The purpose of this study was to compare muscle activation in the lower leg while wearing normal athletic shoes and Vibram Fivefingers toe shoes.

Methods: Three men and three women from the UT student body and from off campus volunteered to participate in this study. Each subject had their body composition measured. Subjects had surface EMG electrodes placed on the tibialis anterior (Ta), peroneus longus (Pl), soleus (So), and gastrocnemius (Ga). Then in a counterbalanced order, each subject completed 10 running trials requiring them to land with their right foot on a force plate for 2 conditions: one with athletic shoes, and one with Vibram Fivefingers toe shoes. Muscle preactivation, reflex activation, speed and change in velocity were recorded during the trials. Dependent t-tests were run using SPSS.

Results: A paired samples test and dependent t-tests revealed the average and significance of preactivation and reflex reaction between finger shoes and athletic shoes.

Conclusion: The results of this study indicate that there could be significant differences in muscle activation between the use of athletic shoes and Vibram Fivefingers toe shoes. Future studies need to be performed to examine these differences further.

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Background: Those who run in minimalist footwear typically utilize different running mechanics. When running, these individuals initial contact is made in the mid or forefoot. This opposes the modern athletic shoe with built in cushioning which promotes a heel strike for initial contact. Each type of footwear imposes different stresses on the body.

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