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Comparison of selected physical fitness variables of school national level baseball and softball players

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Abstract

The aim of the study was to investigate the significant differences of selected physical fitness variables of School national level baseball & softball boys & girls.. A group of 64 sportspersons (32 baseball and 32 softball) players of age group 11-14 years were selected for this study.. It was hypothesized that there may be significant differences with regard to selected physical fitness variables among school national level baseball and softball players. The 50- yard dash test (AAPHER 1976) was used to measure, “speed”, shuttle run test (AAPHER 1976) was used to measure, “agility”, standing broad jump test (AAPHER 1976) was used to measure, “muscular power”, and softball throw for distance test (Disch *et al.* 1977) was used to measure, “muscular strength”.. In order to analyze the data t-test was used..The level of $p \leq 0.01$ and 0.05 was considered significant. It revealed that baseball & softball boys had significantly higher muscular strength, agility, power, speed ($p < 0.01$ & 0.05) than baseball & softball girls.

Keywords: speed, agility, muscular strength, power, softball, baseball

Introduction

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) [4]. 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) [3]. Fitness is important at all levels of the game, whilst being essential for top level players; it is beneficial for beginners who will improve both their effectiveness and enjoyment through good standards of fitness. Fitness enables a player to cope with the physical demands of the game as well as allowing the efficient use of his various technical and tactical competencies throughout the match.

“Fitness is that state which characterizes the degree to which the person is able to function. Fitness is an individual matter. It implies the ability of each person to live most effectively with his potential. Ability to function depends upon physical, mental, emotional & social components of fitness, all of which are related to each other & mutually interdependent.” Softball is a sport requiring high levels of physical fitness. It is one of those rare games which demands not only speed but agility, strength, power and endurance. Softball players need a combination of technical, tactical and physical skills in order to succeed.

On the other hand, Baseball is physically demanding sport comprised of several specialism requiring different skills and types of fitness. The game of baseball entail throwing, fielding, pitching, catching, base running and hitting. (Singh 1986) [2] reported that sport is competitive in nature and every sportsman strives to better the previous records and records are broken more rapidly nowadays. “Sports” he states, “is an ideal character building school for youth. The performance of a sportsman in any game or event also depends on muscular strength, agility, power, speed and cardiovascular endurance. Along with these physical variables, physiological and psychological components also play an important role in the execution of the performance.

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Purpose of the Study

Purpose of this study was to compare the selected physical fitness variables of school national level baseball and softball boys & girls.

Methodology

Subjects

Total 64 subjects were selected for this study. 32 players of Baseball and 32 players of Softball of Chandigarh team were taken as a sample when they were practicing in the school National camp for preparing themselves' to participate in 61st School National Game. Their age ranged between 11-14 years.

Test

For measurement of selected physical fitness variables of School National level Baseball and Softball players. AAHPER youth physical fitness test was utilized. Data of subject's were collected in the month of Nov-Dec to attain the objectives of the present study.

Statistical analyses: Values are presented as mean values and SD. Independent samples t tests were used to test if population means estimated by two independent samples differed significantly. Data was analyzed using SPSS Version. For this purpose 'T' test was applied. For testing the hypothesis the level of confidence was set at.05 level of significance.

Results

Table 1: Comparison of means of selected physical fitness variables of school National level Baseball and Softball boys.

Variables	Softball boys		Baseball boys		t-value
	Mean	SD	Mean	SD	
50m dash	8.421	1.486	8.396	1.271	0.497
Shuttle run	11.100	1.690	11.062	1.525	0.065
Standing broad jump	59.19	6.72	59.5	6.60	0.08
Softball Throw	12.059	3.115	12.031	3.278	0.024

Table 1 shows that the mean of 50m dash and shuttle run of softball boys and baseball boys were 8.421 and 11.100 and 8.396 and 11.062 respectively, whereas the mean of standing broad jump and throw of softball boys and baseball boys were 59.19 and 12.059 and 59.5 and 12.031 respectively. In case of

50m dash (0.497), shuttle run (0.065), standing broad jump (0.08), throw (0.024), the value of t-test not significant at 0.01 and 0.05. It is evident from the data that there was no significant difference exists between the softball boys and baseball boys in the physical fitness variables.

Table 2: Comparison of means of selected physical fitness variables of school National level Baseball and Softball girls.

Variables	Softball girls		Baseball girls		t-value
	Mean	SD	Mean	SD	
50m dash	9.368	0.936	9.331	0.850	0.113
Shuttle run	12.837	2.015	12.834	1.082	0.005
Standing broad jump	54.31	6.11	54.00	6.25	0.14
Softball Throw	7.393	0.761	7.378	0.869	0.050

Table 2 shows that the mean of 50m dash and shuttle run of softball girls and baseball girls were 9.368 and 12.837 and 9.331 and 12.834 respectively, whereas the mean of standing broad jump and throw of softball girls and baseball girls were 54.31 and 7.393 and 54.00 and 7.378 respectively. In case of

50m dash (0.113), shuttle run (0.005), standing broad jump (0.14), throw (0.050), the value of t-test not significant at 0.01 and 0.05. It is evident from the data that there was no significant difference exists between the softball girls and baseball girls in the physical fitness variables.

Table 3: Comparison of Mean and standard deviation of the performance of softball boys and girls and baseball boys and girls in selected physical fitness variables

Variables	Mean & SD		t-value	Mean & SD		t-value
	Softball boys group	Softball girls group		Baseball boys group	Baseball girls group	
50m dash	8.421 ±1.486	9.368 ±0.936	2.09	8.396 ±1.271	9.331 ±0.85	2.38
Shuttle run	11.100 ±1.690	12.837 ±2.015	2.56	11.062 ±1.525	12.834 ±1.082	3.66
Standing broad jump	59.19 ± 6.72	54.31 ± 6.11	2.42	59.50 ±6.60	54.00 ±6.25	2.15
Softball Throw	12.059 ±3.115	7.393 ±0.761	6.75	12.031 ±3.278	7.378 ±0.869	5.28

Physical performance scores shown in Table-3 clearly exhibits significant differences between softball boys and girls and baseball boys and girls of 11-14 years of age. The performances are better for softball boys and baseball boys in 50m dash, shuttle run, standing broad jump and throws. So, it is understood that the boys of 11-14 years of age were superior to their girls counterpart in speed, agility, leg explosive strength and power.

Discussion

Physical fitness variables are very important in both athletes and form a condition for higher performance. Mal (1982)

stated that the components of physical fitness like speed, endurance, flexibility and the various coordinative abilities are essential for a high technique and tactical efficiency. Depending upon the demand of the game, each factor of physical fitness should be optimally developed. In the present study there was significant difference observed between the school national level softball boys and girls and baseball boys and girls in all the selected physical fitness variables. Different training program should be given to both the gender made these differences. The analysis of results indicates a higher level of all physical fitness variables in the boys group of the examined softball and baseball players compared to

girls group. Results revealed that there exist significant difference in speed, power, agility and strength of boys and girls. The general tendency is superiority of boys in speed, agility, leg explosive strength, abdominal muscular strength endurance, and basic endurance. Similar results have been reported by other researchers. Gallahue (1982) ^[5] reported from the study conducted by Keogh (1965) ^[1] regarding running speed of elementary school children. He concluded that the boys and girls were similar in running speed at ages 6 and 7, but boys were superior from age 8 to 12. Gallahue (1982) ^[5] reported from another investigation of Frederick (1977) that boys out-performed the girls in standing long jump at all age levels. He also reported from the study of Keogh (1965) ^[1] that there were some differences between boys and girls in the performance of standing long jump from 6 to 12 years.

Conclusion

In conclusion, the present study suggests that selected physical fitness variables i.e. speed, strength, agility and power of school national level softball and baseball boys and girls found to be statistically significant.

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