More important for heart patients to be active than thin

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Increased physical activity, not weight loss, gives individuals with coronary heart disease a longer lease on life, according to a new study conducted at the Norwegian University of Science and Technology

(NTNU).

NTNU researchers have found that heart disease patients can gain weight without jeopardizing their health, but sitting in their recliner incurs significant health risks.

Weight loss seems to be associated with increased mortality for the participants in the study who were normal weight at baseline. The survey, which is an observational study based on data from HUNT (the Nord-Trøndelag Health Study), was recently published in the *Journal of the American College of Cardiology* (*JACC*).

Researcher Trine Moholdt in NTNU's Department of Circulation and Medical Imaging collaborated on the study with cardiologist Carl J. Lavie at the John Ochsner Heart and Vascular Institute in New Orleans, and Javaid Nauman at NTNU.

They studied 3307 individuals (1038 women) with coronary heart disease from HUNT. Data from HUNT constitute Norway's largest collection of health information about a population. A total of 120,000 people have consented to making their anonymized health information available for research, and nearly 80,000 individuals have released blood tests.

HUNT patients were examined in 1985, 1996 and 2007, and followed up to the end of 2014. The data from HUNT were compared with data from the Norwegian Cause of Death Registry.

During the 30-year period, 1493 of the participants died and 55 per cent of the deaths were due to cardiovascular disease.

"This study is important because we've been able to look at change over time, and not many studies have done that, so I am forever grateful to

HUNT and the HUNT participants," said Moholdt.

Exercise and live longer

The study revealed that people who are physically active live longer than those who are not. Sustained physical activity over time was associated with substantially lower mortality risk.

Participants in the study were divided into three categories: inactive; slightly physically active, but below recommended activity level; and physically active at or above recommended activity level.

The recommended activity level is at least 150 minutes per week of moderate physical activity or 60 minutes per week of vigorous physical activity.

A little is better than nothing

The risk of premature death was higher for the group of patients who were completely inactive than for either of the other groups. The prognosis for people who exercise a little bit, even if it is below the recommended level, is better than not exercising at all.

"Even being somewhat active is better than being inactive, but patients have to maintain the activity level. Physical activity is perishable—if you snooze you lose its benefits," Moholdt says.

Exercise hard

HUNT participants were asked how hard the exercise activity was for them. Moholdt points out that this is a good way to determine the intensity of the exercise. A half-hour walk can be experienced very differently depending on how fit the person is.

The question then becomes how to translate these findings into practical guidelines.

"The clinical guidelines for heart disease patients currently include having normal weight and being physically active. I would put more emphasis on the exercise aspect. When it comes to physical activity, you have to do what gets you in better shape. That means training with high intensity. Do something that makes you breathe hard, so that it's hard to talk, but not so hard that you can't do it for four to five minutes," says Moholdt. She adds that heart disease patients are often in poor shape, so it often doesn't take much to get into high intensity mode.

When asked whether any of the study results were unexpected, Moholdt said that they weren't surprising in terms of physical activity. "But the fact that gaining weight posed no increased risk when patients were already overweight, I think is a bit surprising," she said.

Correlation between weight loss and increased mortality

The results indicate that weight gain does not seem to increase risk for already overweight patients, which would mean that it isn't dangerous for a fat heart patient to gain a few pounds. What is dangerous is if the person does not engage in any form of exercise.

The findings in the study showed higher mortality among normal weight heart patients who lost weight. Moholdt points out that the survey is an observation study that does not look at underlying causes. It may be that patients who lost weight were sicker.

The obesity paradox

The development of cardiovascular disease has a causal relationship with obesity. Despite this strong correlation, the results from major meta-

analyses indicate that people with cardiovascular disease who have a body mass index (BMI) above the normal weight range have better prognoses. This is often called the obesity paradox.

"What we've known for a while is that for heart patients it seems to be an advantage to be fat—the so-called obesity paradox. But although it seems like it pays to be overweight and that weight loss affects these patients adversely, all of these data are based on observation studies. To prove causality, randomized controlled trials are needed," says Moholdt.

The relationship between BMI and life expectancy is complicated and depends on several factors. Erroneous sources are plentiful. Results from another analysis showed that normal weight, healthy non-smokers have the lowest risk of premature death.

Slimming down isn't necessarily wrong

This study's results do not mean that it is never a good idea for an overweight heart patient to slim down. Moholdt and her colleagues note in their JACC article that "in our view, desired or intentional weight reduction may be useful for overweight or obese individuals, although little data supports this view in studies of coronary heart disease patients."

One hypothesis is that weight loss is associated with improved survival among overweight and obese coronary heart disease patients. This correlation was not evident in the study.

"It may be that weight is less important for heart patients, but we know that physical activity is very important," Moholdt says.

Get rid of the bathroom scale

She believes that many people start exercising to lose weight, and then quit when they don't get the desired results in the form of weight loss.

Moholdt encourages people to get rid of their bathroom scale. She says that numerous studies have shown that body composition changes through exercise and that muscles weigh more than fat.

"Exercise has a beneficial effect on all organs in the body—on the brain, heart, liver, vascular system and of course on our musculature," she says.

More information: Trine Moholdt et al, Sustained Physical Activity, Not Weight Loss, Associated With Improved Survival in Coronary Heart Disease, *Journal of the American College of Cardiology* (2018). DOI: 10.1016/j.jacc.2018.01.011

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