Comparison of Whole Body Reaction and Anticipation Reaction Time Between Kata and Kumite in Karate

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Abstract. Karate is divided by two classes of kata and kumite. Whole body reaction time test and anticipation reaction time is the need of the reaction karate athlete. The purpose of this study was to compare the ability of whole-body reaction and anticipation reaction time on kata and kumite athletes. The method used is descriptive comparative. Sample was 10 athletes kata and 10 athletes kumite with used total sampling technique. The result shows that the data whole body reaction time value $f = 4.508$ and sig. $0.059 > 0.05$ that concluded there was no difference in the speed of whole-body reaction time with the athlete kata and kumite, while data on anticipation reaction time value $f = 1.787$ and sig. $0.198 > 0.05$ that concluded there was difference in the speed of anticipation reaction time test with the athlete kata and kumite in karate.

1. Introduction

In both kata and kumite the same essence that is fighting. The importance for athletes karate according to [1, 2] states that "The time a person taken to respond to a signal. A good reaction time is absolutely essential in karate, as it enables an opponent's body movements or attacks to identified early, allowing decisive or evasive action to be taken if Necessary. "The reaction time are both very important in karate, as it allows for mendidentifikasi early the opponent's body movements or attacks that allow taking quick movements. It can be concluded that for an athlete karate requires a quick reaction to the movement of attack or defense. Achievement Karate in a wide variety of physical component is support. Physical components there is a reaction, the reaction is an important component of karate athletes in the competition and kumite and kata. Karate coach in Indonesia always put the reaction components only for kumite, while the less kata in the notice.

The difference in treatment in the provision of training components of this reaction affected the performance of athletes, as well as in reaction anticipation, this reaction is very important in martial sports as proposed [3, 4] states that "anticipatory skill plays an important role in successful decision-making." explained that the ability of anticipation in the game is very important in decision making. This is due to improvements in the anticipation reaction, the better the decision-making when the match. According to [5, 10] "Reaction time has been considered as a key strategy in competitive sports the which require fast reactions such as karate," not just in kumite or kata.
2. Methods
The research method used in this research is a comparative descriptive method. This research has been conducted in the laboratory of sport science, faculty of physical education and health, Universitas Pendidikan Indonesia involving athletes karate student activity unit UPI. Samples to be taken each as much as 10 athletes kata and 10 athletes kumite. The instrument used in this study were Anticipation Reaction Time Test and Whole Body Reaction Time devices.

3. Result and Discussion
In the group of athletes kata the results average of the whole body reaction time test was 0.239 seconds, with the fastest result was 0.074 seconds and the results are delayed 0.353 seconds, while the average is 0.239 seconds. In the group of athletes kumite in the whole body reaction time test had an average 0.320 seconds, with the fastest value with the results of 0.277 seconds and 0.401 seconds late sample group of athletes have kata the average speed was slightly faster than athletes kumite.

| Class    | N | Min | Max | Mean | Std. Deviation |
|----------|---|-----|-----|------|----------------|
| Kata     | 10| 0.07| 0.35| 0.23 | 0.88           |
| Kumite   | 10| 0.27| 0.40| 0.32 | 0.04           |

Anticipation reaction time test both sample groups have the differences speed that is fastest 0.01 seconds and late was 0.06 seconds. Kata group had average speed in anticipation of 0.030 seconds, while kumite had time average of 0.024 seconds. Other results showed that there was no significant difference in whole-body reaction time and anticipation athlete's reaction time between kata and kumite. Karate athletes reaction speed in a study [7, 8] obtained the results of the reaction speed and reaction anticipation kumite athletes average speed of 230 m/s. Karate athletes in the study had two stages of information processing when anticipating the enemy's attack, the third phase is to acquire information on the first movement and assessing the information to the target area. For example, if your opponent attacks with punches jodan tsuki towards the head, the first will absorb the information from the first movement of an opponent who will issue a punch and then punch the target will be forecasted where it will be posted after it would anticipate the movement of age-uke or parry over. In these studies it is known that the ability to anticipate is the karate athlete is perceptual. A karate athlete has very good anticipation in extracting information obtained faster than in regular karate student, the reaction and the reaction is very important because perceptual anticipation advantageous to improve the performance of athletes compete.

Then, according to research by [6, 9] obtained the data that needs karate athletes to international level was 0.035 seconds for reaction test, 0.064 seconds for visual reaction time test and 0.033 seconds for auditory reaction time test, in the study explained that age, sex, and level of competition greatly affect the test results and that most affect the reaction rate is age. These results illustrate that karate is a kind of high-level competitive sports requiring quick reactions. The ability to grasp information quickly and simplifies decision-making and give more time for the implementation of motor movement which is a karate athlete needs to improve performance in a match both in kumite and kata.

In its application the ability of kata reaction carried into action when getting the stimulation of anticipation perceptual pattern in a kata. Athletes kata would be difficult to show a good performance if do not have a good reaction, and if an athlete says no reaction good anticipation, the athlete kata would lose the essence of motion and rhythm needed for dealing with reactions resulting stimulation of decision making proper anticipation word is fighting against an imaginary opponent. In applications kumite, the reaction is required when athletes get a chance to steal points from the opponent, and the anticipation is
required when your opponent attacks. This suggests that the reaction speed of a karate athlete has the same fast reaction speed although it has had a class specification, the kata and kumite. Returning to the concept which is basic karate sport martial art that focuses on an empty hand combat. In karate, there are two classes of specifications in a game, that kata and kumite.

4. Conclusion
There were no differences in the ability of whole-body reaction time significantly among athletes and kumite and kata. Based on the findings of data analysis researchers can provide conclusions sample of 20 people were divided into two groups: a group of athletes kata and athletes kumite. In the group of athletes kata, the average of the whole body reaction time test was 0.239 seconds, with the fastest result was 0.074 seconds and the slowest is 0.353 seconds, while the average was 0.239 seconds. In the group of athletes kumite in the whole body reaction time test had an average yield of 0.320 seconds, with the value of the results of 0.277 second fastest and the slowest is 0.401 seconds.

There were no differences in the ability of anticipation reaction time significantly among kata and kumite athletes. Sample group kata had an average speed slightly faster than the athlete kumite. Meanwhile, in anticipation reaction time test both sample groups have the same speed that is fastest 0.01 seconds and late is 0.06 seconds, but that is different is the amount of average. Kata sample group had an average time of anticipation speed of 0.030 seconds, while kumite had an average time of 0.024 seconds.

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