973), compared to those of the tested young women, who practice strength exercises.

Table 3. Comparative somatic data for the persons in the experimental group (fitness), compared to those of some Bulgarian sportswomen, who go in for various sports

SPORTS EVENTS	ENDO	MEZO	ECTO
Track events (sprint)	2,92	3,67	2,78
Track events (medium races)	2,95	2,97	3,33
Track events (jumps)	2,90	3,38	3,03
Field events (throwings)	4,75	5,35	1,10
Track events (pentathlon)	2,25	3,98	2,30
Swimming	2,89	3,56	3,16
Academic rowing	4,10	4,17	2,30
Kayak	3,73	4,22	1,90
Sports gymnastics	2,11	3,46	3,62

Art gymnastics	1,53	2,83	4,91
Acrobatics	3,10	3,94	3,10
Water jumps	2,84	3,65	2,98
Skiing (Alpine events)	3,78	4,16	1,42
Skiing (running)	2,94	3,74	2,68
Basketball	3,45	2,96	3,13
Volleyball	3,39	3,57	2,82
Handball	3,83	4,40	1,89
Football	3,96	4,23	2,60
Judo	3,87	4,59	1,87
Weight lifting	3,82	6,09	0,75
Students, who do not go in for sports	4,50	3,00	1,50
Experimental group	3,80	4,95	1,95

We can definitely say that the tested persons in the experimental group belong to the so-called “endomorph-mezomorph” type, characterized by extremely low ectomorpha – 1,95. We can also observe low values in the group of judo sportswomen, skiing (Alpine events) and track events (throwing). We made the conclusion that the maximum individual endomorphic value is 4,87 , being at the same time the highest value for all sports in Table 3.

The mezomorpha of the tested persons in the experimental group, who practice strength exercises (Table3), is also characterized by positively high values (4,95), preceded only by the values of the sportswomen, who go in for weight lifting (6,09) and track events-throwing (5,75). The analysis of the average somatic data for the various sports events shows that the high mezomorphic values are in inverse proportion to those of ectomorpha, and vice versa (weight lifting, judo, art gymnastics and track events-throwing. The mezomorphic and the ectomorphic components are in inverse proportion. The results from our

investigations show that the entire training (training classes, diets and recovering) of persons, practicing strength exercises, enables, guides and helps us to achieve and retain comparatively low ectomorphic values (1.95) , at the presence of definite mezomorpha (4,95). This fact can definitely be established by comparing the data of the tested persons, practicing strength exercises, ENDO-3,80, MEZO – 4,95, ECTO – 1,95 and those of students, who do not go in for any sport ENDO – 4,50, MEZO – 3,00, ECTO – 1,50. To conclude the somatic investigation, we can point out that it is the optimal training classes with weights which enable the achievement of harmonious physical development, characterized by low level of fat tissue, excellent muscle development on the background of esthetically long limbs. By analyzing the interrelations between the functional anthropological indexes and the anthropological indexes we established certain dependences. As we expected, the bodily weight correlates with considerable dependences and is influenced by the massiveness of the bone construction of the body, because we established considerable dependences on the transverse chest diameter – R – 0,538; front and back chest diameter – R – 0,593; pelvis diameter – R – 0,586 (fig.1).

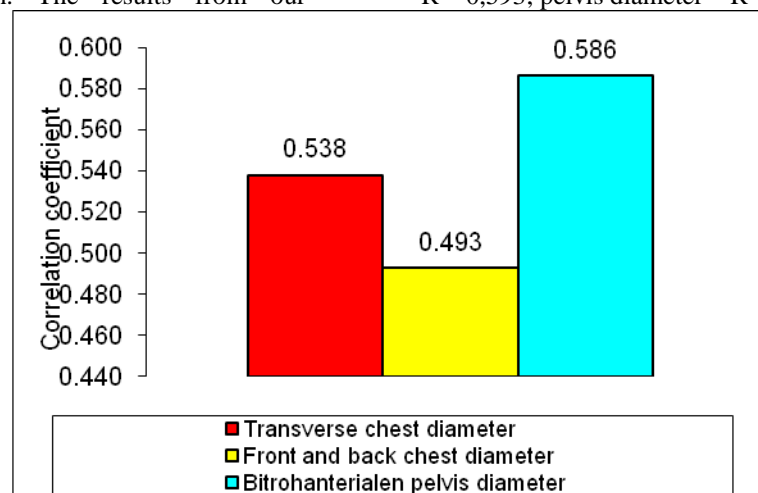


Fig.1

The value of the vital capacity index is influenced by the value of the diameters of the human body, because we established considerable dependences among shoulder diameter R – 0,501; front and back chest diameter R – 0,460; transverse

chest diameter R – 0,489; bicrystal pelvis diameter R – 0,55519 (fig.2). What is interesting in this case is the fact that the established interrelations contradict the belief that the vital capacity depends mostly on the person’s height.

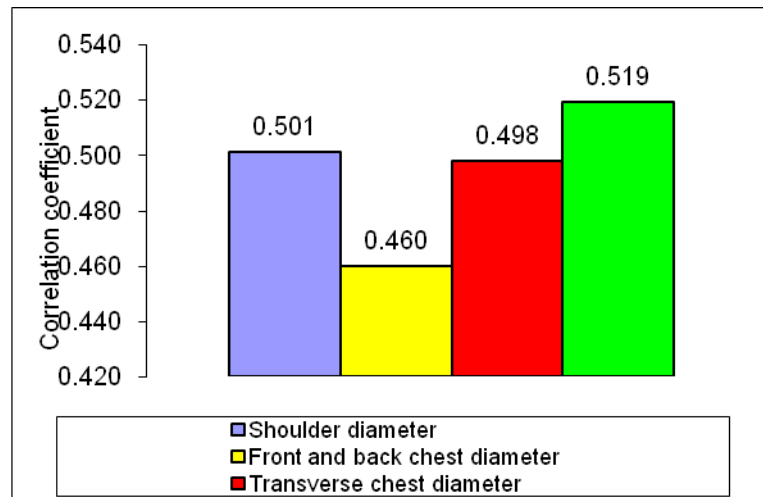


Fig.2

The measurement of the force of both hands, despite the existing functional right-hand side asymmetry, shows dependence $R = 0,691$. That is why we have studied only the interrelations

between the right hand and the discussed anthropological indexes. We established medium dependences between neck measurement $R = 0,63$ and the waist measurement $R = 0,417$ (fig.3).

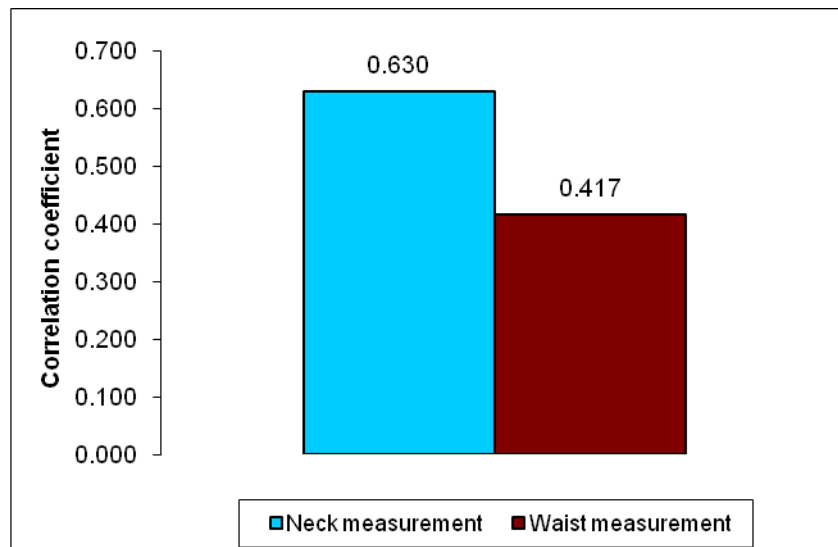


Fig.3

Interesting is the fact that the contraction difference does not influence the maximum manual force $R = 0,03$. At the same time the bone component considerably influences the level of the manual force. We established the following

interrelations among shoulder diameter $R = 0,507$, transverse chest diameter $R = 0,519$, bicrystal pelvis diameter $R = 0,500$, bitrohanterialen pelvis diameter $R = 0,735$, which are impressive (fig.4).

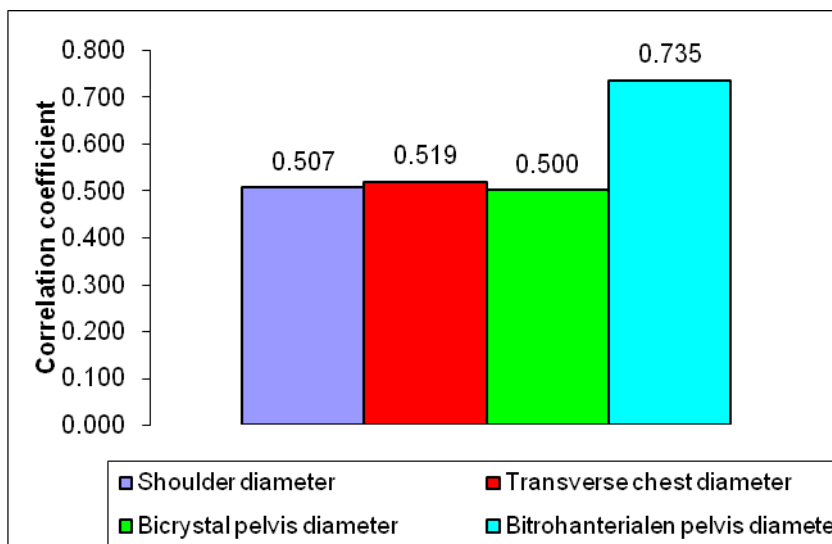


Fig4

With respect to the dependences of the human body we established moderate and considerable correlations, which we are not going to comment because of their affirmative character. The measurement of the flexibility of the spinal cord carries its own information and is not

influenced by any of the anthropological indexes. As for the functional dependence $R = 0,579$ and $R = 0,671$, which we observe between the bodily weight on one hand, and ABM and AQMM on the other hand, it can only be explained with the low %BF level - 15,50 for the tested persons.(fig.5).

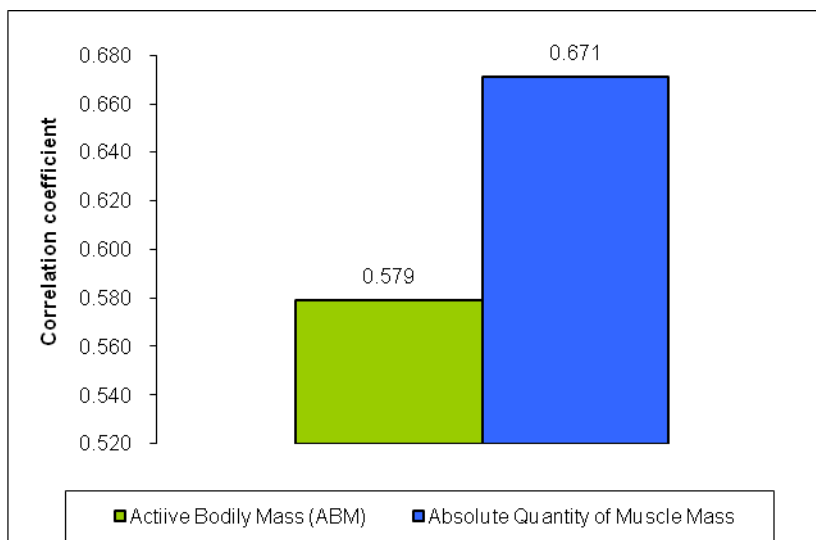


Fig.5

At the same time, with respect to AQMM, we observe medium dependence of the indexes:

vital capacity $R = 0,423$; right hand force $R = 0,523$ and left hand force $R = 0,359$ (fig.6.).

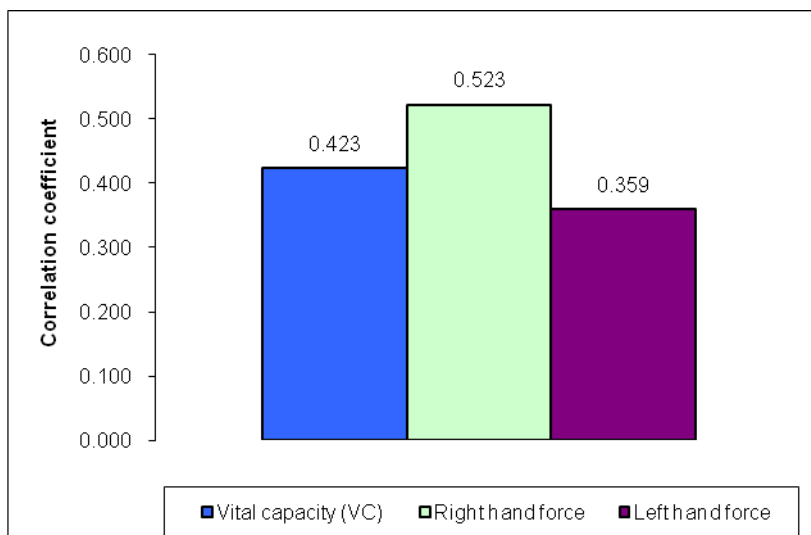


Fig.6

Most research workers establish considerable, even great, dependences between height upright and the bodily weight for persons, who do not go in for any sport. The results, which

we got, speak of the opposite tendency for women, who practice strength exercises. The dependence between the two indexes for these same women is insignificant $R = 0,181$ (fig7).

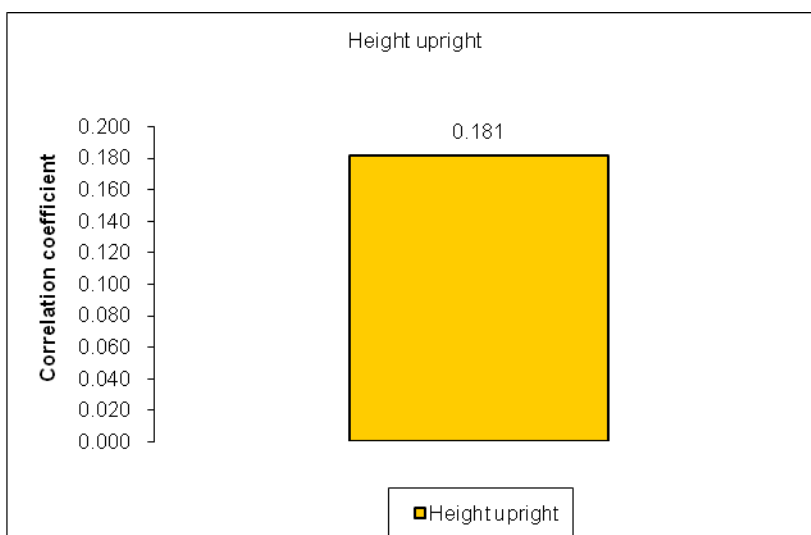


Fig 7

At the same time the bodily weight is considerably influenced by the limbs measurements: right hand armpit measurement –

flexion $R = 0,502$; right hand armpit measurement – extension $R = 0,615$, right thigh measurement $R = 0,740$, right under-thigh measurement $0,578$ (fig.8).

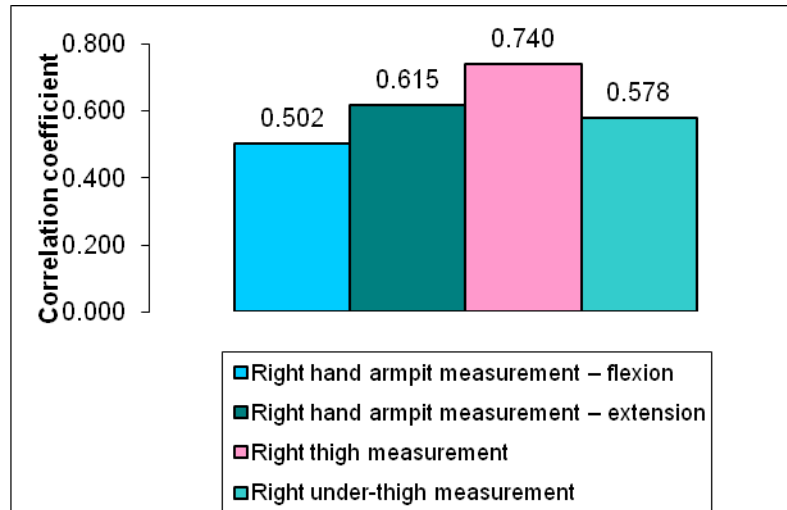


Fig 8

These results make us conclude that the hypertrophic orientation of the strength training and the control of fat accumulation form specific somatic configuration, at which body mass is mostly influenced by muscle mass without any fat.

With respect to the interrelation between VC and the anthropological indexes we confirm the authorities' data, whereas we established the highest dependences for height upright $R = 0,653$ and stretch $R = 0,583$ (fig9).

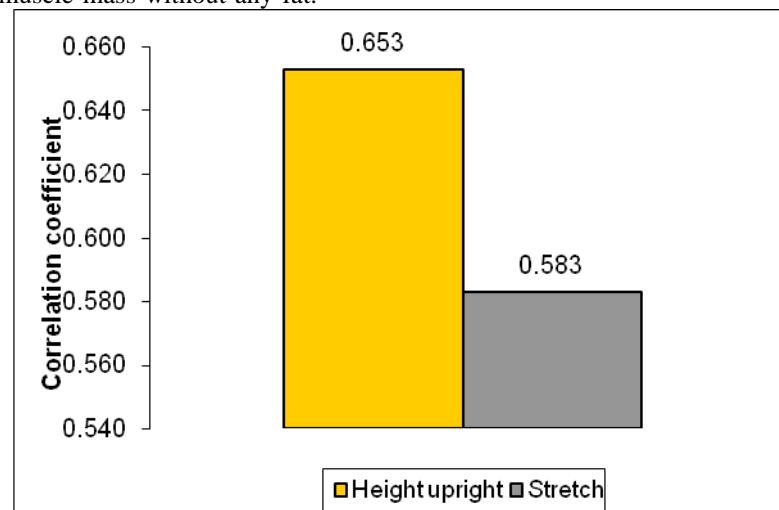


Fig.9

Conclusions

1. As a result of the specific overtaxing of the tested persons we observe slightly visible presence of fat tissue in these same persons.
2. The somatic type of the tested women, who practice strength exercises (3,80 – 4,95-1,95) , can be definitely said to be endomorphic – mezomorph.
3. With respect to the endomorphic and mezomorphic components of the tested persons in the experimental group, we can say that these same persons positively surpass some of the Bulgarian sportswomen in various sports events – swimming, sports and art gymnastics, skiing (running) and others.

4. The specific strength training with weights appears to be a wonderful means of losing fat tissue and building of beautiful and attractive women's body.

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2	The quality of the research paper structure	5 points
3	The clarity and quality of the research hypotheses elaboration	9 points
4	The quality of the registration of the results and their presentation	9 points
5	The clarity and quality of the discussions directly linked to the results with reference to similar studies	9 points
6	The clarity and quality of the elaboration of the conclusions in accordance with the hypotheses of the paper	10 points
7	The applicability of the results found in the practical and scientific practice	10 points
8	The accuracy of the in text and bibliography quoting	10 points
9	The clarity and quality of the expression in the text	9 points
10	Strictly respecting the elaboration technical requirements	6 points
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1	The originality of the research theme	13 points
2	The quality of the research paper structure	4 points
3	The clarity and quality of the research hypotheses elaboration	8 points
4	The quality of the registration of the results and their presentation	8 points
5	The clarity and quality of the discussions directly linked to the results with reference to similar studies	9 points
6	The clarity and quality of the elaboration of the conclusions in accordance with the hypotheses of the paper	9 points
7	The applicability of the results found in the practical and scientific practice	9 points
8	The accuracy of the in text and bibliography quoting	9 points
9	The clarity and quality of the expression in the text	9 points
10	Strictly respecting the elaboration technical requirements	5 points
Total		83 points

PHYSICAL AND MENTAL FITNESS IN SPORTS PERSON-ROLE OF YOGA-FITNESS PRESCRIBE IN ANCIENT BOOKS

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Abstract

Although yoga has been practiced as Indian culture and science for thousands of years as part of life philosophy, classes in the United States only recently have been offered to patients and sports persons for curing the disease and rehabilitation and to improve the performance in sport (Clin J Oncol Nurs. 2008 Feb;1) The word yoga is derived from the Sanskrit root yuj, meaning to bind, join, and yoke. This reflection of the union of the body, mind, and spirit is what differentiates yoga from general exercise programs but Age, Sex, Religion, Race, Caste or Creed is no bar with yoga. You will only gain from it and not lose anything in life. *physical and mental fitness* is the fundamental part of life. As a healthy body boasts the healthy mind so to express one's full potential in every walk of life and specially in sports every person must be physically and mentally fit. Yoga, being the ancient Indian science, has been endorsed time to time, even by most of the religions of the world to achieve this goal. In contemporary competitive world its importance becomes even more. (J Bodyw Mov Ther. 2010 Jan;14(1):50-4).

Research on mind-body exercise programs such as yoga and tai chi reveal they have significant mental and physical value. There also are numerous primary and secondary preventive indications for cardiovascular disease in which yoga can play a primary or complementary role. Mind-body exercise programs will be a welcome and necessary addition to evolving disease management models and improving sport performances that focus on self-care and decreased health care use. (La Forge R., J Cardiovasc Nurs. 1997 Apr;11)

Key words: Yoga Fitness Ancient books

Introduction

Yoga practice is as Indian culture and science for thousands of years as part of life philosophy. Only recently offered to patients and sports persons for curing the disease and rehabilitation and to improve the performance in sports (Clin J Oncol Nurs. 2008 Feb;1) **Yoga is derived from the Sanskrit root yuj**, to bind, join, and yoke. The union of the **body, mind, and spirit** is what differentiates yoga from general exercise programs but Age, Sex, Religion, Race, Caste or Creed is no bar with yoga. **You will only gain from it and not lose anything in life.** New US study has shown that yoga and motivational exercises can both boost sport

performance through sports psychology, (Br J Sports Med 2006) **YOGA**, being the ancient Indian science, has been endorsed, time to time, even by most of the religions of the world. Yoga is the most acceptable, Cheapest, best antidote for stress and is the best Antioxidant, for contemporary sports in today competitive world, its importance becomes even more. (J Bodyw Mov Ther. 2010 Jan;14(1):50-4) **Research on mind-body exercise programs** such as yoga and tai chi reveal they have significant mental and physical value. There also are numerous primary and secondary preventive indications for cardiovascular disease in which yoga can play a



primary or complementary role. Mind-body exercise programs will be a welcome and necessary addition to evolving disease management models and improving sport performances that focus on self-care and decreased health care use. *Yoga* is most suitable for *sportspersons and has been prescribed in most of the ancient literatures*

Introduction

Yoga is right living this may appear to be simple but is very significant for the meaning of right living is very wide. **Yoga** (Sanskrit, Pāli: *yóga*) refers to traditional physical and mental disciplines originating in India. The word is associated with ancient practices in Hinduism, Buddhism and Jainism and some other religions of the world.

Earliest archaeological evidence of Yoga's existence could be found in stone seals which place Yoga's existence around 3000 B.C. Most anthropologists agree that an oral tradition existed long before a literary tradition which gradually set in from about the 2nd century BC

Its history can be divided into four periods: **the Vedic Period, Pre-Classical Period, Classical Period, and Post-Classical Period. Vedic period**

The Vedas contains the oldest known Yogic teachings and as such, teachings found in the Vedas are called Vedic Yoga. (A. Shri, 1970)

Pre-classical period

The creation of Upanishad marks the pre-classical yoga. Yoga shares some characteristics not only with Hinduism but also with Buddhism that we can trace in its history. During the sixth century B.C., Buddha started teaching Buddhism, which stresses the importance of yoga and the practice of physical postures.

Classical period

The Classical Period is marked by another creation - the **Yoga Sutra**. Written by Patanjali around the second century, it was an attempt to define and standardize Classical Yoga. Patanjali's Eightfold path of Yoga (also called Eight Limbs of Classical Yoga) is the essence of yoga

Post classical period

Post-classical Yoga differs from the first three since its focus is more on the present. . Yoga was introduced in the West during the early 19th century. It was first studied as part of Eastern Philosophy and began as a movement for health and vegetarianism around the 1930's. By the 1960's, there was an influx of Indian teachers who expounded on Yoga (New straits times 2009, Cairo). The most ancient sustained expression of yogic ideas is found in the early sermons of the Buddha. One key innovative teaching of the Buddha was that meditative absorption should be combined with the practice of mindfulness.

According to *Tattvarthasutra*, 2nd century CE Jain text, *Yoga*, is the sum total of all the activities of mind, speech and body

The development of Sufism was considerably influenced by Indian yogic practises, where they

adapted both physical postures (asanas) and breath control (pranayama) The ancient Indian yogic text, Amritakunda, ("Pool of Nectar") was translated into Arabic and Persian as early as the 11th century.

In 1989, the Vatican declared that Eastern meditation practices such as Zen and yoga can "degenerate into a cult of the body". In spite of the Vatican statement, many Roman Catholics bring elements of Yoga, Buddhism, and Hinduism into their spiritual practices.

The 20th century has produced an immense scientific literature on fitness, in terms of understanding in anatomy, physiology and medicinal health and its integration. In 21st century, The expansion of physiology is markedly noticed in the field of engineering, molecular physiology, sports and many allied fields. Physiology may not contribute in the development of new things. Needless to say, physiology is essential in all the allied branches In the 21st century, the basic science physiology, has expanded and shall witness, much more expansion of physiology and allied sciences as coined by, R Gulati, 2009, As "Interdisciplinary physiology research century" (R. Gulati in S. Tan, 2003) Crucial observations made by the ancient literature about our predecessor, Hippocrates (463-370 BC), Father of Medicine, Andreas Vesalius (1540-1564), the father of modern anatomy. Also by the Abu Al Al Husain Ibn Abdulla Abn Sina (Avicenna) (Tansy Yeow Me, and Loukas M, et al, 2009). The contribution of Hippocrates and Galen are well known contributions to medicine by numerous religious text, including the Hindu Vedas, the Judeo-Christian Bible and Talmud and the Islamic Qur'an and Hadeeth (Prophetic sayings of Mohammad) (Who, 2009). There is a considerable amount of information with Qur'an and Hadeeth, Focusing on the Cardiovascular physiology and mentioned in the Hadeeth (sayings, rulings, advises, actions, habits of the Prophet Mohammad), which are distinct from the direct words of the God. Good physical fitness has scientific basis as followed today in WHO Definitions of health "Health is defined as Physical, Mental, social and spiritual well being of a person, not merely absence of Disease or infirmity" (A. Zindani, E. Johnson, G. Goeringer, et al.). In the middle ages, the authority and power excreted by the Christian church and scientific basis of inquiries into natural phenomenon, were not in harmonious relationship, compelling scientists to work in secret out of fear. Islamic teaching in this ages strongly encouraged and supported scientific research, which lead to many discoveries. (K. Cottondw, 1973)

Yoga asana, Fitness, Health

Yoga postures breathe work and inner focus can help rebalance, strengthen and restore overtaxed muscles, joints and ligaments. Through this restoration process, athletes can increase their career longevity and develop an inner balance that will last a lifetime. Balancing the mind, body and spirit is a primary philosophical principle of yoga.



Yoga arose from the matrix of the Hindu world, although according to Mircea Eliade it is of pre-Hindu origin and can be traced back to prehistoric shamanism. Yoga is not tied to the Hindu religion but has a universal applicability. **“TATO DWANWANABHIGATAH” — Sadhana Pada, Sutra 48 Translation:** By perfecting Asana, one is no longer affected by the pairs of opposites (duality). The objective of *Asana*, according to Patanjali, is to gain resistance to the “pairs of opposites” (*Dwandwas*). “Pairs of opposites” refers to the conditions both within the mind and the physical body, between which we continually oscillate – those things with which we are persistently preoccupied — conditions such as hot and cold, happiness and sorrow, pain and pleasure, etc, etc.

As I.K. Taimni says in his book, *The Science of Yoga*; “Those who have studied Yoga will attest that this Science of sciences is too comprehensive in its nature and too profound in its scope of teachings to be fitted into the framework of any particular philosophy, religion or belief, ancient or modern. It stands in its own right as a science based on the eternal laws of the higher life. Its truths are based on the experiences and experiments of an unbroken line of mystics, occultists, saints and sages who have realized and borne witness to them throughout the ages.” (P. Prioreshi, 2006).

The physical exercises, which have come to be considered the “mainstay” of *Yoga* in our time, did not figure predominantly in Patangali’s *Ashtanga Yoga* system. But by the time of Patanjali, whose *Yoga Sutras* you have already been briefly introduced to, the word *Asana*, though it maintained this classical notion (a place), also became a “physical” state that one adopted. His first direct reference to *Asana* in the *Yoga Sutras* comes in chapter 2 (*Sadhana Pada*), **verse 46: “STHIRA SUKHAM ASANAM” Translation:** A seated posture that is steady and comfortable is called asana. The attainment of a perfect *self-mastery*, which is itself the first step toward magical mastery of the world. The most daring magical desires, are realized through yogic technique, or, more precisely, that Yoga can equally well adapt itself to either path.” — Mircea Eliade, *Yoga: Immortality and Freedom*.

Muslim Prayer posture, Fitness, Health

The study investigates the physiological interactions and effects of the Muslim prayer postures on the human body,” Prime Minister Abdullah Badawi told the Third Kuala Lumpur International Conference on Biomedical Engineering, The study, conducted by the University of Malaya’s Biomedical Engineering Department, concluded that postures during the prayers are beneficial to the heart, spine and the capacity of memory and attention in psychological performance. Muslims pray five times a day, which each prayer made of a series of postures and movements, each set of which is called a *rak’ah* The faithful starts in a standing posture then bows down with his/her hands placed on his/her knees keeping the back straight The worshipper then returns to the standing position before prostrating with forehead, nose, hands, knees, and

bottoms of the toes touching the ground. The forearms and elbows should be raised off the floor. (Asana in Ancient Times, 2006) The Qur’an and the Hadeeth discuss the importance of the heart, blood and its circulation and how they are vital to the maintenance of life. Descriptions of the human anatomy derived from religious texts are often omitted from the medical literature. The present review aims to discuss the comments and commentaries made regarding the heart and cardiovascular system as found in the Qur’an and Hadeeth. It is clear that these early sources both had a good comprehension of parts of the body Fitness.© 2009 Published by Elsevier Ireland Ltd.

European scientists during the Middle Ages and beyond failed to benefit from the discoveries of the neighboring Islamic empire for multiple reasons, including poor translations and the unreadiness of the medical establishment to give prominence to observation and study over the word of ancient authority (ML Gharote, Ganguly, 1979) As new advances in technology and medicine continue to grow at an exponential rate today, there is time to reflect and appreciate the Islamic contribution to medicine. It is for this reason that the discoveries and medical revelations in Qur’an should not be ignored or forgotten. QUR’AN, prophetic traditions and sayings of Mohammad were religious, scientific and spiritual and influenced the medical texts Its importance has also been described for the benefit in CVS Heart has been described as the organ of emotion ,psyche. and intelligence and that can be harmed easily In depth analysis of contribution of Islamic medicine in physiology ,anatomy and health is severely lacking in the west ,and if conducted ,would uncover discoveries made centuries years before in Europe, were actually were part of Islamic traditions (Who, 2009) Islam is a complete, integral spiritual path, so yoga is nosubstitute for any Islamic requirement.

Arabia & the World in around AD 600

Did these ancient teachings travel from India to Arabia? No—there is no need to assume such a horizontal transfer; the sacred truths are revealed vertically from Heaven to all peoples. There are close similarities between Islam and yoganot because of borrowing or cultural diffusion, but because of both originating in the Primordial Tradition, *sanâtana dharma, al-dîn al-hanîf*, which all the prophets of Allah have brought and reaffirmed throughout the ages, among all nations, revealed directly from the Creator. Goldsmith’s art refined in Frankish-Merovingian era. Byzantine Architecture and Mosaic. Architecture and sculpture in India. Classic **Buddha figures** in yoga postures Psychological development in sportsperson is importantly controls all psycho-physiological functions.

PHYSICAL, ENDURANCE, STRENGTH-POWER ,psychological role of REGULAR PRACTICE OF NAMAZ IS BENEFICIAL IN HEALTH AND FITNESS- EVEN APPLICABLE TO SPORT PERSONS



The core of Yoga's philosophy, Physiological basis

Human information processing consists of five steps-

1. detection of stimulus
2. Decision
3. memory
4. reaction time
5. motion response.

This concepts represents anatomy and physiology of sensory neuron for stimulus detection, brain stem and reticular activating system for arousal to sustain attention flow, thalamus to relate signal and noise content, prefrontal cortex to discriminate and extracts stimulus feature such as cues, shape, form etc. frontal cortex is for decision making and parietal cortex for updating the information, short term memory, cerebellum and premotor cortex for response execution (Y. Mcilvo, 2004)

Psychological development in sportsperson is importantly controls all psycho-physiological functions, control of breath, monitors the homeostasis for optimal health. Stress causes cortical dysfunction and damage physiological homeostasis. This leads to various disorders. Specially for the sportsperson, any disturbances in family, socioeconomic, personal relations derail the prospect of winning medals in the events.

Stress triggers autoimmune disease, hypertension, Diabetes, rheumatoid arthritis, AIDS. (T. Desiraju, 1988, A. Newberg, J. Iversen, 2003) Yoga enhances immediate memory, (N. Jerne, 1983, R. Sahu, M. Bhole, M. Gore, R. Bhogal, M. Rajapurkar, 1990, M. Gore, 1990), Stress relieved (D. Kulkarni, 2003), Conserved resources (S. Bhattacharya, U. Pandey, 2002), Best Natural Antioxidant (H. Mahapure, S. Shete, T. Bera, 2008, D. Kulkarni, R. Bhogal 1991).

The basic of Yogic exercises, concerns with several components, of body awareness. Example, stress detection, stimulus content, and rejection of the post detection process. That results in muscle relaxation process. (J. Kiecolt-Glaser, R. Glaser, Willeger Det El. 1985)

Yoga is beneficial for geriatric population, help disclose negative thoughts, and feelings in cognitive domain (C. Steel, J. Evans, M. Smith, 1974) Sports person need good psychosocial elements in the positive role of it's good immunity. (S. Cohen, 1988, A. Silverman, Hou-Ya, D. Kelly, 1989) Yoga modulates the psychoneuroendocrine (PNE) network, via hypothalamus (B. Carol, M. Feinberg, J. Greden, Et al. 1981)- pituitary-adrenal activity (S. Levy, R. Herberman, M. Lippman, D'Angelo, 1987), and effect natural killer cells activity (K. Oshikawa, 1921)

Yoga affect peripheral nervous system and also central nervous system with effect on immune system, this dual role of central nervous system is well correlated (Friederger, M. Timiti, 1924, D. Kulkarni and TK Bera, 2009). Yoga brings down stress,

enhances power of relaxation, boosts physical strength, stamina, flexibility, bestows concentration, self-power, helps in rehabilitation of old and new injuries, boosts immunity, enhances posture and muscle tone, healthy glowing skin, a more positive outlook towards life, all these are essential for Indian sport performance. (S. Baijal, N. Srinivasan, 2010)

The Eight Limbs of Yoga

Yoga is composed of many layers, all of which can enhance athletic performance. These layers are referred to as the **eightfold disciplines**, or the **eight "limbs" of yoga**. These eight limbs form the main principles of yoga, as follows: **Yama** refers to universal ethics. **Niyama** refers to personal ethics. **Asana** refers to posture. **Pranayama** refers to breath. **Pratyahara** refers to withdrawal or quieting of the senses. **Dharana** refers to inner focus or concentration. **Dhyana** refers to meditation, reflection or observation. **Samadhi** refers to absorption with the whole being, or absolute enlightenment. While athletes can benefit from all these principles, and they are all equally important to enhancing athletic performance, fitness professionals teaching yoga should focus on the limbs that fall within their area of expertise—for example, *asana* (posture), *pranayama* (breath), *dharana* (inner focus) and *dhyana* (meditation). **Athletes can benefit from these limbs** just as they benefit from other tools they use to optimize their performance. For example, a tennis player intent on making contact with the ball and returning it to an exact spot on his opponent's side of the court is exhibiting inner focus, or **dharana**.

Injury Prevention Athletes can learn from practicing yoga is to respect their body's strengths and limitations. This knowledge is essential to preventing sports injuries. Yoga is a powerful biofeedback tool that can help athletes develop better body awareness. Listening to the body and responding to its messages is a way to honor the body and not push it over the edge.

Deciding on the Right Yoga Style *Hatha yoga* is the umbrella term for many different styles of yoga, such as Anusara, Ashtanga vinyasa (sometimes called "power yoga") and Iyengar. These styles are all powerful, dynamic, alignment-oriented types of yoga that are well suited for fitness and sport adaptation. The postural alignment of the *asanas* described in this article are based on Anusara yoga, which focuses on specific principles of alignment. Depending on their goals and personalities, athletes may prefer one form of yoga over another. For example, some athletes may prefer a style of yoga that emphasizes holding postures for longer durations, while others may prefer a format that emphasizes optimal alignment. Finally, some will be keen to touch on all of these elements in one class.

Starting Sports Yoga Conditioning

Mastering the physical and mental challenges of yoga can be a revelation for athletes accustomed to years of a different kind of training. Most athletes are used to conditioning in a particular way, usually by isolating specific muscle groups with the aim of increasing the intensity and frequency of the training



regimen; this kind of conditioning focuses on isolating different parts of the body. Yoga, on the other hand, is based on the principle of *integrating* the body as a whole and shifts the emphasis to the *quality* of the movement.

Sport-Specific Yoga Poses

The *asanas* described in the following sections are examples of some of the best choices for some of the most popular competitive and recreational sports—running, swimming, cycling, skiing, tennis and golf. (Due to space constraints, not all the poses are described in detail; see “References” and “Resources” on page 39 for more information.) When introducing yoga poses into your athletes’ training programs, remember to start off slowly and then gradually add postures during the warm-up

More Yoga for Athletes, Yoga for Sports Performance

RUNNING :One of the best yoga poses for runners is *Eka Pada Rajakapotasana Prep* (pigeon pose prep) which stretches many muscles, including the hip flexors, the gluteals and the piriformis, psoas, low-back and groin muscles. Also good for runners are , *Virabhadrasana 1* (warrior pose) and *Parsvottanasana* (extended sideways pose) and *Supta Padangusthasana Prep* (supine hand-to-big-toe pose prep).

GOLF: Golfers need to repeatedly twist their body in one direction to swing a golf club. To strengthen and flex the spine, try *Utthita Trikonasana* (triangle pose) and *Bhujangasana* (cobra pose) and *Ardha Matsyendrasana* (pretzel pose).

SKIING: Skiers often incur injuries in their low back and knees. These conditions can be improved by doing poses that strengthen the joints and muscles of the low back, knees and posterior legs. Examples to try with skiers include *Utthita Trikonasana* (triangle pose) *Modified Virabhadrasana 3* (modified warrior pose with hands on hips or bent 90 degrees at sides), *Paschimottanasana* (seated forward fold pose), *Supta Padangusthasana Prep* (supine hand-to-big-toe pose prep) and *Bhujangasana* (cobra pose).

TENNIS: *Prasarita Padottanasana* (legs spread wide, forward bend while standing) is excellent for opening the shoulders; it also deeply stretches the hamstrings and adductors. Other good choices for tennis players are *Utkatasana* (chair pose).

CYCLING:cyclists benefit most from poses that stretch the back and open the chest. Examples are *Bhujangasana* (cobra pose), *Dhanurasana Prep* (bow pose prep, with hands reaching toward the feet) and *Ustrasana Prep* (camel pose prep, with hands on the sacrum rather than reaching to the heels. (B. Baptiste, 1999).

Conclusion

In ancient books fitness is prescribed and yoga is important for sport and education fitness cooling down after sport and exercise and circadian body temperature variation near the thromboregulatory area is responsible for deep body temperature for sport

persons (Mitra S.) Mcilvo Y. comparison of brain temperature to core temperature .. A review of literature J. neuroscience nursing 2004 ,36-21to 31.yoga is important for psychoimmunological aspect of health and follow the hypothalamic –pituitary – adrenal –limbic axis is basis of yogic exercise modulation of immunity ,psychosomatic disorders and psychological enhancements .yogic exercise are considered the best tool to manage stress (Y TO Y).

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❖ VARIA

THE INCREASE OF THE EFFICIENCY OF THE PHYSICAL EDUCATION CLASSES BY USING MEANS SPECIFIC TO CHEERLEADERS TEAMS AT V GRADES

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Abstract

Physical education and sports may be the only school subject where most children should willingly participate due to its content and the formative attitudes and effects that it has on a long term. For all these motivations and expectations of the children, the teacher should find optimum, diverse, creative, organizatory, material and methodical solutions. These will reflect upon the optional physical education classes and upon outside school activities, ensuring them a greater attractiveness. The means specific to cheerleaders teams offer the possibility of enriching their knowledge, skills and aptitudes, of improving the body biometric development indexes. Also, the attractiveness and density of physical education classes can increase by involving all the students, implicitly those who are spared of physical effort or who have minor complaints. The cheerleaders teams can accompany the teams to different competitions, thus acting also on the team work capacities development.

Key words: cheerleaders, physical education, optimization, specific means.

Introduction

In all civilized countries, education stays dependent to the Ancient ideal “Mens sana in corpore sano”(a healthy mind in a healthy body). The existence of physical education and sport classes in school is absolutely necessary in order to stimulate movement and even performance among children. Every child is entitled to an harmonious education which can offer him the access to some knowledge that will help him better know and understand the world we live in and to develop his autonomous potential and thinking but also it can offer a way to practice movement and sports.

The physical education curriculum for gymnasium has a certain structure and content adequate to the reforming curricular concept which, by applying it, should lead to the whole achievement of curricular standards of performance (E. Scarlat, B. Scarlat, 2006).

Starting with the school year 1977-1978, the Ministry of Education proposes that all competitions and school sports contests should take place within the national sports competition “Daciada”, a very big contest at that time. During the school competitions within this sports event, some athletics teams contests with acrobatic elements and rhythmic gymnastics elements were foreseen, contests that had a certain theme depending on the sport event they were created.

The concept of cheerleaders teams is a relatively new one in our country and it appeared after the 1990s.

The cheerleaders’ training should contain along with physical training, elements from basic gymnastics and for performance. Gymnastics represents a system of exercises applied analytically or

globally, and which selectively influences the locomotor apparatus for the improvement and harmonization of the movements of the human body and for the formation of its proper bearing (M. Faur, 1996).

Performance gymnastics has the following branches: artistic gymnastics, rhythmic gymnastics, acrobatic gymnastics and aerobic gymnastics (M. Damian, 2002).

Rhythmic gymnastics, the only exclusively feminine discipline, contained in school curricula, has a great and various number of basic formative means and free specific technical means and with portable objects (I. Sima, 1980). Acquiring the technical means of rhythmic gymnastics should be preceded by the formation of the body’s bearing and the aesthetic performance and by the improvement of the expressive movement components and also by the development of the motric capacities, emphasizing the coordination of the reaction speed and mobility. The aesthetic of the movement is expressed through attitude and the bearing of the body in accordance with the requirements of the art of dancing, thus expressing through plasticity and motric expressiveness attributes.

If rhythmic gymnastics addresses only to girl students, artistic gymnastics can be practiced both by girls and boys. Artistic gymnastics benefits from an assembly of various and attractive means with different degrees of difficulty, and its main goal is to improve the physical development and the motric capacity of the body.

M. Manos (2008) asserts that aerobic gymnastics is also called aerobic or cardio-respiratory fitness and it represents a sportive physical activity

with multiple positive attitudes and its main reference element is the motric and psychic capacity of the individual, with benefic effects on the physical condition and on his health, on the background of resistance development and adjustment to effort of the respiratory and circulatory apparatus.

The purpose of this research

This research work performed during the physical education and sport classes at V grade anticipates the requirements of the nowadays society to develop the students, from their personalities point of view but also physically, metrically and intellectually, with an echo on their health and their future life. Therefore, an active, enthusiastic, competition participation is expected through the implementation of diversified means taken from rhythmic, artistic, aerobic gymnastics, modern dancing, sportive dancing, classical dance, eurhythmy, etc. The adjusted means, organized in cheerleaders teams, will achieve an extra motivation to an active participation with benefic influences on the development of motricity, personality and human psychic.

The objectives of this work

- *To develop an action model in order to a forthcoming intervention within the classes system
- *To develop and apply some tests which would evaluate the physical and motric development level of the students
- *To select and label the subjects of the research
- *To collect, analyze and interpret the research data
- *To draw conclusions and decent suggestions.

The hypothesis of this work

The implementation in the physical education class at V grade the means specific to cheerleaders teams which would lead to the increase of the

Results

The analysis and interpretation of the motric and physiological indexes.

Table nr. 1

Event		Speed running – 30 m (seconds)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	5,389	5,189	5,478	5,267	5,189	5,267
	DS	0,369	0,31	0,148	0,20	0,31	0,20
	Cv	6,85	5,97	2,70	3,80	5,97	3,80
	t	3,328		3,455		0,633	
	p	< 0,05		< 0,01		> 0,05	

On the 30m speed event, as it can be seen in Table nr.1, the statistical calculus of the mean performances between the initial testing and final testing, at the two groups, shows a value of “t” for the experiment group of 3,328 (significant; $p < 0,05$) and for the witness group a value of “t” of 3,455 (significant; $p < 0,01$). After comparing the results obtained by the two groups in

efficiency of the class and implicitly to the increase of attractiveness and participation to class.

The development of the research

This research experiment took place at “Carmen Sylva” High school in Eforie Sud, in the school gym, between October 13, 2008 and May 15, 2009 at grades V A and V B.

The materials, the school gym of “Carmen Sylva” in Eforie Sud offer great conditions of performing physical education and sports classes: 10 gymnastics mattresses, 2 elastic springboards, a vaulting horse, gymnastics box, 4 fixed ladders, rhythmic gymnastics hoops, sticks, skipping ropes, audio-video equipment; all these allowed the experiment to develop in optimum conditions.

The subjects of this experiment were 18 girl students, 9 from V B grade who represented the experiment group and 9 from V A grade who represented the control group, both groups with a mean age of 12 years old. I specify that the subjects of this research, during I-IV grades did not systematically practice physical exercises as their physical education classes were replaced, most of the time, with other school subjects, from different reasons.

During physical education and sport classes, for the experiment group, we used means specific to cheerleaders teams as follows: for 26 weeks, 2 hours per week from which 40 minutes were assigned to specific training. By summing up it resulted a number of 400 hours and 40 minutes –under the condition that a physical education and sport class lasts 50 minutes. During school holidays we did not work but on March 28, 2009 they were on a show where they presented a pompons programme inside the school gym of “Lazar Edeleanu” High school in Navodari.

For the control group we used classical means to develop the motric qualities and skills.

final testing, we notice that the value of “t” is of 0,633, a fact that does not represent a significant difference ($p > 0,05$).

The values of the variability coefficient, under 10%, indicate a high homogeneity at both the experiment and witness groups.

Table nr. 2

Event		Resistance running 2'40" (meters)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	395,556	475,556	381,111	463,333	475,556	463,333
	DS	37,454	50,277	28,038	51,962	50,277	51,962
	Cv	9,47	10,57	7,36	11,21	10,57	11,21
	t	7,589		6,727		0,507	
	p	< 0,001		< 0,001		> 0,05	

Within the **resistance running** event, the analysis of **Table nr. 2** shows a significant progress between initial testing and final testing at the experiment group and witness group ($p < 0,001$).

As a consequence of the final tests and of the comparison of the two groups it is obtained a value of **Table nr. 3**

“t” of 0,507, a fact that represents an insignificant difference in this event ($p > 0,05$).

The values of the variability coefficient present us a great and mean homogeneity of the results obtained by the subjects of the two groups.

Event		Long jump standing (cm)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	148,333	155	150	161,667	155	161,667
	DS	9,014	10,607	9,014	13,463	10,607	13,463
	Cv	6,08	6,84	6,01	8,33	6,84	8,33
	t	5,657		5,292		1,167	
	p	< 0,001		< 0,001		> 0,05	

In **long jump standing** event, as the **Table nr.3** shows, the statistical calculus of mean performances between initial testing ($x=148,333\text{cm}$) and final testing ($x=155\text{cm}$) at the experiment group, shows us a value of “t” of 5,657 (significant; $p < 0,001$). The same significant value is seen at the witness group.

The comparison of the results obtained by the two groups in final testing gives us a value of “t” of 1,167, a statistically insignificant difference ($p > 0,05$).

The values of the variability coefficient, of under 10%, points to us a high homogeneity at both the experiment group and witness group.

Table nr. 4

Event		Push-ups 30" (repetitions)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	19,667	22	19,111	21,333	22	21,333
	DS	1,732	2,345	1,364	1,658	2,345	1,658
	Cv	8,81	10,66	7,14	7,77	10,66	7,77
	t	8,083		10		0,696	
	p	< 0,001		< 0,001		> 0,05	

During the **trunk lifting from dorsal laid down position** event, the subjects of the experiment group obtained, between the two test an average improvement of the number of implementations with 2,33 repetitions, starting from an average value of 19,667 repetitions in the initial testing and reaching to an average value of 22 repetitions in the final testing. The value of “t” was of 8,083, thus achieving progress

at a significant value of $p < 0,001$ in this event. Within the witness group a significant difference is also recorded between the initial and the final testing. In final tests for the two groups, the difference is statistically insignificant ($p > 0,05$).

The values of the variability coefficient show us a great and mean homogeneity of the results obtained by the subjects of the two groups.

Table nr. 5

Event		Trunk extension 30" (repetitions)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	20,333	24,444	19,889	24,111	24,444	24,111
	DS	1,323	2,128	1,764	2,205	2,128	2,205
	Cv	6,51	8,70	8,87	9,14	8,70	9,14
	t	8,488		5,089		0,326	

	p	< 0,001	< 0,001	> 0,05
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In the **trunk extension** event, the subjects of the experiment group recorded a mean value of performances of 24,444 repetitions in final testing in comparison to 20,333 repetitions in initial testing and the value of “t” is of 8,488, fact that represents a statistically significant difference (**p<0,001**). At witness group a significant difference is also observed between the initial and final testing

As a consequence of the final testing and comparing the results of the two groups in this event, a value of “t” of 0,326 is obtained, a statistically insignificant difference (**p>0,05**). The values of the variability coefficient, of under 10%, point us a high homogeneity at experiment and witness group.

Comparative analysis of tests specific to motricity.

Table nr. 6

Event		Stretching the left leg at 180° in comparison to the right leg (cm)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	16,111	14	19,111	17,556	14	17,556
	DS	9,387	9,028	5,036	4,773	9,028	4,773
	Cv	58,26	64,48	26,35	27,19	64,48	27,19
	t	4,642		5,292		1,045	
	p	< 0,01		< 0,001		> 0,05	

During this event, a mean value of 14cm in final testing in comparison to 16,111cm in initial testing was noticed at the subjects of the experiment group, and the value of “t” was of 3,500 (significant; **p<0,01**). At the witness group the value of “t” calculated as a difference between initial and final testing was of 5,292 – significant difference; **p>0,001**

In the final tests of the two groups for this event a value of “t” of 1,045 is obtained, statistically insignificant difference (**p>0,05**).

By analyzing the values of the variability coefficient which has values over 20%, we can state that during this event we deal with a low homogeneity of the results obtained by the subjects of the two groups.

Table nr. 7

Event		Stretching the right leg at 180° in comparison to the left leg (cm)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	16,333	13,778	20,444	18,889	13,778	18,889
	DS	6,403	6,418	3,877	4,343	6,418	4,343
	Cv	39,20	46,58	18,96	22,99	46,58	22,99
	t	6,782		6,424		1,979	
	p	< 0,001		< 0,001		> 0,05	

During this event, as we notice in **Table nr.7**, the subjects of the experiment group achieved, between the two tests, some improvement of their performances with 2,55cm, starting from an average value of 16,333cm in initial testing and reaching to an average value of 13,778cm in final testing. The value of “t” was of 6,782 which represents a significant difference (**p<0,001**). Within the witness group, the progress

recorded between initial and final testing was also significant and the value of “t” was of 6,424 (**p<0,001**). By comparing the average results obtained in final testing by the two groups an insignificant difference is observed (**p>0,05**).

The values of the variability coefficient indicate a mean and low homogeneity of the results obtained by the subjects of the two groups.

Table nr. 8

Event		Mobility (cm)					
Group		Grupa experiment		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	4,778	3,111	6,556	5,667	3,111	5,667
	DS	2,863	2,421	5,659	4,743	2,421	4,743
	Cv	59,91	77,18	86,33	83,71	77,18	83,71
	t	2,582		1,512		1,440	
	p	< 0,05		> 0,05		> 0,05	

For the **mobility** event, the subjects of the experiment group recorded a mean value of 3,111cm in final testing in comparison to 4,778cm in initial testing, the real difference is of 1,667cm, thus registering a significant difference at the value of **p<0,05**. At witness group the value of “t” calculated as a mean difference, between the initial and final testing, was of 1,512 – a statistically insignificant difference (**p>0,05**).

At the final tests of the two groups in this event a value of “t” of 1,440 is obtained, a statistically insignificant difference (**p>0,05**).

The values of the variability coefficient indicate a low homogeneity of the results obtained by the subjects of the two groups in the mobility event.

Table nr. 9

Event		Coordination test (nr. of errors)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	3,222	2,333	3,444	3,333	2,333	3,333
	DS	0,833	0,50	0,882	0,50	0,50	0,50
	Cv	25,86	21,43	25,60	15	21,43	15
	t	4,438		0,555		4,243	
	p	< 0,01		> 0,05		< 0,001	

Within the **coordination** event, the analysis of **Table nr.9** presents some significant progress between the mean values of initial testing (3,222 errors) and final testing (2,333 errors) at the experiment group (t=4,438; **p<0,01**). At the witness group, the value of “t” is of 0,555, representing an insignificant difference (**p>0,05**).

“t” of 4,243 is achieved, a significant difference (**p<0,001**) which means that the programme developed and applied by us had a significant contribution to the training of the subjects in the experiment group

As for the variability coefficient, this indicates a low and mean homogeneity of the results obtained by the subjects in this event.

As a consequence of the final tests and of the comparison of the results of the two groups a value of

Table nr. 10

Event		Bridge position (cm)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	61	54,444	56,111	53,944	54,444	53,944
	DS	20,273	16,667	28,405	28,702	16,667	28,702
	Cv	33,23	30,61	50,62	53,21	30,61	53,21
	t	3,589		2,772		0,045	
	p	< 0,01		< 0,05		> 0,05	

Within this event, the analysis of **Table nr.10** shows us some significant progress between initial and final testing at the experiment group (t=3,589; **p<0,01**) and witness group (t=2,772; **p<0,05**).

As a consequence of the final tests and of the comparison of the results of the two groups a value of “t” of 0,045 is achieved which represents an insignificant difference for this event (**p>0,05**).

The values of the variability coefficient, of over 20%, indicate a low homogeneity of the results obtained by the subjects of the two groups.

Table nr. 11

Event		Flamingo – on the left leg (seconds)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	227,556	302,778	222,111	228,111	302,778	228,111
	DS	70,974	76,395	51,724	44,896	76,395	44,896
	Cv	31,19	25,23	23,29	19,68	25,23	19,68
	t	7,678		0,806		2,528	
	p	< 0,001		> 0,05		< 0,05	

Within the **Flamingo on the left leg** event, the analysis of **Table nr.11** shows some significant progress between the mean values of the initial testing (227,556sec.) and the final testing (302,778sec.) at the experiment group ($t=7,678$; $p<0,001$). At witness group the value of “t” is of 0,806 which represents an insignificant difference ($p>0,05$).

During the final tests of the two groups a value of “t” of 2,528 is achieved, a significant difference ($p<0,05$). This difference can be also attributed to the programme applied by us to the experiment group.

As for the variability coefficient, this indicates a low and mean homogeneity of the results obtained by the subjects in this event.

Table nr. 14

Event		Flamingo – on the right leg (seconds)					
Group		Experiment Group		Witness Group		E.G.	W.G.
Test		I.T.	F.T.	I.T.	F.T.	F.T.	F.T.
n = 9	X	236,778	280,111	226,889	231,222	280,111	231,222
	DS	58,681	48,524	37,645	40,289	48,524	40,289
	Cv	24,78	17,32	16,59	17,42	17,32	17,42
	t	4,224		0,918		2,325	
	p	< 0,001		> 0,05		< 0,05	

In the **Flamingo on the right leg** event, the subjects of the experiment group recorded a mean value of 280,111sec. in final testing in comparison to 236,778sec. in initial testing, the real difference is of 43,333sec. ($t=4,224$), thus registering a significant difference of the value of $p<0,001$. At the witness group the value of “t” was of 0,918 – a statistically insignificant difference ($p>0,05$).

The homogeneity recorded at the subjects of both groups was mean and high, at these events..

By comparing the results of the two groups in final testing, we notice that, within this event, the experiment group achieves better results than the witness group, as a consequence of our training programme efficiency ($p<0,05$).

*as for the **tests specific to motricity**, as a consequence of the obtained data, we noticed some significant progress of the indexes recorded at coordination and balance. Therefore, at the coordination test the number of errors lowered from 3,22 to 2,33 at the experiment group. This thing proves the fact that the combined means from rhythmic gymnastics, acrobatic gymnastics, aerobic gymnastics and dancing, applied to the experiment group in order to educate balance and coordination were efficient. The degree of homogeneity between the subjects during the specific events of motricity is a mean to low one

The values of the variability coefficient, situated between 10% and 30%, indicate a mean and low homogeneity of the subjects in this event.

During tests performed to establish the level of development of the joint mobility and muscle elasticity there are no significant differences and these need extra time of training in order to register some significant progress.

Conclusions

Bibliography

The hypothesis was confirmed, thus, the operational models as cheerleaders programmes partially or entirely performed with or without portable objects led to a more efficient physical education lesson, to a higher degree of attractiveness, diversity and to a higher level of participation from the students’ part.

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*as for the **level of general physical training**, from the initial testing until the final one, progress was recorded at both groups, a fact that shows that the means used to improve the general physical capacity were efficient for both groups. At final testing the comparative analysis of both groups on the same parameters reveals a lack of statistical significance.



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COMPARISON OF RECREATIONAL BEHAVIOURS OF INDIVIDUALS WITH REGARD TO DEMOGRAPHIC VARIABLES

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Abstract

Purpose

The present study aimed to determine and compare recreational behaviours of individuals with regard to some demographic variables.

Methods

The survey conducted in Ankara which is the capital city of Turkey. The questionnaire administrated 212 male (59.1%) and 142 female (40.1%) a total of 354 participants aged between 18-54 ≥. Descriptive statistics (f, %) were used to determine participation rates and types of activities in the last one year and also activities that the groups willing to try. Chi-square analysis were used to test the differences between individuals spend their leisure time with whom and marital status. X² test also used to test the differences between income level and where they spend their leisure time.

Results

The results indicated that while reading newspaper (63.7%), doing sports (40.6%) and reading books (33.5%) is the three top activities that males do, the most three top activities for females reading books (40.1%), newspaper (36.6%) and fancy work (26.1%). Walking (61.9%) is the most frequently listed of all activities that the individuals participated in the last one year and they would like to try a wide range of activities from swimming (7.1%) to horse riding (6.6%). Chi-square analysis revealed significant relationship in spend their leisure time with whom according to marital status (p<0.05). There was also a significant relationship between income level and where they spend their leisure time (p<0.05).

Conclusions

As a result, it can be concluded that participants prefer to participate recreational activities in the private sectors' facilities with the increase in their income level.

Key Words: Recreation, behaviours, leisure time, demographic variables.

Introduction

Leisure is an important aspect of individual development, family life, social relationships, and culture (J. Rubin, N.M. Flowers, D.R. Gross, 1986). Therefore it is so considerable point what people choose in their leisure time. In literature review, it is seen that many factors influence our choice of how we spend our time for leisure (G. Torkildsen, 2005). Major influences on recreation and leisure in contemporary society are the sociocultural factors of gender, sexual orientation, race and ethnicity, and socioeconomic status (R. Kraus, 2008). Reviews of the leisure time activity correlates literature identify a range of modifiable psychological, social, and environmental factors associated with recreational activity participation (A. King, et al., 1992; R.K. Dishman, 1993). Researches consistently demonstrates a strong association between socioeconomic status and leisure time physical activity participation. Socio-economic status, commonly measured by household income, educational attainment, or occupation (National Research Council, 1999). Individuals with lower levels of education, income, and occupational prestige typically report lower levels of activity (C. Iribarren, et al., 1997; U.S. Department of Health and Human

Services, 1996). However, our knowledge and understanding of the factors contributing to this relationship is limited (N.W. Burton, G. Turrell, B. Oldenburg, 2003). According to these factors this study aimed determine and to compare recreational behaviours of individuals with regard to some demographic variables.

Method

This research study was conducted with the participation of a total number of 354 participants consisting of 212 male (59.1%) and 142 female (40.1%) from Ankara.

In this study, a questionnaire form developed by researcher through searching literature (A.J. Veal, 1984; G. Cushman, 2005; I. Nilsson, A.G. Fishers, 2006) and the suggestions of instructors who studies on leisure and recreation. The data instrument consist of two part; first part was about demographic questions, second part was about leisure time-related questions.

Researchers were provided individuals with the necessary information about the purpose of the research study as well as the questionnaire used in the research. The questionnaire form was applied to the participants during November of 2009. The average time spent for application of the questionnaire to each participant was about 10-15 minutes. In the evaluation

of data before all else the questionnaire applied to the participants were checked and it was determined that 354 scales were available for use. In the phase of evaluation of data, frequency (f) and percentage (%) were calculated for the evaluation of the demographical information pertaining to the participants. Descriptive statistics were also used to determine participation rates and types of activities in the last one year and also activities that the groups willing to try. Chi-square analysis were used to test the differences between individuals spend their leisure time with whom and marital status. X² test also used to test the differences between income level and where they spend their leisure time.

Results

When the findings obtained from the study are examined, it was observed that 40.4% of participants were in the group between 18-24 years of age, 62.4% of single, 37.6% of had completed university-postgraduate education, and 41.0% of participants' income were 601-1250 € per month.

Table 1. Demographic Characteristics of Participants

Variables	f	%
Gender	Male	212 59.9
	Female	142 40.1
Age	18-24 years of age	143 40.4
	25-34 years of age	101 28.5
	35-44 years of age	56 15.8
	45-54 years of age	54 15.3
Marital Status	Married	133 37.6
	Single	221 62.4
Education	Primary education	47 13.3
	Secondary education	42 11.9
	High school	132 37.3
	University and postgraduate	133 37.6
Income	Less than 200 €	8 2.3
	201-300 €	26 7.3
	301-400 €	42 11.9
	401-600 €	78 22.0
	601-1250 €	145 41.0
	1251 € and over	55 15.5

When Table 2 is examined, it is seen that participants mostly prefer watching TV (71.8%), listening music (65.3%) and reading book-newspaper (50.7%) etc. The other activities as visiting friends and relatives, computer games, shopping, diner outside that participants prefer appear in Table 2.

Table 2. Recreational Participation Rates of Participants (Top Ten Activities)

Variables	f	%
Watching TV	254	71.8
Listening music	231	65.3
Reading Book- Newspaper etc.	179	50.7
Visiting Friends and Relatives	153	43.2
Computer Games	123	34.8
Shopping	114	32.2
Dinner outside	102	28.8
Ball related physical activities	87	24.6
Tourism activities (long vacations)	84	23.7
Picnic	79	22.3

* Each is the percentage value taken (n=354).

When the results indicated, it is determined that individuals participate several activities in last one year. In Table 3, it's shown that last one year individuals participate walking (66.0%), swimming (48.2%), football (42.5%), jogging (20.2) and trekking (16.3%) most. The other activities that individuals participate appear in Table 3.

Table 3. Leisure Time Physical Activity Participation Rates of Participants in Last 1 Year (Top Ten Activities)

Variables	f	%
Walking	219	66.0
Swimming	160	48.2
Football	141	42.5
Jogging	67	20.2
Trekking	54	16.3
Basketball	54	16.3
Volleyball	52	15.7
Biking	49	14.8
Table Tennis	35	10.5
Fishing	33	9.9

* Each is the percentage value taken (n=354).

When the results examined, it is determined that individuals would like to try and learn quite a few activities. In Table 4, the favorite activities of individuals indicated like; trying and learning different sports (18.2%), swimming (7.4%), horse riding (6.6%), mountaineering (5.5%) and paragliding (5.2%) most. The other activities that individuals would like to try exist in Table 4.

Table 4. Activities which individuals would like to try and learn

	Variables	f	%
Activities	Trying&Learning different sports	71	18.2
	Swimming	26	7.4
	Horse Riding	22	6.6
	Mountaineering	19	5.5
	Paragliding	18	5.2
	Travel the world	13	4.2
	Diving	14	4.0
	Playing an instrument	18	3.5

* Each is the percentage value taken (n=354).

When chi-square results analyzed in Table 5, statistically significant relationship indicated on spending leisure time with family related to marital status towards married individuals (p<0.05) and spending leisure time with friends related to marital status towards single individuals (p<0.05). There are

not significant relationship between groups in terms of other variables.

Table 5. Chi-square results of spending leisure time with whom related to marital status

Variables	Married		Single		p
	N	%	N	%	
Alone	18	13.5	57	25.8	.006
Family	94	70.7	66	29.9	.000
Relatives	18	13.5	29	13.1	.091
Friends	40	30.1	180	81.4	.000
Other	3	2.3	8	3.6	.047

When chi-square results indicated in Table 6 statistically significant relationship determined on the place-area that individuals spending leisure time related to income is in Public Areas-Places towards the group 1251 € and over (p<0.05) and Home-Based towards the group 201-300 € (p<0.05) and finally Natural Places towards the group Less than 200 € (p<0.05). There are not significant relationship between groups in terms of other variables.

Table 6. Chi-square results of the place-area that individuals spending leisure time related to income

	Less than 200 €		201- 300 €		301- 400 €		401- 600 €		601-1250 €		1251€ and over		p
	N	%	N	%	N	%	N	%	N	%	N	%	
	Public Areas	-	-	-	-	5	11.9	17	21.8	27	18.6	17	
Private Sector	1	12.5	6	23.1	10	23.8	18	23.1	47	32.4	26	47.3	.030
Home	2	25.0	19	73.1	25	59.5	56	71.8	63	43.4	28	50.9	.000
Naturel Areas	6	75.0	7	26.9	14	33.3	20	25.6	60	41.4	30	54.5	.003
City-Town	2	25.0	-	-	6	14.3	9	11.5	20	13.8	6	10.9	.035
Other	-	-	-	-	-	-	3	3.8	11	7.6	-	-	.064

Conclusion

The purpose of this study to determine and compare recreational behaviours of individuals with regard to some demographic variables. When the demographic findings obtained from the study are examined, it was observed that 40.4% of participants were in the group between 18-24 years of age, 62.4% of single, 37.6% of had completed university-postgraduate education, and 41.0% of participants' income were 601-1250 € per month. According to the results in this study, it is seen that participants mostly prefer watching TV (71.8%), listening music (65.3%) and reading book-newspaper etc. (50.7%) in their leisure time. The other activities were visiting friends and relatives, computer games, shopping, diner outside, ball related physical activities, tourism activities (long vacations) and picnic that individuals prefer to participate. Similar findings were found in the study (A.S. Özdemir, et al. 2006) as workers mostly prefer watching TV, listening to music, reading newspapers-magazines, playing with children and gardening among

home-based activities. Also M.E. Beck and J.E. Arnold (2009) approach in their study a similar result as families prefer TV (49.8%) and reading (20.5%) most. When the results indicated, it is determined that individuals participate several leisure time physical activities in last one year. These activities were walking (66.0%), swimming (48.2%), football (42.5%), jogging (20.2) and trekking (16.3%) most. When the results examined, it is determined that individuals would like to try and learn quite a few activities. The favorite activities of individuals indicated like; trying and learning different sports (18.2%), swimming (7.4%), horse riding (6.6%), mountaineering (5.5%) and paragliding (5.2%) most. Another activities were travel the world, diving and playing an instrument. In comparative analyses regard to marital status, statistically significant relationship indicated on spending leisure time with family related to marital status towards married individuals (p<0.05) and spending leisure time with friends related to marital status towards single individuals (p<0.05). Many



discrete and complex, and often interrelated factors, condition people's choice and participation in leisure activities. Furthermore, there are the strongest links between leisure and other elements of life. A person's age and stage in the family life-cycle, such as marriage affect opportunity and participation (G. Torkildsen, 2005). In comparative analyses regard income, statistically significant relationship determined on the place-area that individuals spending leisure time related to income is in Public Areas-Places towards the group 1251 € and over ($p < 0.05$) and Home-Based towards the group 201-300 € ($p < 0.05$) and finally Natural Places towards the group Less than 200 € ($p < 0.05$).

General Household Surveys have examined household income. They show that income levels are closely linked to participation rates, and for almost all the leisure activities they examined, the proportion participating rose with income. Even where little or no financial outlay is incurred, such as walking, participation rates were also higher (G. Torkildsen, 2005). In 1953, households with a per capita income of 50 rubles or less had 116 hours of free time a month according to a Krasnoiar study, while those with more income had 188 hours. In four of the five categories of leisure listed in the study, the consumption of leisure goods rose with income (W.M. Moskoff, 1984).

Similar finding for income as data from the United Media Study (1983) show that households with incomes of \$40,000 or more have 70% book readers, incomes of \$15,000 or less were 35% book readers (United Media Enterprises, 1983). Income is a greater cause of variation than the factors of gender, ethnicity, and age (H. Ibrahim, 1991).

In conclusion, it is seen that individuals of having different socio-demographic characteristics have different habits, choices, and needs about leisure time and recreational activities (S. Karaküçük, 2008). This is because, leisure has a subjective nature (S. Karaküçük, B. Gürbüz, 2007). Our data showed that individuals prefer to spend their leisure time with passive and home-based activities most. And also they participate the physical activities mostly walking, swimming, football, jogging and trekking instead of several extreme sports or different sports like horse riding, paragliding, mountaineering, climbing, diving etc. Although our findings also showed that individuals would like to try and learn the activities as swimming, horse riding, mountaineering, paragliding and diving most. All these results and situation showed and support the importance of leisure education, public and private leisure services and their awareness-promotion, recreational areas-centers and their accessibility and impact of income level in community leisure and recreation experiences and living.

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ASPECTS REGARDING MUSCULO-SKELETAL TRAUMAS IN COMPETITIVE ATHLETES AND FOOTBALL PLAYERS

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Abstract

The overstress imposed by competitiveness and the imbalance between the mechanical overstress and the functional resistance of the tissues are the causes of the high incidence of joint traumas in sports. The study was performed on 27 football players and 12 athletes (sprint and hurdles) from Timisoara, aged between 13 and 27 and with 4-17 years time spent in training. The study extended over a three-year period of competitions, during which the sportsmen were examined closely: Period I August 2006-July 2008 and Period II August 2008-July 2009. The musculo-skeletal traumas occurred in 11 body segments: forearm, thigh, elbow, spine, face, calf, knee, ankle, hand (palm, fist), foot and shoulder. All injured segments (N = 11) were compared against the total number of traumas per sportsmen, age groups and time spent in training, in order to reveal the age groups and longevity groups with the highest trauma incidence and the most frequently affected segments in the two periods (before and after starting the prevention exercises programme).

Purpose: To reduce trauma incidence in the sportsmen studied in 2006-2009 through the identification of the risk factors and the introduction of prevention exercises and stretching methods in the training process, during both warm-up and post-effort rehabilitation, in order to prevent injuries and increase performance in competitive sportsmen. **Results:** The results of the comparison between the injuries occurring in each body segment separately in the two periods are significant (the Z-test was used and the significance threshold was $\alpha = 0.05$). **Track and field events:** the number of **knee** traumas **decreased considerably** in the 2008-2009 period compared with the 2006-2008 period. **Football:** the number of **thigh** and **knee** traumas **decreased significantly**, while the number of **foot injuries** was significantly higher. **Conclusion:** The results of our study, validated in sports-related literature, indicate that trauma incidence is higher in athletes than in football players. Injuries occur frequently in athletes competing in technical track and field events such as hurdling.

Key words: musculo-skeletal traumas, competitive sportsmen, affected body segment.

Introduction

Traumas occur frequently in the competitive sportsman's life. The causes and the mechanisms of musculo-skeletal traumas vary with every sport.

This study deals with specific traumas in athletes and football players. *Compared with the data found in sports-related literature*, trauma incidence is very high in these sportsmen. For this reason, the authors of the study have tried to identify trauma causes and to establish methods meant to prevent injuries in sportsmen.

Athletes

The studied athletes compete in 100-200 m sprint races and 110 m hurdle races.

Track and field athletics is based on individual competition.

The short sprint (100 m and 200 m) and hurdle races (100 m and 110 m) are included among the events that require anaerobic alactacid efforts.

Sprint races are cyclic exercises. Like hurdle races, they require a short period of maximum effort. The hurdle race is primarily a technical event requiring cyclic movements of maximum intensity and short duration, and the mechanical efficiency is conditioned by stride length and frequency. (L. Mihailescu, 2005; G. Gavrilescu, M. Anton, O. Timnea, 2007; L.R. Joseph, 2000).

Football

In football, the physical factor is expressed in spontaneous alternation of maximal, submaximal and average efforts as movement abilities. Great efforts made in training and playing have cumulative effects on movements and morpho-functional abilities. Football requires a rigorous selection of somatotypes.

Of all sports, football calls for maximum aerobic effort because of the game duration and the area that the players have to cover. The musculo-skeletal system, especially the joints, is overstressed. Sudden stops and changes of direction overstress the

knee and ankle joints. Consequently injuries are quite common; ankle and knee sprains often cause meniscus or muscle ruptures, elongations, partial or total ruptures (D.V. Poenaru, P.L. Matusz, 1994; P. Rochcongar, et al., 2000).

Hypothesis

Trauma incidence in sports varies with sex, age, time spent in training and affected body segments. The authors have assumed that following a comparative study on trauma incidence in training and competitions, specific means can be selected and applied as injury prevention methods and rehabilitation therapy.

Objectives

1. To determine trauma incidence and location in the studied sportsmen;
2. to determine the main musculo-skeletal traumas varying with every sport, age, time spent in training, height, weight, BMI, the maximum number of traumas per segment and the total number of traumas in the studied periods;
3. to develop and use preventive training protocols;
4. to evaluate and compare the results obtained within the same batch and between the two batches in the two periods.

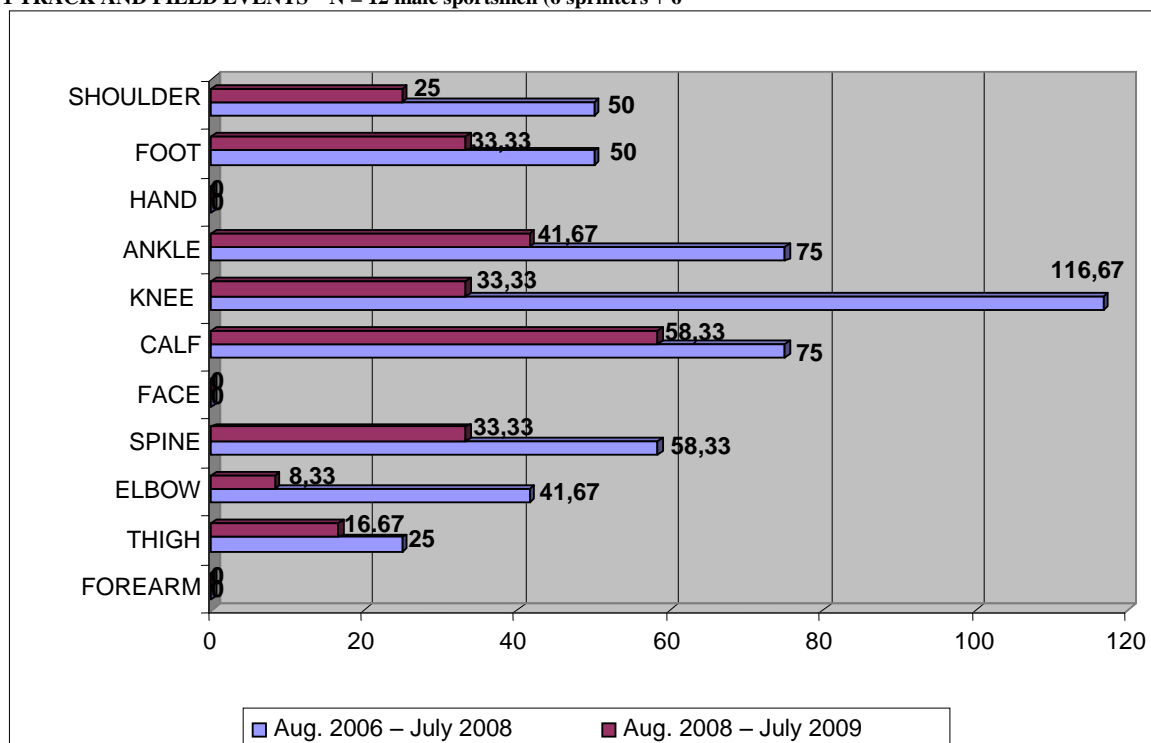
Material and method

Results

GRAPHIC PRESENTATION OF TRAUMAS ON SPORTS BRANCHES

Comparison of trauma distribution on body segments, sports branch and number of sportsmen in a branch in the two studied periods

Graphic 1 TRACK AND FIELD EVENTS N = 12 male sportsmen (6 sprinters + 6



hurdlers)

% Total traumas

The study was performed in order to obtain information on 12 athletes from the Banatul Sports High School and 27 football players from Timisoara playing in League A1 and A2, all aged between 13 and 27 and with 4-17 years time spent in training. The study extended over three years: August 1, 2006-July 2008 and August 2, 2008-July 2009.

Starting with august 2008, the sportsmen followed a complex and coherent programme of exercises focused on muscle groups and joints that are usually overstressed while training or during competitions. The exercises were chosen so as to increase muscular balance and joint mobility and to improve muscle and ligament flexibility (major factors in trauma prevention) (E.D. Mircioagă, 2009).

The following research methods were used: scientific documentation, observation, experiments, conversations, questionnaires, MRI, CT, statistic and graphic methods (E.T. Rinderu, 2005; I. Kontonopoulou, A. Xidea-Kkemeni, 2004; D. Mircioaga, 2009).

The sportsmen were monitored both while training and during competitions through video recordings, questionnaires, and observation and conversation conducted by medical sportsmen and kinetic therapy experts.

The injured sportsmen were examined clinically and imagistically (radiology, ultrasound scan and in severe traumas also MRI).

The statistical processing included:

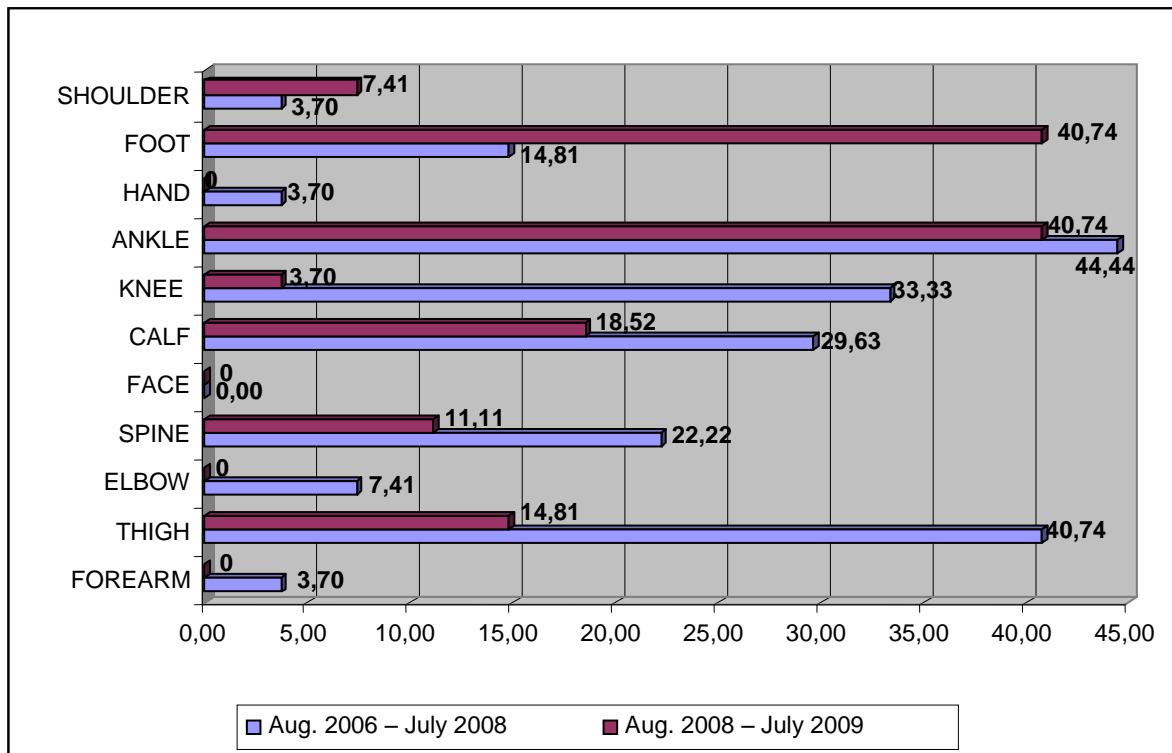
- the comparison of the average values: the "t" (Student's) test was used for pairs of independent batches and a significance (risk) level of 0.05 (5%); the "F" test was used to compare more than two batches (the ANOVA model) (A. Gagea, 1996; G.I. Mihalaş, D. Lungeanu, 1998; T. Baron, C. Anghelache, E. Titan, 1995);
- regression and statistic correlation: linear regression and the Pearson coefficient;
- the Z test.

Track and field events: the number of **knee** traumas ($p = 0.001$; $\alpha = 0.01$) **decreased considerably in 2008-2009 compared with 2006-2008.**

The comparison of the two periods revealed a decrease in the number of musculo-skeletal traumas in August 2008 – July 2009, during the systematic training programme that included stretching both as a warm-up and a post-effort exercise.

As a result of the training programme for accident prevention, the incidence of musculo-skeletal traumas in all **body**

Graphic 2 FOOTBALL N = 27 male



player

% Total traumas

Football: the number of **thigh** ($p = 0.034$; $\alpha = 0.05$) and **knee** traumas ($p = 0.007$; $\alpha = 0.01$) **decreased significantly**, while the number of **foot injuries** was significantly higher ($p = 0.034$; $\alpha = 0.05$).

The comparison of the two periods revealed a decline in the number of musculo-skeletal traumas in August 2008 – July 2009, during the systematic training programme that included warm-up and post-effort exercise.

A considerable reduction of 79.63% occurred in knee traumas as well as in thigh injuries – 25.93%. However, calf and spine injuries only decreased with 11.11%. **Foot trauma incidence increased with 25.93% among football players** (11 affected players

segments was lower in August 2008 – July 2009. The most common injuries affected the knee (93.34%), the ankle (34.33%), the elbow (33.34%), the shoulder and the spine (25%), the calf and foot (16.67%); the other segments were affected less than 10%.

It should be mentioned that the most affected body segments in the two periods were the knee, the calf, the spine and the ankle.

in the second period as against 4 in the first one). It should be mentioned that out of the 11 body segments, only the foot suffered an increased number of injuries.

The most affected segment is the **ankle**: 40.74% in the first period and 44.44% in the second. Football-related literature also indicates 31% ankle injuries. The cause of this high incidence of ankle trauma is overstress, bad football ground and returning to training before complete rehabilitation after suffering an injury.

Table 1 is a comparison of trauma distribution on body segments and sports branch in the two studied periods (the Z test was used and the significance threshold was $\alpha = 0.05$)

Comparison of trauma percentages in the two studied periods: value and significance

Table 1

BODY SEGMENTS	TRACK AND FIELD EVENTS	FOOTBALL
Forearm	0.99 ^{ns}	0.5 ^{ns}
Thigh	0.5 ^{ns}	0.034^s
Elbow	0.079 ^{ns}	0.235 ^{ns}
Spine	0.206 ^{ns}	0.233 ^{ns}

Face	0.99 ^{ns}	0.99 ^{ns}
Calf	0.332 ^{ns}	0.262 ^{ns}
Knee	0.001^s	0.007^s
Ankle	0.107 ^{ns}	0.49 ^{ns}
Hand(palm, fist)	0.99 ^{ns}	0.5 ^{ns}
Foot	0.34 ^{ns}	0.034^s
Shoulder	0.2 ^{ns}	0.49 ^{ns}

The red figures indicate significant differences, namely the number of traumas declined significantly in the second period, except for the increased foot injuries in football players ($p = 0.034$; $\alpha = 0.05$).

Track and field events: significant reduction of knee traumas ($p = 0.001$; $\alpha = 0.01$).

Football: significant reduction of thigh ($p = 0.034$; $\alpha = 0.05$) and knee traumas ($p = 0.007$; $\alpha = 0.01$), but increased foot injuries ($p = 0.034$; $\alpha = 0.05$).

Discussions

The overtraining imposed by competitiveness and the imbalance between the mechanic overstress and the functional resistance of the tissues are the causes of the high incidence of joint traumas in the studied batches

Track and fields events

Each track and field event is typical in nature and affected body segments.

Accident incidence is higher than in football, as shown in our study and confirmed in the athletics-related literature, according to which most lesions occur in athletes, especially in hurdlers (22, 25, 30).

In track and field events, the most common injuries are tendinitis and muscle and joint traumas.

Frequent traumas in sprinters and hurdlers:

Sprint:

- sprains, strains, tendon and muscle lesions: at ankle and knee joint caused by overstress
- muscle lesions: contraction, strains and partial or total ruptures that affect leg muscle groups, thigh and calf;
- tendon lesions: tendinitis, tenosynovitis, enthesitis, ruptures;
- lumbar pains: caused by overstress while training and faulty executions;
- enthesitis occurs in inferior limb insertions

Hurdles:

- wounds, contusions and haematomas after frequent falls caused by hitting the hurdle with the lead leg and the trailing leg;
- ankle and knee sprains caused by faulty jumps over the hurdle and faulty landing;
- fractures of the upper and lower limbs due to falling after hitting the hurdle with the lead or trail leg;
- overstress fractures of the pushing leg;

The comparison of the two periods revealed reduced trauma incidence in both batches in August 2008-July 2009, during the systematic training

- shoulder, elbow: sprains and tendinitis; the risk of shoulder injuries is higher in hurdlers than in sprinters. This is caused by faulty hurdling technique (falling on the hand after jumping) and improper training;
- accidents caused by overtraining, insufficient rehabilitation, joint or tendon overstress;
- Most traumas affected the lower limbs: knee and ankle sprains, meniscus ruptures; shoulder separations
- Muscle injuries: contraction, strains and partial or total ruptures that affect leg muscle groups, thigh and calf
- Lumbar pains: caused by overstress while overtraining and faulty executions
- Enthesitis occurs in inferior limb insertions
- Achilles tendonitis is caused by overstress, overtraining, large number of games and poor grounds.
- TIBIO-TARSAL traumas (ANTERIOR SYNDROME OR FOOTBALLER'S ANKLE). According to the football-related literature, this is a rare syndrome (7% after Cabot, 18% after Commandre, quoted by Dan V. Poenaru et al. in *Traumatologie sportiva*, 3, 4, p. 42); the footballer experiences pain in the anterior ankle at the beginning of the warm-up, when he hits the ball or sprints.

Knee traumas occurred during contact with the adversary or in players with previous injuries and persistent instability (joint laxity) and insufficient rehabilitation measures.

Conclusions

Knowledge of trauma and the identification of its causes, prevention and rehabilitation are the key to future competitiveness.

Overstress accidents in the studied batches were reduced as a result of the trauma prevention programme that included joint exercises, massage, stretching, and exercises to increase muscle strength

Track and field events: the number of **knee** traumas ($p = 0.001$; $\alpha = 0.01$) **decreased considerably** in the second period (2008-2009).

Football: the number of **thigh** ($p = 0.034$; $\alpha = 0.05$) and **knee** traumas ($p = 0.007$; $\alpha = 0.01$) **decreased significantly**, while the number of **foot injuries** was significantly **higher** ($p = 0.034$; $\alpha = 0.05$), programme that included warm-up and post-effort exercise.



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EFFECT OF UJJAYI PRANAYAMA ON SELECTED PHYSIOLOGICAL VARIABLES

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Abstract

Introduction: Today yoga is being a subject of varied interest, gained world popularity. Recent research trends have shown that it can serve as an applied science in a number of fields such as education, physical education and sports, health and family welfare, psychology and medicine also one of the valuable means for the development of human resources for the better performance and productivity however their exist controversy in accepting yoga as medicine and therapy because it generally been believed that yoga is a spiritual science having emancipation as its goal and hence cannot be treated only as a therapy.

Purpose of Study: to investigate the effect of Ujjayi Pranayam on the selected physiological variables among female students studying in Bachelor of Physical Education degree at Lakshmibai National Institute of Physical Education, Gwalior.

Hypothesis: It was hypothesized that there will be a significant improvement in the selected physiological variables on the female students studying in Bachelor of Physical Education degree at Lakshmibai National Institute of Physical Education, Gwalior.

Research Methods and Procedures: 30 female students studying in Bachelor of Physical Education degree at Lakshmibai National Institute of Physical Education, Gwalior, India were selected randomly as the subjects for the study. Random group design was used for the purpose of the present study. First the subjects were divided into two equal groups by drawing a lot. Group “A” acted as experimental group and Group “B” acted as Control group. Both groups consist of fifteen subjects each. Prior to the administration of test pre test scores for all the selected variables were collected. After eight weeks of training post test scores were collected on each of the selected variables. Experimental group perform Ujjayi pranayam daily for 30 minutes. No training was imparted to the control group. To investigate the effect of Ujjayi Pranayam on selected physiological variables Analysis of Co Variance was used at .05 level of significance. For the purpose of the analysis of data Software SPSS for Windows (11.5 Version) and Microsoft Excel was used.



Results, Discussions and Conclusions: The analysis of co-variance was used to find out the effect of ujjayi pranayama on female students of B. P.E., Lakshmibai National Institute of Physical Education. It was observed that there was no significance difference in Resting Respiratory Rate, Blood Pressure, Vital Capacity, Maximum Breath Holding Time, Peak Flow Rate and Cardio Vascular Endurance. There was significant difference in Resting Heart Rate and Resting Pulse Rate. It was observed from the above findings that eight week training programme of Ujjayi Pranayama was found to be effective in case of Resting Heart Rate and Resting Pulse Rate where as it was not effective in case of Resting Respiratory Rate, Blood Pressure, Vital Capacity, Maximum Breath Holding Time, Peak Flow Rate and Cardio Vascular Endurance. In case of Resting Heart Rate findings of the present study was supported by Mertan where he concluded that during Ujjayi breathing without retention of breath the cardiac output increases while heart rate decrease in comparison to deep breathing of similar time reaction for inspiration and expiration. The characteristics features of Ujjayi are expected to be responsible for this effect.

Key words: ujjayi pranayama, Physical Education, Cardio Vascular Endurance

Introduction

Today yoga is being a subject of varied interest, gained world popularity. Recent research trends have shown that it can serve as an applied science in a number of fields such as education, physical education and sports, health and family welfare, psychology and medicine also one of the valuable means for the development of human resources for the better performance and productivity however their exist controversy in accepting yoga as medicine and therapy because it generally been believed that yoga is a spiritual science having emancipation as its goal and hence cannot be treated only as a therapy. Yoga has its own way of strengthening the weak part of the body. Research in the field of yoga have established that the yogic Asana, pranayam and Kriyas are the best and useful as they help not only to strengthen each organ and develop every muscle of the body but also regulate the circulation of body blood, purity of lungs, inspire the mind and thus develop the harmonious development of human personality. A variety of Yogic practices are being done by top sportsman/ Olympian athletes of many countries like Brazil, Argentina, Poland, Germany, Canada etc. as a form of conditioning or relaxation exercise. Pranayam is science of respiration. The author of Hatha Pradipika gives eight varieties of Pranayam, one of which is Ujjayi. The chief characteristics of the Ujjayi Pranayam is the Loud noise produces, as will be seen in the technique, by partial closer of the Glottis. This Pranayam is called Ujjayi to distinguish it from other varieties or congtore is rendered to able, when we take into consideration the two following effects; first the prefix vd occurring in the name Ujjayi means aloud. Second Ujjayi, a variant reading noticed by Bhramananda in his commentary on Hatha Pradipika, actually means pronounced loudly. Pranayam include the circulation of blood and capable of producing very high pressure in the lungs and in the thorax. Pranayam is the one of the first exercise for a weak heart and weak lungs. If its physiology is properly known and if it is judiciously administered exercise is cap[able of giving wonderful results.

High abdomen pressure created in Pranayam by action and counter action of the different anatomical

parts together with the upward area is responsible for awakening of kundalini.

Purpose of the study

The purpose of the study was to investigate the effect of Ujjayi Pranayam on the selected physiological variables among female students studying in Bachelor of Physical Education degree at Lakshmibai National Institute of Physical Education, Gwalior.

Hypothesis

On the basis of literature reviewed, research finding and scholar's own understanding of the problem it was hypothesized that there will be a significant improvement in the selected physiological variables on the female students studying in Bachelor of Physical Education degree at Lakshmibai National Institute of Physical Education, Gwalior

Methodology

For the purpose of present study 30 female students studying in Bachelor of Physical Education degree at Lakshmibai National Institute of Physical Education, Gwalior, India were selected randomly as the subjects for the study.

Experimental design

Random group design was used for the purpose of the present study. First the subjects were divided into two equal groups by drawing a lot. Group "A" acted as experimental group and Group "B" acted as Control group. Both groups consist of fifteen subjects each. Prior to the administration of test pre test scores for all the selected variables were collected. After eight weeks of training post test scores were collected on each of the selected variables. Experimental group perform Ujjayi pranayam daily for 30 minutes. No training was imparted to the control group.

Selection of variables

Following variables were selected for the purpose of present study:

1. Resting Heart Rate
2. Resting Pulse rate
3. Resting Respiratory Rate
4. Vital capacity
5. Breath Holding Time
 - i) Positive Breath Holding

- ii) Negative Breath Holding
 - 6. Peak Flow Rate
 - 7. Blood Pressure
 - i) Systolic Blood Pressure
 - ii) Diastolic Blood Pressure
 - 8. Cardiovascular Endurance

Collection of data

Data were collected by administering tests on the Bachelor of Physical Education degree students in the college premises. The practice trial in each test as per the prescription was ensured to each subject before the actual testing. This was done to familiarize the subjects with the nature and the demand of test. The use of apparatus was explained to them prior to the administration of test.

Statistical procedure

To investigate the effect of Ujjayi Pranayam on selected physiological variables Analysis of Co

Variance was used at .05 level of significance. For the purpose of the analysis of data Software SPSS for Windows (11.5 Version) and Microsoft Excel was used.

Results and findings

Data were collected on thirty subjects belonging to two group i.e. one experimental and one control group to study the effect of Ujjayi Pranayam on selected physiological variable. The subjects were divided into two equal groups consisting of fifteen subjects each belonging to one experimental and one control group. Experimental group A was exposed to Ujjayi Pranayam and Control group B was not exposed to any Pranayam. Experimental group practiced for eight weeks. Data was analyzed using the Analysis of covariance at .05 level of significance. The subjects of both groups were compared on selected physiological variables. The results of analysis of covariance were presented through table 2 to 10.

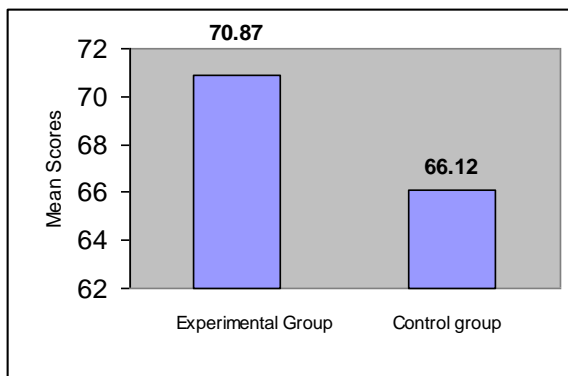


Fig. 1 Post Test Adjusted Means of Resting Heart Rate Pulse Rate

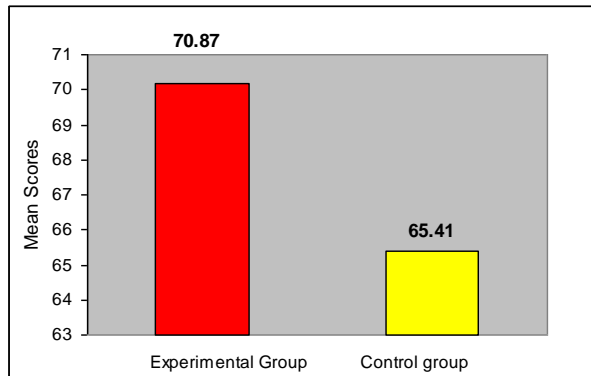


Fig. 2 Post Test Adjusted Means of Resting Respiratory Rate

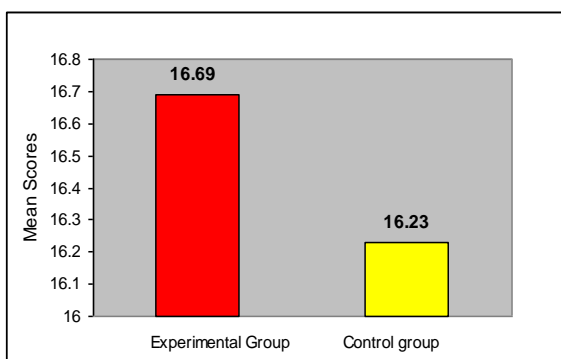


Fig. 3 Post Test Adjusted Means of Resting Respiratory Rate

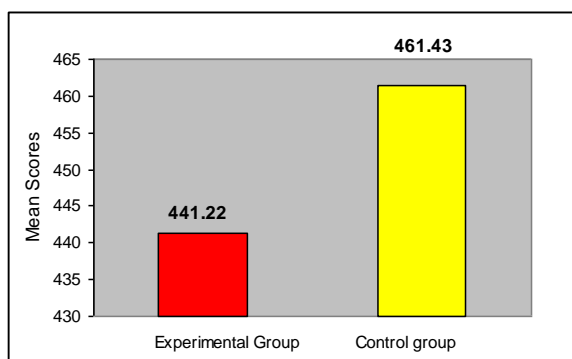


Fig. 4 Post Test Adjusted Means of Peak Flow Rate

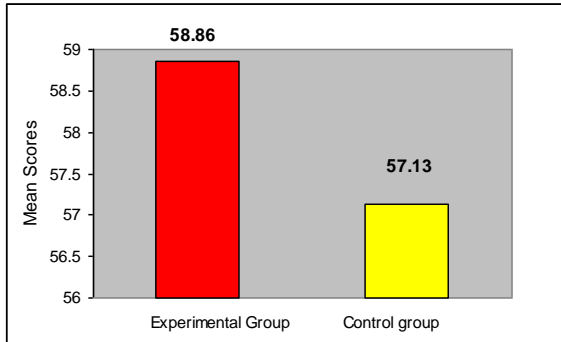


Fig. 5 Post Test Adjusted Means of Maximum Breath Holding (Positive)

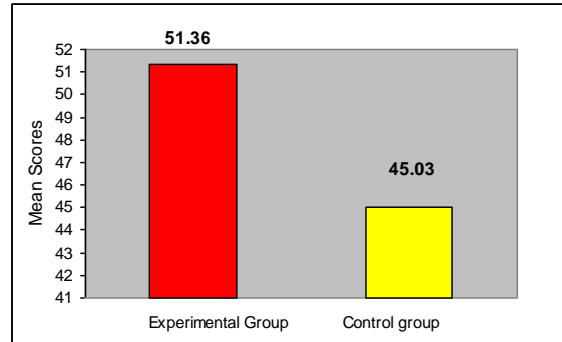


Fig. 6 Post Test Adjusted Means of Maximum Breath Holding (Negative)

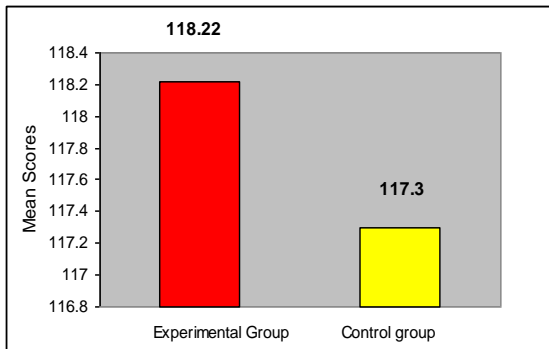


Fig. 7 Post Test Adjusted Means of Systolic Blood Pressure

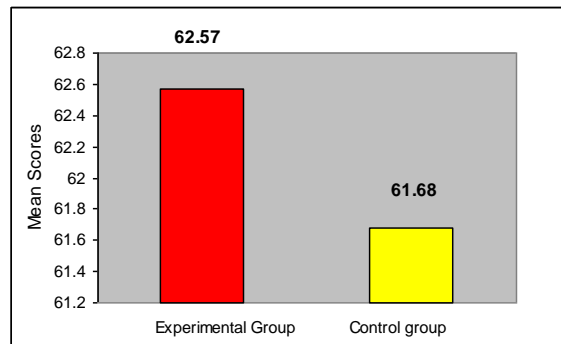


Fig. 8 Post Test Adjusted Means of Diastolic Blood Pressure

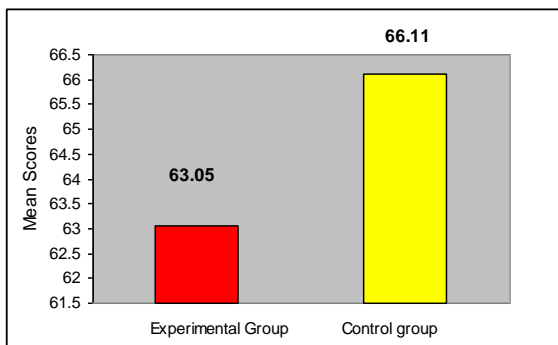


Fig. 9 Post Test Adjusted Means of Cardiovascular Endurance

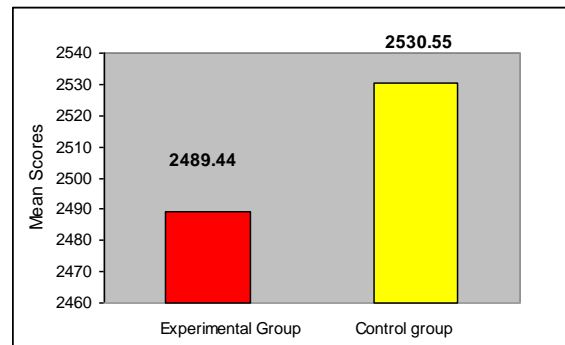


Fig. 10 Post Test Adjusted Means of Vital Capacity

Table – 2. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR RESTING HEART RATE

S. No.	Test	Groups		df	Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B				
1.	Pre Test Means	71.933	69.933	A	1	30	.617
				W	28	1361.85	
2.	Post Test Means	71.2	65.8	A	1	218.703	5.285
				B	28	1158.79	
3.	Adjusted Post Test Means	70.872	66.128	A	1	165.125	4.405
				B	27	1012.07	

Table – 3. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR RESTING PULSE RATE

S.	Test	Groups	df	Sum of	Mean Sum	F Ratio
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No.		Experimental	Control			Squares	of Squares	
		A	B					
1.	Pre Test Means	71.467	69.6	A	1	26.141	26.141	0.512
				W	28	1429.32	51.047	
2.	Post Test Means	70.467	65.133	A	1	213.328	213.328	5.463
				W	28	1093.46	39.052	
3.	Adjusted Post Test Means	70.186	65.414	A	1	167.742	167.742	4.696
				W	27	964.389	35.718	

Table – 4. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR RESTING RESPIRATORY RATE

S. No.	Test	Groups		df		Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B					
1.	Pre Test Means	18.6	19.00	A	1	1.2	1.2	0.084
				W	28	399.6	14.271	
2.	Post Test Means	16.6	16.3	A	1	0.533	0.533	0.052
				W	28	284.934	10.176	
3.	Adjusted Post Test Means	16.696	16.237	A	1	1.578	1.578	0.222
				W	27	192.104	7.115	

Table – 5. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR PEAK FLOW RATE

S. No.	Test	Groups		df		Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B					
1.	Pre Test Means	394.667	436.667	A	1	13230	13230	1.553
				W	28	238556	8519.875	
2.	Post Test Means	427.333	475.333	A	1	17280	17280	2.524
				B	28	191666.5	6845.232	
3.	Adjusted Post Test Means	441.229	461.438	A	1	2901.938	2901.938	.898
				B	27	87214.398	3230.163	

Table – 6. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR MAXIMUM BREATH HOLDING (POSITIVE)

S. No.	Test	Groups		df		Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B					
1.	Pre Test Means	47	44	A	1	67.5	67.5	.382
				W	28	4946	176.643	
2.	Post Test Means	60.46	55.53	A	1	182.531	182.531	.655
				B	28	7801.469	278.624	
3.	Adjusted Post Test Means	58.862	57.13	A	1	22.006	22.006	0.277
				B	27	2143.543	79.390	

Table – 7. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR MAXIMUM BREATH HOLDING (NEGATIVE)

S. No.	Test	Groups		df		Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B					
1.	Pre Test	40.067	45.6	A	1	229.633	229.633	.328

	Means			W	28	19610.535	700.376	
2.	Post Test Means	49.867	46.533	A	1	83.328	83.328	.289
				B	28	8085.469	288.767	
3.	Adjusted Post Test Means	51.369	45.031	A	1	297.772	297.772	3.49
				B	27	2303.527	85.316	

Table – 8. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR SYSTOLIC BLOOD PRESSURE

S. No.	Test	Groups		df		Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B					
1.	Pre Test Means	115	112.667	A	1	40.812	40.812	.323
				W	28	3543.34	126.548	
2.	Post Test Means	118.867	116.667	A	1	36.312	36.312	.547
				B	28	1859.062	66.395	
3.	Adjusted Post Test Means	118.228	117.305	A	1	6.331	6.331	.214
				B	27	798.715	29.582	

Table – 9. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR DIASTOLIC BLOOD PRESSURE

S. No.	Test	Groups		df		Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B					
1.	Pre Test Means	58.467	61.533	A	1	70.531	70.531	1.568
				W	28	1259.469	44.981	
2.	Post Test Means	61.667	62.600	A	1	6.539	6.539	.192
				B	28	952.930	34.033	
3.	Adjusted Post Test Means	62.578	61.689	A	1	5.619	5.619	.299
				B	27	508.060	18.817	

Table – 10. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR CARDIOVASCULAR ENDURANCE

S. No.	Test	Groups		df		Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B					
1.	Pre Test Means	52.807	61.880	A	1	91.875	91.875	2.038
				W	28	1262.14	45.07	
2.	Post Test Means	56.307	67.287	A	1	219.250	219.250	2.316
				B	28	2650.58	94.664	
3.	Adjusted Post Test Means	63.053	66.114	A	1	65.527	65.527	0.849
				B	27	2083.90	77.182	

Table – 11. ANALYSIS OF COVARIANCE OF THE MEANS OF THE EXPERIMENTAL AND CONTROL GROUP FOR CARDIOVASCULAR ENDURANCE

S. No.	Test	Groups		df		Sum of Squares	Mean Sum of Squares	F Ratio
		Experimental A	Control B					
1.	Pre Test Means	2183.33	2546.66	A	1	990080	990080	6.522
				W	28	4250672	151809.714	
2.	Post Test Means	2333.33	2686.66	A	1	936320	936320	6.504
				B	28	4030672	143952.571	
3.	Adjusted Post Test Means	2489.442	2530.55	A	1	10269.562	10269.562	0.311
				B	27	891871.188	33032.266	

Discussion of findings

The analysis of co-variance was used to find out the effect of ujjayi pranayama on female students



of B. P.E., Lakshmbai National Institute of Physical Education. It was observed that there was no significant difference in Resting Respiratory Rate, Blood Pressure, Vital Capacity, Maximum Breath Holding Time, Peak Flow Rate and Cardio Vascular Endurance. There was significant difference in Resting Heart Rate and Resting Pulse Rate. It was observed from the above findings that eight week training programme of Ujjayi Pranayama was found to be effective in case of Resting Heart Rate and Resting Pulse Rate where as it was not effective in case of Resting Respiratory Rate, Blood Pressure, Vital Capacity, Maximum Breath Holding Time, Peak Flow Rate and Cardio Vascular Endurance. (M.M. Gore, 1984, M.A Wenger, B.K. Bagchi, 1996). In case of Resting Heart Rate findings of the present study was supported by Mertan where he concluded that during Ujjayi breathing without retention of breath the cardiac output increases while heart rate decrease in comparison to deep breathing of similar time reaction for inspiration and expiration. The characteristics features of Ujjayi are expected to be responsible for this effect. Other observation made by the scholar could not be supported by other researcher. More over the duration of training period was 8 weeks might be too short period for bringing any significant change in Resting Respiratory Rate, Maximum Breath Holding Time, Blood Pressure, Vital Capacity, Peak Flow Rate and Cardio Vascular Endurance. Under these circumstances the scholar is unable to give appropriate reason for above observation of the study & more in depth study is needed to find out the cause effect of Ujjayi Pranayama on selected physiological variables. (S.V. Devanand, 1959; J. Mertan, M.V., Bhole, 1979; P.V. Karambelkar, R.R. Deshapande, M.V. Bhole, 1983; G. Shankar, N.P. Giri, 1995)

Discussing of hypothesis

In case of Resting Heart Rate and Resting Pulse Rate, hypothesis that there will be a significant improvement in selected physiological variable was accepted. In case of Resting Respiratory Rate, Maximum Breath Holding Time, Blood Pressure, Vital Capacity, Peak Flow Rate, Cardio Vascular Endurance, hypothesis that there will be a significant improvement in selected physiological variable was not accepted.,

Conclusions

1. There was a significant difference in the Resting Heart Rate which revealed that there is a significant effect of the eight week training programme of Ujjayi Pranayama on female students of B.P.E.
2. There was a significant difference in the Resting Pulse Rate which revealed that there is a significant effect of the eight week training programme of Ujjayi Pranayama on female friends of B.P.E.
3. There was no significant difference in the Peak Flow Rate which revealed that the eight week training programme of Ujjayi Pranayama was not effective in this variable.
4. There was no significant difference in the Blood Pressure which revealed that the eight week training programme of Ujjayi Pranayama was not effective in this variable.
5. There was no significant difference in the Maximum Breath Holding Time which revealed that the eight week training programme of Ujjayi Pranayama was not effective in this variable.
6. There was no significant difference in the Cardio Vascular Endurance which revealed that the eight week training programme of Ujjayi Pranayama was not effective in this variable.
7. There was no significant difference in the Vital Capacity which revealed that the eight week training programme of Ujjayi Pranayama was not effective in this variable.
8. There was no significant difference in the Resting Respiratory Rate which revealed that the eight week training programme of Ujjayi Pranayama was not effective in this variable.

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Requirements for the elaboration of the scientific papers (2009-2012)

Structure of the experiment type paper:

- the title of the paper will be written with Majuscules, Times New Roman, Size 12, Bold, Align Left;
- the names of the author or authors of the research will be written with Times New Roman, Size 10, Bold, Majuscules, Align Left, one line under the title of the paper;
- under the author's name, the department /departments and institution / institutions it is e-mail address for the corresponding author;
- the source of the material support in the form of the GRANTS not more than 40 characters including spaces if need be, with Times New Roman, Size 10, Align Left;
- the Department name, institution name, contact address email *can be* as footnote;
- Abstract, Key words, Introduction, Methods, Results, Discussion, Conclusions, References.

Abstract

The structured abstract and 3-5 key words will be written with Times New Roman, Size 10, Justified.

The abstract must not contain more than 150 words for unstructured abstracts essay type and 200-400 words for structured abstracts experiment type. The abstract must be elaborated in English language. In the abstract there will be no abbreviations used.

The structured abstract for **the experiment type paper** must contain:

- the aim / purpose / object of the research;
- 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;

The aim, purpose, object, methods, results, discussions, conclusions and key words have to be written bold and minuscule.

Introduction

Procedures and methods of research (subjects, applied tests)

Results

Discussion

Conclusions

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.

Author's name has to be written with bold and majuscule (eg. **SMITHOSCKY, M.,2011**)

Structure of the essay type paper:

- the title of the paper will be written with Majuscules, Times New Roman, Size 12, Bold, Align Left;
- the names of the author or authors of the research will be written with Times New Roman, Size 10, Bold, Majuscules, Align Left, one line under the title of the paper.
- under the author's name, the department (/departments) and institution / institutions) it is e-mail address for the corresponding author.
- the source of the material support in the form of the GRANTS not more than 40 characters including spaces if need be, with Times New Roman, Size 10, Align Left.
- the Department name, institution name, contact address email *can be* as footnote.
- **the unstructured abstract and 3-5 key words** will be written with Times New Roman, Size 10, Justified;
- **the introduction and the object of the research, the content, the conclusions** will be written with Times New Roman, Size 10, Justified, two columns;
- the **bibliography** will be written with Times New Roman, Size 10, two columns, First Line Indent 0cm, Hanging Indent 1cm, Left Indent 1cm. **The names of the papers/ articles will be written in italics.**

For the abstract - essay type paper

- the aim/object of the research;
- 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

Variables	Feminine subjects n=21	
	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.

Diagrams illustrations)

The diagrams must be numbered in the lower part, in succession in the order of the first text quoting, followed by a conclusive and succinct title, preceded by the unusual abbreviations used in the diagram or other observations.

Measurement units

Measuring the length, height, weight and volume must be expressed in metric units meter-m, kilogram- kg, liter- l, second- s, or decimal multiples). The temperature must be measured in Celsius grades °C), and the arterial pressure in mmHg. Other measurement units must be expressed in the International Units System SI).

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;
- the technical help in a separate paragraph called "Other contributions");

Bibliography/References

Bibliography and text quoting

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.

In the text, the quotations will have the following structure:

- a) for one and/or two authors
 - at the end of the phrase T.S. Keller, and A.L. Roy, 2002);
 - 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..."

Generally, for magazines, the bibliography will have the following structure:

NAME OF THE AUTHOR- AUTHORS year of publication), Title of the article, Magazine, number of the volume yearly number the number of the supplement part): number of pages.

- a) standard magazine article
- b) organization as an author
- c) no author
- d) volume with a supplement
- e) number with supplement
- f) volume with part
- g) number with part
- h) number without volume
- i) no volume and number
- j) pages in roman numbers
- k) indicating the type of article if it is necessary

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.

For **books** the bibliography will have the following structure:

- a) personal author s)
- b) editor s) as author s)
- c) organization as author or the one that publishes



- d) chapter in a book
e) license degree paper, dissertation or PhD. Thesis.

RISTARU, M., 2005, *The influence of pliometry on the muscular development at the lower limbs level* [dissertation]. Constanta, The Faculty of Physical Education and Sport.

For **unpublished materials but in the course of publication**), the bibliography will have the following structure:

For the **electronic materials**, the bibliography will have the following structure:

- a) article in electronic format
b) computer program

Sending the manuscripts in electronic format

For the review of a research paper or a better organization of the research papers volume by the scientific board, the author (authors) will have to send a copy in electronic format (ASCII) in the format Word Microsoft Office. The papers in Romanian will be written with diacritical signs in the format (Romanian Legacy) of the computer keyboard. Also, the operating system used (Microsoft Windows XP, Microsoft Vista) and the processing program of the text (Microsoft Office XP, Microsoft Office 2003, Microsoft Office 2007) will be mentioned.

The evaluating/self-evaluating grid for the quality of the research paper by the reviewer/author s)

The evaluating/self-evaluating grid for the quality of the research paper by the reviewer/author s)		
1	The originality of the research theme	15 points
2	The quality of the research paper structure	5 points
3	The clarity and quality of the research hypotheses elaboration	10 points
4	The quality of the registration of the results and their presentation	10 points
5	The clarity and quality of the discussions directly linked to the results with reference to similar studies	10 points
6	The clarity and quality of the elaboration of the conclusions in accordance with the hypotheses of the paper	10 points
7	The applicability of the results found in the practical and scientific practice	10 points
8	The accuracy of the in text and bibliography quoting	10 points
9	The clarity and quality of the expression in the text	10 points
10	Strictly respecting the elaboration technical requirements	5 points
Total		100 points

Based on these reasons, the article will receive from the reviewers' board a number of points. A number lower than 60 will lead to the rejection of the article, between 60 and 90 points the article will suffer certain changes from the point of view of the structure, expression in the text, etc. in order to receive the accept for publication, and over 90 points the article will receive the accept for publication, after small changes in the elaboration (if the case may be).

The review of the article will be objective, clear and strictly formulated, in accordance with the **technical and scientific request for the elaboration of the scientific papers**, without discrediting the author(s) of the article (manuscript).

The review process

Step 1

The article must be sent in electronic format or on any media format (CD-ROM, etc), in English (Abstract in English), through electronic mail at the address contact@analefeffs.ro, alternative address: gevatcecilia@yahoo.com, or at the mailing address: Cpt. Av. Al. Serbanescu, no.1, Constanta, Romania, RO-900470 Tel./ Fax. +40 241 640 443 or 004 077 136 1179

Step 2

The article deposited for publishing must be accompanied by a short personal presentation and a professional CV, no more than 120 words, that must contain the detailed contact address, including phone number, fax number (if it exists) and the e-mail.

Step 3

At least two members of the Editorial Collective and of the Scientific Board will initially analyze the article and will nominate at least two reviewers to analyze the article in detail.

Step 4



The article will be officially analyzed by at least two reviewers with expertise in the thematics of the article deposited for publication. The article will receive a number of points from the reviewers' board.

Step 5

The articles that follow over 90 points) the scientific and technical standards for elaboration will be included into the waiting list for publication. The articles that need certain modifications between 60 and 90 points) will be returned with the reviewers' observations, for their modification by the author s). The articles that do not accomplish the minimum scientific and technical requests for elaboration 60 points) will be rejected by the reviewers' board.

Step 6

The articles will be included on the waiting approval) list for publication.

Step 7

After the approval, the article will be published in the magazine, and the author s) will receive a free copy of the magazine.

Deadlines for handing in the articles

Two numbers of the journal will be published per year and a supplement for number 2 of the journal in that year.

The deadline for handing in the articles for the first number of the magazine is 6th January, for the second number of the magazine is 15th of June and for the supplement of the magazine is 30 September. Based on the number of articles handed in, the Editorial Collective and the Scientific Board will be able to postpone the publishing of an article in a future number of the journal.

Publishing / subscription taxes

The publishing fee is 10 euros just for online journal)

For purchase a number of the journal the fee is 15 euros for 2009, 2010, 2011 year)

For purchase a number of the journal the tax is 5 euros 2001-2010)

For subscription 3 annual numbers of journal 2011) the fee is 25 euros