



IDENTIFY THE PHYSICAL ABILITIES OF 11-12 YEARS OLD STUDENTS FROM MIDDLE SCHOOL

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Abstract

The purpose of this transversal experiment is to identify the development level of physical abilities of 25 boys and 25 girls of 11-12 years old from middle school of Constanta, Romania and Johannesburg, South Africa and to see if there are significant differences regarding the physical abilities between these students groups within our research.

Methods. The assessment of the development of the physical abilities was achieved through a series of test which examined the time during the 50mp event, long jump with run up event, throwing the little ball (oina) and 800m event. 75 girls and 75 boys aged 11-12 years were divided into three groups: the experiment group of Constanta, Romania (E girls, E boys) and 2 control groups for girls and boys (C₁ African children of German origin and C₂ children of African origin), both groups of Johannesburg all were tested in the 50mp event, long jump with run up, throwing the little ball (oina) and 800m events. The results were statistically processed through the One Way ANOVA Independent groups and Post ANOVA TUKEY HSD test.

Results. At boys the analyses of One Way ANOVA Independent groups and Post ANOVA TUKEY HSD test for 50mp, have shown insignificant differences between all groups. At long jump with run up One Way ANOVA Independent groups and Post ANOVA TUKEY HSD test revealed significant differences between E-C₁ and E-C₂ groups in favor of group E. In the throwing the little ball (oina) event, the significant differences were between E-C₁ and C₁-C₂ groups in favor of C₁. At 800 m event analyze of ANOVA shows value significant between E-C₁ in favor E group and between C₁-C₂ there are significant differences in favor of C₂ groups and insignificant differences between E-C₂ groups.

Girls: ANOVA test relieved for time in seconds at 50m speed running insignificant differences for all groups. There are different significant for Long jump run up between E-C₂ groups insignificant differences between E-C₁ and C₁-C₂ groups. For little ball (oina) there are significant differences value for E-C₁ in favor for C₁. At 800m event are significant differences between C₁-C₂ in favor for C₁ group, also is significant difference between E-C₁ in favor of E group.

Conclusions. The Romanian girls (E) registered high results long jump events then African students of German origin group C₁ and African Students C₂. The significant differences between group E and C₁-C₂ can be explained for long jump run up only regarding higher level for acquiring of technical preparing..

For Little ball (oina) African students of German origin group obtained higher results then C₂ and E groups and conclusions is explosive power for arms are more better to C₁. For 800 m events C₂ group are the best results then E and C₁ and this difference can be explained only by origin human (black students).

At boys groups the Romanian group obtained the best performance for long jump run up and 800m. At little ball throwing the best results are for African students of German origin group. All this differences can be explained by very different curriculum in Romania against South Africa in Johannesburg city.

Key words: physical abilities, students, middle school.

Introduction

Today, the way of looking to physical education in developed countries is having a healthy society with the good harmony of education. Constantly changing and developing events and technology have begun to have an impact on individuals.

The function of education here is to provide qualified manpower in the society against this effect. As it is known, qualified manpower requires being physically, mentally and spiritually healthy. This can be done by multi-faceted motion and physical training, which forms basis and principles of physical education. With this regard, physical education takes its own place in the integrity of education (M. Yalçmer, 1992, 65 quoted by O. Pepe et al, 2011). In Romania "physical

education is an important component of global education.

Through its specific content and through its systemic influences on the people, both are one of a path to general education in motricity physically, intellectually, emotionally and aesthetically plan". Also "Physical education is education through movement". Physical Education content is adapting our behavior to move. Exercises are ways to improve driving ability. Their technique is not important. Important is man who using exercise (A. Dragnea et al, 2006.)

Quantum contribution of school physical education conducive to areas of key competences of compulsory education in Europe and implicitly in Romania, all leading to redefine the discipline

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model.(P. Dragomir, E.Scarlat,2004.).

For the area in physical education and sport in Romania are provided two hours per week and another hour per week as an optional extension character. Extending hour as an optional extension is granted only to classes that have chosen them having own own schedule.

The curriculum provides a framework of best practice for physical education in middle school. One of all students from elementary school in Romania Romania has 4 hours of physical education per week: 2 compulsory and one lesson is optional extension and the forth lessons is for preparation of sport team of school.(E. Scarlat, B. M. Scarlat, 2006).

For curriculum on 5-6 degree contents as athletics test:50m speed running, long jump with run up, throwing with little ball and 600m for girls /800m boys. .(E. Scarlat, B. M. Scarlat,2006).

Principles of educational training process in physical education and sports training are: educational principles, learning principles, principles athletic training, dynamic exercise, training invisible.(DE Colibaba, 2007).

The drastic changes in the place and status of Physical Education in the South African school curriculum has followed much the same route as that of Physical Education in England, the U.S.A. and Australia. After being officially dropped from the South African curriculum in 1994, Physical Education was only recently reinstated as a quarter-part of the subject Life Orientation. (S. Pill, 2006.). Physical activity is a vital part of a healthy lifestyle and has been linked to a reduced risk of developing a wide variety of diseases, as well as been found to promote psychological wellbeing, reduce stress, anxiety, depression and promote social interaction and integration.(US, Department of Health and Human Services quoted by , I. Gorgut et al, 2012).

Methods

75 girls and 75 boys aged 11-12 years were divided into three groups for girls and three groups for boys: the experiment group of Constanta, Romania (E

girls, E boys) and 2 control groups for girls and boys (C₁ African children of German origin and C₂ children of African origin both groups of Johannesburg). All of them groups were tested in: 50mp event, long jump with run up, throwing the little ball (oina) with 3running steps and 800m events.

All subjects were informed about the aims of this study. Romanian groups are from elementary school (Constantin Bratescu College from Constanta). Africans groups are from Germany Elementary School, Johannesburg. The results from Johannesburg was collected by Claudia Jeffries, head of Sport Department in September, last week before holiday October, 2011.

The results from Constanta were collected from Cristina Popescu, physical education and sport teacher, during the lessons of physical education, 2011, 3-9 October.

Subjects measurements were on the concrete and grass land from every school. It was normal sports equipment for physical education lesson for all subjects. The tests consist in following events: 50m-free departing running, long jump with run up, (from two jumps was taken into consideration the best result, throwing the little ball (oina) and from two throwing was taken into consideration the best result and the last 800m events.

The age and height averages of the subjects of girls experimental groups were: Romanian girls n=25: 139±6,2 cm, weight 31 ±7,2 kg; African girls n=25: 142±3,8cm, weight:39,4±5kg;Africans girls German origin, n=25:140,4±5cm, weight 41,3±4kg;respectively for boys groups: Romanian n=25: 138±8,4 cm, weight 33 ±4,4 kg; Africans n=25:140±5,6cm,weight:35,4±4,2kg;Africans German origin, n=25: 143,4±4cm, weight 38,1±3kg.

Hypothesis: We believe that among the three groups both girls and boys there are significant differences in all four samples.

Results

The results were statistically processed through the One Way ANOVA Independent groups and Post ANOVA TUKEY HSD test. (SSPESS v.9.1)

Table no. 1 Results Anova boys groups

Parameters			
50mp			
Boys groups	M±SD	CV %	Anova
Ro (E)	8.769±1.846	21.051	F(2;7)=0.319
SA (C ₁)	9.396±3.947	42.007	p>0.05
SA (C ₂)	9.036±2.071	22.919	
Long jump run up			
Ro (E)	3.677±0.608	16.535	F(2;7)=4.384
SA (C ₁)	3.296±0.491	14.897	P<0.05
SA (C ₂)	3.307±0.441	13.335	
Little ball			
Ro (E)	24.8±5.194	20.944	F(2;7)=4.373
SA (C ₁)	29.792±6.698	22.483	P<0.05
SA (C ₂)	28.2±6.191	21.954	
800m			
Ro (E)	3.127±0.263	8.411	F(2;7)=1.584



SA (C ₁)	3.624±0.545	15.039	P<0.05
SA (C ₂)	3.31±0.259	7.825	

Table no.2. Critical Tukey HSD Value

Boys groups	50MP	Long jump run up	Little ball	800m
	insignificant	3.15;p<0.05	4.34;p<0.05	0.258;p<0.05
E- C ₁	-	0.381;p<0.05	4.992;p<0.05	0.497;p<0.05
E-C ₂	-	0.37;p<0.05	3.4;p>0.05	0.183;p>0.05
C ₁ - C ₂	-	0.011;p>0.05 ω ² =0.082=8.2%	1.592;p<0.05 ω ² =0.084=8.4%	0.314;p<0.05 ω ² =0.211=21.1%

At boys the analyses of One Way ANOVA Independent groups (tab. no 1) and Post ANOVA TUKEY HSD test for 50mp,(tab. no.2) have shown insignificant differences between all groups for F(2;7)=0.319,p>0.05. (tab.no.1)

At long jump with run up One Way ANOVA Independent groups and Post ANOVA TUKEY HSD test revealed significant differences between E-C₁ and E-C₂ groups in favor of group E and between groups C₁- C₂ is insignificant differences.

Value of F(2;7)=4.072 for p<0.05 it is higher than the F critical value 0.254 for P< 0.05.(tab.no.1) Post ANOVA TUKEY HSD test shows significant differences between E-C₁ and E-C₂ groups for P<0.05 and value of 0.332. (tab. no 2)

At the throwing the little ball (oina) event, the significant differences were between E-C₁ and C₁-C₂ groups in favor of C₁ and insignificant differences between E-C₂. F (2;7)=4.373 is higher than the Fcritical value =4.34;p<0.05 value. tab.no.1)

At 800 m event analyze of ANOVA shows F(2;7)=1.584 P<0.05is higher than F critical value 0.258 p<0.05. (tab.no.1)

Post ANOVA TUKEY HSD test has value significant difference for 0.497 at p<0.05 between E-C₁ in favor E group and between C₁-C₂ value is 0.314 at p<0.05 with significant differences in favor of C₂ groups and insignificant differences between E-C₂ groups. (tab. no 2)

Tab. no.3. Results Anova girls groups

Parameters			
50mp			
Girls groups	M±SD	CV %	Anova
Ro (E)	8.638±0.735	8.50	F(2;7)=2.192
SA (C ₁)	8.9±0.85	9.51	p>0.05
SA (C ₂)	9.091±0.709	7.799	
Long jump run up			
Ro (E)	3.21±0.293	9.128	F(2;7)=4.072
SA (C ₁)	2.995±0.498	16.628	p<0.05
SA (C ₂)	2.921±0.289	9.894	
Little ball			
Ro (E)	16.38±2.599	15.867	F(2;7)=5.761
SA (C ₁)	19.88±5.441	27.227	p<0.05
SA (C ₂)	18.392±2.455	13.348	
800m			
Ro (E)	3.581±0.397	11.086	F(2;7)=1.535
SA (C ₁)	3.529±0.732	20.742	P<0.05
SA (C ₂)	3.982±0.614	15.419	

Table no.4 Critical Tukey HSD Value

Girls Groups	50MP	Long jump run up	Little ball	800m
	insegnificant	0.254; p<0.05	2.556;p<0.05	0.406;p<0.05
E- C ₁	-	0.215;p>0.05	3.6;p<0.05	0.052p>0.05
E-C ₂	-	0.289; p<0.05	2.012;p>0.05	0.401p>0.05
C ₁ - C ₂	-	0.074;p>0.05 ω ² =0.076=7.6%	1.588;p>0.05 ω ² =0.113=11.3%	0.453p<0.05 ω ² =0.025=2.5%

Girls: ANOVA test relieved for time in seconds at 50m speed running (t_s) F (2;7)=2.192p>0.05. insignificant differences.(tab.no.3)



There are different significant for Long jump run up $F(2;7) = 4.072$ where $F_{critical}$ is 0.254 at $p < 0.05$. (tab.no.3). Significant differences are between E-C₂ groups where Critical Tukey HSD value is 0.289 at $p < 0.05$ and insignificant differences between E-C₁ and C₁-C₂ groups.

There are insignificant differences between C₁-C₂ subjects groups. (tab.no.4) Critical Tukey HSD Value there is 0.074. C₁-C₂ and for respectively E-C₁ 0.215 (tab.no.4).

For little ball (oina) $F(2;7) = 5.761$ at $p < 0.05$ and there are significant differences value for E-C₁ where Critical Tukey HSD value 3.6 at $p < 0.5$ in favor for C₁. There are insignificant differences between C₁-C₂ subjects groups. (tab.no.4) Critical Tukey HSD Value there is 1.588. (tab.no.4).

At 800m event are significant differences between C₁-C₂ in favor for C₁ group for Post ANOVA TUKEY HSD test = 0.406; $p < 0.05$; where $F(2;7) = 1.535$ for $p < 0.05$ which is higher than $F_{critical} = 0.258$ at $p < 0.05$. Also is significant difference between E-C₁ in favor of E group. (tab. nr 3,4). ω^2 is better for little ball at girls (tab.no.4) and bore better at 800m event for boys. (tab.no.2).

where Critical Tukey HSD value 3.6 at $p < 0.5$ in favor for C₁. There are insignificant differences between C₁-C₂ subjects groups. (tab.no.4) Critical Tukey HSD Value there is 1.588. (tab.no.4).

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Results

Study results show no major differences between girls groups or boys groups. For 50m speed running for all the groups is insignificant difference. So, reserve rate for speed running at this age is the same regardless of ethnicity.

For long jump Romanian girls and boys registered better results. Maybe Romanian curriculum is better then African curriculum regarding technical capacity of children at all of the physical education lessons.

At little ball German groups girls and boys are better. For 800m also girls' group German origin are better and for boys Romanian group.

Regarding African curriculum, D. Du Toit, N. Van der Merwe, 2006, consider "The drastic changes in the place and status of Physical Education in the South African school curriculum has followed much the same route as that of Physical Education in England, the U.S.A. and Australia. After being officially dropped from the South African curriculum in 1994, Physical Education was only recently reinstated as a quarter-part of the subject Life

Orientation. As with any reform effort, this positive step on the road of child health may bring with it certain challenges for the developed as well as developing communities of South Africa. The purpose of the study was to investigate the hindrances and challenges for schools in developed and developing communities of South Africa, and to then make recommendations for both the optimal implementation of Physical Education, and for future teacher training in Physical Education."

ME. Finkenberger, JM Di Nucci. consider in study from 1995, for three-way multivariate analysis of variance was conducted with gender, ethnicity, and age as the independent variables and nine physical measurements as the dependent variables.

Height was the most important discriminating physical measurement, with girls significantly taller than boys at ages 10 and 11 and with boys significantly taller than girls at age 13.

Canonical discriminant function separated African from American, children from both Caucasian and Hispanic children in height, weight, mile run, systolic blood pressure, and diastolic blood pressure. MA Monyeki et al, 2005, was to determine the relationships between the body composition characteristics, body mass index (BMI), sum of skinfolds (SSF), % body fat (%BF), fat-free mass (FFM) and waist-to-hip ratio (WHR), and nine physical fitness items in undernourished rural primary school children in Ellisras, South Africa. Significant inverse associations were found between FFM and bent arm hang (girls, $B = -0.06$, $P = 0.05$), 1600 m run (girls, $B = -2.33$, $P = 0.003$) and 50 m run (boys, $B = -0.11$, $P = 0.006$). FFM was significantly associated with standing long jump (boys, $B = 0.99$, $P < 0.001$; girls, $B = 0.73$, $P < 0.001$).

In the present study in undernourished children, body composition was significantly related to physical fitness, but not always in the expected direction. It is therefore important to note that in this population, BMI should not be interpreted as a measure of fatness/overweight, but rat.

H Singh, D S Joon, and K Kooner, 2005, in their study was conducted on 294 north Indian boys of 9-16 years of age. The boys were studying in a sports school and were doing systematic sports training twice a day.

The following tests were conducted on the subjects: Standing broad jump, standing shot put (4 kg), 40 m sprint, zig-zag run, forward bend and reach and endurance run. The results indicated that the spurt in height, weight and motor abilities of Indian boys is less pronounced than in boys of Europe and America.

ME. Armstrong, EV. Lambert, MI. Lambert 2011, in their study measured using 8 different motor tests for 10,295 South African children and youths (5,611 boys, 4,684 girls) ages 6 to 13 years.

Although not significantly different from the White children, in the majority of cases, in the majority



of cases, the children mixed ancestral origin had scores that ranged between the other two ethnic groups.

These results suggest a need for encouraging fitness in school children and the reintroduction of formal physical education into the South African school curriculum, especially into schools in which African children predominate.

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CH .HILMAN et al quote by Y.lida, et al 2010, showed that in "children higher aerobic fitness was associated with higher behavioural performance and P300 latency in a discriminative task for 7-12 years old children.

Buck et al, 2008, quote by Y. Iida et al 2010, reported a positive correlation between aerobic fitness and performance on the Stroop task. To examine such potential influences of physical fitness on cognitive functioning, it is important to understand the developmental changes underlying such behavioural and cognitive functions."

Conclusions. The Romanian girls (E) registered high results long jump events then African students of German origin group C₁ and African Students C₂. The significant differences between group E and C₁- C₂ can be explained for long jump run up only regarding higher level for acquiring of technical preparing.

For Little ball (oina) African students of German origin group obtained higher results then C₂ and E groups and conclusions is explosive power for arms are more better to C₁. For 800 m events C₂ group are the best results then E and C₁ and this difference can be explained only by origin Africans human.

At boys groups the Romanian group obtained the best performance for long jump run up and 800m. At little ball throwing the best results are for African students of German origin group. All this differences can be explained by very different curriculum in Romania against South Africa in Johannesburg city.

References

- ARMSTRONG, ME., LAMBERT, EV., LAMBERT MI, 2011, Physical fitness of South African primary school children, 6 to 13 years of age: discovery vitality health of the nation study. Percept Mot Skills.** 2011 Dec;113(3):999-1016.
- COLIBABA, D. E, 2007, Praxiologia si proiectarea curriculara in educatie fizica si sport,** Edit.Universitaria, Craiova, 2007, pp 180.
- DRAGNEA A. ET ALL, 2006 Educatie Fizica si sport - Teorie si Didactica,** Edit. FEST Bucuresti, pp: 8,9,10

DRAGOMIR, P., SCARLAT, E. 2004, Educatia fizica scolara, Edit. Didactica si Pedagogica pp.15

DU TOIT, D. N. VAN DER MERWE, .P. ROSSOUW, J.P., 2006, The Return of Physical Education in the South African School Curriculum: Challenges for Schools in Developed and Developing Communities Oral presentation at The learning conference, Sam Sharpe Teachers & Montego Bay College, Montego Bay, Jamaica, 22-25 June.

FINKENBERG, ME., DI NUCCI, JM., 1995, Age, ethnic and gender differences in physical fitness of middle-school children in east Texas. Percept Mot Skills. 1995 Apr;80(2):387-93

GORGUT, I., GULLU, M., CIHAD, G., 2012, Comparison coping ways of athletes and sedentary, Ovidius University Annals, Series Physical Education and Sports / Science, movement and health, 2012, (2):72-77

IIDA, J., MIYAZAKI, M., UCHIDA, S., 2010, Developmental changes in cognitive reaction time of children aged 6-12 years, European Journal of Sport Science, May 2010; 10 (3): 151-158

MONYEKI, MA, KOPPEL, LL, KEMPER, HC, MONYEKI, KD, TORIOLA, AL, PIENAAR, AE, TWISK, JW. 2005, Body composition and physical fitness of undernourished South African rural primary school children. Eur J Clin Nutr. 2005 Jul;59(7):877-83.

PILL, S., 2006, The traditional pedagogy of physical education has been positioned as one of the contributors to an often problematic experience of learning. Journal of Physical Education and Sport © 2011, 11(2), pp.5

SCARLAT, E., SCARLAT, B. M., 2006, Indrumar de educatie fizica scolara, Edit. Didactica si Pedagogica, R.A ,Bucuresti, pp.9-10

SINGH, H., JOON, D. S. and KOONER, K., 2005, Development of motor abilities of trained Indian boys of 9-16 years of age, Br J Sports Med. 1987 June; 21(2): 34-35.PMCID: PMC1478424

US, DEPARTMENT OF HEALTH AND HUMAN SERVICES. Physical activity guidelines for Americans. Hyattsville, MD: Author, 2008.