



ISSN: 2456-0057
IJPNPE 2019; 4(1): 862-864
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www.journalofsports.com
Received: xx-11-2018
Accepted: xx-12-2018

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Assessment of body mass index between judo and wrestling male players

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Abstract

The present study has been designed to investigate the kin-anthropometric characteristics of Judo and Wrestling male players. Therefore, the study has been entitled as “*Assessment of Body Mass Index between Judo and Wrestling Male Players*”. For accomplish the study a total 60 male players from the Judo and Wrestling sports were selected as sample. Each sport comprise of 30 players. Body Mass Index (BMI) was selected as a kin-anthropometric variable which was calculated from the measure of height and weight of respective subjects. The age of the sample taken from the population were ranged from 18 to 25 years. Obtained data were compared between Judo and Wrestling players within the application of Independent Sample t test. The computation of data was done through SPSS 20.0 version and level of confidence was set at 0.05 respectively.

Keywords: Body mass index, judo, wrestling

Introduction

Kinanthropometry is defined as the study of human size, shape, proportion, composition, maturation, and gross function, in order to understand growth, exercise, performance, and nutrition.

It is a scientific discipline that is concerned with the measurement of individuals in a variety of morphological perspectives, its application to movement and those factors which influence movement, including: components of body build, body measurements, proportions, composition, shape and maturation; motor abilities and cardiorespiratory capacities; physical activity including recreational activity as well as highly specialized sports performance. The predominant focus is upon obtaining detailed measurements upon the body composition of a given person.

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 gather directly or perform calculations using the data to produce various indices and body composition predictions and to measure and describe physique.

Kinanthropometry is an unknown word for many people except those inside the field of sport science. Describing the etymology of the word Kinanthropometry can help illustrate simply what you are going to talk about. However, if you have to say just a few sentences about the general scope of it, some problems will arise immediately. Is it a science? Why are its central definitions so ambiguous and various? For what really matter the Kinanthropometry assessment. And so on.

Body Mass Index

The body mass index (BMI) or Quetelet index is a value derived from the mass (weight) and height of an individual. The BMI is defined as the body mass divided by the square of the body height, and is universally expressed in units of kg/m², resulting from mass in kilograms and height in metres.

The BMI is an attempt to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight, normal weight, overweight, or obese based on that value. That categorization is the subject of some debate about where on the BMI scale the dividing lines between categories should be placed.

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Commonly accepted BMI ranges are underweight: under 18.5 kg/m², normal weight: 18.5 to 25, overweight: 25 to 30, obese: over 30. People of Asian descent have different associations between BMI, percentage of body fat, and health risks than those of European descent, with a higher risk of type 2 diabetes mellitus and atherosclerotic cardiovascular disease at BMIs lower than the WHO cut-off point for overweight, 25 kg/m², although the cut-off for observed risk varies among different Asian populations.

Methodology

Selection of the sample: For accomplish the study a total 60 male players from the Judo and Wrestling sports were selected as sample. Each sport comprise of 30 players. The selected subjects were belongs to university level competitions. The age of the sample taken from the population were ranged from 18 to 25 years.

Selection of the variable: Body Mass Index (BMI) was selected as a kin-anthropometric variable which was calculated from the measure of height and weight of respective subjects. The following equation was used to compute the body mass index from the given height and weight. That is,

$$\text{Body Mass Index (BMI)} = \frac{\text{Weight in Kg}}{(\text{Height in Meter})^2}$$

Statistical methods: Arithmetic mean and Standard deviation the measure of dispersion or variability were used as descriptive statistics which are also determined the symmetrical and homogeneity of the obtained data. Following formulas were used to compute the arithmetic mean and standard deviation. That is,

$$\text{Mean} = \frac{\sum f}{N} \quad \text{Standard Deviation or SD} = \sqrt{\frac{\sum X^2}{N}}$$

To compare the obtained mean of both groups in regard of BMI independent sample t test was used. Following equation used to calculate the ‘t’ test. That is,

$$t = \frac{m_1 - m_2}{\sqrt{\frac{s^2}{n^a} + \frac{s^2}{n^b}}}$$

All statistical computation has been performed within SPSS (Statistical Package for Social Science) version 20.0 respectively. The level of significance was set at 0.05 level of confidence.

Results

Table 1: Descriptive Statistics

Variables	Game Type	N	Mean	Std. Deviation
Height	Judo	30	168.1893	6.09136
	Wrestling	30	170.5883	6.18993
Weight	Judo	30	59.4633	5.97861
	Wrestling	30	63.0500	9.80087
BMI	Judo	30	21.0648	2.29642
	Wrestling	30	21.6126	2.68118

(N= Number of Respondents)

The table 1 reveals the characteristics in the terms of mean

and standard deviation of the variables i.e., height, weight and body mass index (BMI). It was observed that the score of mean and standard deviation of Judo players in their height was 168.18±6.09 and weight was 59.46±5.97 and in BMI 21.06±2.29 respectively. The score of mean and standard deviation of wrestling players in their height was 170.58±6.18, weight 63.05±9.80 and body mass index was 21.61±2.68 respectively.

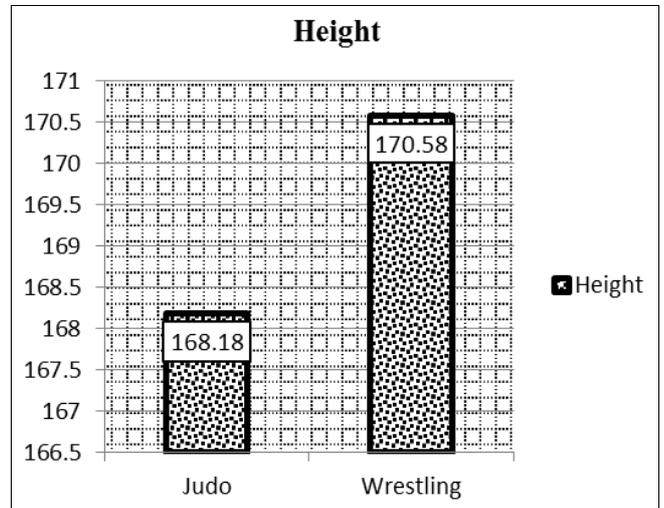


Fig 1: Mean Score of Height

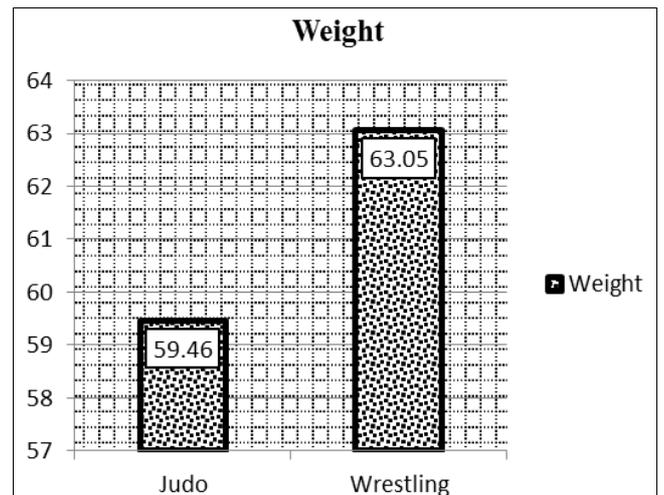


Fig 2: Mean Score of Weight

Table 2: Comparison of Mean Score between Judo and Wrestling players in their Body Mass Index

Variable	Groups	N	Mean	Mean Difference	‘t’	Sig. (two tailed)
BMI	Judo	30	21.06	-.547	-.850	.399
	wrestling	30	21.61			

(Level of Significance was 0.05) (P<0.05)

Table 2 explores the mean difference between Judo and Wrestling players in term of independent sample t test. It was observed that mean score of judo player was 21.06 and Wrestling players was 21.61 and mean difference between them was -.547 respectively. The calculated value of ‘t’ was -.850 which is lower than the tabulated value. The value of ‘t’ reveals that it was not significant at 0.05 level of confidence. The value of sig. (two tailed) is .399 which higher than the 0.05 (P>0.05) which means that there is no statistically significance difference observed between Judo and Wrestling player in the body mass index (BMI).

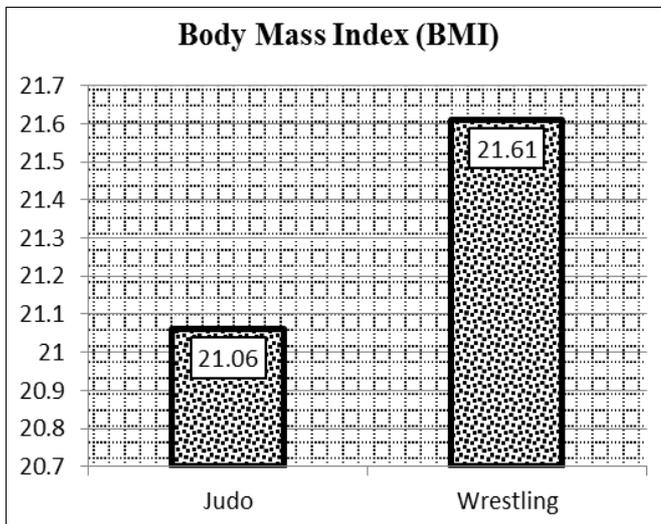


Fig 3: Body Mass Index

Conclusion

On the basis of obtained results it can be concluded that no significant difference was observed between Judo and Wrestling players in their body mass index (BMI). For justify the obtained results it can be assumed that both type of sports i.e., Judo and Wrestling are combative in nature and both games are strength dominating. Therefore, in was concluded that the characteristics of the player of both games were found similar in the present research. Some previous researches held on similar groups and with same variable were also shows the results as per the present research. Because of the same nature the training methods of the both game do not vary at large scale as well.

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