Response to “Other Factors Ought to Be Kept in Mind When Analyzing Plasma Asymmetric Dimethylarginine Levels”

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To the Editor: We thank Kurtoglu and colleagues for their interest in our article, “Aerobic Exercise Training Decreases Plasma Asymmetric Dimethylarginine Concentrations with Increase in Arterial Compliance in Postmenopausal Women.”¹ We demonstrated that 12 weeks of aerobic exercise training decreased plasma asymmetric dimethylarginine (ADMA) concentrations in postmenopausal women. In their Letter to the Editor, Kurtoglu and colleagues suggested that renal and liver functions and oxidative-inflammatory mechanisms should be evaluated after 12 weeks of exercise training.² We appreciate this comment and agree that this may be important.

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To the best of our knowledge, there are no reports on improvement in GFR after aerobic exercise training in healthy individuals. A previous study reported that aerobic exercise training did not result in a change in GFR in patients with chronic kidney disease.³ Therefore, aerobic exercise training may have no effect on GFR in healthy individuals.

ADMA is largely metabolized by the enzyme dimethylarginine dimethylaminohydrolase (DDAH), which is very active in the liver. In our study, none of the women had liver disease. Aerobic exercise training improves liver function in patients with nonalcoholic fatty liver disease.⁴ In addition, aerobic exercise training reduces the risk of liver disease in healthy individuals.⁴ However, the effects of aerobic exercise training on DDAH and cationic amino acid transporters in the liver are unknown. Further studies are needed to clarify whether liver function has a role in aerobic exercise training-induced changes in plasma ADMA concentrations.

Oxidative-inflammatory mechanisms are rigidly associated with plasma ADMA levels. Aerobic exercise training decreases oxidative stress and homocysteine levels. Furthermore, previous studies showed that aerobic exercise training decreased C-reactive protein, tumor necrosis factor-α, and interleukin levels.⁵ In contrast, some studies have reported no change in the levels of these biomarkers before and after exercise training.⁵ Therefore, the effect of exercise training on inflammation remains unclear. We did not measure any inflammatory and oxidative stress markers before and after exercise training. Because oxidative and inflammatory factors are known to influence plasma ADMA levels, it is preferable that these parameters be assessed in addition to renal and liver functions along with the measurement of plasma ADMA levels.

DISCLOSURE

The authors declared no conflict of interest.

REFERENCES


