Improving cardiorespiratory fitness reduces risk of arrhythmia recurrence

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Obese atrial fibrillation patients have a lower chance of arrhythmia recurrence if they have high levels of cardiorespiratory fitness, and risk continues to decline as exercise capacity increases as part of treatment, according to a study published today in the *Journal of the American College of Cardiology*.

Cardiorespiratory fitness gain provides an incremental gain over weight loss in long-term freedom from arrhythmia.

"While weight loss is important for heart disease patients, especially those with arrhythmia, our study shows it's beneficial to have high cardiorespiratory fitness and continue to improve on that," said Prashanthan Sanders, M.B.B.S., Ph.D., senior author of the study and director of the Centre for Heart Rhythm Disorders at the University of Adelaide in Adelaide, Australia. "An ideal treatment plan would include a focus on both."

Atrial fibrillation is the most common type of arrhythmia, or abnormal heart rhythm, affecting about 1 percent of the U.S. population and over 33 million people worldwide. A high body mass index is a risk factor for atrial fibrillation.

Low physical activity can also be a risk factor for atrial fibrillation, so researchers evaluated 825 atrial fibrillation patients with a BMI of over 27, which is considered in the overweight range. After exclusions, 308 patients were divided into low, adequate and high cardiorespiratory

fitness groups based on baseline exercise performance and followed for four years to measure their fitness levels' impact on arrhythmia recurrence. Patients were also offered a physician-led program designed to produce weight loss and increase exercise activity.

Cardiorespiratory fitness is a person's exercise capacity. It is a component of overall physical fitness involving the ability of the circulatory, respiratory and muscular systems to supply oxygen during sustained physical activity.

After four years of follow up, 17 percent of patients in the low cardiorespiratory fitness group were free from arrhythmia, compared to 76 percent in the adequate group and 84 percent in the high group. Those who improved upon their cardiorespiratory fitness had even further risk reduction. Researchers found that for every increase in metabolic equivalent, or MET, a measure of the amount of oxygen consumed at rest, there was a 20 percent reduction in risk of arrhythmia recurrence, and this increase was still shown after adjusting for weight changes and baseline exercise performance. MET measures are used to determine exercise capacity in terms of energy a person uses to participate in physical activity.

Patients were also divided into four groups to determine freedom from arrhythmia based on weight loss and gains in exercise capacity, and researchers found that a gain in exercise capacity greater than 2 METs in addition to weight loss was associated with two times greater freedom from arrhythmia.

In an accompanying editorial comment, Paul D. Thompson, M.D., FACC, chief of cardiology at Hartford Hospital in Hartford, Connecticut, said, "What's most exciting about this new study is that it is the first to demonstrate that increasing exercise capacity reduces atrial fibrillation risk.

"These new results, and the cumulative data linking moderate physical activity to reduced atrial fibrillation risk, suggest that until definitive trial data are available, clinicians should recommend moderate exercise training to our patients with atrial fibrillation, not only to reduce atrial fibrillation, but also for its overall cardiovascular benefits."

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