



Musculoskeletal

Effects of barefoot running on muscle and running forces

How does muscle activation and running forces change after 4 months of barefoot running?

Author : Daniel Quinn

Barefoot running has been popularized in recent years due to minimalist footwear. The premise that barefoot running is built on, is that as humans we have evolved over centuries to run without shoes. Studies have shown that running technique differs when wearing shoes versus barefoot. This article investigates if progressive barefoot running can alter running mechanics when shod or not in the long term.

Previous research has shown immediate changes to running mechanics such as foot strike pattern, joint kinematics, impact forces and muscle activation in barefoot runners. The literature is sparse in relation to long term effects of barefoot running.

6 participants took part in this study. The 16 week training intervention comprised of 3 running sessions per week. Initially barefoot

running started at 5% of the running duration and increased to 20% by the end. Firmer surfaces were used to run on in the second half of the program.



This study has shown that the incorporation of barefoot running into training program will decrease impact forces, muscle activation intensity and improve shock absorption. After 16 weeks of incorporating barefoot running into a training program muscle activation intensity in gastronemius, tibialis anterior, vastus lateralis and rectus femoris decreased. Only gastronemius muscle activity was attenuated during shod running. Vertical ground reaction forces were seen to decrease post intervention during shod and barefoot running.

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