

What movement and function changes occur with experimentally-induced and clinical low back pain?

Background:

Low back pain (LBP) is one of the largest burdens worldwide being experienced by 70-85% of adults at some point in their lives. However, causative factors for this condition are still not fully understood. A fundamental aspect of this condition, yet to be answered, surrounds the interaction between pain and function: Does pain lead to altered movement or is pain a consequence of abnormal movement? It is important to determine how pain and movement interact to better understand how to prevent and treat clinical LBP. Therefore, **this thesis study takes a novel approach to determine the effects of experimentally-induced and clinical LBP on movement and function.**

Methods:

20 participants with recurrent LBP and 20 controls with no history of LBP will be recruited for two sessions (to be completed by spring 2023). Recurrent LBP patients complete their first session when in pain and their second session once their LBP recedes. Participants with no history of LBP also complete two sessions: one with experimentally-induced LBP using the established heat-capsaicin model (50°C moist heat + capsaicin cream) and one pain-free (sham application: 30°C moist heat + placebo cream). Participants completed questionnaires regarding LBP-related disability, LBP history, and their attitude towards pain and movement. Spine angles and trunk muscle activity were measured during 5 tests: reflex, sit-to-stand-to-sit, forward bending, and abdominal and back muscle endurance tests. Spine angles and muscle activity will be compared between groups (LBP vs controls) and within groups (in-pain vs no-pain).

Significance:

It is important to determine how LBP and movement interact as movement alterations can result in further progression of injury and/or compensation. Our findings will ultimately advance our ability to develop effective treatment/prevention strategies, reducing the burden of LBP worldwide.