

Heritable Thoracic Aortic Disease

Competitive athletes with HTAD (which can coexist with BAV), by contrast, are at higher risk versus the non-HTAD population, although considerable heterogeneity in risk exists by specific disease. Because individuals with HTAD have a more diffuse arteriopathy and are at higher aortic risk at relatively smaller aortic diameters (and may have other systemic features that inform risk), the risks likely outweigh the benefits of competitive sports participation.

Unexplained Thoracic Aneurysms

Among athletes with tricuspid aortic valves and without HTAD, data suggest up to 1% to 2% of competitive athletes have an aorta ≥ 40 mm, but rarely >42 mm.^{21,181,185} Acknowledging these data and contemporary guidelines that define ≥ 45 mm as an ascending thoracic aortic aneurysm, in this scientific statement, 43 to 44 mm is considered mild to moderate aortic dilation, with corresponding increase in risk from baseline, and ≥ 45 mm unexplained aortic aneurysms are considered higher risk for AAS.¹⁸⁶

Post-Dissection and Surgical Repair

Competitive athletes with previous aortic dissection should not participate in competitive sports. Among competitive athletes who have undergone elective ascending aortic aneurysm repair, residual risk likely varies on the basis of the underlying cause of the aortic disease.

Spontaneous Coronary Artery Dissection

Given the association between SCAD and exercise and the substantial rate of recurrence (10%–20%),^{192–194} return to competitive sports participation after SCAD poses high risk. The benefits from cardiac rehabilitation after SCAD, however, are clear,¹⁹⁴ and all competitive athletes should participate in rehabilitation after SCAD.

SECTION VIII: ARRHYTHMIAS, DEVICES, AND ECG ABNORMALITIES

This section outlines clinical considerations for competitive athletes with arrhythmias (Table 11). Refer to the 2024 Heart Rhythm Society Expert Consensus Statement on Arrhythmias in the Athlete for further discussion on the diagnosis and management of arrhythmias in competitive athletes.³⁸

Ventricular Arrhythmias

VAs consist of premature ventricular contractions, non-sustained ventricular tachycardia and sustained ventricular tachycardia, and ventricular fibrillation. The most common VA observed in athletes are premature ventricular contractions, with a prevalence similar to sedentary

counterparts.¹⁹⁵ Although the majority of premature ventricular contractions are benign, further evaluation guided by morphology, clinical, and electrical features is warranted.¹⁹⁶ Athletes with VA should undergo ECG, ambulatory rhythm monitoring, exercise stress testing, and echocardiography as part of an initial evaluation.¹⁹⁷ After risk stratification, VA can be classified as follows (Table 12): benign VA without structural heart disease or high-risk VA with or without structural heart disease. For high-risk VA, return to competitive sports participation should be based on the underlying diagnosis (eg, cardiomyopathy, genetic arrhythmia syndrome, myocarditis), documented efficacy of arrhythmia treatment, and an SDM approach. For athletes who survive SCA, competitive sports participation is reasonable with SDM in the context of the underlying pathogenesis, implemented treatment, and documented rhythm stability.

Implantable Cardiac Defibrillators

The safety of competitive sports participation for athletes with an ICD has been demonstrated in several prospective observational studies.^{9,28,198} Appropriate and inappropriate shocks may occur, but adverse event rates are low, with no deaths, arrests, or injury reported.^{9,28,198} Additional considerations include risks associated with the underlying pathogenesis, estimated risk of rhythm instability, and the potential risk of device damage on the basis of sport type (see Section I). These discussions necessitate SDM, careful EAP, and longitudinal care with a cardiologist experienced with athletes and ICD.

AF and Supraventricular Tachycardia

Competitive athletes with AF require a comprehensive evaluation. Masters athletes with AF are detailed in Section X. In young competitive athletes with AF, clinical tests should exclude the presence of an underlying inherited arrhythmia syndrome, cardiomyopathy, or other supraventricular tachycardia. This assessment should include ECG, echocardiography, and CMR if indicated. Performance-enhancing agents should be queried, although their effect on AF risk remains unclear.¹⁹⁹ Competitive sports participation generally depends on symptom severity and effects on exercise tolerance or performance. AF and most supraventricular tachycardias are not considered SCA risks. Ablation may be considered as first-line therapy for both symptomatic AF and supraventricular tachycardia given the positive outcomes and low risk of complications.^{200–202}

Wolff-Parkinson-White Syndrome

For competitive athletes with Wolff-Parkinson-White (WPW) syndrome (with ECG preexcitation and symptoms), consultation with an electrophysiologist is required for consideration of ablation. WPW pattern