

Letters to the Editor

Long-term Strenuous Endurance Exercise and the Right Ventricle: Is It a Real Matter of Concern?



To the Editor:

La Gerche and Claessen raised concerns about the potential negative effects of exercise, especially strenuous endurance exercise (SEE) on right ventricular (RV) function in both healthy and ill populations.¹ This is in line with a recent meta-analysis by Elliott and La Gerche reporting that this type of exercise is associated with acute depression of RV systolic function,² thus suggesting that exposure to repeated bouts of SEE can have potential long-term consequences. La Gerche and Claessen argued that left atrial pressure is increased during SEE, thereby increasing pulmonary artery pressure.¹ Thus, they stated that frequent episodes of increased RV work induced by long-term SEE can promote compensatory RV remodelling, increase myocardial damage biomarkers such as troponins and B-type natriuretic peptide, or even accelerate heart failure (HF). However, to the best of our knowledge, the bulk of available evidence supports the finding that the previously mentioned alterations are rather transient, with a dose-effect relationship existing for exercise intensity and duration.

La Gerche and Claessen also state that SEE can promote acute and transient RV dysfunction, with repeated bouts leading to structural remodelling and arrhythmias of the right ventricle.¹ In this regard, we recently reported that long-term participation in regular SEE, even at the professional level, does not seem to have negative consequences on RV systolic function, suggesting that, at least in healthy individuals, RV dysfunction induced by an acute bout of SEE is a reversible physiological phenomenon rather than a pathologic response.³ In fact, a recent meta-analysis from our group showed a standard mortality ratio resulting from cardiovascular disease (CVD)—including HF and coronary artery disease—of 0.73 (95% confidence interval, 0.65–0.82; $P < 0.001$) in those engaging in the highest exercise (including SEE) levels—ie, elite athletes in various sport disciplines ($n = 12,119$, mostly men), such as Tour de France finishers or Olympic marathoners—compared with the general population.⁴

Physicians and health professionals should be aware that healthy individuals who engage in SEE sport events could exhibit acute transient cardiologic features that are apparently compatible with cardiac diseases, yet these alterations are attributable in most cases to transient physiological responses rather than pathologic status. In fact, although pre-participation screening is recommended, especially for men aged 40+ years with CVD risk factors (notably, diabetes), long-term SEE practice should not be discouraged in the healthy population because it positively modulates the main risk factors for CVD, ie, obesity, diabetes, hypertension, and hypercholesterolemia.

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Disclosures

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