Clinical Consequences of Intense Endurance Exercise Must Include Assessment of the Right Ventricle

We would like to commend Pelliccia et al. (1) for employing a longitudinal assessment to detail cardiovascular changes and outcomes in Olympic athletes. As the investigators comment, this type of analysis is uncommon in the sports cardiology literature and is greatly needed. However, we would like to raise 2 significant limitations regarding the wider application of this study’s findings to other athletic groups.

First, as stated by Pelliccia et al. (1), this is a highly selected population. However, the extent of selection may not be fully appreciated by the reader, as the process of mandatory screening is not discussed as a limitation. Under Italian law and institutional policy, all of these athletes would have had multiple cardiovascular screening studies prior to enrollment. The number and nature of cardiovascular exams prior to enrollment is not detailed in the paper, nor do we know how many athletes were excluded as a result of this process. Mandatory cardiovascular screening may well have reduced sudden cardiac death among competitive athletes (2).

Second, Pelliccia et al. (1) state that the rationale for assessing the possibility of exercise-induced cardiac remodeling is that “ominous ventricular tachyarrhythmias of right ventricular origin—associated with mild reduction in systolic function—have been reported in highly trained cyclists” referring to our previous description of serious arrhythmias co-existing with right ventricular abnormalities in well-trained athletes (3–5). Of 46 athletes presenting with ventricular tachycardia, right ventricular (RV) abnormalities were detected in 89%, whereas left ventricular abnormalities were evident in only 3% (4). We have more recently demonstrated similar findings in an extended local cohort of athletes in whom a lack of evidence of inherited disease would imply that extreme exercise may be the cause of right ventricular dysfunction and arrhythmias (5). Thus, we would conclude that it is the RV that should be the focus of attention when assessing the clinical impact of endurance training, but Pelliccia et al. (1) do not report any RV measures.

In addition, Pelliccia et al. (1) reference the impact of a single bout of intense endurance sport on left ventricular function and question its clinical significance. However, previous studies have consistently concluded that it is the RV that is disproportionately affected by acute exercise bouts (6–9). Whether this transient RV dysfunction results in chronic remodeling and/or clinical events is an important issue. We would contend that an excellent opportunity to assess these questions has been missed by not reporting any measures pertaining to the chamber that is most affected by exercise—the right ventricle.

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We thank Dr. La Gerche and colleagues for their interest in our work on physiologic hypertrophy and the current study of Olympic athletes (1). Dr. La Gerche and colleagues have raised the issue of study population selection and have correctly underlined the fact that we had limited our study to highly-trained athletes who were free of either congenital or acquired cardiovascular disease at initial evaluation. This was completely intentional. Indeed, we assessed,