

# Positive exercise testing in athletes: What does that mean?

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Sudden cardiac death (SCD) during sports activity is an uncommon, but catastrophic event. Different efforts to reduce the risk of SCD related to sports have been undertaken. What is the role of the exercise test in this context? What does a positive exercise test mean?

Regular physical activity reduces cardiovascular risk factors and is associated with reduced cardiac mortality and morbidity. However, the risk for triggering cardiac events increases during vigorous physical activity, especially in individuals with underlying coronary artery disease (CAD). Several factors potentially contributing to oxygen depletion of the heart muscle (myocardial ischemia), may be specifically related to a high level of competition, such as release of stress hormones, increased risk for blood clot formation, thermal stress (heat/cold), altitude, dehydration and electrolyte disturbances.

Coronary artery disease is a very uncommon cause of SCD in young athletes, where underlying (most often unknown) inherited cardiovascular abnormalities are dominating causes. But, CAD is by far the most common cause of SCD in athletes >35 years of age. To reduce the incidence of SCD related to sports, the European Society of Cardiology (ESC) has proposed recommendations for cardiac screening of competitive athletes, consisting of family and personal history (including symptoms), physical examination and 12-lead electrocardiogram (ECG). If any abnormality is found during the screening, additional testing, including often a maximal exercise test, are undertaken to rule out/confirm the presence of an underlying

cardiovascular abnormality.

In younger athletes (35 years of age) with a high-risk profile. According to the ESC, the regular use of the exercise test in asymptomatic athletes with a low-risk profile for future cardiovascular events,

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