



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (RJIIF): 5.38
IJPESH 2023; 10(6): 164-166
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www.kheljournal.com
Received: 07-09-2023
Accepted: 18-10-2023

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Comparative study of muscle mass of school sports persons in Lucknow zone

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DOI: <https://doi.org/10.22271/kheljournal.2023.v10.i6c.3150>

Abstract

The purpose of the study was to investigate the muscle mass of different sports persons. For the present study, 90 male sports persons were randomly selected as a sample from the School Games Federation of India (SGFI). All samples were selected from the Lucknow zone. The age of the subjects ranged from 15 to 17 years. The data was analyzed by a One-Way analysis (ANOVA) test to determine the difference in Muscle mass among 15th, 16th, and 17th years age group sports persons. The significant difference was found for further analysis LSD post-hoc was used to analyse the mean differences and their significance. For testing the hypothesis, the level of significance was set at 0.05. The finding of the study showed that there was a significant difference in the obtained value of Muscle among 15th years, 16th years & 17th years sports persons. The muscle mass of 17th year of sportspersons is higher than the 16th year and 15th year sports persons.

Keywords: Muscle mass, SGFI, sports, sports persons

Introduction

Sports have become an integral part of school life for many students worldwide, although sports participation most often occurs in physical education classes. Sports is a permanent human activity (Dr. Kavita Sharma, 2014) [2]. The strength of the human body depends on its physical fitness. As a result, he can deal with unexpected changes in his life. Adjustment plays a major role in physical education and sports. The sports person, who doesn't have an average level of Adjustment, can't face the competition successfully. If an athlete is psychologically fit, desired goals can be achieved better in sports performance. The average person needs regular physical activity simply because the human body was designed to move. To keep it healthy, you need to move. You choose a variety of activities to benefit your body and your mind.

An Individual active in individual sports and team games and whose behavior and attitude demonstrate sportsmanship is called a sports person. (The American Heritage Dictionary)

Muscle Mass

Body mass is comprised of two parts: body fat and lean body mass. Individuals frequently utilize the expressions "slender body mass" and "bulk" reciprocally, yet they are not something very similar. Fit body mass incorporates bulk, as well as bones and natural liquid. Be that as it may, when individuals discuss the majority, they usually allude to skeletal muscle. This kind of muscle is significant for versatility, equilibrium, and strength. It indicates actual capability, so we are constantly told to fabricate muscle. If you have low bulk, it implies you have below-the-norm power for your age and orientation. Assuming you have a high prevalence, your size is more significant than usual. Contingent upon your body piece, you can have low or high bulk with low or increased body fat.

- (<https://www.healthline.com/health/muscle-mass-percentage>)

Purpose of the study

The study's primary goal was to compare muscle mass among the 15th, 16th, and 17th age groups of school sports persons in the Lucknow zone.

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Hypothesis

There would be no significant difference in muscle mass among the 15th, 16th, and 17th age groups of school sports persons in the Lucknow Zone.

The objective of the study

To investigate the muscle mass among the 15th, 16th, and 17th years age groups of school sports persons in the Lucknow zone.

The importance of muscle mass according to their individual and team games will be found.

Research process and methodology

The sample for the present study was randomly selected: 30 male school sports persons of each age group who won medals or places in SGFI (School Games Federation of India). The ages of the subjects ranged from the 15th, 16th, and 17th years.

Tools and techniques

For measurement of the muscle mass, we used the Dr. Trust Smart Body Fat Scale.

Statistical Method

The obtained data were analyzed using one-way ANOVA to determine the muscle mass among different sports persons' 15th, 16th, and 17th age groups. There was a significant difference, so the LSD post-hoc test was used to analyze the mean difference and their significance. The level of significance was set at 0.05.

Findings and Discussion

To find out muscle mass among 15th, 16th, and 17th-year age players of players studying in a government school in the Lucknow region, descriptive statistics were used and presented in Table 1.

Table 1: Descriptive statistics of muscle mass among 15th, 16th, and 17th year age players studying in a government school in the Lucknow region

	15 th -year age players	16 th -year age players	17 th -year age players
Mean	22.40	22.47	26.47
Standard Deviation	4.73	4.50	4.83
Range	16.06	16.44	22.61
Minimum	15.60	15.68	12.74
Maximum	31.66	32.12	35.35

It is evident from Table no.1, which shows the mean value of muscle mass for 15th-year age group players was 22.40, the mean value of muscle mass for 16th-year age group players was 22.47, and the mean value of muscle mass for 17th-year age group players was 26.47. This table shows the standard deviation value of muscle mass for 15th-year age group players was 4.73, the standard deviation value of muscle mass for 16th-year age group players was 4.50 and the standard deviation value of muscle mass for 17th-year age group players was 4.83. This table shows the range value of muscle mass for 15th-year age group players was 16.06, the range value of muscle mass for 16th-year age group players was 16.44 and the range value of muscle mass for 17th-year age group players was 22.61. The table also shows that the

minimum value of muscle mass for 15th-year age group players was 15.60, the minimum value of muscle mass for 16th-year age group players was 15.68 and the minimum value of muscle mass for 17th-year age group players was 12.74. This table shows the maximum value of muscle mass for 15th-year age group players was 31.66, the maximum value of muscle mass for 16th-year age group players was 32.12 and the maximum value of muscle mass for 17th-year age group players was 35.35.

To find out muscle mass among 15th, 16th and 17th year age players studying in government school in Lucknow region, analysis of variance statistics was used and presented in table-2.

Table 2: Analysis of variance in muscle mass among the means of 15th, 16th, and 17th year age players studying in a government school in the Lucknow region

Source of Variance	D.F	SS	MSS	F-ratio
Between Group	2	326.508	163.254	7.430*
Within Group	87	1911.638	21.973	

*Significant at .05 level

F-Value required to be significant at .05(2, 87) = 3.10

The value shown in Table 3 clearly indicates that the F-value calculated is much higher than the required value to be significant. Furthermore, the mean difference among 15th, 16th, and 17th-year age players studying in government school

about their body fat % level through post hoc test was computed which are presented in Table 2 and also represented by Fig 1.

Table 3: Comparison of Muscle Mass among the means of 15th, 16th, and 17th year age players studying in government schools in the Lucknow region

15 th -year age players	16 th -year age players	17 th -year age players	M.D	C.D
22.40	22.47		-0.07	2.01*
22.40		26.47	-4.07	
	22.47	26.47	-4.00	

*Significant at .05 level

*F-Value required to be significant at .05(2, 87) = 3.10

The post hoc test was used to compare the muscle mass among the means of 15th, 16th, and 17th-year age players studying in government schools in the Lucknow region. It revealed the significant difference between 15th and 17th-year players, where the calculated mean difference was -4.07. At the same time, the score shows a substantial difference

between 16th- and 17th-year age players. The mean difference was -4.00, and the score reveals an insignificant difference between 15th-year and 16th-year players. Where the calculated mean difference was -0.07, the required value was lower than the calculated value at a .05 level of significance. The scores are also illustrated in the Fig 1.

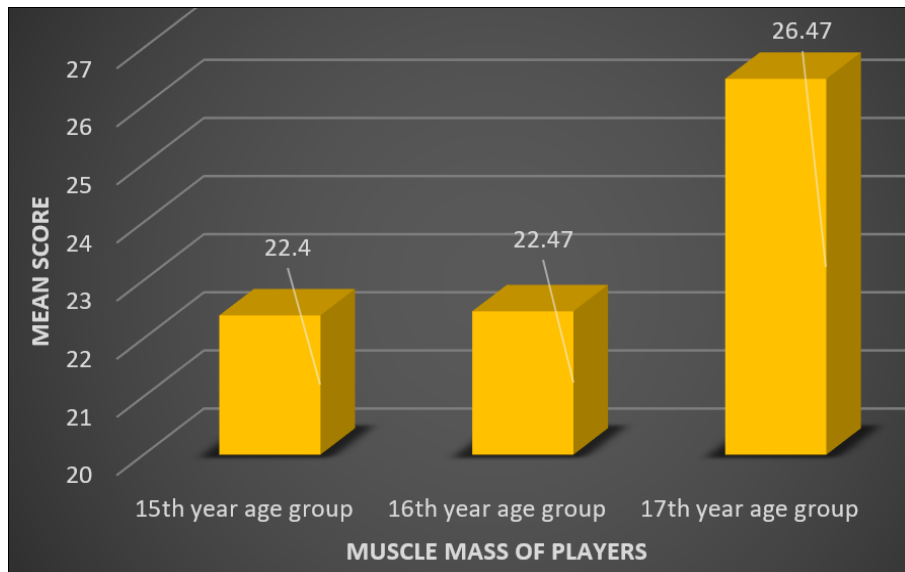


Fig I: Showing the mean difference of Muscle Mass among 15th, 16th, and 17th year age players studying in government schools of Lucknow region

Conclusion

This study hypothesized that there would be no significant difference in muscle mass among the 15th, 16th, and 17th age groups of school sports persons in the Lucknow Zone. The F-value calculated is much higher than the required value to be significant. So the post hoc test was used to compare the muscle mass among the means of 15th, 16th, and 17th-year age players studying in government schools in the Lucknow region. It revealed the significant difference between 15th and 17th-year players, where the calculated mean difference was -4.07. At the same time, the score shows a substantial difference between 16th- and 17th-year age players. The mean difference was -4.00, and the score reveals an insignificant difference between 15th-year and 16th-year players. Where the calculated mean difference was -0.07, the required value was lower than the calculated value at a .05 level of significance.

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