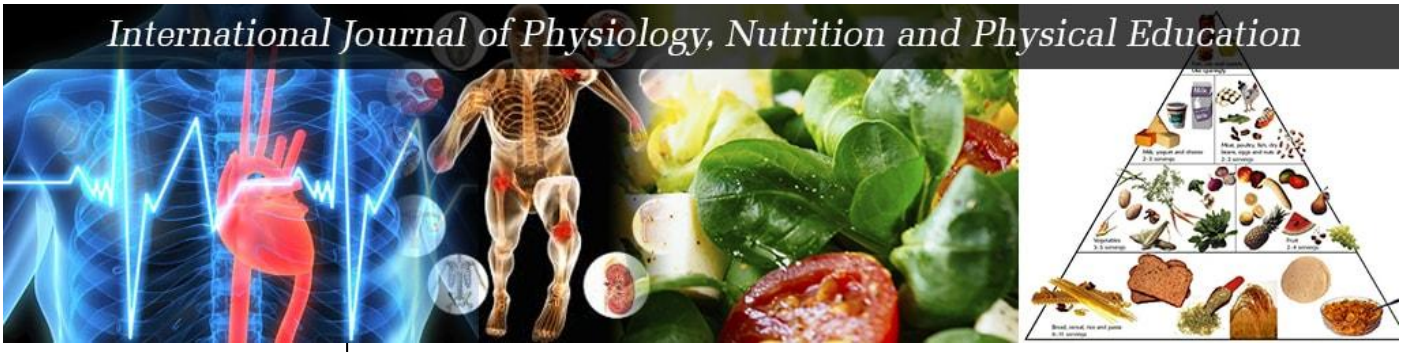

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Comparisons of physical fitness components between the volleyball and football players of age 16-18 years

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Abstract
The objective of the study was to find the differences of selected physical fitness components between the Volleyball and Football players of age 16-18 years. The subjects of this study were the boys of 16-18 years age selected from the four districts of Punjab viz. Amritsar, Tarn Taran, Gurdaspur and Pathankot. The subjects were 150 Volleyball players and 150 Football players. The purposive sampling method was used to select the sample. They were tested for their physical fitness components and comparisons were made. The physical fitness components were explosive power, speed, muscular endurance, balance and flexibility. Independent t-test revealed that there was a significant differences between Football players and Volleyball players on the variable explosive power and speed. The study concluded that Volleyball players had better explosive power whereas Football players had better speed.

Keywords: Explosive power, speed, muscular endurance, balance, flexibility

Introduction
Physical education offers pupils the ability to develop and exercise life skills and to be mentally involved. Fitness testing should include a description of the actual student results of each variable and provide recommendations for how to encourage and sustain a high standard of fitness. The aim of physical fitness testing is for students to become independent learners; to recognize and appreciate their current health condition and to learn how to sustain or enhance their health and fitness. Physical fitness is a state of health and well-being and, more importantly, the capacity to practice athletics, jobs and everyday activities. Physical health is usually accomplished by good diet, moderate-strong physical exercise and adequate rest. Physical fitness is characterized as "the potential to perform an action and that capacity must be sufficient to perform a specified task" Liebee claims that physical activity is "the capacity to contribute and the will to provide a reserve of endurance to satisfy the energies of life". Physical exercise components include speed, mobility, stamina, power, agility and flexibility. Fitness allows to embrace physical activity, sustained social skills and improve success in the athletic sector. Physical health has long been one of the primary objectives of physical education.

Volleyball is a competitive game that takes tremendous ability that can be quite satisfying when done correctly. Certainly known to be both a successful and a recreational sport, school squads, professional athletes and families will spend a day at the beach. Players are expected to serve, transfer, set, strike, and block and dig the ball throughout the course of action. Playing volleyball needs a strong combination of endurance, upper and lower body power and pace to be played successfully.

Football is a game that demands a high degree of physical fitness. The definition of physical activity requires strength, muscle stamina, cardio-respiratory endurance and resilience and independence from obesity. An individual does not have to possess the pace, stamina, strength, coordination, etc. that provide performance in athletics for fitness.

Methods
The subjects of this study were the boys of 16-18 years age selected from the four districts of

Punjab viz. Amritsar, Tarn Taran, Gurdaspur and Pathankot. The subjects were 150 Volleyball players and 150 Football players. The purposive sampling method was used to select the sample. They were tested for their physical fitness components and comparisons were made. The physical fitness components were explosive power, speed, muscular endurance, balance and flexibility. The tests used for testing these components are mentioned in table 1.

Table 1: Physical fitness test and their measuring units

Component	Test	Measuring unit
Explosive Power	Standing vertical jump test	Cms
Speed	50 meter dash	Secs
Muscular Endurance	Pull ups test	Maximum performed
Balance	Stork stand test	Secs
Flexibility	Sit and reach test	Cms

Statistical analysis

Descriptive statistics were described as means and standard deviation. The differences of anthropometric characteristics between Volleyball and Football players were observed using the Independent t-test. The significance level was set at 0.05 level.

Results

Table 2 and figure 1 shows the results of independent t-test with regard to physical fitness differences between Volleyball and Football players.

Explosive power: The mean and standard deviation of vertical jump performance was 45.63 and 3.22 respectively for Volleyball players whereas it was 44.34 and 3.18 respectively for Football players. It was found that differences were statistically significant between the two groups ($p< 0.05$).

Speed: The mean and standard deviation of 50 meter dash performance was 8.9 and 1.51 respectively for Volleyball players whereas it was 8.10 and 1.35 respectively for Football players. It was found that differences were statistically significant between the two groups ($p< 0.05$).

Muscular endurance: The mean and standard deviation of pull ups test performance was 10.84 and 2.97 respectively for Volleyball players whereas it was 10.75 and 3.54 respectively for Football players. It was found that differences were not statistically significant between the two groups ($p> 0.05$).

Balance: The mean and standard deviation of stork stand test performance was 24.06 and 5.54 respectively for Volleyball players whereas it was 25.06 and 6.71 respectively for Football players. It was found that differences were not statistically significant between the two groups ($p> 0.05$).

Flexibility: The mean and standard deviation of sit and reach test performance was 14.28 and 5.07 respectively for Volleyball players whereas it was 14.24 and 5.20 respectively for Football players. It was found that differences were not statistically significant between the two groups ($p> 0.05$).

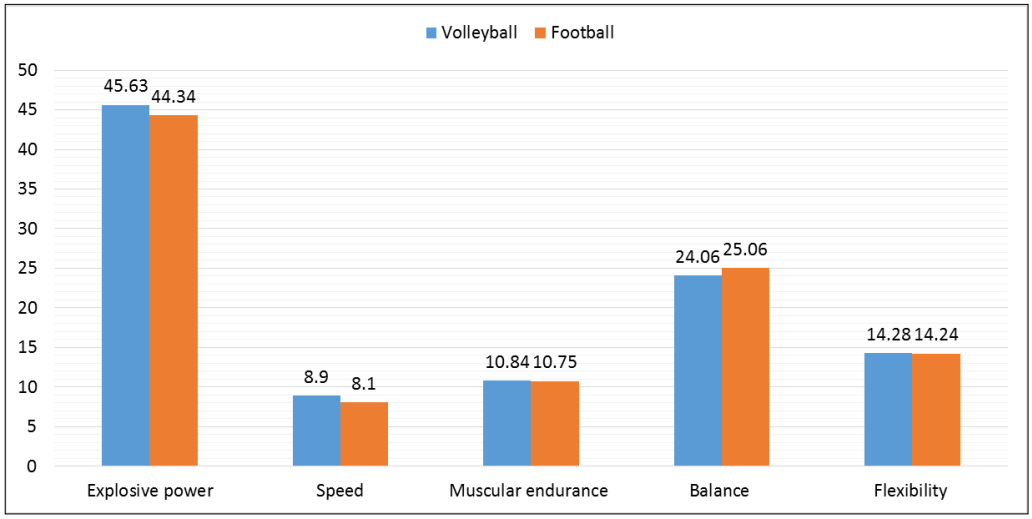

Fig 1: Graphical representation of physical fitness differences between volleyball and football players

Table 2: Results of independent t-test

Variable	Volleyball		Football		p-value
	Mean	SD	Mean	SD	
Explosive power	45.63	3.22	44.34	3.18	0.001*
Speed	8.90	1.51	8.10	1.35	0.001*
Muscular endurance	10.84	2.97	10.75	3.54	0.805
Balance	24.06	5.54	25.06	6.71	0.164
Flexibility	14.28	5.07	14.24	5.20	0.955

Discussion

The objective of the study was to find the differences of selected physical fitness components between the Volleyball and Football players of age 16-18 years. This study found that Volleyball players had better explosive power than the Football players as indicated by the vertical jump test. As vertical jump performance is an integral part of Volleyball game these results were very much anticipated. On the contrary, speed was better in Football players than the Volleyball players indicating the greater demand of speed in Football game. However, both groups were equal in terms of explosive power, balance and flexibility. These results are opposite to a previous study in which no significant difference was found for the speed but similar with regard to muscular endurance (Keshav and Harmandeep, 2014) [9, 12].

Conclusions

This study concluded that Volleyball players were better in explosive power whereas Football players were better in speed.

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