

A Comparison of Self-Reported Pain Levels in Minimally-Shod vs Traditionally-Shod Runners

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Distance running is a popular recreational activity in the US, yet the rate of overuse injury is very high. Barefoot running is proposed as a tactic to avoid injury and allow for a more natural run by decreasing the loading rate on the lower extremity. We previously reported that minimalist runners with distinctive forefoot types were likely to experience pain in specific locations; however, no clear relationship has been established between the relationship of shoe type and pain. Therefore, the **purpose** of this study is to compare self-reported pain in specific regions of the lower limbs between minimalist runners and traditionally shod runners. **Methods:** 42 experienced runners participated (age: 26.5 ±8.7 yrs, hgt: 171.7±10.8 cm, mass: 71.4±16.6 kg, gender: 16M/26F). All participants reported running at least 10 miles a week for the past three months. Following consent, runners completed a visual analog scale (VAS) concerning the amount of pain they experience in five common sites of injury: knee, ankle, calf, shin, and foot. Runners with a score of ≥3 on the VAS were considered to be in pain. The manufacturer and model of the running shoe was recorded, and the runner was categorized as either minimalist (midsole drop <4mm) or traditional (midsole drop>4mm). Separate chi-square analyses were performed to determine if shoe type (minimalist, traditional) was related to pain (yes, no) as well as if shoe type was a factor in pain in specific locations in the lower limbs ($\alpha=0.05$). **Results:** A greater percentage of minimalist runners reported pain (83.3% to 50.0%; $p=.026$). However, more traditionally shod runners reported knee pain than minimalist runners (5.6% to 33.3%; $p=.015$). No significant relationship was established on the type of shoe and the incidence of pain in other locations. **Conclusion:** More minimally shod runners may experience pain in their lower limbs than traditionally shod runners. This is contrary to previous research claiming that barefoot running may decrease pain in the lower limbs due to a reduction in loading rates. However, the study also indicates that knee pain is more prevalent in traditionally shod runners. Future research should investigate differences between foot anthropometry in both traditionally shod and minimalist runners who are injured compared to those who are uninjured.