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Relationship of selected motor fitness components with the performance of two hands snatch

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Abstract

The purpose of the study was to investigate a relationship between a selected motor fitness components with the performance in two hands snatch among the male weightlifters of Lakshmbai national Institute of Physical Education, Gwalior. Twenty-five subjects were taken for the study and the age of the subjects ranged between 18 to 24 yrs. Motor fitness components explosive leg strength, strength endurance for abdomen, grip strength, shoulder flexibility and flexibility of the spine were selected. These motor fitness components were measured through a valid test by establishing a tester reliability. The performance of each of the subject was witnessed by three judges. Based on the rules of the correct lift, the performance was recorded. Each subject was given three attempts and the best was taken for the analysis of the study. The data was analysed using Pearson product moment correlation and the level of significance to test the hypothesis was set at 0.05 level. It was hypothesized that there will be no significant difference between selected motor fitness components with the performance of the two hands snatch. The result of the study showed that all the selected motor fitness components have shown a positive correlation with the performance of the two hands snatch.

Keywords: Explosive leg strength, strength endurance for abdomen, grip strength, shoulder flexibility and flexibility of the spine

Introduction

The Olympic snatch is a ground based compound movement. The objective of the snatch is to lift the bar from the ground to a stable position over head. The smooth, coordinated approach to the other phases of the lift is also crucial in core stability and body control. All of these concepts are key elements to most sporting activities and therefore makes it a popular choice among strength and conditioning coaches. The successful performance of the snatch is the result of a complex series of joint actions. Motor fitness is a term that describes an athlete's ability to perform effectively during sports or other physical activity. According to Barrow Motor fitness may be defined as a limited phase of motor ability, giving importance for the capacity to do vigorous work. An athlete's motor fitness is a combination of five different components, each of which is essential for high levels of performance⁴. Motor fitness, also termed motor ability refers to a person's performance abilities as affected by the factors of agility, balance, speed, explosive strength, and flexibility⁵. All the five components of motor fitness are essential for competing at high levels of sports performance. That's why the concept is seen as an essential part of any athlete's training regime. The importance of motor fitness for the proper growth and development of an individual can never be questioned. The organic system of a totally fit person functions well. Motor fitness permits greater freedom of body movement and is helpful for the maintenance of working capacity for longer time. It helps in preventing injuries and in increasing co- ordination of movement and shortening the pace for acquiring and perfecting movement, it constitutes to the formation of concepts and ideas and development of confidence.

Methodology

In this study twenty-five male weightlifters of Lakshmbai National Institute of Physical Education, Gwalior were selected as subjects. The age of the subjects ranged from 18-24 yrs. The motor fitness component explosive leg strength of the subjects were measured with by standing broad jump, grip strength were measured by handgrip dynamometer, Shoulder

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flexibility were measured by static flexibility for shoulder, flexibility of the spine were measured by sit and reach test and the strength endurance for abdomen were measured by Bent-knee sit-up test. To find out a relationship between these selected motor fitness components with the performance of two hands snatch, Pearson's product moment correlation was employed at 0.05 level of significance.

Table 1: Coefficient of Correlation between Dependent Variable (Two Hand Snatch Performance) and Independent Variables

Independent variables	Coefficient of correlation
Explosive leg strength	0.465*
Strength endurance (abdomen)	0.821*
Flexibility spine	1*
Flexibility shoulder	0.420*
Grip strength	0.398*

*significance at 0.05 level of significance.

$r_{.05(23)} = 0.396$

Analysis of data in the table reveals that all the independent-variables were correlated significantly with the dependent variable. Coefficient of correlation is found to be 1 in case of Flexibility of the spine with the performance of the two hands snatch which is a total positive linear correlation. Other selected motor fitness components have a significant difference with the performance of the two hands snatch.

Discussion of the findings

Results of the study showed that selected motor fitness components have a positive correlation with the performance of the two hands snatch. In the game of weightlifting these components play an important role as without explosive power of the lifter, heavy weight cannot be overcome by the lifter, a sufficient flexibility of the shoulder is required to perform a two hands snatch (also known as Olympic snatch) because barbell stays over the head and just above the neck which lead the lifter to hyperextend the shoulder. Flexibility of the spine has shown positive correlation with the performance of two hands snatch, as the body cannot be align in a straight line while squatting down, to maintain a balance position lifter has to make a curve in the lower back i.e. in the lumbar region and without having a good core muscles of the abdomen lower back muscle cannot be counter balance. Grip strength also indicated a significant correlation with the performance of two hands snatch as the barbell loaded with heavy weights needs a lot of strength in the grip to lift the barbell from the floor.

Conclusion

Based on the findings of the present study, it has been concluded that the selected motor fitness components have a great role in the performance of two hands snatch. Therefore, regarding the present study the following conclusion have been obtained:

1. There is a significant relationship between the explosive leg strength with the performance of the two hands snatch.
2. There is a significant relationship between the flexibility of the spine with the performance of the two hands snatch.
3. There is a significant relationship between the Grip strength with the performance of the two hands snatch.
4. There is a significant relationship between the shoulder flexibility with the performance of the two hands snatch.

5. There is a significant relationship between the strength endurance of the abdomen with the performance of the two hands snatch.

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