

Kinematics and Efficacy Analysis of the Seni Silat Cekak Malaysia (Kaedah A)

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ABSTRACT

Kaedah A is a fend off technique engaged in Seni Silat Cekak Malaysia, upon confronting a punch force exerted within the vicinity of the thorax area. Hitherto, there is still lack of biomechanical analysis on the execution of Kaedah A. Therefore, this study aims at analysing the effectiveness of Kaedah A based on the total execution time as well as to describe the kinematic characteristics of the hand movement upon its execution. The experiment was carried out by means of motion capture. Microsoft Kinect was utilised to detect the hand movement whilst the post processing of the captured motion was performed via Virtual Sensei Lite. Kaedah A was executed five times by an experienced Seni Silat Cekak Malaysia practitioner to investigate the accuracy and repeatability of the system. The data obtained serves as an input for the trajectory mapping for both initial and end point identification. The time difference, Δt between the points demonstrates that the total time execution for Kaedah A is less than 0.1 s. Further analysis involves filtering the coordinate data obtained in order to generate the polynomial function of the hand movement during the execution of Kaedah A. It could be concluded that the Kaedah A execution has the features of a ballistic movement. The findings provides useful data for reliability prediction as well as further enhancement of the Kaedah A itself.

Keywords: Motion Capture, Ballistic Movement, Martial Arts, Kinematics, Sports Engineering

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