

### 33. SWACSM Abstract

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## Two Weeks of Remote Ischemic Preconditioning Improved Cutaneous Microvascular Responses to Post-Occlusive Reactive Hyperemia

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#### ABSTRACT

Repeated remote ischemic preconditioning (RIPC), induced by intermittent periods of ischemia and reperfusion in a limb body, improves non-nitric oxide (NO)-mediated endothelial-dependent cutaneous vasodilation. Post-occlusive reactive hyperemia (PORH) occurs following the release of a brief arterial occlusion and is principally mediated by non-NO mediated vasodilatory factors such as prostaglandins, sensory nerve axon reflex, and endothelium-derived hyperpolarizing factors (EDHFs). However, the role of repeated bouts of RIPC on the PORH response is unknown. The purpose of this study was to test whether two weeks of RIPC improves PORH elicited cutaneous microvascular hyperemia responses. **METHODS:** The study was conducted with twenty-one participants (Control; 24±5 yr old, 4M/4F, n=8, RIPC; 22±2 yr old, 7M/6F, n=13). The RIPC group received RIPC daily sessions over a two week period (3 intervals of 4 days with RIPC followed by a 1 day break). Each RIPC session consisted of 4 repetitions of 5-minute arm blood flow occlusion interspersed by 5-minute reperfusion. PORH was elicited by brachial artery occlusion for 5 minutes by inflating an arm cuff to 200 mmHg, and the cutaneous hyperemic response was measured after cuff release. Skin blood flow measurements were collected with laser speckle contrast image (LSCI) before and after the repeated RIPC intervention. The control group did not receive RIPC but underwent repeated PORH measurements two weeks later. **RESULTS:** Both Time to Peak (Tp) and max/time improved after two weeks of RIPC (Tp; 16.5 ± 2.1 vs. 15.2 ± 2.9 s, Pre vs. Post, p<0.05, max/time; 0.11 ± 0.03 vs. 0.13 ± 0.04 CVC/s, Pre vs. Post, p<0.05). The control group did not change after 2 weeks. **CONCLUSION:** These data suggest that non-NO mediated vasodilator responses in the skin microvasculature may be affected with 2 weeks of repeated RIPC.