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Excess exercise 'hurts the heart' and cause dangerous long-term harm, say scientists

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Extreme exercise such as marathons may permanently damage the heart and trigger rhythm abnormalities, warn researchers.

They say the safe 'upper limit' for heart health is a maximum of an hour a day - after which there is little benefit to the individual.

A review of research evidence by US physicians says intensive training schedules and extreme endurance competitions can cause long-term harm to people's hearts.



Damage: Excessive endurance exercise can do long-term harm to the cardiovascular system, U.S. scientists say

Activities such as marathons, iron man distance triathlons, and very long distance bicycle races may cause structural changes to the heart and large arteries, leading to lasting injury.

Lead author Dr James O'Keefe, of Saint Luke's Hospital of Kansas City, said exercise was generally beneficial for health but could tip into becoming harmful when taken to excessive lengths.

He said 'Physical exercise, though not a drug, possesses many traits of a powerful pharmacologic agent.

A routine of daily physical activity can be highly effective for prevention and treatment of many diseases, including coronary heart disease, hypertension, heart failure, and obesity.

However, as with any pharmacologic agent, a safe upper dose limit potentially exists, beyond which the adverse effects of physical exercise, such as musculoskeletal trauma and cardiovascular stress, may outweigh its benefits.'



Dangers: Too much physical exercise can cause musculoskeletal trauma and cardiovascular stress

A review published in the medical journal Mayo Clinic Proceedings (must credit) looked at studies detailing the mechanisms, pathophysiology, and clinical manifestations of cardiovascular injury from excessive endurance exercise.

Dr O'Keefe and colleagues said research suggests that extreme endurance training can cause transient structural cardiovascular changes and elevations of cardiac biomarkers, all of which return to normal within one week.

But for some individuals, over months and years of repetitive injury, this process can lead to the development of patchy scarring of certain areas of the heart, and abnormal heart rhythms.

In one study, approximately 12 per cent of apparently healthy marathon runners showed evidence for patchy myocardial scarring, and the coronary heart disease event rate during a two-year follow up was significantly higher in marathon runners than in runners not doing marathons.

The review said it had been known that elite-level athletes commonly develop abnormal electrocardiogram readings.

However, studies now show that changes to the heart triggered by excessive exercise can lead to rhythm abnormalities.

Endurance sports such as ultramarathon running or professional cycling have been associated with as much as a five-fold increase in the prevalence of atrial fibrillation, or abnormal heart rhythms.

Chronic excessive sustained exercise may also be associated with other heart problems including artery wall stiffening.

Dr O'Keefe said lifelong vigorous exercisers generally have lower death and disability rates compared with non-exercisers, but it was becoming important to detect intense exercisers whose regime might put them at risk.

The phenomenon has been dubbed Phidippides cardiomyopathy - after the fatal heart damage suffered by the original marathon runner.



Suffering: Massive physical efforts like those delivered by professional cyclist can be harmful, scientists say

The young Greek messenger in 490BC died suddenly after running 175 miles in two days, with the last leg of 26.2 miles from Marathon to Athens.

His death was the first report of a sudden cardiac death of a long distance runner.

Dr O'Keefe stressed the review findings should not undermine the message that physical exercise was good for most people.

He said 'Physically active people are much healthier than their sedentary counterparts. Exercise is one of the most important things you need to do on a daily basis.

'But what this paper points out is that a lot of people do not understand that the lion's share of health benefits accrue at a relatively modest level.

'Extreme exercise is not really conducive to great cardiovascular health. Beyond 30-60 minutes per day, you reach a point of diminishing returns' he added.

Government guidelines recommend adults take aerobic exercise five times a week for 30 minutes or more for maximum health benefits.

Children should have at least 60 minutes of moderate to vigorous exercise a day, including taking part in sports, brisk walking and running.

Aerobic exercise is achieved through sports such as jogging, running, cycling, tennis and swimming.

The level of aerobic exertion should be enough to raise the heart rate to 120 beats a minute or higher, which includes a brisk walk and swimming. But taking a stroll or even gardening is also regarded as healthy activity.

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