

Bio-mechanics analysis of instep kicking among Malaysian football players

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ABSTRACT

In Malaysia, football (soccer) is becoming more professional. Past studies showed that the main cause of low quality games among Malaysian football players is lack of good kicking technique. Instep kicking technique is frequently used for a short, accurate passing and for shooting a goal. Generally, the instep kick uses the shoe laces to strike the ball. The three main objectives of this study were to investigate: influence of approach angle; distance of supporting leg from the ball; and ball internal pressure. These aspects were found to have a significant effect on the average angular velocity of the knee on the kicking leg. Six subjects using dominant right leg and free from any injury were selected to take part in this study. Data collection was performed by taking pictures using 3-D video focusing at the lower body part (i.e. from waist to ankle). Markers were attached to the lower part of the body, prior to the subject making a kick. Results of the study were calculated by using Response Surface method (RSM), which showed three parameters, namely: approach angle, distance of the supporting leg from the ball and the ball internal pressure have significant effects in producing high quality instep kick. The best results were generated by RSM for 53.6 approach angle, 8.8 cm distance of supporting leg from the, 0.9 bar internal ball pressure, and the knee angular velocity at 779 deg/s.

KEYWORDS:

Football; instep; kick; Malaysia; approach angle; ball; distance

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