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Articles

Changes in Kicking Pattern: Effect of Experience, Speed, Accuracy, and Effective Striking Mass

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Purpose

The purp d goal
constrai striking
mass wa ccuracy of
kicks rel

Method

Twen without an
accuracy ve timing of
joint ang ined if
calculate lysis of
variance or and
variable

Results

Results indicated that experience and speed affect absolute timing of joint velocities with no changes in the relative timing of peak joint velocity across independent factors. Chi-square analysis indicated that calculated effective mass is not independent of ankle velocity. ANOVA indicated that experienced performers displayed less variability error than did inexperienced performers.

Conclusion

It was concluded that: (a) Experience, velocity, and accuracy do not affect the relative timing of kicks; (b) kickers trade ankle velocity at impact for greater effective striking mass and ball velocity; and (c) variability in ball placement is affected by experience.

Keywords: constraints dynamic systems pattern change striking mass

Notes

[1] Data regarding coordination and effective mass were also analyzed using a principal component analysis. Thirteen variables representing data collected for this study were entered into analysis. Five components were identified with eigenvalues greater than 1.0. The components were differences in joint velocities, calculated and actual effective mass, ball and foot velocity, joint lag, and joint velocity. Results substantiated that the variables variance in the data

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