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

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TO THE EDITOR: Green and colleagues (2) present an important discussion of the mechanisms by which regular exercise improves cardiovascular health. These authors particularly highlight adaptations of the vasculature in response to regular exercise, although these changes may not explain all of the beneficial responses to exercise. Regular exercise fails to improve endothelial function in some patients who have coronary artery disease for example (5). An equally important effect of regular exercise appears to be adaptation of the autonomic nervous system (ANS). Lower heart rate variability (HRV) is associated with sudden death and coronary heart disease incidence and mortality (1, 4), suggesting that normal or increased ANS function is fundamental for cardiovascular health. Regular exercise induces ANS improvements in an intensity-dependent manner (3), supporting the link between exercise, ANS function, and cardiovascular health. Changes in shear stress during exercise may induce localized vascular changes that increase peripheral feedback to the cardiorespiratory centers and ANS modifications. Significant improvements in the management of cardiovascular disease have resulted from our increasing knowledge of the risk factors of atherosclerosis. The mechanisms underlying the benefit of exercise however require further study. As pointed out by Green and colleagues (2), improved understanding of the interaction between exercise, the vasculature, and the ANS may provide a pathway to important new treatment targets.

REFERENCES