Commentary on Viewpoint: Exercise and cardiovascular risk reduction: Time to update the rationale for exercise?

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TO THE EDITOR: We believe the recent Viewpoint article by Green et al. (1) to be a timely and important one. While the focus was primarily on direct effects on the vasculature, we wish to offer further comment on the central nervous system (CNS)’s role.

A neural role in beneficial changes due to exercise training (ET) is not new, but is beginning to be elucidated as CNS neuroplastic changes (2). Our recent research demonstrated that sympathoexcitatory sites show changes consistent with the observed decrease in sympathoexcitation (SE) with ET and which are also consistent with the time course of ET and detraining (4). We caution that linkage between a decrease in dendritic arborizations in these areas and its ultimate expression in reducing SE has yet to be directly demonstrated.

While cardiovascular risk in myocardial infarction was a principal focus of the article, another line of research which has shown that CNS changes appear to be important in a reduction of SE with ET is demonstrated by the work of Zucker et al. (5) in heart failure. Still another effect with an underlying reduction of SE is the central theme of the work by Billman et al. (2) that emphasizes that ET is a potent antiarrhythmic intervention. This aspect has a neural and, as shown in their recent report (2), a peripheral component. Probable linkage between the CNS and the periphery is clear and if other effector systems are any guide, possibly not all related to simple neural activity.

REFERENCES