

Faculty of Science and Health

FACULTY RESEARCH COMMITTEE



Undergraduate Summer Research Internship Scheme 2017

Project Title: *Comparing the AlterG treadmill and an in-house developed “SoftRun” phone app to reduce loading at the knee and hip in osteoarthritic runners*

Principal Investigator: *Dr. Kieran Moran*

School/Research Centre: *School of Health and Human Performance*

Project Description

Project Aims

Physical activity, exercise and sport based musculoskeletal injuries are of major societal concern because of the very high costs associated with primary medical treatment, rehabilitation and loss of work based productivity. Such injuries include joint based injuries (e.g. knee osteoarthritis). The greatest number of physical activity based injuries occur to the lower limbs during running, with between 40 and 70% of all recreational runners developing an injury every year. These injuries are associated with high impact loading that occur as the foot strikes the ground, sending a shock wave up through the body. Biomechanics (and our research group) is concerned with developing interventions to reduce their occurrence and facilitating rehabilitation should injury occur.

This project will examine loading on the knee and hip of people with knee/hip osteoarthritis whilst running using two novel interventions: (a) an AlterG treadmill (<http://www.alterg.com>), and (b) an in-house developed “SoftRun” App.

The study will utilise wearable inertial sensors to quantify the loading on the knee and hip whilst running. The intern will be exposed to all elements of the research project, but will focus on the participant recruitment, collection, processing and analysis of data using state-of-the-art motion capture and analysis technology.

Potential Candidates

We are looking for a highly motivated and high achieving undergraduate, with good interpersonal skills, able to work as part of a team and a willingness to work hard. Ideally you will have completed at least one biomechanics based module, and can demonstrate a passion for both biomechanics and research. A desire to work with older individuals with osteoarthritis would be desirable.

Informal requests for information can be made to Dr Kieran Moran (01 700 8011)