



RELATIONSHIP OF SELECTED ANTHROPOMETRIC VARIABLES WITH THE PERFORMANCE OF JUDO PLAYERS

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Abstract

The purpose of the study was to find out the "relationship of selected anthropometric variables with the performance of judo players". The study was conducted on 30 male national and international Judo players of Haryana, 18-28 years of age group. For estimating Standing Height, leg length, arm length, chest circumference (centimeter), stadiometer, and flexible steel tape was used and the judo performance (out of 10) was graded by a panel of experts on the basis of their skills, techniques and match result. Statistics: - To find out the relationship between the selected anthropometric variables and with the performance of judo players was established for each item by computing Pearson Product Movement coefficient of correlation. The result showed that Standing Height, leg length, arm length and chest circumference of an individual correlates maximum with judo performance. The coefficient of correlation of standing height ($r = -0.84$), leg length ($r = -0.69$), arm length ($r = 0.72$) and chest circumference ($r = 0.68$) were found to be positively significant with judo Players performance at 0.05 level of significance. The finding indicates that Standing Height, leg length, arm length, chest circumference were important variables for better performance in judo.

Keywords: Judo players, anthropometric variables, standing height, leg length, arm length.

Introduction

Judo is a Japanese word meaning "gentle way," and is a type of martial art that comes from the ancient Japanese martial art of jujitsu, meaning "yielding way." In 1882, Dr. Jigoro Kano, president of Tokyo's University of Education, incorporated what he thought to be the best jujitsu techniques into what is now the sport of judo. It emphasizes using balance, leverage, and movement in all of its skills, especially throws. Practitioners of judo wear a cotton uniform called a judogi, meaning "judo uniform," and sometimes referred to simply as a gi. These uniforms are usually white but can also be blue. They consist of loose drawstring pants and a quilted jacket that is fastened by an obi, or belt. The uniforms were originally created for the sport but are now used for many different types of martial arts. The most noticeable thing to someone watching judo would likely be the variety of powerful throwing techniques. Grappling techniques are also important to learn, and include various control holds, arm and joint locks, pins, and choking techniques. Safety is emphasized in practice, and the sport places importance both on fighting done standing and on the ground. Judo prizes the idea of flexibility in the techniques, tailoring the technique to what is required in a particular moment. Strength is not as important as technique and skill, as well as timing. This enables the techniques to be performed effectively by a smaller person on a much stronger person. This sport is popular today with people of all ages, throughout the world. It is an excellent way to stay in shape, as well as increase self-confidence and learn self defense. Body control is developed, as well as quick reflexes, balance, and effective self-defense should the need arise. Judo is also a competitive sport, introduced as such at the 1964 Olympics. This



Olympic sport was only open to men until 1988, when it was a women's demonstration sport; in 1992, it became an official Olympic medal event for women. There are also collegiate competitions in the United States. The system of ranks found in many martial arts, usually identified by belts of different colors, was first used in judo. The ranks recognize hard work, as well as increased knowledge and ability of the martial art. There are separate junior ranks for children under 17 than there are for adults. Black belts are the highest ranks, with ten different degrees of black belt. The most noticeable thing to someone watching judo would likely be the variety of powerful throwing techniques. Grappling techniques are also important to learn, and include various control holds, arm and joint locks, pins, and choking techniques. Gracie Jiu-Jitsu contains strikes and numerous self-defense techniques that are not applicable in sporting competitions, but that can be extremely useful in "real world" situations. Many people who compete in mixed martial arts also have a kickboxing trainer in their training camp. These competitions generally allow for a very wide range of movements, including kicks and punches, along with wrestling techniques like joint locks and throws. The samurai were warlords who studied sword fighting and battle as an art, often spending as much time on book learning and spiritual training as physical prowess. Ninjutsu practitioners are sometimes thought of as "anti-samurai" due to their more closeted and hidden ways, but in terms of discipline, the two are similar in a number of important respects. (Harris, B., & Potter, S. Z. (2017, April 12)

Anthropometric is a term which refers to taking quantitative measurements of the human body. Numerous measurements of the body can be taken, ranging from bone density scans to height measurements. There are a number of ways in which anthropometric information can be utilized and there are several large databases of measurements from thousands of people which can be used for the purpose of comparison and study. The origins of taking measurements of humans is quite old, although the term "anthropometric" was not coined

until the 1800s. Early anatomists were very interested in measuring and comparing different bodies, studying variations in the size and shape of the body as a whole as well as organs. In addition, artists were concerned with measurements because they wanted their work to be accurate and they were curious about proportions. Historically, people believed that a great deal of information could be obtained from anthropometric data. Some physicians thought that measuring the body could provide information about health, for example, while psychologists theorized that the dimensions of the head might provide insight into the nature of the mind. Early anthropologists used physical measurements to argue that some races were superior to others. While much of the earlier study of anthropometrics has been debunked, there are still a wide range of applications for measurements of the body. Parents with growing children benefit from huge studies on the growth of children, for example, which have generated growth charts against which children can be compared as they develop. Anthropologists continue to use anthropometric data to study the differences between various groups of people, though they no longer do so with the goal of promoting racial superiority. Measuring people can also provide information about how humans are changing, with such measurements being used by people who develop clothing, furniture, and other consumer goods which are dependent on average user size. Measurements can include length measurements of various aspects of the body, ranging from overall height to individual fingers, along with weights, measurements of fat with calipers, and measurements which are taken to learn more about the inside of the body, such as density measurements and scans. The study of human measurements is not limited to living humans. Physical anthropologists study skeletons and take a number of anthropometric measurements which have far-reaching applications, perhaps most notably in forensics where people can sometimes identify a victim on the basis of unique skeletal traits. Individual organs are also extensively studied. (McMahon, M., & Wallace, O. (2017, April 19).)



Methodology

Subjects

The study was conducted on 30 male national and international Judo players of Haryana, 18-28 years of age group. These subjects were selected in terms of purposive sample from judo games.

Selection of Variables

Standing Height, leg length, arm length, chest circumference (centimeter) and judo game performance was considered as variables for the study.

Hypothesis

It was hypothesized that there would be significant relationship between selected anthropometric variables and judo performance.

Collection of Data

For estimating Standing Height, leg length, arm length, chest circumference (centimeter), stadiometer, and flexible steel tape was used and the judo performance (out of 10) was graded by a panel of experts on the basis of their skills, techniques and match result.

Selected Tools:

- Standing Height (Stadiometer).
- Leg Length (Flexible Steel Tape).
- Arm Length (Flexible Steel Tape).
- Girths are circumference measures (Flexible Steel Tape).

Statistical Procedure

To find out the relationship between the selected anthropometric variables with the performance of judo players was established for each item by computing Pearson Product Movement co-efficient of correlation. The level of significance chosen to test the hypothesis was 0.05, $P < 0.05$

Findings

Findings pertaining to the selected anthropometric variables which was subjected to the Pearson Product Movement co-efficient of correlation has been given in Table 1.

TABLE – 1
COEFFICIENT OF CORRELATION BETWEEN SELECTED ANTHROPOMETRIC VARIABLES WITH THE PERFORMANCE OF JUDO PLAYERS

Anthropometric variables	Coefficient of correlation
Standing height	0.84*
Leg length	0.69*
Arm length	0.72*
Chest circumference	0.68*

Significant at 0.05 level $r_{0.05}(28) = 0.36$

Table 1 reveals that selected anthropometric variables namely standing height, leg length, arm length and chest circumference of an individual correlates maximum with judo performance. The coefficient of correlation of standing height ($r = -0.84$), Leg length ($r = -0.69$), Arm length ($r = 0.72$), and chest circumference ($r = 0.68$) were found to be significant with judo Players performance at 0.05 level of significance.

Discussion

The present study was conducted to find out the relationship of selected anthropometric variables with the performance of judo players. It has been found that there is a significant positive relationship between standing height, leg length, arm length and chest circumference and judo playing performance. Judo performance is based on the height of the players. Taller individual will get more biomechanical advantage for performing the skill. Having taller arm and leg will get more advantage to reach the target and better judo performance.

In the light of findings of the study, the hypothesis that there would be significant relationship between selected anthropometric variables and judo performance was accepted.

Conclusions

Within the limitations of the study, the findings pertaining to the study resolved statistically significant



relationship of selected anthropometric variables and judo performance. The results show that judo players had significantly positive relationship between anthropometric variables and judo performance. Within the limitations of the present study following conclusions may be drawn:

1. In regard to standing height there was a significant positive relationship between the standing height and judo performance.
2. In regard to leg length there was a significant positive relationship between the leg length and judo performance.
3. In regard to arm length there was a significant positive relationship between the arm length and judo performance.
4. In regard to chest circumference there was a significant positive relationship between the chest circumference and judo performance.

References:

- Clark, H., Clark David H. (1972). *Advanced Statistical Supplement to Research Process in Physical education, Recreation and Health*, Englewood Cliffs, N.J. Prentice Hall Inc., p.20.
- Clarke, H. H. (1967). *Application of measurement to health and physical education*. Englewood Cliffs, NJ: Prentice-Hall.
- Clarke, H. H., Clarke, D. H., & Clarke, H. H. (1987). *Application of measurement to physical education*. Englewood Cliffs, NJ: Prentice-Hall.
- David Z., Paed, Pavel K. (2012). *The Introduction into Sports Training*, (Masaryk University, Brno)
- Harris, B., & Potter, S. Z. (2017, April 12). What is Judo? Retrieved April 26, 2017, from <http://www.wisegEEK.com/what-is-judo.htm>
- Lamani, C. G. (2015). A study of biomechanical and anthropometric variables of off spin bowler of Goa. *International Journal of Physical Education, Sports and Health*, vol. 3(1): 01-03.
- Lämmle, L., Tittlbach, S., Oberger, J., Worth, A., & Bös, K. (2010). A two-level model of motor performance ability. *Journal of Exercise Science & Fitness*, 8(1), 41-49.
- Lech, G., Jaworski, J., Lyakh, V., & Krawczyk, R. (2011). Effect of the level of coordinated motor abilities on performance in junior judokas. *Journal of human kinetics*, 30, 153-160.
- Leveme W. Baacke (1964) "Relationship of Selected Anthropometric and Physical Performance Measures to Performance in the Running Hop, Step and Jump" *Research Quarterly* 35,1. 107
- Lewandowska, J., Buśko, K., Pastuszek, A., & Boguszewska, K. (2011). Somatotype variables related to muscle torque and power in judoists. *Journal of human kinetics*, 30, 21-28.
- Little, N. G. (1991). Physical performance attributes of junior and senior women, juvenile, junior, and senior men judokas. *The Journal of sports medicine and physical fitness*, 31(4), 510-520.
- McMahon, M., & Wallace, O. (2017, April 19). What is Anthropometric? Retrieved April 26, 2017, from <http://www.wisegEEK.com/what-is-anthropometric.htm>