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Sudden vigorous exercise associated with increased risk of death

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Misc

Keywords

A related editorial (see Additional information), states that this research accentuates the paradoxical relationship between exercise and a healthy heart, increasing the risk of sudden death for those with coronary artery disease but also offering cardiac protection in those who exercise regularly. The physiological basis of this effect is due to vigorous exercise affecting the sympathetic nervous system, which decreases vagal activity, catalyzes plaque vulnerability and triggers atrial fibrillation. Conversely, habitual exercise increases vagal tone and cardiac electrical stability, in addition to favorably modifying lipid and hemodynamic profiles. 'Vigorous physical exertion can be regarded as a two-edged sword', the related editorial states. 'The findings must be placed in the broader context of all the available data and not seen as negating the potential long-term cardioprotective benefits of habitual exercise.'

Context

In a long-term study of over 21,000 male physicians, bouts of vigorous physical exertion were associated with a transient increase in the risk of sudden death. This risk was attenuated, but not eliminated, if exercise was performed regularly. Despite the brief increase in risk with exertion, the absolute magnitude of the risk of sudden death during exertion was extremely small.

Significant findings

During a 12-year follow-up period, 122 participants died suddenly, 17 during vigorous exertion and six within the 30-min post-exercise 'hazard period'.

Comments

Although the relative risk of sudden death during and shortly after exercise was 16.9, the absolute risk was only 1 per 1.51 million episodes of exertion, Albert and colleagues reported. Regular vigorous exercise, they stated, lowered the risk of sudden death associated with vigorous exertion. The investigators noted that the risk was highest in men who were sedentary or exercised less than once a week compared with those who exercised at least once a week. 'The benefits of a physically active lifestyle in terms of multiple health outcomes, including the frequency of all cardiovascular events, clearly outweigh the small risks', the authors stressed.

Methods

The authors at Brigham and Women's Hospital in Boston, USA, used prospective data from the Physicians' Health Study to examine the frequency of physical exercise - defined as exercising enough to work up a sweat - in 21,481 physicians who were free of cardiovascular disease at enrolment.

Additional information

A related editorial (Maran B: **The paradox of exercise.**

N Engl J Med 2000, **343**:1409-1410.), states that this research accentuates the paradoxical relationship between exercise and a healthy heart, increasing the risk of sudden death for those with coronary artery disease but also offering cardiac protection in those who exercise regularly. The physiological basis of this effect is due to vigorous exercise affecting the sympathetic nervous system, which decreases vagal activity, catalyzes plaque vulnerability and triggers atrial fibrillation. Conversely, habitual exercise increases vagal tone and cardiac electrical stability, in addition to favorably modifying lipid and hemodynamic profiles. 'Vigorous physical exertion can be regarded as a two-edged sword', the related editorial states. 'The findings must be placed in the broader context of all the available data and not seen as negating the potential long-term cardioprotective benefits of habitual exercise.'

References

1. Albert CM, Mittleman MA, Chae CU, Lee IM, Hennekens CH, Manson JE: Triggering of sudden death from cardiac causes by vigorous exertion. *N Engl J Med* 2000, **343**:1409-1411. 2000, **343**:1409-1411.