flow as an index of muscle blood flow was also measured by plethysmography. Subjects performed five sets of 20 repetitions of eccentric contractions of elbow flexors (no contractions at concentric phase) with a load equal to 60% of MVC force with the use of dumbbells. Each action was performed through the same range of motion at a rate of 4-s.

**RESULTS:** MVC force significantly decreased by 44% (17.4 ± 2.2 kg to 9.7 ± 3.2 kg, p < 0.01) after 24 h of repeated ECs. Resting forearm blood flow increased by 22% (5.8 ± 1.2 ml/min/100 g to 7.4 ± 1.9 ml/min/100 g, p < 0.05) after 24 h of repeated ECs. Resting heart rate and blood pressure were not significantly different between before and after 24 h of ECs. The change of resting forearm blood flow was negatively correlated with MVC force (r = -0.88, p < 0.01).

**CONCLUSION:** Increased resting muscle blood flow was associated with muscle force reduction after repeated ECs. Our results suggested that increased resting muscle blood flow could result from EIMD-induced inflammatory vasoconstriction after repeated ECs.

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**1851 Board #7 May 30 2:00 PM • 3:30 PM**

**Effects of Capsaicin on Leg Blood Flow in Response to Passive Limb Movement**

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*(No relationships reported)*

Given the high rates of cardiovascular disease morbidity and mortality in the United States, and worldwide, finding strategies that might mitigate CVD is paramount. Vascular dysfunction is a critical component and likely precursor measure to CVD. Recently, the passive leg movement (PLM) method has been developed to assess nitric oxide (NO)-dependent vascular function. The nutraceutical Capsaicin has been shown to have cardioprotective effects, enhancing vasorelaxation and attenuating sympathetic vasoconstriction in an endothelium dependent manner via activation of transient receptor potential vanilloid type 1 (TRPV1) channels; this however has only been demonstrated using *in vitro* or animal models.

**PURPOSE:** In this study, a single-blind, crossover design was used to examine the potential effects of capsaicin-induced improvement of leg blood flow in response to PLM.

**METHODS:** Femoral artery blood flow and microvascular perfusion of the vastus lateralis were examined in 12 young, healthy men, using Doppler ultrasound and multi-distance frequency domain based near-infrared spectroscopy. Central hemodynamics (stroke volume, SV; heart rate, HR; cardiac output, CO; and mean arterial pressure, MAP) were measured using finger photoplethysmography. Hemodynamic measurements were continuously taken at rest and during a single bout of PLM (sPLM), a variant of PLM which minimizes the central hemodynamic response.

**RESULTS:** A significant hyperemic response was recorded in response to PLM under both conditions (Capsaicin and Placebo); however the microvascular perfusion response to PLM was not significantly altered (p > 0.05) following ingestion-related quinhydrones compared to Placebo (Capsaicin: 10.4±3.1; Placebo: 14.1±3.9%). Femoral artery blood flow was also not significantly augmented (p > 0.05) under Capsaicin (Capsaicin: 362±119% Placebo: 295±61% in response to PLM). Expectedly, there were no significant differences in basal microvascular perfusion, basal femoral blood flow, and central hemodynamic responses (HR, SV, CO, MAP) between conditions (p>0.05).

**CONCLUSION:** These results indicate Capsaicin does not further augment hyperemia in response to sPLM in young healthy males. Further study of this nutraceutical is warranted in populations at high risk, or prevalence, of cardiovascular disease.

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**1852 Board #8 May 30 2:00 PM • 3:30 PM**

**Does Capsaicin Ingestion Affect Functional Sympatholysis And Vascular Functions?**

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*(No relationships reported)*

During exercise, heat and metabolites (e.g. H⁺, etc.) attenuate sympathetically-mediated vasoconstriction in contracting muscle, known as functional sympatholysis, remains poorly understood. Previous work has shown that activation of transient receptor potential vanilloid type 1 channels (TRPV1) with Ca²⁺ influx elicits sympatholysis in response to sPLM in young healthy males. Further study of this nutraceutical is warranted in populations at high risk, or prevalence, of cardiovascular disease.

**PURPOSE:** To determine if acute ingestion of CAP elicits or enhances sympatholysis at rest and during exercise in vivo in humans.

**METHODS:** In a single blind crossover design, in 10 young healthy males we measured forearm microvascular responses (oxyhemoglobin and myoglobin HbO₂+MbO₂) using near infrared spectroscopy (NIRS) and central/peripheral hemodynamic (cardiac output, CO, and mean arterial pressure, MAP, via Finometer) responses at rest, lower body negative pressure at rest (rLBNP), rhythmic handgrip (HG) exercise at 30% MVC and during HG with LBNP (HG+LBNP) under placebo (PL, 800 mg fiber) and Capsaicin (780 mg pepper extract).

**RESULTS:** No differences (P>0.05) were found between PL and CAP in microvascular and central hemodynamics at rest. At rest, the LBNP-induced change in HbO₂+MbO₂ (-1.5 ± 2.3 vs 0 ± 3.2 %) or conductance index (HbO₂+MbO₂/MAP, 5.5 ± 2 vs 6.0 ± 3 %) were not different (P>0.05). During exercise, HbO₂+MbO₂ were not different (105 ± 28 vs 105 ± 21 μM), though tissue oxygen saturation tended to be higher (64 ± 16 vs 70 ± 13 %, P<0.07), and deoxyhemoglobin lower in CAP (44 ± 5 vs 37 ± 2 μM, P<0.05). The LBNP-induced change during exercise in HbO₂+MbO₂ (0.1 ± 7.1 vs 1.3 ± 7.2 %) or conductance (5.6 ± 3 vs 2.8 ± 4 %) were not significant (P>0.05), but tended to be in CAP. Systemic vascular conductance was not significant different at rest between conditions (5.3 ± 0.2 vs 4.8 ± 0.4 L/min/mmHg). The LBNP-induced change in SVC at rest (5.6 ± 5.5 vs 6.1 ± 5.7 %) and during exercise (5.2 ± 2.4 vs 1.7 ± 5.2 %), were not different, despite a tendency to be attenuated during exercise with CAP. However, the change in the LBNP-induced reductions in both systemic and local conductance.

**CONCLUSION:** Acute CAP does not affect resting hemodynamics or the response to sympathoexcitatory LBNP. During exercise, CAP seems to improve microvascular responses, but does not impact the response to LBNP, despite trends for CAP to mitigate the LBNP-induced reductions in both systemic and local conductance.

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**1853 Board #9 May 30 2:30 PM • 3:30 PM**

**The Effect Of The Speed And Range Of Movement On The Hyperemic Response To Passive Leg Movement**

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*(No relationships reported)*

**PURPOSE:** Passive leg movement (PLM)-induced hyperemia is used to assess the function of the vascular endothelium. This study sought to determine the impact of movement speed and ROM on the hyperemic response to PLM and determine if the currently recommended protocol of moving the leg through a 90° ROM at 180°/s provides an optimal peak hyperemic response to PLM.

**METHODS:** 11 healthy adults underwent multiple bouts of PLM, in which either movement speed (60-240°/s) or ROM (30-120° knee flexion) were varied. Femoral artery blood flow (Doppler Ultrasound) and mean arterial pressure (MAP; photoplethysmography) were measured throughout.

**RESULTS:** Movement speed generally exhibited positive linear relationships with the hyperemic response to PLM, eliciting ~20-30% increase in hyperemia and conductance for each 60°/s increase in speed (P<0.05). However, increasing the movement speed above 180°/s, which was physically difficult, did not elicit significant increases in hyperemia in many cases. ROM exhibited curvilinear relationships (P<0.05) with hyperemia and conductance, which peaked at 90°, such that a 30° increase or decrease in ROM from 90° resulted in a 10-40% attenuation (P<0.05) in the hyperemic response. Alterations in the balance of antegrade and retrograde flow appear to play a role in this attenuation.

**CONCLUSIONS:** Movement speed and ROM have a profound impact on PLM-induced hyperemia, as well as the feasibility of the test. When using PLM to assess vascular endothelial function, it is recommended to perform the test at the traditional 180°/s with 90° ROM, which offers a large hyperemic response, while maintaining test feasibility.