The effects of prolonged wear of textured shoe insoles on walking in people with Multiple Sclerosis

Project title:	**The effects of prolonged wear of textured shoe insoles on walking in people with Multiple Sclerosis**
Project duration:	10 weeks
Description:	Many people with Multiple Sclerosis (MS) experience problems with walking, which can make day to day activities difficult and often leads to falls. Improving walking ability is, therefore, of primary importance in maintaining health, independence, and quality of life in people living with MS. Gait impairments in MS are often caused by a combination of typical symptoms, such as altered function of muscles, nerves, and senses. The key to improving mobility is, therefore, to use a range of different treatment techniques which address each of these symptoms. Foot sensation plays an important role in keeping the body balanced whilst walking, yet, we know from previous studies that people with MS often have poor sensation on the soles of their feet. It is, therefore, possible that wearing a specially designed shoe insole, which enhances plantar sensory information, could help people affected by MS to walk better. This RCT will investigate whether long-term wear of a textured shoe insole can improve walking in people with MS. We will analyse how people with MS walk over an even and uneven surface, when they are wearing the insoles for the first time and after three months wear. We will explore whether wearing the insoles changes the way the body segments move (motion capture analysis) during walking. We will also monitor any changes in foot sensation and awareness of foot position, to help us better understand how our insoles may bring about their effects on walking. This study is funded by MS Research Australia, involves collaborations with international researchers and a partnership with footwear industry. The study has also received substantial media attention. Data collection will be conducted off campus.
Expected outcomes and deliverables:	The scholar will gain deeper understanding of clinical and functional assessments in people with MS including foot sensation & lower limb proprioception, balance and walking ability, and the administration of disease-specific questionnaires. The scholar will develop skills in data collection, management, processing and analysis. They will be trained in the use of biomechanical equipment (force platforms, GAITRite walkway, 3D Motion Capture). The scholar will also have the opportunity to contribute to journal publications and conference presentations related to this project.

Suitable for:	The project is open to applications from Year 3 Physiotherapy students, who have a keen interest in neurological rehabilitation and biomechanics/human movement.
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