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The Athlete's Paradox: Unraveling Coronary Artery Calcification and Cardiovascular Risk

Moied Al Sakan
American University of Beirut Medical Center, Lebanon

Coronary artery calcifications (CAC) are well-known markers of asymptomatic atherosclerosis and reflect an increased cardiovascular event risk. Large registries and observational studies have demonstrated that endurance athletes carry higher CAC scores than their sedentary and inactive counterparts, raising important questions about the underlying mechanisms, clinical significance, and management strategies. Although regular physical activity is linked to improved cardiovascular health, the presence of high CAC among athletes of high-intensity physical exercise led to further questions regarding this paradoxical phenomenon and its associated implications. This article provides a review of the available evidence and literature of CAC in endurance athletes and its underlying mechanisms. We also provide insights into the types of plaques associated with high-intensity exercise and stratify their risks with cardiovascular disease. Lastly, we determine gaps in the available evidence and present future prospects to determine the long-term cardiovascular implications and assist with management of this subset of population.

Keywords: cardiovascular disease, coronary artery calcifications, high-intensity exercise, athletes, vigorous exercise.

Biography

Moied Al Sakan is a dedicated healthcare professional affiliated with the prestigious American University of Beirut Medical Center (AUBMC), Lebanon—one of the region's leading academic medical institutions. With a strong background in clinical practice and medical research, Moied brings a patient-centered approach to healthcare, combining academic excellence with compassionate service delivery.At AUBMC, Moied contributes to both clinical and academic initiatives, actively involved in multidisciplinary teams focused on advancing evidence-based care, improving patient outcomes, and promoting medical education. His interests span internal medicine, preventive care, and the integration of research into clinical protocols for enhanced diagnostics and treatment strategies.

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