

## **Acute Effect of Local Muscle Vibration on Hamstring Muscle Function in Healthy Controls**

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**Background:** Hamstring tendon autografts for ACL reconstruction (ACLR) are common but come with elevated risk of secondary injury and hamstring strength deficits (Konrath 2016). Hamstrings protect against anterior tibial translation, which loads the ACL and thereby increases risk of injury (Blackburn 2013). Whole-body vibration (WBV) and local muscle vibration (LMV) increase quadriceps function in healthy and ACLR individuals but their effects on the hamstrings muscles are unclear (Fu 2013).

**Purpose:** To determine the acute effects of LMV on hamstring peak torque (PT) and rate of torque development (RTD) during maximal voluntary isometric contraction following the application of LMV to the hamstrings in healthy controls.

**Methods:** Subjects were 8 individuals with no history of ACLR (75% male; age  $21 \pm 1.89$  yr; avg mass  $76.5 \pm 14.89$  kg; avg height  $1.78 \pm 0.12$  m). Hamstring strength was assessed during 3 knee flexion maximal voluntary contractions (MVICs) before and after intervention. Data were processed using a custom LabView program. Change scores (post-pre) calculated for each outcome (PT, RTD) and intervention (LMV, Control) and compared between interventions using 1-way repeated measures ANCOVA controlling for average pre-test scores from both of 2 sessions.

**Results:** No significant difference between LMV and Control for PT ( $p = 0.967$ ) or RTD ( $p = 0.551$ ).

**Discussion:** LMV did not appear to have an effect on hamstring function in these healthy controls. Participants likely did not have underlying hamstring dysfunction to be improved by LMV (ceiling effect).