



**Effectiveness of the MBT shoe in terms of selected joint strain parameters in overweight persons while walking (Buchecker et al., 2010)**

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Buchecker, M., Wagner, H., Pfusterschmied, J., Stöggl, T.L., Müller, E., 2010. Lower extremity joint loading during level walking with Masai barefoot technology shoes in overweight males. *Scand J Med Sci Sports*, Article first published online: 30 AUG 2010: DOI: 10.1111/j.1600-0838.2010.01179.x

Buchecker M., Wagner H., Pfusterschmied J., Müller E., Knee joint loading during level walking with MBT shoes in overweight man. 14th Annual Congress of the European College of Sport Science, Oslo, Norway June 24-27, 2009. Oral Presentation.

**ABSTRACT**

**PURPOSE:** The purpose of this study was to evaluate the effects of Masai barefoot technology (MBT) shoes on lower extremity joint loading in overweight males during level walking.

**METHODS:** Therefore, lower extremity kinematics, kinetics, and muscle electromyographic signals of the vastus lateralis (VL), biceps femoris (BF), and gastrocnemius medialis (GM) were recorded in 10 overweight males at a self-chosen walking speed with MBT shoes and conventional shoes. Selected peak joint moments, maximal joint force loading rates, mean muscle intensities, and co-activation indices of the VL/BF, as well as of the VL/GM were analyzed and compared for the two shoe conditions using paired Student's t-tests ( $\alpha=0.05$ ).

**RESULTS:** Results showed that walking with MBT shoes reduced first peak knee adduction moments in overweight subjects. During midstance and terminal stance, increases in VL/GM co-activation, accompanied by increases in VL and GM (only terminal stance) intensities were found for the MBT situation. Kinetic



variables analyzed to assess ankle and hip joint loading did not exhibit any statistical differences.

**CONCLUSION:** These results suggest that using MBT shoes diminishes medial compartment loads at the knee without overloading hip or ankle joints in overweight males. However, the additional muscle loading should not be overlooked, and warrants further investigation.

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