key points

SELECTED BY
Dr Peter Saul
GP, Wrexham and Associate GP Dean for North Wales

Regular physical activity controls acquired cardiovascular risk factors such as obesity, diabetes mellitus, hypertension and hyperlipidaemia. Exercise is generally associated with a 50% reduction in adverse events from coronary artery disease (CAD). The benefits of exercise extend well beyond the cardiovascular system. Recent evidence suggests that exercise prevents cell senescence, and active individuals are at lower risk of developing certain malignancies including cancer of the prostate and the colon, osteoporosis, depression and dementia. Individuals who exercise regularly extend their life expectancy by three to seven years.

The British Association of Sport and Exercise Sciences recommends that healthy individuals should engage in 150 minutes of moderate-intensity aerobic exercise per week. Recent studies have demonstrated that even lower volumes of exercise below these recommendations confer health benefits, which is highly relevant to individuals with established cardiac disease including heart failure.

Sinus bradycardia, sinus arrhythmia and repolarisation anomalies including ST segment elevation on the ECG are common in athletes and occur as a result of increased vagal tone.

Sudden cardiac death in athletes under 35 is rare with estimates ranging from 1 in 50,000 to 1 in 200,000. Hereditary and congenital abnormalities of the heart are the most common cause of nontraumatic death during sport in young athletes. Data from the USA suggest that black athletes may be more prone to sudden cardiac death. In middle-aged recreational athletes more than 90% of sudden cardiac deaths occur in males and more than 90% are caused by atherosclerotic CAD.

The American Heart Association and the European Society of Cardiology advocate pre-participation screening of young athletes. The ECG has the ability to detect congenital accessory pathways and ion channelopathies, and is frequently abnormal in individuals with cardiomyopathy. Screening with a 12-lead ECG in older athletes is of limited value given the overwhelming contribution of atherosclerotic CAD to sudden cardiac death.

There is mounting evidence that there may be a threshold of physical activity beyond which there are no further health benefits, and some studies have shown that lifelong intensive exercise may even prove detrimental for some individuals with previously normal hearts. However, given that adverse cardiac event rates among lifelong marathon runners is low, the prognostic implications of these observations is speculative and sequential follow-up studies of large numbers of veteran athletes are required to confirm whether too much exercise is cardiotoxic in some athletes.