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LETTER TO THE EDITOR

Comment on: Athlete's Heart: Is the Morganroth Hypothesis Obsolete?

Keywords Sports cardiology • Athlete's Heart • Cardiomyopathy • Hypertrophy • Left ventricle • Anabolic steroids • Doping

To the Editor,

We read with interest the brief review by Haykowsky et al. [1], who re-evaluated the Morganroth hypothesis [2] and provide useful information in addition to an earlier important review on this issue by Naylor et al. [3], which unfortunately has not been cited. Among others, the authors contradict the assumption of Morganroth et al. that resistance training leads to concentric left ventricular hypertrophy as a consequence of pressure overload. Similarly, Utomi et al. [4] concluded, based on their findings, that the hypothesis of left ventricular concentric hypertrophy should be revised. We agree that the most common pattern in strength athletes is a normal geometry of the left ventricle. Unfortunately, the impact of misuse of anabolic steroids is not discussed, but only marginally addressed with one sentence to explain a possible reason for an abnormal left ventricular geometry.

In the past and based on Morganroth's hypothesis, a special type of the athlete's heart has been discussed in strength athletes, most common in bodybuilders and weightlifters. In the publications, however, there was mostly no note on a possible misuse of illicit drugs, in particular on widespread anabolic steroids. We would like to point out that we have questioned a disproportionate increase in wall thickness in strength athletes already in 1989 [5] and 1999 [6]. We could demonstrate that clean resistance-trained athletes (weightlifters and bodybuilders) and combined resistance- and endurance-trained athletes (rowers) do not develop a concentric hypertrophy of the left ventricle, given that there is no pathological pressure load or hypertrophic cardiomyopathy. On the other side, the left ventricular wall thickness correlates with the extent of misuse of anabolic steroids [7]. The generally accepted limit of relative wall thickness (cut-off 42%) is rarely exceeded in clean athletes. Only strength athletes misusing anabolic steroids exhibited distinctly a higher relative wall thickness, together with reduced diastolic and systolic left ventricular function, compared to all other athletes [6,8].

Consequently, anabolic-induced cardiac structural changes, in particular concentric left ventricular hypertrophy, should be paid more attention than in the past

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