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Comparative study of kinanthropometric measurements of judo and wrestling male players

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Abstract

In the present study, an attempt has been made to compare the Kinanthropometric measurements of Judo and Wrestling male players. The study was carried out on 50 players (25 Judo and 25 Wrestling male players). The age of the selected subjects ranged from 19 to 27 years. Subjects were only measured by skin fold caliper. The present study was delimited to the affiliated colleges of C.D.L.U. i.e. Govt. National college Sirsa, Shah Satnam Ji Boys College Sirsa, M.M. College Fatehabad and University Teaching Departments C.D.L.U., (Sirsa). To compare the skinfold measurements such as Biceps and Triceps "Lange skin fold caliper was used to measure various skin folds. The data was used to analyze by t-test.

Keywords: Athlete, yoga, injury, physical fitness, Health

1. Introduction

Sports men have been able to give wonderful performance only due to the participation of new scientifically substantiated training methods and means of carrying into action sports such as sports techniques and tactics, betterment of sports gross equipments, as well as other components and system of gross sports training. Kinanthropometry measurement plays a critical role in different game and sports, routinely new records are being established in different sports activity possibly by science and technology merely the area of Physical education and sports has also established from the development of science and technology. The high level of functioning by a sports man by requires an extremely scientific approach and it should be done right from the level of identified talent. Kinanthropometry is a branch of ergonomics. Kinanthropometry is the measurement of body size, shape, strength weight, fat & working capability of the body. This measurement data is used to depict or paint a picture of the user population for a particular measure of the body by utilizing Kinanthropometry. The body is made up Kinanthropometry of various functional parts, such as sitting height, forward grip, waist height and head circumferences. Height is often used as a design criterion, but as a 'tall' person can either have a long or short body and long or short leg. Kinanthropometry aids in optimising training to improve performance, and also aids to lowers injuries. It is useful in the early recognition of athletic potential, and to test the effect of early training on the growth and maturation. It provides an important function in evaluating the relationship between exercise, nutrition and health, effects of ageing on the body. Kinanthropometry is a realm of study encompassing the quantification of body size, shape, proportion and composition in order to depict or explain human function, growth, maturation and performance. Kinanthropometry is the interface between human anatomy and movement. It is the application of a series of measurements made on the body and from these we can use the data that we collect directly, (or perform calculations using the data to give rise several indices and body composition predictions and to measure and describe physique) Kinanthropometry is an unknown word for various people except those inside the area of sport science. It is the scientific specialization dealing with the measurement of humans in a variety of morphological perspectives, its application to movement, and those factors which influence movement, includes:

1. Components of body build, body measurements, proportions, composition, shape, and maturation
2. Motor abilities and cardio respiratory capacities
3. Physical activity including recreational activity as well as highly specialized sports performance.

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Body composition is a part of the health-related components of physical fitness. While discussing body composition most of the people refer to percent body fat. Body composition is an important component of fitness or wellness. People whose body composition is optimal tend to be healthier, can move more efficiently and feel better about them. To reach wellness, one must determine what body composition is right for him and then work should be done. Successful management of body composition requires coordination of many. In physical fitness, body composition is used to depict the percentages of fat, bone, water and muscle in human bodies. Because muscular tissue occupied less space in our body than fat tissue, our body composition, as well as our weight, determines leanness. Two people of equal height and body weight may look completely different from each other because they have a different body composition. Body composition can be measured in different ways. The most widely used method is by using gun calipers to measure the thickness of subcutaneous fat in multiple places on the body. This involves the abdominal area, the subscapular region, arms, buttocks and thighs. These measurements are then used to estimate total body fat with a margin of approximately four percentage points. The body percentage fat is a measure of fitness level, because it is the only body measurement which directly calculates a person's relative body composition without related to height or weight. Body composition refers to the proportion of fat and fat-free mass in the body. Those with a higher proportion of fat-free mass to a lower proportion of body fat have a health body composition.

2. Review of related Literature

Abdelkrim, et al.,(2010) [1] in their study compared the physical attributes of elite men's basketball players according to age and specific individual positional roles. Forty-five players from 3 national basketball teams (Under-18 years, Under-20 years, and Senior) were measured for anthropometry (height, body mass, percentage body fat), explosive power (5 jumps and vertical jump), speed (5-m, 10-m, and 30-m sprint), agility (T-test), strength (bench press and squat 1 repetition maximum [1RM]), and intermittent high-intensity endurance performance (Yo-Yo intermittent recovery test [Yo-Yo IR1]). Data on match frequency, training routines, and playing experience were also collected. Under-26, 18 players were significantly ($p < 0.05$) shorter and lighter than both Senior and Under-20 players but showed higher ($p < 0.05$) percentage body fat. Under-20 and Senior players were faster and had better explosive-power and agility ($p < 0.05$) performances than Under-18 players. Bench press and squat 1RMs were higher in Senior players ($p < 0.05$) compared with the other groups. There were significant differences in the Yo-Yo IR1 performance among groups (Senior > Under-20 > Under-18, $p < 0.05$). Centers and power forwards were the tallest and the heaviest ($p < 0.05$). The Yo-Yo IR1 performance was higher ($p < 0.01$) in point guards than in centers. Point guards showed also better agility and 5- and 10-m performances. Power forwards and centers were stronger than the rest of players' positions in the bench press 1RM ($p < 0.01$). These results showed the existence of age and positional role differences in fitness performance in men's basketball. Differences were particularly evident in intermittent high-intensity endurance and agility performance. Sprint training possibly should be individualized when dealing with positional roles in elite men's basketball. Strength and conditioning coaches should use Yo-Yo IR1 to assess specific endurance in players of different age and positional role.

Chiara Milanese, et al. (2010) [2] Surveyed the Anthropometry and Motor fitness in children aged 6-12 years. This study aimed at evaluating motor abilities and anthropometric parameters in children aged 6-12 years and their interrelationships. One hundred fifty-two children underwent standard anthropometry (BMI, waist circumference, waist-to-hip ratio, and sum of five skinfolds) and motor fitness tests (standing long jump and 30 m dash). Data were stratified by age (6-7, 8-9, 10-12 years) and sex (M/F), and the Spearman correlation coefficient was used to evaluate the correlation between BMI and the other anthropometric measurements in each class as well as the correlation between anthropometric parameters and fitness tests. The effect of age, sex, and individual anthropometric measurement on velocity or jump length was evaluated by ANOVA. BMI positively correlated with waist circumference and subcutaneous fat, and negatively correlated with body density. Motor fitness was not significantly affected by BMI, while sum of five skinfolds negatively associated with velocity in males aged 6-7 years and with jump length in females aged 8-12 years. Motor fitness significantly correlated with age, and performance was higher in males. Moreover, motor fitness tests positively correlated with each other, especially in females. In the 6-12 years period motor performance improves with age and improvement is partially sex-related; this correlation is higher in boys, possibly because of their lesser amount of fat. Subcutaneous fat is a better predictor of physical fitness than BMI or waist circumference. Results also suggest that explosive strength and velocity are related the 6-12 years age span, possibly because both are power events, which involve horizontal movement of the centre of mass.

2.1 Objective of the study

- To compare the skin fold measurements such as biceps and triceps muscle of Judo and Wrestling male players.

2.2 Hypothesis

- There would be a great significant difference in skin fold measurement like biceps and triceps between Judo and Wrestling male player by skin fold calliper.

2.3 Delimitation

The present study was delimited to Judo and Wrestling male players of inter collage championship.

- Only fifty male players from each game of judo and wrestling were selected as the subject.
- The age group range from 18 to 28 years for the subject.
- Subjects were only measures by skin fold caliper.
- Fat and fat percentage was calculated only by siri equation (1956).
- The present study was delimited to the affiliated colleges of C.D.L.U. i.e. Govt. National college Sirsa, Shah Satnam Ji Boys College Sirsa, M.M. College Fatehabad and University Teaching Departments C.D.L.U.

3. Methods and procedures

3.1 Design of the study

In this chapter the procedure adopted for sampling, tool used, selection of variables, instruments reliability, administration of the test, collection of the data and description of the various test items and statically techniques used for analyzing the data have been discussed. In the present investigation an attempt has been made the study of kinanthropometric variables measurements of Judo and Wrestling male players participated in the inter-college championship.

3.2 Sample

The present study was concerned with 25 male players of judo and 25 male players of wrestling with age level 19 to 27 years as the subject.

3.3 Tool Used

The weight of the subject was measured with the help of portable electronic weighing machine.

- The lange skin fold caliper was used to measure various skin folds.
- The height of the subjects was measured with the help of measure tape.

3.4 Selection of Variables:

- Biceps skin fold
- Triceps skin fold

3.5 Instrument Reliability:

1. Lange skin fold caliper
2. Measuring Tape.

These instrument provided by department of Phy. Edu. Choudhary Devi Lal University Sirsa, These instruments were also utilized and accurate enough for the purpose of the study.

3. Administration of Test and Collection of the Data:

All the tests are administrated at the affiliated colleges of C.D.L.U. i.e. Govt. National College Sirsa, Shah Satnam ji Boys College Sirsa, M.M. College Fatehabad and C.D.L.U. Sirsa. The research scholar also take the help of other researchers scholars, Classmate, Coaches and other professional friends to record the data of different test items in the require manner.

4.1 Statistical technique

For the present study, the mean value, Standard deviations, T-test was applies to analyze the data.

4. Analysis and interpretation of data

In the present chapter, the investigator has made an attempt to make the comparative studies between 25 male players of wrestling and 25 male players of judo participation inter college championship on different skin fold measurement and body composition variable which were essential for the prediction and suitability.

Analysis of data-the data of the present study is analysis and interpretation in different tables as follows:

Table 1: Comparison of biceps skin folds measurement of wrestling and judo male players.

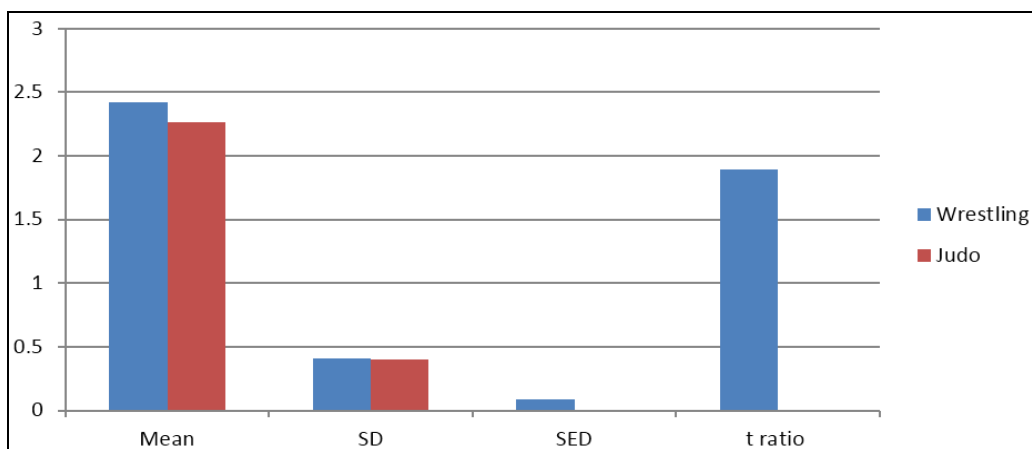
| Variables | No. of players | Wrestling | | Judo | | S.E.D | T ratio |
|-----------|----------------|-----------|------|----------|------|-------|---------|
| | | Mean(mm) | S.D | Mean(mm) | S.D | | |
| biceps | 25 | 2.42 | 0.41 | 2.26 | 0.40 | 0.08 | 1.89 |
| | 25 | | | | | | |

No significant at any level.

Table no 1 represent that the mean score of biceps of wrestling male player 2.42, S.D -0.41 and mean score of judo male player 2.26, S.D -0.40 and S.E.D is 0.86 and T-ratio is 1.89 which was tested at no significant level, it means that there was similar difference between the thickness of the biceps of

the wrestling male players and judo male players. In hypothesis there would be a great significant difference in biceps skin fold measurement. But now the hypothesis was not significant at any level so the hypothesis was rejected.

Graph 1: Comparisons of biceps skin fold measurement of wrestling and judo male players.



The significant at the 0.05 level of the confidence.

Table 2: Comparisons of triceps skin fold measurement of wrestling and judo male players.

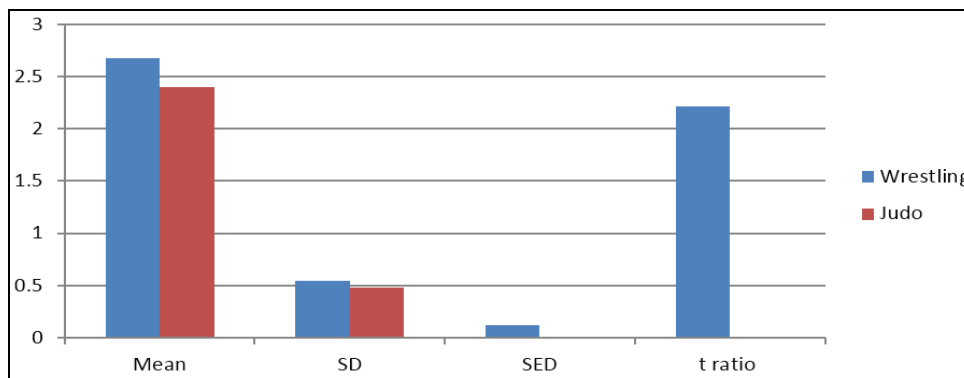
| Variables | No. of players | Wrestling | | Judo | | S.E.D | T ratio |
|-----------|----------------|-----------|-----|----------|------|-------|---------|
| Triceps | 25 | Mean(mm) | S.D | Mean(mm) | S.D | | |
| | 25 | 2.67 | 0.1 | 2.4 | 0.47 | 0.12 | 2.21 |

The significant at the 0.05 level of the confidence.

Table no.2 also represent that the mean score of triceps of wrestling player 2.67, S.D 0.1 and the mean score of triceps of judo male players is 2.40, S.D- 0.47 and S.E.D is 0.12 . The T-ratio is 2.21 which are significant at 0.05 level of confidence. It means that thickness of the triceps of judo male player is

less than wrestling male players. In hypothesis there would be a great significant difference in triceps skin fold measurement. But now the hypothesis was significant at 0.05 level of the confidence so the hypothesis was accepted.

Graph 2: Comparison of triceps skin folds measurement of wrestling and judo male players.



The significant at the 0.05 level of the confidence.

6. Main finding

1. There was similar difference in biceps skin fold thickness between judo male players and wrestling male players.
2. The judo male players were found to lesser thickness of triceps skin fold as compared to wrestling male players.

7. Discussion of result

The researcher analysis the data for skin folds measurement of wrestling and judo male players. In the finding of the present study the wrestling male player were found to better skin fold thickness in triceps compared to judo male player participation. It was significant difference. But there was no significant at any level in biceps skin folds measurements.

8. Conclusion

In complete analysis of the finding of the present study that the skin fold measurement like Triceps, of wrestling male players is more thickness compared to judo male players. But there was similar difference between wrestling male players and judo male players in case of biceps skin folds measurements.

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