George gets the measure of a mystery muscle

Measuring muscular activity is an area of expertise for Melbourne podiatrist, lecturer and researcher George Murley.

George, 27, has developed a particular interest in the tibialis posterior (TP) muscle.

Now he wants to find out how that muscle behaves in a normal or neutral foot, ie. one that's not flat or high-arched. He then wants to compare how it behaves in a flat foot and high arched foot.

To do this he will insert wire electrodes into the TP muscle. They record its electrical activity on an electromyogram and allow for evaluation of the muscle's activity during walking.

This series of linked research projects are part of George's PhD studies so he's been delighted to receive an $8000 grant from the Australian Podiatry Education and Research Foundation (APERF). They could ultimately lead to a greater understanding of how muscle activity in abnormal foot posture responds to podiatric interventions.

"This grant will help me do four linked studies," he says. "I am starting with a baseline study to establish how the TP muscle, which has not been investigated in depth to date, behaves in a normal foot. In this study I will also establish the reliability of the procedures we are using."

Each of the four studies will involve 30 participants who will be screened for normal foot posture using foot x-rays and other clinical measures of foot posture.

"Intra-muscular electrode wires will be inserted into the TP muscle under sterile conditions using ultrasonography to guide the position of the needle and electrode. These are extremely thin wires inserted through a needle four to eight centimetres long. We then connect these wires to the EMG equipment and record the electrical activity of the muscle. Following the baseline study of normal feet, abnormal foot postures and clinically acquired conditions (ie. tibialis posterior tendon dysfunction) can be evaluated."

Advanced TP tendon dysfunction is a painful and debilitating condition. While its prevalence is largely unknown, some researchers have suggested that it affects up to ten per cent of women over the age of 65, causing walking problems.

"People who develop advanced TP dysfunction tend to develop arthritis in their feet and that affects their ability to walk and exercise," George says. "We don't really know what causes this to occur. All the studies will examine how the TP muscle responds to interventions such as foot orthoses, footwear or an ankle brace."

The La Trobe University graduate and part-time lecturer is especially grateful to APERF for the grant, the second he has received from the foundation. An earlier $2000 grant allowed him to examine methods for conducting TP electromyography.

"Being a fairly novice researcher, it can be very difficult to obtain funding from some of the larger health funding organisations. In the world of research, I am just starting out with my PhD so this particular grant is very important to me. It will allow me to conduct these studies as I planned.

George, who also works part-time in his own podiatry clinic in Mill Park, says APERF plays a key role in allowing podiatrists to undertake quality research.

"The more quality research that is produced, the better it is for our patients and our profession." ●

Conference donations for the silent APERF auction

The APERF auction is on again. As well as our major evening fundraiser, we will also be offering a silent auction in the lead up to the gala dinner at the Hobart conference in May.

Do you have an item to donate?

Sporting memorabilia, gift vouchers, or just foot-related fun stuff? Give it some thought, as it all goes to a great cause.

Send your donation to 89 Nicholson Street, Brunswick East, Vic 3057 or contact us and we can liaise with you about collection.

Donations of any kind are always welcome.

Why not establish an automated, regular payment – visit http://www.apodc.com.au/apodc/aperf2.php for more information on how your donation can make a difference.