

UQ Summer or Winter Research Project Description

Project title:	An exploration of the function of the deep hip muscles in response to different walking conditions
Project duration:	<i>10 weeks, 30 hours pw</i>
Description:	<p>Hip muscle activity is known to be altered in a range of pathological conditions affecting the hip, knee and ankle joints. Interventions aimed at improving hip muscle function in these conditions may therefore have significant clinical impact. This may include gait retraining strategies, and devices such as foot orthoses. Foot orthoses can theoretically be prescribed to restore biomechanical deficiencies, unload proximal lower limb joints, or provide sensory feedback for improving motor control. However, their effect on activation patterns of the hip muscles is unclear, especially the deep stabilising muscles of the hip. This study will investigate the immediate effects of gait retraining strategies and foot orthoses on hip muscle activity in healthy young adults. Fifteen healthy young adults, aged 18-40 years, have undergone gait analysis, with muscle activity recorded from the deep and superficial hip muscles. Each participant performed walking and single leg squat tasks under different conditions, including at different speeds and with contoured and textured foot orthoses. The student will be involved in processing existing EMG data, and will have the opportunity to assist with data collection for other studies.</p>
Expected outcomes and deliverables:	<p>The student will experience in-depth learning of hip muscle activity during functional tasks, and novel methods of measuring this. The student will have the opportunity to contribute to publications, and present their work to a research group. Through assisting in other studies using similar methods, the student will gain experience and understanding of how muscle activation can be measured in different parts of the body, in different musculoskeletal conditions of the lower limb.</p>
Suitable for:	<p>This project is suitable for students with an interest in anatomy, muscle function (including EMG), lower limb musculoskeletal conditions, and interventions to address these. It is particularly suited to students studying physiotherapy or a related field. We are seeking a student who is hard-working and self-motivated, but also eager to learn about hip muscle function, effects of interventions, and novel methods of evaluating this.</p>
Primary Supervisor:	Dr Natalie Collins, n.collins1@uq.edu.au
Further info:	<p>All applicants to contact the project supervisor prior to submitting an application.</p> <p>One position available</p> <p>Apply via UQ Advantage.</p>