Evaluating a foot strengthening exercise program to improve foot function and foot health in older adults with diabetes

Formal Title	Evaluating a foot strengthening exercise program to improve foot function and foot health in older adults with diabetes
Method	Randomised controlled trial
Investigators	Victoria University: Dr Karen Mickle, Professor Rezaul Begg and A/Professor Patrick McLaughlin RDNS: Dr Rajna Ogrin
Funder/Funding	Victoria University Central Research Grant Scheme - $19,634
Duration	2016-2018
Status	Data collection is underway.

Background:
Foot biomechanics is a major contributor to the development of plantar foot ulcerations in people with diabetes, with high plantar pressures the factor most commonly cited. People with Diabetes related Peripheral Neuropathy (DPN) have been shown to display reduced lower limb joint mobility, foot deformities and reduced plantar tissue thickness which contribute to producing high plantar pressures during gait. A foot strengthening exercise program has been developed, which increases toe strength by 36% in healthy, older people.

Aims:
The **aim** of our current research is to determine whether this resistance training program can improve foot function and reduce high plantar pressures in people with diabetes who have peripheral neuropathy.
Primary aim: To determine whether an evidence-based resistance training intervention designed to increase strength of the foot muscles can improve foot strength in adults with diabetes.
Hypothesis #1: After completing the resistance training program, participants will display improved foot muscle strength and size.
Secondary aims: To evaluate the effect of the evidence-based resistance training intervention on foot function, foot pain, and functional capacity of adults with diabetes.
Hypothesis #2: After completing the resistance training program, participants will display improved foot function, foot pain, and functional capacity.

Methods:
The randomised controlled study will assess the effectiveness of the intervention on people with diabetes who have neuropathy. This design will allow us to assess the immediate effects of the resistance training exercise program at the conclusion of the 12-week intervention period.

Timelines:
We aim to recruit participants in 2016 and 2017, with completion of the study by December 2017.