Performance Of National Level Taekwondo Players In Relation To Their Body Height

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Abstract
The purpose of this study was to determine the relationship of body height with the Performance of Taekwondo players. The subjects selected for this study were taken from the 37th Senior National Kyorugi & 10th Senior National Poomsae Taekwondo Championship 2018 held at Government Mahakaushal Arts and Commerce College, Jabalpur, Madhya Pradesh. The subjects were 25 Taekwondo players participating in the above championship under fin weight category. The anthropometric variables assessed for this study were Standing Height and Sitting Height. To analyze the data and to find out the relationship among selected variables Pearson product moment correlation coefficient was used at 0.05 level of significance. Findings of the study showed significant relationship of Standing Height with the Taekwondo Performance of athletes and an insignificant relationship was found for Sitting Height with the Taekwondo Performance of athletes.

Keywords:- Kyorugi, taekwondo, anthropometry, standing height, sitting height

Introduction
Taekwondo is a Korean martial art which focuses on higher and faster kicking techniques like head-height kicks, turning and spinning kicks, jumping kicks, back and front leg kicks. Taekwondo is a Korean word in which "Tae" means foot or kick, "Kwon" means fist or punch and "Do" means way of or an art or method. So, in whole it means "the way of the foot and fist" or one can say "the method or art of kicking and punching". In Taekwondo sparring competitions, total three rounds of two minutes duration in each round is permitted and there is a rest period of one minute after each round. After the completion of third round, if the score of players tie then another round will be conducted which is of one minute for the Golden Point. In that round, the first player to score valid point shall be declared as the winner. The valid scores in taekwondo are as : a valid punch to the trunk area is awarded one point, a valid kick to the trunk area is awarded two points, a valid turning kick to the trunk area is awarded four points, a valid kick to the head is awarded three points, a valid turning kick to the head is awarded five points. Anthropometry is derived from two Greek words Anthropos which means "human", and metron which means to "measure". In combination of these two words it refers to the measurement of the human individual.

Anthropometry is a systematic and scientific measurement of the human body. Anthropometric measurements includes the size, shape, structure and composition i.e height, weight, volume, shoulder/hip width, arm/leg length, circumferences, percentage of body fat, water content and lean body mass of humans. Anthropometry was developed as a method used by anthropologists for the study of variations in humans body growth and evolution.

As mentioned earlier, the scoring in taekwondo varies depending upon the part of the body being hit by the kick performed and the type of kick being performed by the player. Maximum points are awarded to the kick being hit to the head (any rotating kick to head is awarded with 5 points and any simple effective kick to the skull is awarded with 3 points). Thus a player having longer leg length may have an advantage in scoring head kicks easily and acquiring maximum scores. Having longer legs may also be helpful in covering more range during the kick rather than a player who is having shorter legs. The players with shorter legs may have to give
some extra efforts to cover the area or required range in between him and his opponent while kicking. This may consume more time to attack which may help the opponent to defend that attack more comfortably.

One study was given by Suwat Sidhilaw (1996) and in which he determine kinetic and kinematic characteristics of Thai Boxing Roundhouse Kick. The three chances of kicking were evaluated at different height to calculate the peak force and impulse variables. The results of this study helped in showing various assumptions for further researches. In comparing the dollyeo chagi kick at various height, the kick executed at middle level produced the maximum peak force and impulse values, and the high level kick produced the minimum values of peak force and impulse[1]. Take for instance two players one having taller height and one having shorter height. The head of opponent for taller height player is at middle level and for shorter height player it is at high level. Thus the player having taller height have more chances of knocking out his shorter height opponent.

The main aim to conduct this study was to find the relationship of standing height and sitting height with the performance of taekwondo athletes.

**Objective**

The objectives of the study were

1. To analyze the relation between Standing Height and Performance of Taekwondo Players.
2. To find out the relation between Sitting Height and Performance of Taekwondo Players.

**Hypotheses**

Based on expert’s opinion, reviews and scholar’s own understanding of the problem, the study was based on the following hypotheses:-

1. There exists a significant positive relationship between Standing Height and Winning Performance of Taekwondo Players.
2. There exists a significant positive relationship between Sitting Height and Winning Performance of Taekwondo Players.

**Method & Procedure**

For the purpose of the study, the data was collected from 37th Senior National Kyorugi & 10th Senior National Poomsae Taekwondo Championship 2018 held at Government Mahakaushal Arts and Commerce College, Jabalpur, Madhya Pradesh. The subjects were 25 male national Taekwondo players participating in this competition under fin weight (under 54 kg) category. The independent anthropometric measurements selected for this study were Standing Height and Sitting Height. The performance of the players in official national championships in last four years was taken as the dependent variable. The performance of the players in national championships was converted into numerical scores. The stadiometer was used to measure the standing height and sitting height of the subjects. The anthropometric data of Standing Height and Sitting Height was then correlated with the performance data using Pearson Product Moment Correlation Statistics to find the relationship between them. In order to test the hypothesis of the study, descriptive statistics such as (mean, standard deviation) and Pearson Product Moment Correlation Coefficient technique was employed to analyze the taekwondo performance in relation to selected anthropometric measurements and level of significance was set at 0.05.

**Results**

The objective was to analyze the relationship between Standing Height and Performance of Taekwondo players. After administering the anthropometric measurements of standing height and performance data of Taekwondo players, the scores were correlated using the Pearson Product Moment Correlation method. The results were shown in the table 1 below.
H₀: There exists a significant positive relationship between Standing Height and Winning Performance of Taekwondo Players.

Table 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>df</th>
<th>r-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing Height</td>
<td>25</td>
<td>165.56</td>
<td>4.606</td>
<td>23</td>
<td>0.476</td>
</tr>
<tr>
<td>Performance</td>
<td>25</td>
<td>5.56</td>
<td>6.423</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table value of r for df = 23 at 0.05 level of confidence was 0.396.

Figure 1

Line graph showing the relation of Standing Height with the Winning Performance of Taekwondo players

Data presented in table 1 indicate that the value of Pearson Product Moment Correlation Coefficient between Standing Height and Winning Performance for male national Taekwondo players was 0.476. This was a positive average correlation and statistically significant at 0.05 level of confidence.

The objective was to analyze the relationship between Sitting Height and Winning Performance of Taekwondo players. After administering the anthropometric measurements of sitting height and performance data of Taekwondo players, the scores were correlated using the Pearson Product Moment Correlation method. The results were shown in the table 2 below.

H₀: There exists an insignificant relationship between Sitting Height and Winning Performance of Taekwondo Players.
Table 2
Relationship between Sitting Height and Winning Performance of Taekwondo players

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>df</th>
<th>r-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting Height</td>
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<td>86.828</td>
<td>4.868</td>
<td>23</td>
<td>0.189</td>
</tr>
<tr>
<td>Performance</td>
<td>25</td>
<td>5.56</td>
<td>6.423</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table value of r for df = 23 at 0.05 level of confidence was 0.396.*

Data presented in table 2 indicate that the value of Pearson Product Moment Correlation Coefficient between Sitting Height and Winning Performance for male national Taekwondo players was 0.189. This was a positive low correlation and statistically insignificant at 0.05 level of confidence.

Discussion & conclusion

The results showed the positive relationship between Standing Height and Winning Performance of Taekwondo players which means as the Standing Height of players increases the Winning Performance of the players will also increase. In one study, Kazemi et.al. (2004) conducted the comparative study having title as “2004 Olympic Taekwondo Athlete Profile”. His purpose of conducting the study was to find the characteristics of medalists in Taekwondo competition in the Athens 2004 Olympic Games by comparing them with the non medalists. The results showed that the medalists were found slightly taller than non-medalists however, these were not statistically significant[2]. In other study, Dizon et.al. (2012) performed the correlational study on the topic “Making Filipino Taekwondo Athletes Internationally Competitive: An International Comparison of Anthropometric and Physiologic Characteristics”. The results also showed significant relation in terms of height as the Filipino male players were found to be shorter than the other elite players[3]. In another study, Ghorbantzadeh et al. (2011) conducted their research on the topic “Determination of Taekwondo National Team Selection Criterions by Measuring Physical and Physiological Parameters”. His
purpose of conducting the study was to find the physiological and physical characteristics of Turkish taekwondo players. The variables chosen for the study were standing and sitting height, BMI, biepicondylar widths of humerus and femur, biacromial and bi-iliocristal widths, girths. The results of his study showed that height, arm strength and anaerobic power of national team elite players are greater as compared to the national team non elite players [4]. These studies supported the results of this present study. Thus it was concluded that having higher Standing Height was helpful for the players to perform better in the competitions. Also the results of the study concluded that the Winners in Taekwondo Competitions were taller in Standing Height than their opponents.

Also the results showed insignificant relationship between Sitting Height and Winning Performance of Taekwondo players which means having lower or higher Sitting height of players does not affects their Winning performance. This may be due to the reason that Taekwondo Sparring involves mostly the functioning of only lower body of players to perform kicks. Thus it was concluded that Sitting Height had no relation in increasing or decreasing the Performance of Taekwondo players.

Works Cited


