

System identification of intrinsic and reflex contributions to the control of posture and movement. CIHR Grant: FRN-81280

Experiment: Effects of muscle reflexes on ankle stiffness during different tasks

Subject Information

You are invited to participate in a research study which is investigating the role of muscle stretch reflexes during different tasks. The purpose of the study is to try to determine how muscle reflexes alter the mechanical characteristics of the ankle.

If you agree to participate in the study you will be invited to undertake the following two parts of the experimental procedure:

1. Construction of a fibre-glass boot.

You will be asked to hold your foot in a fixed position while fibre-glass tape is wrapped around your foot. After setting, a cast cutter is used to remove the cast. This step requires about 1 hour of your time.

2. Experiment

You will have five small adhesive surface electrodes stuck to your lower leg. Your skin needs to be prepared beforehand, and this involves shaving about 4cm² and rubbing with an alcohol swab.

You will then be asked to put your foot back in the fibre-glass boot which is attached to a pedal driven by a hydraulic actuator. The actuator will move your ankle back and forwards by a few degrees while you push gently on it. While the actuator is moving the pedal, you will be watching a display screen which will show the electrical activity in one of your leg muscles and either the position of your foot or the force with which you are pushing the pedal. You will spend some time practicing at controlling the force you use on the pedal.

There will then be a total of about 35 trials of one minute each during which information on the positions, forces and electrical activity of your muscles will be collected. You will also be asked to do a couple of trials in which you push or pull on the pedal as hard as you can.

This step requires about 3 hours of your time.

Risks Related to the Experiment

There are no expected risks to you during as a result of participating in the study. However, there may be some minor discomfort as a result of the pressure of the cast on your foot as the actuator moves your foot back and forth. There is also the possibility of a minor allergic reaction to the electrodes.

Benefits of Participation

The results of this research study will be used to increase our understanding of the role of muscle reflexes in changing the mechanical characteristics of the ankle. However, your involvement in the study will not benefit you directly.

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Confidentiality

While it is intended that the results of the study will be published, your identity will not be revealed in any way.

You are not obliged to participate in the study. If you do decide to become involved, you may withdraw at any time. Whatever your decision, it will not affect your relationship with the investigators now or in the future.

Further Information

When you have read this information, one of the investigators would be happy to discuss it with you further and answer any questions you may have. You are also welcome to contact the investigators at any stage on the phone numbers listed below. This information sheet is for you to keep.

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Consent Form

I, _____, voluntarily consent to participate in the research project entitled “Effects of Muscle Reflexes on Ankle Stiffness During Different Tasks” conducted by Daniel Ludvig (514-398-6734) and Dr Robert Kearney (514-398-6736) of the Department of Biomedical Engineering, McGill University.

I understand that the information obtained from this research may be published. However, my right to privacy will be retained and my involvement with the project will be kept confidential.

The procedures as set out in the accompanying information sheet have been explained to me and I understand what is expected of me and the benefits and risks involved.

My participation in the project is voluntary.

I acknowledge that I have the right to question any part of the procedure and that I can withdraw at any time without this being held against me.

Signed by Subject: _____ Date: _____

Signed by Investigator: _____ Date: _____

Name of Witness: _____

Signed by Witness: _____ Date: _____