Impact of Resistance Training on Blood Pressure: Are All Contractions Created Equal?

To the Editor:

We read with interest the updated meta-analysis by Cornelissen et al., examining the effects of resistance training (RT) on blood pressure (BP). The results demonstrated a class distinction, with isometric RT producing larger reductions in resting BP than dynamic RT.1 Because our study on the effects of isometric handgrip training2 contributed the majority of isometric RT participants, we wanted to shed further light on one factor that may be of interest to the readers. In our study, each of the participants had been involved in dynamic aerobic and RT as part of a community exercise program for 2 years before isometric handgrip training.2 Thus, it would seem that isometric RT not only induces larger reductions in resting BP, but we would argue that the effects may also involve mechanisms that are independent of those associated with dynamic aerobic and RT.

A second point of interest, which adds further support to the work on isometric RT, is the existing data from studies using leg isometric RT.3,4 In particular, 1 randomized, controlled study, not included in the meta-analysis, yet published before the database cutoff,1 supports similar BP effects.4 In this study, the effects of leg isometric RT intensity on resting BP were also examined, documenting no significant differences between training completed at ~10% and ~21% of maximal voluntary contraction (although modest reductions in BP were observed in young normotensives versus controls).4 These data would lend significant additional support to the potential role of isometric RT in reducing resting BP, because the results will have been confirmed independently when using both isometric handgrip and leg training modalities.2–4

Acknowledging the limitations associated with drawing conclusions from small-scale and nonblinded intervention trials, the isometric RT-induced reductions in resting BP appear similar in magnitude to many pharmacotherapies, demonstrating the potential clinical use of this relatively unexplored exercise training mode. Importantly, these reductions have been consistently demonstrated across both normotensive and medicated hypertensive cohorts.5 However, there has still been only a limited number of good quality trials, and presently there are no specific guidelines for the prescription of isometric RT. We are sure that Cornelissen et al.1 would join us in asserting that it is imperative that additional, larger-scale randomized, controlled trials are undertaken to substantiate the findings of these studies in wider populations.

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