

Project Title	Quantifying blood vessels in gluteal tendons
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Outline of the project 250 words max

Tendon pathology (tendinopathy) of the gluteal (buttock) muscles primarily affects post-menopausal women. Tendinopathy and subsequent tendon tears can have significant negative impacts on function (e.g., walking and sleeping), quality of life and pain when resting is common. The underlying pathology for this condition is unknown but there is a suspicion that the site of tendinopathy or tears may be related to lack of blood supply (vascularity). There is evidence of compromised vascularity in other tendons of the body (e.g., Achilles, shoulder) but there is very little data about the blood supply of the gluteal tendons and none in older females. Our previous imaging studies identified signs of new, abnormal blood vessels (neovascularisation) near the insertion of the gluteal tendons at the greater trochanter, but the methods used in this work did not allow the detailed analysis offered by histology and immunohistochemistry. The aim of this project is to use high resolution scanning technology to describe the normal blood and nerve supply to two of the deep gluteal tendons in cadavers aged over 50 years. The slides for this project are available and the scanning protocol has been optimized.

Proposed research methods

Prepared slides (n =250) will be scanned to permit detailed counts and classification of the blood supply to each tendon. This scanning will happen at John Curtin School of Medical Research at ANU. We will apply for exemption for the student to attend this facility, if necessary due to campus Covid restrictions, if successful.

These data will form the basis for other examinations of the nerve supply.

Descriptive data will be presented in a report and used for the main study examining the association of age, sex, tendon degeneration (qualified using the modified Bonar score) and

location (proximal-distal; anterior-posterior) on the degree of tendon vascularity and nerve supply.

Preferred study discipline being undertaken by the student

Not important but medical or medical sciences preferred.

Benefits to the student and to the department

Student: Experience in studying histology and immunohistochemistry slides and understanding tendon morphology and disease.

Department: Contribute to progressing this research study investigating gluteal tendinopathy.

Alignment with Government Research Priorities 100w max

Gluteal tendinopathy primarily affects older women. The priority area addressed by this research is ageing and aged care.

Department within ACT Health Directorate / Canberra Health Services where the student will be based

Trauma and Orthopaedic Research Unit

Please submit form to preclinical.research@act.gov.au