WABRC

West Australian Bone Research Collaboration

Funded PhD Scholarship

Full-Time, $30,000 p.a., for Three Years

Project Title: Optimising exercise prescriptions to maximise osteogenesis in adolescents.

Project Aims: Develop, implement, and evaluate targeted school-based exercise programs for healthy adolescent males and females to optimally improve bone health.

Qualitative interviews and focus groups with stakeholders to understand the barriers and facilitators for the sustainable adoption of osteogenic exercise programs in school-based environments.

Background:

The WABRC is a collaborative and multidisciplinary research group that services the community and provides targeted preventative and remedial programs for the primary or secondary prevention of osteoporosis, regardless of its cause.

Our prior work shows an alarming trend of rising youth fracture rates in Western Australia relative to population growth, as well as indications that some of these youths may be presenting with fractures as a consequence of secondary osteoporosis. The implementation of school-based programs provides an opportune time to optimise bone health.

Problem:

A disconnect exists between clinical exercise trials seeking to optimise bone growth and development through mechanical loading, and appropriate application of osteogenic principles underpinning bone adaptation, previously established through pre-clinical animal studies.

Adolescence represents a key period of bone growth and development towards the attainment of peak bone mass in early adulthood. As such, this represents a critical phase to capitalise on optimising bone through osteogenic inputs governed primarily by mechanical load.

Project:

Adhering to the mechanical principles of osteogenesis in pre-clinical studies, this project will develop, implement, and evaluate the growth and development of bone mass and structure over one school year using an individualised exercise intervention for boys and girls. This project will qualitatively explore implementation barriers and facilitators of the exercise program to inform future research seeking to systematically embed bone-targeting school-based exercise into Australian schools.

Candidate:

The ideal PhD candidate will have an exercise science background established through their Bachelors and Honours or Masters by Research degrees. The ideal PhD candidate will come from the secondary education setting (e.g., a physical education teacher or equivalent), and have experience working with adolescents.

Supervision:

The successful PhD candidate will be formally and informally supervised by a multidisciplinary team of clinicians and researchers nationwide including: A/Prof Paola Chivers (University of Notre Dane Australia), Professor Belinda Beck (Griffith University), Dr Nicolas Hart (Flinders University), Dr Timo Rantalainen (University of Jyväskylä), and Professor Aris Siafarikas (Perth Children's Hospital).