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The comparison of physical related readiness factors with health between urban and rural students of guidance and high-school

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ABSTRACT

The main aim of the study was to compare the factors of physical-related readiness with health between boy students of guidance and high schools in urban and rural areas. This research is descriptive- comparative in which its statistical sample is 925 people from all guidance and high-schools of Borazjan and its suburbs which selected randomly as a cluster. The variables of body mass index [BMI], the rate of subcutaneous fat, the power of hand muscular paws and the level of physical readiness with health were measured. The data with independent t-test, single variance analysis in the significant level P≤ 0.05 with spss16 software was assessed. The result of BMI in guidance school [P=0.188], high school [P=0.58]. The degree of subcutaneous fat in guidance school [P=0.209], high school [P=0.198], guidance school flexibility [P=0.956], high school [P=0.077], running 540^{m} in guidance school [P=0.39], sit and reach [P=0.0398] and the muscular power of right hand paws in high school [P=0.214] were obtained which they had not significant differences towards each other, but the squash test in guidance school [P=0.004], corrected bar fix in both guidance and high schools [P=0.000], muscular power of right hand paws in guidance school students [P=0.003], showed significant differences [P<0.05]. Generally, achieving physical activities of rural students, due to their life style and the lack of mechanism in that area, have better conditions than urban areas.

Key words: Physical readiness [fitness], subcutaneous fat, body mass index, power.

INTRODUCTION

The world health organization has defined the physical fitness as the ability of performing muscular work potentially [15]. Physical fitness is basically defined as the high potential ability of a person to perform body daily activities without feeling any exhaustion in this regard [12]. Mechanism and the development of life wealth and facilities have changed the mankind tendency towards the nature. So, today we observe many different diseases due to this lack of body movement. Laziness and self-indulgence and avoidance of any physical activities has caused to the emergency of different muscular- skeletal. Asymmetric, bone pains and respiratory-cardiac diseases and so on [2]. Arabpour (1997) compared the physical fitness of second year high-school students in sari city and its suburbs. He concluded that, the rural students were superior in stretching machine, running 540^{m} and the degree of body substances fat but there was no found any differences in sit and reach [1]. Moharramzadeh et al (2000) compared the physical fitness level of male and female students of Urumieh University; it's found that all male tests have the greatest scores than female students; All items were superior in males expect flexibility but the rest factors such as the power, muscular

endurance and explosive power were predictable [13], Also, in another research conducted by Mirkazemi et al. (2001), they compared the physical fitness of first-year girl high-school in Birjand city with the present norms and they observed that the students of Birjand city have the best records in sit and reach, running 540 m, running 409 m in compare to national and provincial records but in humping test they had obtained lower record in both national and provincial records? In addition, in stretching machine test, they had the same level in three groups which the mean was in the lowest rank in each three group [10]. Gaieeni et al. (2001) carried out a study about the comparison of physical fitness in male and female students ranging from 9-17 year old in all over the country and its national norms of four stretching machine test as sleeping mood, squash, running 540m and flexibility 82% in level $P<0.05$ were significant. About 47% the significance was for national norm, 53% also was defined for provincial sample [7]. Also, Khajui (2002) carried out a research on the fourth and fifth graded students of Bushehr, Mazandaran, Esfahan, East and west Azerbaijan and found that the primary school students whose not have physical training teacher are more weaker in terms of respiratory- cardiac, abdominal muscles, feet muscles and speed (in 5% error level) abilities than those students whose have sport partner [9]. In a research by Fazelifar (2004), he evaluated the comparison of physical fitness of boy students ranging from 11-13 year old of Amol city. According to the findings of the study, it is obvious that an increase of age lead to the recovery of boys record; based on the research results, the boy students of Amol city have the lowest fitness in terms of motion speed, shoulder girdle muscles and cardiovascular endurance than the mean fitness in provincial and national record while they were in favorable rate in the abdominal muscles endurance [5]. Moggadasi et al. (2010) carried out a comparison of gain-weight, obesity and physical fitness prevalence in the adolescents of Shiraz city. Finding representing that the prevalence of obesity and gain weight among Shiraz adolescents have been increased in compare to other areas of the country; since, the negative relationship between the physical fitness and the percent of fat mass observed, thus achieving sport activities for youngsters have been emphasized to lose their obesity and gain-weight strongly [11]. Barbanti (1982), compared physical fitness in the U.S and Brazilian high-school students, and concluded that the U.S students are taller and heavier than Brazilians; of course, they were superior in terms of subcutaneous fat thickness than their U.S opponents [23]. Based on Velensky research (1985), through applying squash tests, swimming on a long session, the physical endurance of 1819 people ranging from 20-80 year old was studied and compared in Lodez, Katvis, Bell-shato industrial town, Lobline and Salki village of Poland country; generally the records of these tests were subjected to bell industrial town and suburbs [11]. Also, in a research by Lenhard (1992), the level of physical fitness related to the health conditions of 5-9 year old children was assessed in Min state of the U.S and they concluded that the students of the min state were superior than AAPHERD scores in terms of running 1600^{m}, squash 1 min and bending the tip of fingers to toes [12]. In Hang et al. [1998] that conducted on the health programs of Hong-Kong and China students, they concluded that Hong-Kong and China have two different economical methods in urbanization and industry. It seems that with development of lifestyle standards, the sport of adolescents must be focused strongly [13]. According to another research by Liliyana et al. (2007) on 14619 men and women ranging from 40-75 year old, it is specified that gain-weigh among men and women is higher in low social-economical status in compare to better socio-economical level. Also, it is showed that the obesity does not have relationship with social-economical status while the physical activity and diet have positive connection with socio-economical status [10]. Gill et al. (2010) in a research on 100 students (50 urban girls and 50 rural girls) in Panjab University compared the features of physical fitness among girl students belonged to urban and rural areas. The obtained data were analyzed and assessed efficiently. Finally, the rural girls were superior in terms of power, endurance and agility but the urban girls were heavier and superior just in flexibility [9]. During the history of the mankind, power and physical endurance along with brevity were the most essential factor of success in the life [18]. Also, the movement is one of the most important life agents in which plays a key role in the growth of motion and mental functions [9]. The adolescents' physical fitness is a basically important role that guarantees the health of people in the community. Increasing body efficiency can be governed just by move mental activities and physical training and the department of physical training should provide supplementary programs to raise the prosperity of sport programs [8, 14]. Achieving physical fitness test in many industrial countries particularly in advanced countries have shown the fact that the lack of agility and movement due to mechanism life styles made the future generation in a high-risk atmosphere [15]. The decrease of physical activities is increasingly appearing in the world. Although we have not profited the main elements of the science yet, but we have exposed to the prevalence of many different disease due to the lack of movement and physical activities. The lack of this movement has caused many abnormalities such as obesity, cardiovascular and respiratory disruptions and lung traumatic capacity leading to directly and indirectly different risky disorders in our life [6]. Therefore, physical activity is a coherent part of our life related to the health, and the lack of body activity endangering us to different diseases [4]. Regular base activity is an effective factor in development of positive self- confidence conducting our ability, independence and perseverance [23, 3, 4]. Thus, it is obvious that due to the mechanism life style, the activity of young people has been decreased than the past [24]. Therefore been decreased than the past [4]. Therefore, the present study is to compare many factors related to the physical fitness and health among boy students of rural and urban areas.

MATERIALS AND METHODS

This study is descriptive. The statistical community of the study is the all rural and urban students of Dashtestan town, Boushehr province that they were randomly selected as a cluster group based on Morgan table including 331 guidance school students, 140 rural guidance school students, 331 urban high-school students and 123 rural high-school students. In order to measure the physical fitness factors related to the health of the subject, the AAPHERD physical evaluation scale along with the measurement of paws muscular power, the percent of subcutaneous fat, and BMI was applied efficiently [14]. Respiratory-cardiac endurance, the obtained time in ranging 540m (ranging ten times around volleyball pitch per second) were considered as cardiac-respiratory fitness record. The endurance of abdominal muscles, the numbers of the tests completed by the subjects for 1 min are considered as the score of participants in this study. The flexibility is being considered as greatest score for centimeter which performed by the subjects in squash test. Moreover, this is a positive record of the subjects in this regard. The endurance of shoulder girdle, the greatest number which the subjects performed in the stretching machine test as sleeping position is considered as the subjects' record. The degree of subcutaneous fat, the degree of fat in back-arm and under shoulder areas were obtained by the subjects as the subcutaneous fat index. To measure the subcutaneous fat layer, the caliber is always kept in the hand, and then we take the chin with the left hand (thumb and point finger) and with three other fingers as bended mood. Measuring without cloth and form the right side of the body, two times measurements were recorded for millimeter [mm]. If the first and second times measurement had two millimeter difference, the third measurement would be done, and then we record the mean 2 or 3 as follows:

Men= 0.43 **(**back arm skim thickness) + 1.47 (Subcutaneous thickness)

The paws muscular power, the highest force which the subjects perform it for the first time by their paws into dynamometer (per kg or pound as the subject paws power in the study. The body mass index [BMI], the weight of students was carried out and registered by the use of an accurate scale with the lowest cloths, 'also, the weight of these students as standing was measured as the following formula:

BMI= Weight (Kg)/Height^2 (M)

The evaluation and analysis of data was carried out using t-test in independent groups to compare the single variance analysis in the significance level P<0.05.

RESULTS

Table 1. General features of the subjects

Research group	Number of samples	M±SD AGE [year]	M±SD Height [m]	M±SD Weight [Kg]
Urban guidance	331	12.7±0.9	1.540.9±0.1	47.180.9±14.01
Rural guidance	140	13.130.9±1.02	1.540.9±0.09	45.390.9±12.13
Urban high-school	331	16.020.9±0.66	1.690.9±0.07	61.920.9±13.43
Rural high-school	123	16.220.9±1.51	1.680.9±0.07	60.480.9±13.64

Table 2. Description data of statistical community

Variables	Grade	Criteria error difference	Means difference	Degree of freedom	P
Running 540m	**Guidance**	3.414	2.934	469	0.391
	High-school	3.155	-0.492	452	0.876
Sit and reach	**Guidance**	1.186	-3.452	469	*0.004
	High-school	1.069	0.904	452	0.398
Corrected stretching	**Guidance**	0.832	-3.393	469	*0.000
	High-school	0.872	-3.318	452	*0.000
Flexibility	**Guidance**	0.775	-0.043	469	0.956
	High-school	0.945	-1.673	452	0.077
Right paws power	**Guidance**	0.885	-2.669	469	*0.003
	High-school	1.157	-1.441	452	0.214
Percent of subcutaneous fat	**Guidance**	0.567	0.714	469	0.209
	High-school	0.712	0.917	452	0.198
BMI	**Guidance**	0.887	1.169	469	0.188
	High-school	0.442	0.242	452	0.585

The results of t-test showed that the physical fitness related to rural students' health is better than urban students in terms of dome factors and their difference was significant:

Squash in guidance grade (P= 0.04), stretching machine in guidance grade (P=0.000), stretching machine in high school grade (P=0.000), and the right hand paws power in guidance school (P=0.003).

DISCUSSION AND CONCLUSION

The results of the study indicate that the mean age of the rural students in both guidance and high school is higher than urban students. It seems that the lack of educational facilities and knowledge of students family members caused students not to be active in the class setting which it is matched to the result of Arabpour (2000) [1]. The obtained results in this research showed that the mean height of rural and urban students had not any differences in both guidance and high school grades. The result of the present study is not match to Arabpour (1988) and Barbarti's (1982) [1, 8]. The result of the study represent that the mean weight of urban student is higher than the mean of urban students. it seems that the lack of agility and living into an apartment as well as consuming greasy and fatty foods are the main reason of urban students gain-weight than rural areas which is matched to Arabpour's research (1988) Barbati (1982) and Gill (2010) [1, 10, 2].

PHYSICAL FITNESS FACTORS

Running 540m: The obtained results of the present study show that the urban and rural student don't have any significant differences together; it seems that the lack of the sports partners attention towards the physical fitness related to the health is the main reason of the results; which is not matched to Arabpour's research (1997), Mirkazemi (2001) and Gill,M (2010) [1, 10, 2].

Sit and reach: the obtained results showed the significant difference in guidance grade; It seems that lose weight of rural students than the urban student is the main difference which is matched to the Mirkazemi's (2001), Khajoui's (2001) and Gil (2010) researches [10, 9, 2], but it does not adapt to Velensky's research (1997) [11]. Stretching machine: the result showed that there is a significant difference between rural and urban students in both education grades. It seems that because the under research village have many date-lands, this has led students to have very strong shoulder girdle and this can be the priority reason in this regard which is matched to Fazelifar's (2009) and Gill's researches (2010) [10, 5], but it Gaeeni's (2001) researches [10, 7]. Flexibility: It this research there is no found any significant difference between rural and urban students. It seems that due to sitting back into TV and computer for long times has caused these results which is matched to Gaieeni's (2001) and Gill's researches (2010) [7, 2].

The power hand paws muscles: There is a significant difference between the rural and urban students in both guidance grades; It seems that, based on the physical activity of rural students participating in agricultural affairs made their hand paws strong which it is not matched to Moharramzadeh's (2000) research [12], but it is matched to the research of Arabpour (1997), Gill (2010) [1, 10].

The present of body subcutaneous fat

The research indicated that there is a significant difference among the present body subcutaneous fat and rural and urban students. It seems that the productive life is changing to consumptive life cycle in rural areas and villages mostly prefer to eat fatty and greasy foods.

Which is mated to Mirkazemi's (2001), Moggadesi's (2010) and Gill et al. [2010] research but no matched to Arabpour's research (1997) [1].

Body mass index [BMI]

The result showed that there is no any significant difference in both educational grades. It seems that the lack of agility and the use of machineries such as bikes and automobiles for going and coming to school in village areas as well as eating fast foods and frozen meals are the main reasons of these results. This result is matched to Moggadasi research (2010) [11], but does not match to Arabpour's (1997) and Gill's [2010] researches [1, 2]. According to the result of the research, it can be represented that doing physical activities of rural students depend on the life styles and the lack of move mental actions and other physical fitness factors related to health. Regular based physical activity and having favorable physical fitness is representing the health signs; In this regard it can be a question whether the urban and rural people different together physically or no. The results of the research show that the mean weight of urban students is higher than rural students; it seems that the lack of agility and living in to apartments as well as eating fatty foods are the main reasons of urban students gain weight than rural districts. Again, it seems that the lack of attention by sport partners in rural areas and the transportation of rural areas by many different ways have been increasing which the reason is the lack of running 540 m in this regard. The significant difference in Sit and reach test in guidance grade is for rural students; it seems that lose-weight and student participation in agricultural affairs are two reasons for this difference. The participation of rural student in

the harvest season of the date has led them to have strong shoulder girdle; it seems that the significance reason of stretching test in both educational grades is the same topic in this regard.

In the flexibility test, there is no found any significant difference among rural and urban students in both educational grades. It seems that due to the use of the computer and T.V for a long time in leisure times has caused to these results. There is significant difference among the urban and rural students of guidance grade in measuring the power of hand paws especially for the profit of the rural students. It seems that, as mentioned before, participation in the date harvest and maintenance especially carrying heavy baskets can be this priority among rural students than urban. Also, there is no significant difference in the degree of the body subcutaneous fat; it seems that productive life cycle gradually is changing to consumptive life and villagers mostly prefer to use fast food than the past; of course, it may be due to the economical deficiency in rural areas. There is no observed any significant difference in terms of BMI in both educational grades among rural and urban students. It seems that the lack of agility and using different transportation machineries as well as fast foods and frozen dishes are the main reason for not being significance in BMI.

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