

Study Title: Cerebrovascular Dysregulation in Chronic Kidney Disease

NCT # NCT05571605

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Study Protocol:

Objective: To evaluate the effects of 12-weeks of aerobic exercise training vs stretching (control group) on dynamic cerebral autoregulation in participants with chronic kidney disease (CKD) stages III-IV.

Design: This study was a randomized controlled trial. Participants with CKD stages III-IV were enrolled for participation. All participants underwent a baseline assessment of Mean arterial pressure-Middle cerebral artery blood velocity very low frequency phase (radians) and gain (cm/s/mmHg). Participants were then randomized to a 12-week training intervention consisting of either aerobic exercise training or stretching (active control). The assessment of dynamic cerebral autoregulation was then repeated following the intervention.

Methods: Mean arterial pressure-Middle cerebral artery blood velocity very low frequency phase (radians) and gain (cm/s/mmHg) were measured during repeated bouts of sit to stand at 0.05Hz. Mean arterial pressure was measured via finger photoplethysmography. Middle cerebral artery blood velocity was measured via transcranial Doppler ultrasound. A transfer function analysis was performed to derive mean arterial pressure-middle cerebral artery blood velocity very low frequency phase (radians) and gain (cm/s/mmHg).

Location: University of North Texas in Denton, TX.

Statistical Analysis Plan:

A two-way repeated measures ANOVA (time x group) was used to compare Mean arterial pressure-Middle cerebral artery blood velocity very low frequency phase (radians) and gain (cm/s/mmHg) between time points (pre vs post) and between groups (exercise vs stretching).