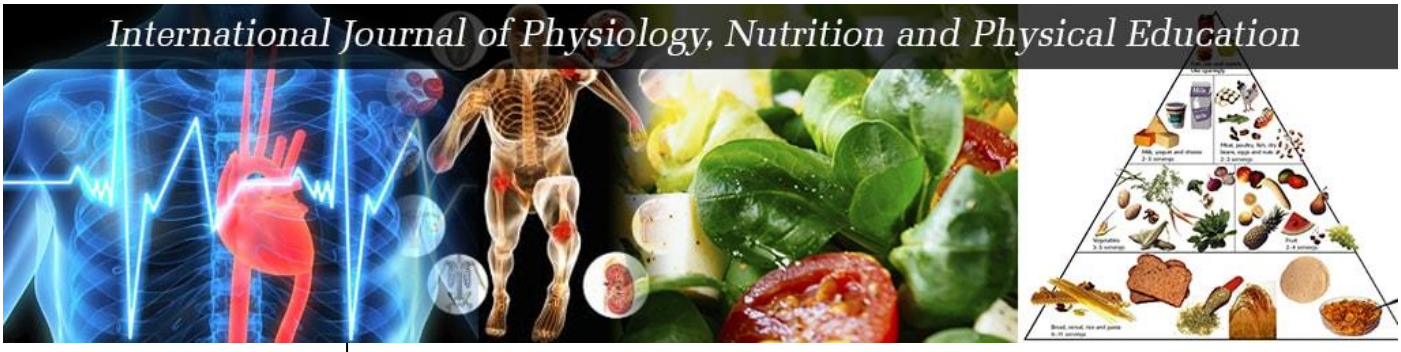

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An assessment of eight hundred metres run endurance among different age group players

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Abstract
From a physiological perspective, it is clear that the shorter middle-distance events have large anaerobic and aerobic endurance contributions (especially the 800m and 1500m), due to the large aerobic component required for success, despite the high running velocity which must involve significant anaerobic energy (Brandon, 1995; Snell, 1990). The aim of present study is to compare the various games players on the basis of age groups with regard to their Eight hundred meters run endurance. To accomplish the study, purposive sampling technique has been used. The sample of the study has been selected from the various games. For this purpose, total 180 male players were selected as subjects. Six age group categories were profiled and 30 players were selected from each age group category. The selected subjects were between the age group of 10 to 15 years. The subjects were selected from the Bhiwani district of Haryana state. Eight hundred meters run endurance test was applied to measure the anaerobic and aerobic endurance. The timings were registered in m/sec. To find out the significant difference among different age groups, independent sample 't' test was applied through Statistical Product and Service Solutions (SPSS) version 20.0. The level of significance was set at 0.05. The results of the present study shows that significant difference was found between the age group of ten and eleven year, thirteen and fourteen year players while no significant difference was found between the eleven and twelve year, twelve and thirteen year, fourteen and fifteen year age group players with regard to their eight hundred meters run endurance.

Keywords: Physical fitness, anaerobic endurance, aerobic endurance, eight hundred meters run endurance

Introduction
An effective testing programme must measure variables that are relevant to the sport concerned, and be as sport-specific as possible (MacDougall, Wenger & Green, 1991) [8]. Therefore, the efficacy of a sport-specific battery of testing procedures can be evaluated by assessing the relationship between test results and measurements of performance. The objective of performance testing in athletes is to provide results and information that facilitate the development an efficient training programme and enhanced performance. The ability to monitor physical and physiological development due to training, as well as recovery processes and readiness to compete, can provide an athlete with a significant advantage (MacDougall, Wenger & Green, 1991) [8]. From a physiological perspective, it is clear that the shorter middle-distance events have large anaerobic and aerobic endurance contributions (especially the 800m and 1500m), but as the distance and duration of the events increase, the aerobic component becomes dominant. For this reason, it may be erroneous to regard the 10,000m as a middle-distance event, due to the large aerobic component required for success, despite the high running velocity which must involve significant anaerobic energy. This notion is supported by Peter Snell, a former top middle-distance runner and, more recently, a recognized academic in the field of exercise physiology (Brandon, 1995; Snell, 1990) [5, 12].
Some researchers debate the legitimacy of the claim that maximal oxygen consumption and running economy have any effect on competitive performance and success (Bassett & Howley, 1997, 2000; Noakes, 1998, 2000) [4, 3, 9, 10] although the majority of researchers still support its importance in middle-distance performance, and recognize that VO_{2max} and running economy are important determinants of the required aerobic capacity for these events (Conley & Krahenbuhl, 1980; Daniels & Daniels, 1992) [6, 7].

Conversely, the importance of anaerobic function and muscular contractility in middle-distance effort has received more emphasis, and is a growing area for both research and performance enhancement, and has been coupled with advances in nutritional supplementation strategies, so common in the modern sporting arena. (Smith *et al*., 2000) [11]. The three important components of aerobic energy contribution in middle-distance running are maximal oxygen consumption (VO_{2max}), running economy and lactate (or anaerobic) threshold. Approximately 40% of the total energy used during an 800 metre run, and up to 65% during a 1500 metre run, is provided by aerobic metabolism (Astrand *et al*., 2003) [2]. It is clear that although anaerobic energy is required, aerobic capacity is also a determinant of success in middle-distance events (Brandon, 1995) [5].

Objectives of the study

1. To found out the significant difference between the ten and eleven year age group players with regard to their eight hundred meters run endurance.
2. To found out the significant difference between the eleven and twelve year age group players with regard to their eight hundred meters run endurance.
3. To found out the significant difference between the twelve and thirteen year age group players with regard to their eight hundred meters run endurance.
4. To found out the significant difference between the thirteen and fourteen year age group players with regard to their eight hundred meters run endurance.
5. To found out the significant difference between the fourteen and fifteen year age group players with regard to their eight hundred meters run endurance.

Delimitations of the study

- The study is delimited to the age group of 10, 11, 12, 13, 14 and 15 year players.
- The study is delimited to male players only.
- The study is delimited to 30 players from each age group.
- The study is delimited to Bhiwani district of Haryana state.

Method & procedure

To accomplish the study, purposive sampling technique has been used. The sample of the study has been selected from the various games. For this purpose, total 180 male players were selected as subjects. Six age group categories were profiled and 30 players were selected from each age group category. The selected subjects were between the age group of 10 to 15 years. The subjects were selected from the Bhiwani district of Haryana state. Eight hundred meters run endurance test was applied to measure the endurance. The timings were registered in m/sec. To find out the significant difference among different age groups, independent sample 't' test was applied through Statistical Product and Service Solutions (SPSS) version 20.0. The level of significance was set at 0.05.

Findings of the study

The table no.1 represents the significance of difference between different age groups players with regard to their eight hundred meters run endurance.

Table 1: Significance of difference between different age groups players with regard to their eight hundred meters run endurance

Test	Age Group	N	Mean	Std. Deviation	t -value	Sig.
Eight Hundred Meters Run Endurance	Ten	30	2.86	0.33	2.14	0.03*
	Eleven	30	2.68	0.32		
	Eleven	30	2.68	0.32	1.38	0.17
	Twelve	30	2.56	0.30		
	Twelve	30	2.56	0.30	.308	0.75
	Thirteen	30	2.59	0.32		
	Thirteen	30	2.59	0.32	2.18	0.03*
	Fourteen	30	2.43	0.22		
	Fourteen	30	2.43	0.22	1.86	0.06
	Fifteen	30	2.35	0.09		

Level of significance was set at 0.05.
t value at 178 degree of freedom was 1.98.

The table no. 1 data represents the comparison between the different age groups on the basis of mean score, standard deviation score, t-value and sig. (p) value registered by the final results. On the age group Ten and Eleven year, the registered mean and standard deviation score for ten year was 2.86 and 0.33 respectively while for eleven year, the registered mean and standard deviation score was 2.68 and 0.32. The calculated t-value 2.14 was found higher than 1.98 of tabulated value. The p-value (0.03) was found lower than .05 level, hence significant difference was found between the ten and eleven years age group players with regard to their eight hundred meters run endurance.

On the age group Eleven and Twelve year, the registered mean and standard deviation score for eleven year was 2.68 and 0.32 respectively while for twelve year, the registered mean and standard deviation score was 2.56 and 0.30. The calculated t-value 1.38 was found lower than 1.98 of tabulated value. The p-value (0.17) was found higher than .05 level, hence no significant difference was found between the eleven and twelve year age group players with regard to their eight hundred meters run endurance.

On the age group Twelve and Thirteen year, the registered mean and standard deviation score for twelve year was 2.56 and 0.30 respectively while for thirteen year, the registered mean and standard deviation score was 2.59 and 0.32. The calculated t-value 0.30 was found lower than 1.98 of tabulated value. The p-value (0.75) was found higher than .05 level, hence no significant difference was found between the twelve and thirteen year age group players with regard to their eight hundred meters run endurance.

On the age group Thirteen and Fourteen year, the registered mean and standard deviation score for thirteen year was 2.59 and 0.32 respectively while for fourteen year, the registered mean and standard deviation score was 2.43 and 0.22. The calculated t-value 2.18 was found higher than 1.98 of tabulated value. The p-value (0.03) was found lower than .05

level, hence significant difference was found between thirteen and fourteen year age group players with regard to their eight hundred meters run endurance.

On the age group Fourteen and Fifteen year, the registered mean and standard deviation score for fourteen year was 2.43 and 0.22 respectively while for fifteen year, the registered mean and standard deviation score was 2.35 and 0.09. The calculated t-value 1.86 was found lower than 1.98 of tabulated value. The p-value (0.06) was found higher than .05 level, hence no significant difference was found between fourteen and fifteen year age group players with regard to their eight hundred meters run endurance.

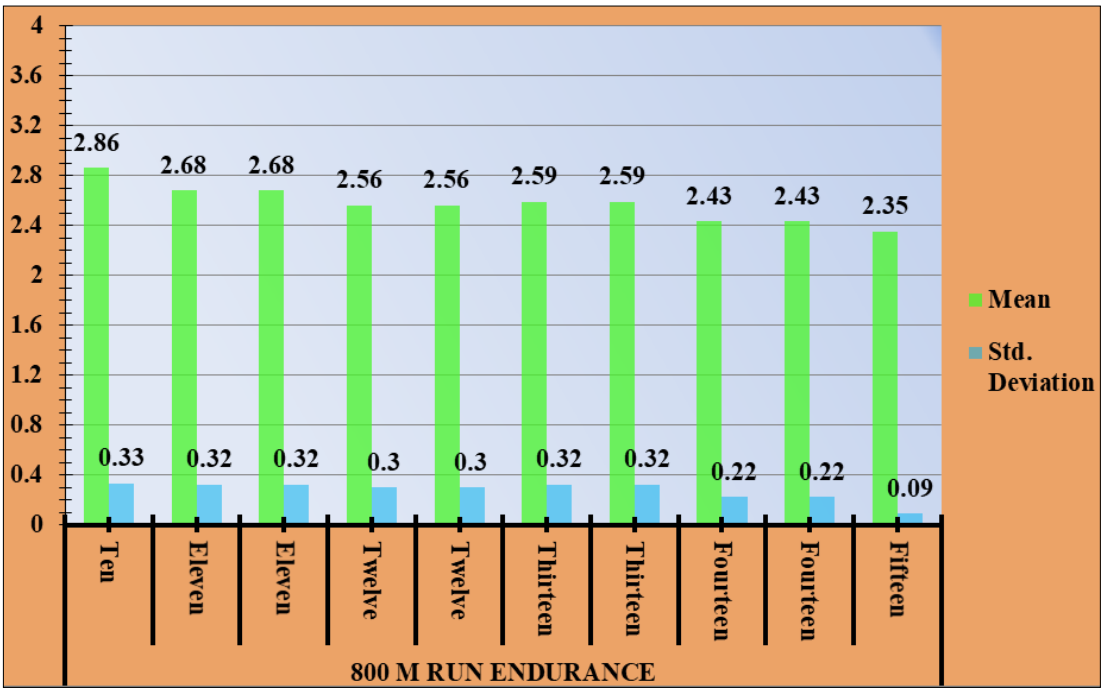

Fig 1: Graphical representation of significance of difference between different age groups players with regard to their eight hundred meters run endurance

Discussion of the findings

The present study was conducted to compare the different age group players with regard to their eight hundred meters run endurance. After the data evaluation, the findings of the study highlighted that significant difference was found between the age group of ten and eleven year players, thirteen and fourteen year players while no significant difference was found between the eleven and twelve year players, twelve and thirteen year players, fourteen and fifteen year age group players with regard to their eight hundred meters run endurance. The significant difference results are supported by the another study conducted by (Aksovic & Beric, 2017) on a sample of 34 basketball players, at the age of 11 and 14 (± 0.5 years) with the aim to determine the differences in explosive power between the basketball players of different age. By applying t-test, we have got the results which show us that there is a significant difference between the basketball players of different age in all observed variables, and all of them are in favor of older players, age 14.

Conclusion

Behind the given results, the probable reason can be the age, oxygen consumption capacity of the players, myoglobin, their anthropometric dimension (body height, body weight), genetic predisposition, the level participant preparedness, and playing position in team. Perhaps the most sensitive factor of given results is age, since the training of children and young players mustn't be based on the principles that training for adults is based on. It has to be in compliance with their biological, chronological, psychological and physical growth. The researches show that the players, who belong to the group of young pioneers (10-12 years old), develop their aerobic and anaerobic endurance through various methods. At pioneers (13-14 years) the one can influence the most on the development of aerobic and anaerobic endurance, and can be used minimal external loads. The given results provide the important information for coaches which helps in players selection and it helps in making a proper plan and program of work for players of different age and points out to the further researches in the field of aerobic and anaerobic endurance among players of different sports and ages.

References

1. Aksovic N, Beric D. Differences in explosive power between basketball players of different age. Fizicka kultura. 2017; 71(1):36-42.
2. Astrand PO, Rodahl K, Dahl HA, Strømme SB. Textbook of work physiology: physiological bases of exercise. Human Kinetics, 2003.
3. Bassett DR, Howley ET. Limiting factors for maximum oxygen uptake and determinants of endurance performance. Medicine and science in sports and exercise. 2000; 32(1):70-84.
4. Bassett JD, Howley ET. Maximal oxygen uptake: classical versus contemporary viewpoints. Medicine and science in sports and exercise. 1997; 29(5):591-603.
5. Brandon LJ. Physiological factors associated with middle distance running performance. Sports Medicine, 1995; 19(4):268-277.
6. Conley DL, Krahenbuhl GS. Running economy and distance running performance of highly trained athletes. Med Sci Sports Exerc. 1980; 12(5):357-60.
7. Daniels JACK, Daniels NANCY. Running economy of elite male and elite female runners. Medicine and science in sports and exercise. 1992; 24(4):483-489.
8. MacDougall JD, Wenger HA, Green H. The purpose of

physiological testing. Physiological testing of the high-performance athlete, 1991, 1-5.
9. Noakes TD. Maximal oxygen uptake: classical versus contemporary viewpoints: a rebuttal. Medicine and science in sports and exercise. 1998; 30(9):1381-1398.
10. Noakes TD. Physiological models to understand exercise fatigue and the adaptations that predict or enhance athletic performance. Scandinavian Journal of Medicine & Science in Sports: Review Article. 2000; 10(3):123-145.
11. Smith D, Telford R, Peltola E, Tumilty D. Protocols for the physiological assessment of high-performance runners. Physiological test for elite athletes (Australian Sports Commission), Champaign: Human Kinetics, 2000, 334-344.
12. Snell P. Middle distance running. Physiology of sports, 1990, 101-120.