A Comparative Study On Agility And Reaction Time Among Elite And Non-Elite Taekwondo Players

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ABSTRACT

This study aims to compare agility and reaction time between elite and non-elite Taekwondo players. Agility and reaction time are crucial components in Taekwondo, influencing an player's ability to respond quickly and effectively during competition. the subjects were selected for this study from Kerala state and fin and fly are the selected category. This study involved 32 participants, divided into two groups: 16 elite players and 16 non-elite players. Agility was assessed using the Zig-Zag Agility Run Test, while reaction time was measured with the Reaction Time Ruler Drop Test. The results demonstrated that elite Taekwondo players exhibited significantly better agility and faster reaction times compared to their non-elite players. These findings highlight the importance of advanced training and experience in developing superior agility and reaction capabilities, which are essential for high-level performance in Taekwondo. The study provides valuable insights for coaches and players aiming to enhance performance through targeted training interventions.

Keywords: Agility, Reaction Time, Elite, Non-Elite, Taekwondo.

INTRODUCTION

AGILITY

Agility is one of the major fitness components and it plays an important role in many sports and physical activities. Think of the sports where you have to use agility. In team sports such as football, soccer, basketball, hockey, volleyball, and rugby you must quickly respond to the movements of the other players and the ball.

Agility has been defined as simply the ability to change direction rapidly but also the ability to change direction rapidly and accurately.

Factors determining agility are strength, concentric strength, gravity, eccentric strength, joint stability, stretch-shortening cycle and anthropometrical variables such as height, weight, body fat, length and circumference.

Guidelines for speed and agility training are to Allow adequate warm-up, the player should have an appropriate strength/conditioning base for the selected drills, Speed and agility should be performed early in the training session or preferably on separate days to maximize training effect, avoid fatigue, and prevent overuse, Allow adequate rest between sets and repetitions.

REACTION TIME

Reaction time is the final key point among skill-related components of physical fitness. It measures the speed at which an player responds to an external stimulus. While reaction time is closely linked to agility, it is a smaller aspect of physical fitness. It is crucial for performance, being frequently utilized in various sporting scenarios. Factors determining reaction time are perception, processing and response.

Ways to improve reaction time are, to train at a specific movement or action, Keep Yourself Calm, stay Hydrated, Get Enough Sleep, Properly Fuel Your Body and Perform Cognitive Training Exercises.

TAEKWONDO

Taekwondo, as a martial art and sport, is deeply ingrained in Korean culture and history. Its roots can be traced back to ancient Korea, where early forms of martial arts were practised. These early forms, particularly Taekkyeon, were developed during the Goguryeo Dynasty (37 BCE–668 CE), as evidenced by mural paintings in ancient tombs that depict warriors practising martial arts.

During the subsequent Silla Dynasty (668–935 CE), the Hwarang, an elite group of young warriors, incorporated martial arts training as part of their education. This period was crucial for the development of martial arts in Korea, as the Hwarang emphasized the principles of loyalty, honour, and martial prowess, laying the groundwork for modern martial arts philosophies.

The Joseon Dynasty (1392–1910) further advanced Korean martial arts. The publication of "Muye Dobo Tongji," a comprehensive martial arts manual, in the late 18th century, documented various martial arts techniques, including those that resemble modern Taekwondo. Despite the decline in martial arts practice during the later

years of the dynasty, these historical texts preserved the techniques and philosophies that would influence Taekwondo's development.

The 20th century was a transformative period for Taekwondo. Under Japanese occupation (1910–1945), many traditional Korean practices were suppressed. However, the end of World War II and Korea’s liberation brought a resurgence of interest in Korean culture and martial arts. Korean martial artists, many of whom had trained in Japanese Karate during the occupation, began to reclaim and refine their native practices, integrating techniques and philosophies from various martial arts to create a distinct Korean system.

In 1955, General Choi Hong Hi, along with other martial artists, officially named this new system "Taekwondo." The name itself reflects the art's emphasis: "Tae" (foot), "Kwon" (fist), and "Do" (way or discipline). The formation of the Korea Taekwondo Association (KTA) in 1959 marked the formal unification and standardization of Taekwondo.

Taekwondo's rich history and development from ancient Korean martial arts to a globally recognized sport illustrate its enduring appeal and versatility. Its comprehensive training system offers numerous benefits, including self-defence skills, physical fitness, mental discipline, character development, and a sense of community. As Taekwondo continues to evolve, it remains a powerful tool for personal growth and a testament to the enduring spirit of martial arts.

METHODOLOGY

SELECTION OF SUBJECT

For the study total of 32 taekwondo players were taken for the subjects from Kerala and the selected weight categories were "fin" and "fly". 16 players are in both elite and non-elite categories. The age of the subject matter was ranging from 15-30 years.

STATEMENT OF THE PROBLEM

The study is stated as "A comparative study on agility and reaction time among elite and non-elite taekwondo players"

METHODOLOGY

SOURCE OF DATA

The sample was comprised of elite and non-elite taekwondo players from Kerala, the elite players are considered to have achieved at the

national and international level of competition, and the non-elite players are considered district and state-level participants.

SELECTION OF SUBJECTS

The study sample comprised 32 players, including 16 elite (8 male and 8 female) and 16 non-elite players (8 male and 8 female) of taekwondo from Kerala state. The elite category is considered as those who participated at the national and international level, and non-elites have participated at district and state levels of competition.

SAMPLING METHOD

purposive sampling method was used.

CRITERION MEASURES

The criterion measures to test the hypothesis of this study are below:

- Agility: The Zig-Zag Agility test.
- Reaction time: Reaction Time Ruler Drop Test.

DATA ANALYSIS

Result and discussion

Table 1 COMPARATIVE ANALYSIS OF AGILITY VARIABLE AMONG THE ELITE AND NON-ELITE TAEKWONDO PLAYERS

PLAYERS	N	MEAN	STD.DEVIATION	t-TEST VALUE
ELITE	16	10.5250	1.74069	-3.759
NON-ELITE	16	14.4188	3.75947	

The perusal of Table 1: revealed that mean and standard deviation values of elite players on the agility variable were recorded as 10.5250 and 1.74069 respectively. in the case of Non-elite sports persons the same were recorded as 14.4188 and 3.75947. The calculated t value showed to be -3.759 whereas the tabulated t value is 2.750. Thus, it supports the hypothesis that states that there would be a significant difference in agility among elite and non-elite players of Taekwondo. So it is concluded based on data analysis that there is a significant difference between the agility of elite and non-elite players of Taekwondo.

Table 2: COMPARATIVE ANALYSIS OF REACTION VARIABLE AMONG THE ELITE AND NON-ELITE TAEKWONDO PLAYERS

PLAYERS	N	MEAN	STD.DEVIATION	T-TEST VALUE
ELITE	16	**.1511**	**.02015**	**-5.014**
NON-ELITE	16	**.1834**	**.01615**	

Table 2 indicates that the mean and standard deviation values for elite player's reaction times were .1511 and .02015, respectively. For non-elite players, these values were .1834 and .01615. The t-value calculated was -5.014, supporting the hypothesis that there is a significant difference in reaction ability between elite and non-elite Taekwondo players. Consequently, the data analysis confirms a considerable disparity in reaction times between the two groups.

CONCLUSION

The results conclude that there was a significant difference between the elite and non-elite taekwondo players in agility and reaction variables.

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