

## ACCELERATIONS OF THE FOOT DURING INSIDE TRAPPING

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### Introduction

In soccer, trapping skills are of the same importance as kicking skills. However, there are not many researches about soccer trapping. The purpose of this study was to examine about accelerations of the foot during inside soccer trapping by using accelerometer.

### Methods

One male university student was asked to perform 3 consecutive inside trapping about the following six type tasks. 1. Trapping in front foot. 2. Trapping with rotation by 90 degrees. 3. Trapping of pass from cross direction. These tasks were conducted respectively on the condition of a fast passing and a slow passing. Two triaxial accelerometers were fixed under lateral malleolus(LM) and lateral side of fifth metatarsal bone(FMB). Motions of whole body during trapping were recorded using two high speed cameras (200Hz) synchronized with accelerometers. Maximal acceleration at ball impact and synthesized velocity after ball impact calculated from movie data were used for analysis.

### Results & Discussion

The mean maximal acceleration of trapping in front foot at LM toward Z axis was  $17.8 \pm 9.0(m/s^2)$  in slow passing and  $60.8 \pm 10.6(m/s^2)$  in fast passing. About FMB, mean maximal acceleration toward Z axis was  $234.2 \pm 9.1 (m/s^2)$  in slow passing and  $289.1 \pm 12.7 (m/s^2)$  in fast passing. These result suggested that the fast passing gave foot a high impact, and the toe was gave more than four times the impact of the ankle in fast passing. The mean maximal acceleration of trapping in front foot at FMB toward Y axis was  $-238.1 \pm 10.1(m/s^2)$  in slow passing and  $-270.5 \pm 11.6(m/s^2)$  in fast passing. These result showed that the ball impact has been absorbed by external rotation and eversion the ankle.

### Conclusion

About inside trapping in fast passing, it was showed that the toe has received more impact than the ankle and the movement of ankle absorbed ball impact.

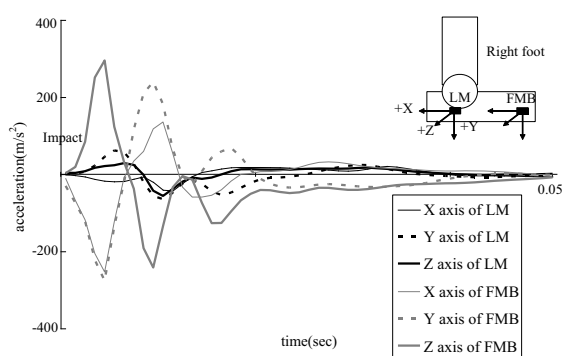


Figure 1. Typical acceleration changes in inside trapping (Task1 of fast passing).