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An analysis of selected physical fitness components between sprinters and football players

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Abstract

The purpose of the study was to find out some selected physical fitness components among male athletes and male football players of Guru Nanak Dev University, Amritsar, Punjab, India between the age group of 18 to 25 years. A total of Forty subjects (N=40) 20 Sprinters and 20 Footballer will be selected for the study from various colleges of Guru Nanak Dev University, Amritsar, Punjab. To measure the physical fitness of sprinters and football players Sit ups test 50m Run and 600m Run was applied for the collection of data. The purposive sampling technique was used to attain the objectives of the study. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. Statistical @ 7.0 software was used in data analysis. Unpaired t-test was used in data analyses. In all the analyses, the 5% critical level ($p \leq 0.05$) was considered to indicate statistical significance.

Keywords: physical fitness, football players

Introduction

“Physical fitness is one’s richest possession; it cannot be purchased; it has to be earned through a daily routine of physical exercises.” It is self-evident that the fit citizens are a nation’s best assets and weak ones its liabilities. It is therefore the responsibility of every country to promote physical fitness of its citizens because physical fitness is the basic requirement for most of the tasks to be undertaken by an individual in his daily life. If a person’s body is under-developed or inactive and if he fails to develop physical prowess, he is undermining his capacity for thought and for work, which are of vital importance to one’s own life and society in a welfare state.

Sports, games and physical fitness have been a vital component of our civilization, as is evident from the existence of the highly evolved system of yoga and a vast range of highly developed indigenous games, including martial arts. It is stated in the Olympic Charter, Olympism is a “philosophy of life, exalting and combining in a balanced whole the qualities of body, will and mind”. Physical fitness is the art of humanity. It is the basic need for people. It is the fundamental form of human expression. It is the means of enhancing national prestige. It is an avenue of social adjustment. It is the most saving graces in the world. According to Bucher (1958), Physical fitness is the ability of an individual to live a balanced life. It involves physical, Mental, emotional and spiritual factors and the Capacity for their wholesome knowledge.

Physical fitness is a state of well-being that comprises skill and health-related components. Fitness is a condition in which an individual has sufficient energy to avoid fatigue and enjoy life. It is necessary for elderly people to maintain and improve their physical fitness in order to satisfy healthy, high quality of daily life (Tanaka *et al.*, 2004). Skill-related physical fitness refers to an individual’s athletic ability in sports such as tennis and encompasses skill-related attributes like dynamic balance, power, speed and agility; the health-related aspect is a measure of cardiovascular endurance, muscle strength, endurance and flexibility and body composition (Hopkins & Walker, 1988). Physical fitness is measured by functional tests that are specific and usually normative-based, rather than criterion-based, thereby leaving unanswered as to how much of a specific fitness factor (e.g. muscular endurance) is required for a good quality of life (Chia *et al.*, 2007) [9].

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With the beginning of the human race physical activities manifestation is started to subsist and to attack and prevent from being prey. This edify the human being's knowledge to be physically fit in the form of having muscle mass and ability to fight and run. These endeavours change the life of human being and after some time they formally started to play as organised manner and show their superiority over others.

Analysis of data

Table 1: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of Sit ups in sprinters (N = 20) and football players (N = 20).

Groups	Mean	SD	SEM	t-value
Sprinter	27.3	3.06	0.68	2.55
Football player	30.3	4.27	0.95	

Significant at .05 level of significance, $t_{.05}(38) = 2.021$

Table 1: shows that the mean of Sit ups of sprinters and footballer players was 27.3 and 30.3 respectively, whereas the standard deviation (SD) of Sit ups of sprinters and footballer players was 3.06 and 4.27 respectively. The critical value of t at 95% probability level is lower (2.021) than the observed value of t (2.55*). The data does suggest that the differences between sprinters and footballer players in regard to Sit ups are significant.

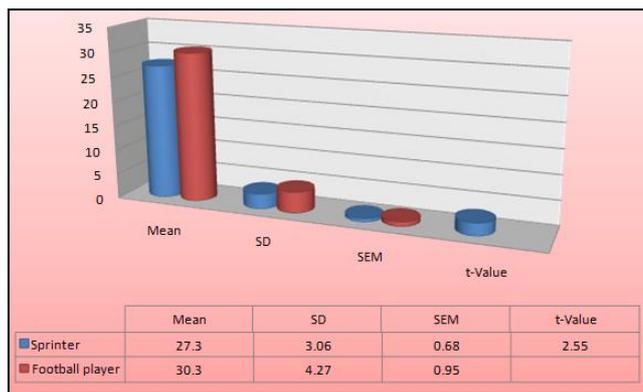


Fig 1: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of Sit ups in sprinters (N = 20) and football players (N = 20).

Table 2: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of 50 Yard Run in sprinters (N = 20) and football players (N = 20).

Groups	Mean	SD	SEM	t-value
Sprinter	7.81	0.32	0.07	6.52
Footballer	6.52	0.61	0.14	

Significant at .05 level of significance, $t_{.05}(38) = 2.021$

Table 2: shows that the mean of 50 Yard Run of sprinters and footballer players was 7.81 and 6.52 respectively, whereas the standard deviation (SD) of 50 Yard Run of sprinters and footballer players was 0.32 and 0.61 respectively. The critical value of t at 95% probability level is lower (2.021) than the observed value of t (6.52*). The data does suggest that the differences between sprinters and footballer players in regard to 50 Yard Run are significant.

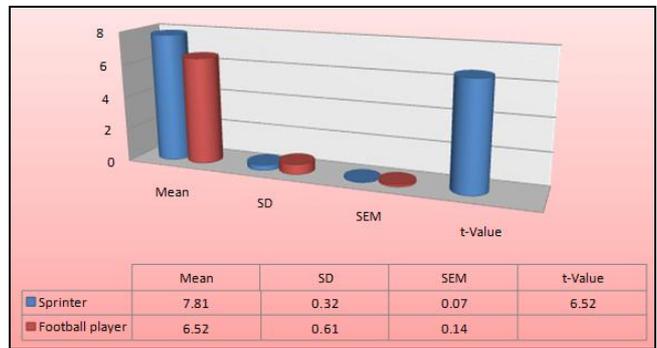


Fig 2: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of 50 Yard Run in sprinters (N = 20) and football players (N = 20).

Table 3: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of 600 Yard Run in sprinters (N = 20) and football players (N = 20).

Groups	Mean	SD	SEM	t-value
Sprinter	1.67	0.24	0.052	2.15
Football player	1.84	0.25	0.057	

Significant at .05 level of significance, $t_{.05}(38) = 2.021$

Table 3: shows that the mean of 600 Yard Run of sprinters and footballer players was 1.67 and 1.84 respectively, whereas the standard deviation (SD) of 600 Yard Run of sprinters and footballer players was 0.24 and 0.25 respectively. The critical value of t at 95% probability level is lower (2.021) than the observed value of t (2.15*). The data does suggest that the differences between sprinters and footballer players in regard to 600 Yard Run are significant.

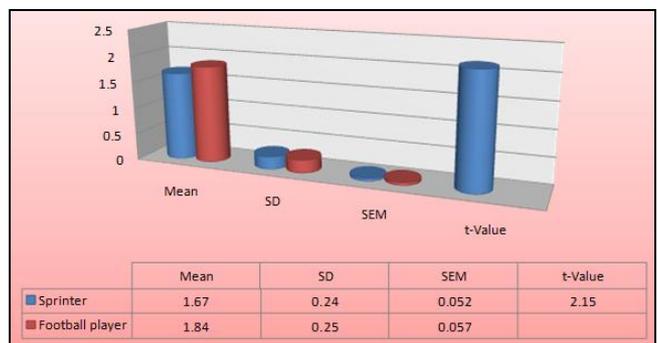


Fig 3: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of 600 Yard Run in sprinters (N = 20) and football players (N = 20).

Discussion of findings

The physical demands vary greatly according to games and sports. Since the ancient times, it has been believed that a suitable physique is important to achieve success in particular sports (Powers *et al.*, 1997). Judging the performance of the human body by its size, shape and form has been a topic of great concern. Physical and physiological aspects are essential factors that have contributed to the success of national and international competition in sports. Track and field events, like several other individual and team games, requires not only technical and tactical skills but also great deal of physical fitness (Marques, González-Badillo & Kluka, 2006;

Marques *et al.*, 2009). The physical demands not vary greatly among the footballers and sprinters, therefore the appropriate tests for each discipline and for specific athletes will vary greatly. During a long competitive season, a training program has to be developed to meet the individual needs of the athlete and take into consideration many factors: gender, age, strengths, weaknesses, objectives, training facilities etc. As all athletes have different needs, a single program suitable for all athletes is not possible. Coaches concentrate mainly on technical and tactical drills, reducing the volume of training devoted to strength and conditioning activities. This may lead therefore to unwanted changes in selected aspects of the optimal physical fitness profile. Several studies have been undertaken to ascertain specific physical and physiological profiles of athletes in a variety of sports. Successful participation in these sports requires from each player a high level of technical and tactical skills. All athletic event require comprehensive abilities including physical, technical, mental, and tactical abilities. Among them, physical abilities of the players are more important as these have marked effects on the skill of players and the tactics of the teams because ball games require repeated maximum exertion such as dashing and jumping.

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