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Reaction Speed and Coordination Improves The Punch of Gyaku Zuki Chudan

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Abstract

This study aims to determine the effect of reaction speed, eye-hand coordination towards the gyaku zuki chudan on Bandung Karate Club Athlete in Bekasi City. The research method is a descriptive associative, and the analysis technique is path analysis. The sampling technique used is a total sampling with a sample amount of 16 people. The instruments used are a test of gyaku zuki chudan, reaction speed measurement using Catch the ruler test, eye-hand coordination measurement using throw-catch the ball, The amount of value obtained by gyaku zuki chudan technique is to do a straight punch parallel to the chest or angle of the 90° with as soon as possible for 10 seconds. Samples tested 2 times, performed in a closed room, the results obtained in the execution of the test is hitting in the size of the number of punch. The conclusions are: (1) reaction speed directly affects on the gyaku zuki chudan, and (2) eye-hand coordination directly affects on the gyaku zuki chudan.)

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INTRODUCTION

Karate is a good example of a competitive sport with high levels of temporal and spatial constraints which require fast reactions. In sparring (''kumite'') and matches of karate, two athletes face each other within a 2-m distance, making offensive attacks against each other (Shuji Mori YO, 2002).

The gyaku zuki chudan technique punch is a basic punch that must be mastered by an athlete since the first athlete or practicing karateka (Hofmann, Witte, & Emmermacher, 2008).

The inability in the punch technique skills of gyaku zuki chudan will affect all other forms of punch or punch variations. The Gyaku-zuki, also known as the reverse punch, is a technique commonly used in karate kumite, a form of competitive fighting (Suwarganda, Razali, Wilson, Flyger, & Ponniyah, 2009).

The gyaku zuki chudan technique is more varied and very efficient in obtaining value, this is recognized by national karate athletes, they feel more confident using the gyaku zuki chudan technique than other techniques especially when they have not gotten a score or are in a series state. "70% of all karate techniques use a lot of punch as a powerful weapon, therefore a karateka must have a really good blow to be able to get a number or point if in a fight or kumite" (Purba, 2016: 48).

Documenting data released by the Karate Championship Committee in 2017 National Level PB FORKI, averaging 81.94% using the punch of gyaku zuki chudan (Muhamad & Haqiyah, 2019)

Table 1. Contributions Techniques Karate 2017 Match Results (Semi Finals and Finals) Training.

No	Championships	Technique	Result	%
1	PPLP dan PPLD (6 - 11 August 2017)	1. Gyaku Zuki Chudan	72	80 %
		2. Gijami jodan	12	13,33 %
		3. Ushiro mawashi geri	2	2,23 %
		4. Oi zuki	4	4,44 %
2	O2SN (3 - 9 September 2017)	1. Gyaku Zuki Chudan	138	87,34 %
		2. Gijami jodan	9	5,70 %
		3. Ushiro mawashi geri	6	3,80 %
		4. Oi zuki	5	3,16 %
3	POPNAS XIV (16 – 19 September 2017)	1. Gyaku Zuki Chudan	87	79,09 %
		2. Gijami jodan	15	13,64 %
		3. Ushiro mawashi geri	2	1,82 %
		4. Oi zuki	6	5,45 %
4	Piala Panglima (22 – 24 September 2017)	1. Gyaku Zuki Chudan	122	81,33 %
		2. Gijami jodan	18	12 %
		3. Ushiro mawashi geri	4	2,67 %
		4. Oi zuki	6	4 %
		Total	508	

In performing thetechnique gyaku zuki chudan, reaction speed is needed (Suwarganda et al., 2009) and eye-hand coordination (Witte, Emmermacher, & Lessau, 2008)

Speed is clasically defined as the shortest time required for an object to move along a fixed distance, wich is the same as velocity, but without specifying the direction (Miller, 2012).

For example, a karateka in gyaku zuki chudan does all the above movements, when doing a blow he makes a reaction and does a non reactive acyclic motion when the arm slides towards the target, then when it is released and approaches the target he performs a combination of Reactive Asiklis and fast motion to produce fast and directional blows. So in terms of the use of energy systems using anaerobic energy systems (ATP-PC and Glycolysis) which only have a duration of 10 seconds - <60 seconds or <1 minute. It is speculated that anaerobic metabolism is the predominant source of energy in Kumite karate (Beneke, Beyer, Jachner, Erasmus, & Hütler, 2004).

Coordination is divided into two types, namely general coordination and special coordination (Bompa, 2012). General coordination is the ability of the entire body to adjust and adjust movements simultaneously when performing a motion (Norma et al., 2014). That is, that every movement carried out involves all or most of the muscles, nervous system, and joints. For this reason, in this general coordination, there is a need for regularity of movement from other members of the body, so that the movements carried out can be harmonious and effective so that they can master the motion skills learned. General coordination is an important element in motor performance and shows the level of ability a person. Therefore general coordination is also the basis for developing special coordination

Eye-hand coordination is a complex psychomotor skill with an essential role in adaptation, which involves synergistic action of sensory functions (exteroceptive and interoceptive) and motor function, resulting in providing informational and energy parameters of the movement (Grigore, Mitrache, Predoiu, & Ro, 2012).

In identifying the factors that can influence and increase the speed of the gyaku zuki chudan punch based on relevant studies. Based on the results of the study, a person's thought process in coordinating sensory systems and motor systems can be assessed by reaction time. At hand reaction, good hand and visual coordination will provide a fast hand motion response. The time of hand reaction can determine success in a match, so that hand reaction time is an important component in sports (Syafitri, Supatmo, & Indraswari, 2017) Good reaction time is very important in karate, because it allows to identifying earlier opponent body movements or attacks that allowing

taking decisive action or evading will be taken if necessary (Syaquro & Badruzaman, 2018).

This is the background of the authors to conduct further research on the effect of reaction speed and eye-hand coordination on the punch of gyaku zuki chudan.

METHODS

The method used in this study was a descriptive associative method with measurement techniques and tests. The analysis technique used was path analysis. The sample used is a Bandung Karate Club Athlete in Bekasi City amount 16 people.

The instruments used in this research : (1) Catch the ruler test to reaction speed (Widiastuti, 2015), (2) Eye-hand coordination measured with throw-catch the ball (Ismaryati, 2011). The amount of value obtained by gyaku zuki chudan technique is to do a straight punch parallel to the chest or angle of the 90° with as soon as possible for 10 seconds. Samples tested 2 times, performed in a closed room, the results obtained in the execution of the test is hitting in the size of the number of punch (Muhamad & Haqiyah, 2019).

RESULTS AND DISCUSSION

Descriptive statistics calculation (Muhamad, Memet; Aridhotul, 2015) results can be seen in the table below

Table 2. Descriptive Statistics Calculation

Variables	Min	Max	Mean	Std. Deviation
Reaction Speed	1	2	1.49	0.199
Eye-Hand Coodination	11	19	13.625	2.09364
Gyaku Zuki Chudan	51	77	64	7.26636

Based on the above **Table 2**, the results of the calculation of descriptive statistics of 16 research samples, including: reaction speed has a minimum value of 1, the maximum value of 2, the mean of 1.49, and the standard deviation of 0.199. Hand-eye coordination has a minimum value of 11, a maximum value of 19, a mean of 13.625, and a standard deviation of 2.09364. Gyaku zuki Chudan has a minimum value of 51, a maximum value of 77, a mean of 64, and a standard deviation of 7.6626. After conducting the required tests for analysis normality test then the researcher did the hypothesis testing by using path analysis. For the data processing of path analysis, the researcher used SPSS version 23 (Kadir, 2015).

Using the backward method, the path coefficients shown by the Standardized Coefficients (beta) column are obtained. From table coefficient, obtained value □ y1 = -0424; t-cal = -1.923, p-value = 0,039 < 0,05 or H0 is rejected, which means the reaction speed (X1) a positive direct effect on gyaku tzuki chudan (Y). Value of □ y2 = 0.502; t-cal = 2.272, p-value = 0.041 < 0,05 or H0 is rejected, which means there is a positive direct effect between eye-hand coordination (X2) to gyaku zuki chudan (Y).

Gyaku zuki chudan is more varied and very efficient in value acquisition. Athlete with a good intermuscular coordination the faster movements executed (Witte et al., 2008) However, in order to realize a powerful karate technique, it is very important to have an optimall inter- and intramuscular coordination (Witte, Emmermacher, Hofmann, Schwab, & Witte, 2005)

In performing the technique of gyaku zuki chudan, reaction speed is needed (Suwarganda et al., 2009) and eye-hand coordination (Witte et al., 2008) so that the movement is efficient, obtains a score (ippon) and cannot be anticipated by opponents. The form of speed training carried out, in this case, is the speed in reacting to the stimulus that comes, moving directly to a certain place quickly, the accuracy of time and position in moving the body, moving very quickly, the occurrence of movement in a short time and answer or understand something quickly.

The faster and stronger the movement is done, the greater the power produced. The acceleration variation is related to time in the mechanical strength of the gyaku zuki chudan (Ionete, Mereuta, Mereuta, Tudoran, & Ganea, 2011).

CONCLUSION

Based on the results of data processing and analysis, the conclusions of this study are as follows: (1) reaction speed directly affects on the gyaku zuki chudan, and (2) eye-hand coordination directly affects on the gyaku zuki chudan.

Some suggestions to be given with respect to the results of this study are for lecturers, coaches, trainers, and physical education teachers, the results of this study can be used as a reference and information in the search for talented karate athletes on the match category based on the level of good physical fitness, especially reaction speed and coordination.

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