TITLE
Commentaries on Viewpoint: Could small-diameter muscle afferents be responsible for the ergogenic effect of limb ischemic preconditioning?

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TO THE EDITOR: Cruz and colleagues (1) contend that lower discharge from small diameter muscle afferents explain the ergogenic effect of limb ischemic preconditioning (IPC) on exercise performance, evidenced by increased performance, higher myoelectrical activity and decreased ratings of perceived effort during an endurance task (2). This suggests increased voluntary drive to the working muscles which could explain the higher EMG amplitude (2). In our study investigating the effect of IPC on repeated sprint exercise, (3) we demonstrated that power output was increased in the first three of six sprints, suggestive of an increased voluntary drive. This evidence in humans (2) is similar to previous work in animal models, where EMG amplitude was increased and force decline attenuated in the preconditioned limb following recovery from prolonged ischemia (4).

Whilst the proposed mechanisms may serve as a plausible explanation for performance enhancement following IPC, at this time, we cannot rule out a placebo (and nocebo) effect (5) due to the difficulty in blinding participants to the sensations felt during the IPC or SHAM stimulus employed in many of the studies. Furthermore, it is possible that the increased power output observed (2, 3) may be the cause of increased myoelectrical activity (2), rather than the effect. Future research should focus on, firstly, normalizing the EMG to pre-exercise force, and secondly, examining central activation after a bout of IPC, to fully elucidate the mechanisms for IPC on exercise performance.

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