

Effect of foot alignment on planter pressure during turn movements

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The purpose of this study is to investigate the correlation between foot alignment and plantar pressure distribution at turn movements.

Eighteen collegiate football players participated in this study. The assessment included (A) arch height, (B) leg-heel alignment (LHA) in a weight-bearing position, (C) LHA in a non weight-bearing position, (D) forefoot angle, (E) plantar pressure at turn movements.

As for data collection for (E), subjects were instructed to run and turn with right leg for 3 directions; (1) side-cut task which is defined as a right foot plant cutting to the left, (2) straight running, (3) crossover-cut task which is defined as a right-foot plant with the left foot crossing over the right foot. We divided plantar area into nine different anatomic regions and collected peak pressure,

mean pressure, peak loading quantity, mean loading quantity during each task.

In all 3 courses, a significant positive correlation was found in LHA in the non weight-bearing and a loading quantity of the lateral toes. In a straight running, a significant positive correlation was found between a forefoot angle and peak contact pressure of the lateral rearfoot.

The present study reveals that the foot, which tends to be everted, gets higher load to plantar lateral part, since a significant correlation was observed for LHA in the non weight-bearing position and forefoot angle between loading quantity and contact pressure of the plantar lateral part. This indicates that it is necessary to pay attention to alignment of foot in the non weight-bearing position.