

Project proposal

Project title	<input type="text" value="Musculoskeletal function in fatigued running conditions"/>	
First Supervisor	Dr <input type="text" value="v"/> <input type="text" value="Nicola Swann"/>	<input type="text" value=""/>
Second Supervisor	<input type="text" value="tbc"/>	
School	<input type="text" value="Life Sciences"/> <input type="text" value="v"/>	
Other member of supervisory team (no more than three KU supervisors in total)	<input type="text" value=""/>	
Specific requirements beyond 2:1 degree	<input type="text" value=""/>	

Project summary (max 4,000 characters)

MSc by Research

Optimised gait during running enables appropriate attenuation of ground reaction forces, forward progression of the body at the desired speed and minimum cost of locomotion for the velocity attained. Muscles of the lower limb play an important role in achieving optimum gait patterns through movement of body segments, resistance of applied loads and attenuation of impact forces, through appropriate timing and levels of activation.

Inappropriate muscle activation timing and imbalance of muscular forces have been associated with a multitude of exercise related injuries, including stress fracture, patellofemoral pain syndrome, medial tibial stress syndrome and muscular sprains. Implications of deviations from the optimised gait strategy can therefore range from increased metabolic cost to physiologically catastrophic injury by virtue of the loads applied to the musculoskeletal system. The challenges of maintaining musculoskeletal control during sustained periods of running, potentially in a fatigued state, are substantial. This can be further exacerbated by alterations in terrain, such as incline, altering the loading requirements of the musculoskeletal system. Therefore, this study aims to assess localised biomechanical and physiological effects of fatigued incline running, through use of a variety of techniques both biomechanical (motion analysis, electromyography) and physiological (energy expenditure, inflammatory markers).