The Kinematics Analysis of Doubles Kazami Mawashi-Geri for Heavy Weight Players under the Maximum Load in Karate

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Abstract: Analysis of the double kick before leg back onto the floor is highly effective on the heavy weight. This technique is very difficult to heavy weight players; especially players under the match or maximum load training in Karate and in same time very common. So, the present research study the kinematics analysis of doubles kazami mawashi-geri for Heavy weight Players under the maximum load (maxLo) in Karate. The researcher used the descriptive approach (case study) analysis by unit called the two-dimensional simotion analysis system. The research sample included one player of heavy weight effective kazami mawashi-geri. The main results were that the before faster than after (maxLo) before (2.11sec) after (maxLo) (2.54sec) (maxLo) effect on player. The researcher recommends developing of pelvis flexibility and developing of control (kamie).

Key words: Doubles Kazami Mawashi-Geri %Maximum Load (maxLo) %Karate

INTRODUCTION

The motor performance cannot be implemented in are associated with building the human body and its a distinct manner unless it is subjected to search in movements but the use of each differs from the other several ways, including biomechanics. Kazami mawashi-geri skill is considered one of the important and effective kicking skills in kumite matches [1, 2].

Balance and stability are necessary to basic techniques. Kicking (in which one leg supports the entire body) is an example of technique that depends on the karate’s sense of balance and control of the body. In addition, the karate requires stable joints, stances and posture to deliver (or withstand) maximum impact in (or from) a blow [3].

The mawashi geri kick is a favorite amongst many seasoned karate for its relative ease of use and potential effectiveness. It can often be daunting to less experienced students due to the subtle body movements and perceived flexibility required. However, with a little knowledge of the mechanics involved it can be used to great effect by relatively junior grades. So, the description of kazami mawashi-geri front leg means the kick lift the knee of your kicking leg and bring it forward up while you twist on other leg. If the kick with back leg, the mawashi geri is stronger if the kick with front leg, the kick is faster.

Phase (1) when the knee is up: snap out the leg and hit with ankle Kick inward and higher than horizontal level. Twist on the leg on which standing. Extend hips and keep one arm in front of you player, in case you have to defend against an attack at the same time. The other hand is at your solar plexus (upper abdominals), hips. The hips are a crucial, yet oft-neglected component in executing karate techniques. Hip rotation adds power to the upper body and is thus essential to strong blocks and punches, stable movements, good balance and proper form. The karate cannot move as smoothly, quickly, or powerfully if the hips are passive. For this reason, teachers often remind their students to block with your hips, punch with your hips and kick from your hips [3]. Phase (2) when the kicking leg is extended: kicking faster by front leg to face. Phase (3) when the knee is up (after the mawashi geri): put the kicking leg back onto the floor [3, 4].

But in this study, analysis the double kick before leg back onto the floor is more effective on the heavy weight. This technique is very difficult to heavy weight players; especially players under the match or maximum load.
training in Karate and in same time very common. So, the
present research study the kinematics analysis of doubles kazami mawashi-geri for Heavy weight Players under the maximum load in Karate.

MATERIALS AND METHODS

The researcher used the descriptive approach (case study) analysis by unit called the two-dimensional simi motion analysis system the sample Includes one player of heavy weight effective of kazami mawashi-geri, to do two time before and after maximum load. Maximum load degree was identified by pulse after pulse performance on the wheel. Pulse equation: (220 - age) the player age (25) = (220 - 25=185), so the max load (90%)

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\frac{(90 \times 185)}{(100)} = 166 \text{ pules}
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Research Parameters: The total time and phases, vertical distance of the right hip-point, angle of the left leg of the first kick and back leg and the second kick, angle of the left hip (left knee-hip-shoulder), and acceleration (X, Y) of the left leg of the first kick and back leg and the second kick.

RESULTS AND DISCUSSION

The first kick and back leg and the second kick, before-after the maximum load (maxLo), the kick after (maxLo) is higher than before.Fig. 1 shows that the total time was different between the performance the kick (before-after) (maxLo) the before faster than after (maxLo), before (maxLo) (2.11 sec) after (maxLo) (2.54 sec) and this meaning more different in phases, the primary phase before (maxLo) (0.57 sec) after (maxLo) (0.5) sec, main phase before (maxLo) (kick1) (0.18) sec, after (maxLo) (0.28), (back foot) before (maxLo) (0.32) sec, (0.22) sec, (kick2) before (maxLo) (1.11) sec, after (1.47) sec.

Fig. 2 indicated that the vertical distance of the right hip-point of performance after (maxLo) than performance, before (maxLo) throw the all phases before (maxLo) Was (1.29m), (1.28m), (1.27m) the average (1.28m), after (maxLo) (1.37m), (1.37m), (1.36m), average (1.366m) that meaning the load effect on player balance of attempt before(maxLo) better than after (maxLo), can find close or far between the phases the same change in the moment of scanc kick before (maxLo) and after (maxLo) the less vertical distance. And the change between phases before (maxLo) may that was the faster.

Figure 3 shows that the angle of the left leg of performance after max load higher than performance before (maxLo) throw the all phases before (maxLo) was 154, 161, 159, respectively; the average (158), after (159), (156), (160) the average (158) the relation between the left leg angle and the right hip point that the different change in angle before (maxLo) or after (maxLo) not related with the point of hip because the whole pelvis rotation up or down that the average of angle in phases (158).

Figure 4 shows that the angle of the left hip (left knee-hip-shoulder) the performance before (maxLo) throw the all phases (159), (129), (159) it is harmony change and more than after (maxLo) was 131, 140, 144 but the after (maxLo) better than before in the monument back leg because it save to the player from the Competitor attack.

Fig. 1: Links stick, images, standby for the first and second kick before leg back onto the floor
Fig. 2: Vertical distance of the right hip-point of the first kick and back leg and kick the second (before-after) the maximum load

Fig. 3: Angle of the left leg of the first kick and back leg and kick the second (before-after) the maximum load

Fig. 4: Angle of the left hip of the first kick and back leg and kick the second (before-after) the maximum load
It is seen from Figure 5 the acceleration (X, Y) of the right foot, horizontal before (maxLo) (-3.1) m/s² (31.6) m/s² (-22) m/s², horizontal after (maxLo) (-31.9) m/s² (-41.3) m/s² (29.88) m/s² and vertical before (maxLo) (-94.8) m/s², (27.6) m/s², (-50.6) m/s², Vertical after (maxLo) (6.5) m/s², (-65.2) m/s², (9.14) m/s², after (maxLo) Acceleration(X, Y) the big change than before (maxLo), because performance after, may had not control, harmony.

**CONCLUSION**

The before faster than after (maxLo), before (maxLo) (2.11sec) after (maxLo) (2.54sec) the load effect on player balance of attempt before (maxLo) better than after (maxLo), can find close or far between the phases the same change in the moment of Scand kick before (maxLo) and after (maxLo) the less Vertical distance. And the change between phases before (maxLo) may that be to the it was the faster, the relation between the left leg angle and the right hip point that the deferent change in angle before (maxLo) or after (maxLo) not related with the point of hip because the whole pelvis rotation up or dawn that the average of angle in phases (158), the after (maxLo) better than before in the monument back leg because it save to the player from the Competitor attack, performance after, may had not control, harmony.

**Recommendation:** Using (maxLo) when training of kazami mawashi-geri, using the tray match by (maxLo), important of balance of all body, developing of pelvis flexibility, developing of control (kamie)

**REFERENCES**