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## Poster – Peak plantar pressures during running in forefoot and heel strikers in an active male population

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The reduction in cushioning when running barefoot to wearing traditional running shoes has been identified as resulting in a more plantar-flexed foot at initial ground contact resulting in a more forefoot style contact. Many runners do still adopt a heel striking movement while running barefoot. There is evidence to suggest a forefoot-striking strategy may reduce the likelihood of injuries to the lower extremities, however there may be an increased risk of injury to the forefoot region due to possible excessive loading. Therefore the purpose of this study was to test if participants adopting a forefoot-striking running strategy were experiencing increased peak pressure experienced in the forefoot plantar region.

**Methods:** Participants (male) ran at  $4 \text{ m} \cdot \text{s}^{-1}$  along a 15 m runway with a 2 m pressure mat (TekScan, Boston, USA); 440 Hz) located in the centre. Three foot contacts were recorded for the left and right foot. Participants were identified as forefoot or heel strikers if all their recorded foot strikes' centre of pressure path appeared in the forefoot or heel areas of the plantar surface during the first frame of data. All right foot pressure data was analysed in Walkway Research software (TekScan, Boston, USA) with a foot model being applied to define specific areas of the plantar surface. Peak pressure data was exported, and mean values were statistically analysed in SPSS, where independent *t*-tests were used to test for significance in each area of the plantar surface.

**Results:** Significant differences ( $P < 0.05$ ) were identified in the heel region of the plantar surface, however no significant differences ( $P > 0.05$ ) were identified in the forefoot or midfoot regions (Figure 1).

**Discussion and Conclusions:** The results of this study suggest that changes in peak pressures experienced in the forefoot region may not be significantly influenced by whether a runner adopts a forefoot or heel strike movement strategy. As such, running forefoot may not predispose the individual to an

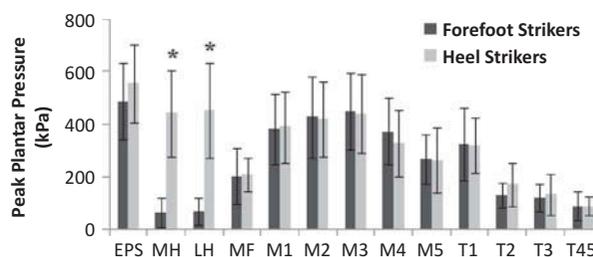


Figure 1. Peak plantar pressures foot regions (entire plantar surface (EPS), medial and lateral heel (MH and LH), midfoot (MF), metatarsals 1 to 5 (M1, M2, M3, M4 and M5), toes 1 to 5 (T1, T2, T3 and T45)).

increased risk of injury to this region; however, longitudinal studies are required to support this hypothesis.

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## An examination of the Easter programme on physiological and well-being stats in elite rugby league

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**Background:** Rugby league (RL) is a contact, collision-based team sport that intermittent in nature, with periods of high-intensity activity and low-intensity recovery over two halves of 40 min. RL has been frequently cited as one of the most physiologically demanding team sports (King, Jenkins, & Gabbett, 2009). In-house data reveals players cover up to 8239 m in a game, with work rates of up to  $97 \text{ m} \cdot \text{min}^{-1}$ , and 882.9 m covered in high-intensity activity. Players spend up to 60 min in a game above 90% of maximum heart rate, and experience up to 381 impacts above  $7 \times$  body weight.

**Purpose:** There has been much debate into the Easter period of fixtures in SL. Teams over this period are required to play around 4 games in 14 days, with Good Friday and Easter Monday traditionally being present. Due to the intense physiological demands of RL, the main argument against the packed Easter schedule is player welfare, and whether it is right for players to play so many games in such a short period of time, especially for those teams with small squads. There has also been much debate to the perceived drop-off in intensity of