Exercise therapy is safe, may improve quality of life for many people with heart failure

March 21 2023

Credit: CC0 Public Domain

For many people who have heart failure, supervised exercise training is

safe and may offer substantial improvement in exercise capacity and quality of life, even more than medications, according to a new, joint scientific statement from the American Heart Association and the American College of Cardiology. The statement is published today in both the journal *Circulation* and in the *Journal of the American College of Cardiology*.

Heart failure is a progressive condition in which the heart is unable to pump enough blood to the body either due to the heart muscle stiffening or from it losing pumping strength. Treatments are focused on reducing symptoms, such as shortness of breath and fatigue, and minimizing or delaying the consequences of the condition, which includes decreased quality of life; frequent hospitalizations; loss of functional independence; high health care costs; and increased risk of death.

The statement is a review of the latest evidence-based research to better understand the potential impact of supervised exercise therapy for the more than three million people in the U.S. living with chronic, stable heart failure with preserved ejection fraction or HFpEF. This condition occurs when the heart is stiff and does not relax normally to fill with enough blood to pump to the body, yet the heart muscle is still strong enough to pump well. In comparison, heart failure with reduced ejection fraction occurs when the left ventricle can't pump with the force needed to push enough blood into circulation. In the U.S., heart failure with preserved ejection fraction is one of the most common forms of heart failure, with women disproportionately affected compared to men, according to the scientific statement.

"The prevalence of heart failure with preserved ejection fraction continues to increase due to aging of the population and the growing prevalence of risk factors such as obesity and Type 2 diabetes," said Vandana Sachdev, M.D., chair of the scientific statement writing committee. "Improved management of this large population of patients

who have HFpEF, many of whom may be undertreated, represents an urgent unmet need."

Sachdev is a senior research clinician and the director of the Echocardiography Laboratory in the Division of Intramural Research at the National Heart, Lung, and Blood Institute (NHLBI), a division of the National Institutes of Health, as well as the scientific lead for the new NHLBI heart failure program HeartShare.

In April 2022, recommendations were released by the American Heart Association and the American College of Cardiology for supervised exercise training for people with heart failure, regardless of the type. Sachdev clarified that currently, Medicare only reimburses cardiac rehabilitation for people with heart failure with reduced ejection fraction (HFrEF).

"Exercising helps improve the heart's pumping ability, decreases blood vessel stiffness and improves the function and energy capacity of skeletal muscle," Sachdev said. "Exercise capacity is an independent, clinically meaningful patient outcome, and research has indicated that guided exercise therapy is actually more effective at improving quality of life for people who have HFpEF than most medications."

Members of the writing committee critically examined research published since 2010 to assess the most current data on the impact of exercise-based therapies for HFpEF.

The studies evaluated various types of exercise, including walking, stationary cycling, high-intensity interval training, strength training and dancing in both facility settings and home-based training. Supervised exercise therapy generally occurred three times per week for each of the studies, and the duration of the programs varied from one month to eight months.

In the studies, researchers measured peak oxygen uptake, which is a way to assess exercise capacity by measuring the total amount of oxygen a person can breathe into the lungs during physical exertion. For people living with HFpEF, their peak oxygen uptake is often about 30% lower than that of a healthy person and considered below the threshold required for functional independence (and performing normal daily living activities such as carrying groceries).

The statement writing committee determined that supervised exercise training may lead to:

- Increased peak oxygen uptake 12-14%—an increase of more than 6-7%, is considered clinically meaningful.
- Increased total exercise time by 21%—a 10% increase is considered clinically meaningful.
- Improved quality-of-life scores on the Minnesota Living with Heart Failure questionnaire by 4-9 points. The questionnaire has 21 items, each scored on a 0-5 scale. Total score is derived from adding the scores from each item.

The statement acknowledges there were variations in the baseline characteristics of people in the trials reviewed. Some of the studies excluded patients with some co-existing health conditions, and many groups of people in whom heart failure is prevalent—including older adults, women, persons with low socioeconomic status and people from diverse racial and ethnic groups—were underrepresented in some research. Additionally, many of the studies were smaller, single-center studies, and most were relatively short term, so there isn't enough information to assess long-term adherence, which the committee suggests should be addressed in future research.

"Overall, we did find that in people with chronic, stable heart failure and preserved ejection fraction, supervised exercise training is safe and

provides substantial improvements in exercise capacity and quality of life," Sachdev added. "Future work is needed to improve referral of appropriate patients to supervised exercise programs, and better strategies to improve long-term adherence to exercise training is needed. Hybrid programs combining supervised and home-based training may also be beneficial. Further, implementation efforts will need to include coverage by Medicare and other insurers."

More information: Vandana Sachdev et al, Supervised Exercise Training for Chronic Heart Failure With Preserved Ejection Fraction: A Scientific Statement From the American Heart Association and American College of Cardiology, *Circulation* (2023). DOI: 10.1161/CIR.0000000000001122

Vandana Sachdev et al, Supervised Exercise Training for Chronic Heart Failure With Preserved Ejection Fraction: A Scientific Statement From the American Heart Association and American College of Cardiology, *Journal of the American College of Cardiology* (2023). DOI: 10.1016/j.jacc.2023.02.012 , www.jacc.org/doi/10.1016/j.jacc.2023.02.012

Provided by American Heart Association