Exercise helps some cancer, heart patients

Getting over chemotherapy? Hobbled by heart failure? That's no excuse. Haul out those sweats, pull on those sneakers—and get some exercise.

Surprising and callous though it seems, doctors may soon be giving patients such advice. Two new studies, though small in scope, suggest that exercise is as important for people with congestive heart failure and those recovering from chemotherapy as it is for healthy people.

Without any firm evidence, doctors have cautioned such patients against vigorous exercise, fearing that physical activity would make matters worse. Most studies probing the safety and usefulness of exercise in people with cancer or congestive heart disease have yielded untrustworthy or inconclusive results.

In the new studies, however, two groups of researchers working independently found that such individuals can increase their stamina, stave off fatigue, and boost their muscles' oxygen-carrying capacity by riding stationary bicycles and walking. The studies could have an enormous impact on cancer and cardiovascular rehabilitation efforts, expanding existing programs and spawning new ones. Sadly, there is no shortage of clients.

About 70 percent of cancer patients report that the one-two punch of a malignancy and aggressive treatment saps their strength and energy. Most cancer rehabilitation programs offer only physical therapy aimed at specific problems such as those caused by amputations.

Fernando C. Dimeo, a rehabilitation and sports medicine specialist at Freiburg University Medical Center in Germany, and his colleagues decided to step into the cancer rehabilitation arena with a pilot study of 32 patients, half of whom participated in an active exercise program. The rest served as controls. After chemotherapy ended, but before the exercise regimen began, the two groups were evenly matched—achieving the limit of their tolerance for exercise on treadmills paced at about 6 kilometers per hour.

After 7 weeks, those in the exercise group had increased their exercise tolerance to 8 km per hour, compared to 7 km per hour for the control group. In addition, they had significantly higher concentrations of hemoglobin in their blood, indicating that their oxygen-carrying capacity had risen substantially.

"Cancer patients should be counseled to increase their level of exercise in the recovery phase after high-dose chemotherapy," the investigators report in the May 1 CANCER.

"To my knowledge, this is the first study that has solidly documented this," says Harmon Eyre of the American Cancer Society in Atlanta. "Even though it's a small study, I think it's pretty impressive."

People with congestive heart failure, whose hearts are already so impaired that they pump just one-third the normal volume of blood, fared about as well as the cancer patients. Until now, cardiac rehabilitation through exercise was considered too risky for these people because their damaged heart muscles are often thin-walled and weak. This cautious approach gained currency after a 1988 Canadian study—using a medical application of sonar—showed that exercise in cardiac patients appeared to damage the heart.

Using a more precise method called magnetic resonance imaging (MRI), a study of 25 men with congestive heart failure now shows that exercise does not damage the heart. Twelve of the men undertook a 2-month regimen of daily walks and regular 45-minute sessions on a stationary bike; 13 others did not exercise.

The investigators then used MRI to measure the thickness of the men's heart walls, which showed no evidence of damage from the exercise. "The results are indisputable," says Jonathan Myers of Stanford University. His team's study, reported in the April 15 CIRCULATION, also showed that physical activity improved exercise capacity by 26 percent. The 13 sedentary patients showed no such gain.

Bernard Chaitman, chief of cardiology at Saint Louis University Health Sciences Center, says that a 26 percent improvement may permit people to carry out their normal activities rather than remain bedridden.

Evidence is also mounting that exercise can help keep people from getting cancer as well as heart disease. A study of 20,624 women by Inger Thune and her colleagues at the University of Tromsø in Norway, published in the May 1 NEW ENGLAND JOURNAL OF MEDICINE, found that those who worked out regularly cut their breast cancer risk by 72 percent. —*S. Sternberg*

Gene may further obsessions, compulsions

Obsessive-compulsive disorder (OCD) exudes déja vu. It's like equipping a person's life with a rerun function that impels him or her to think the same disturbing thoughts and to perform the same preventive rituals every day, for hours at a time. Fear of getting sick through bacterial exposure, for instance, sends some OCD sufferers repeatedly to the sink to scrub their hands and arms raw.

Scientists now find that a variant of a specific gene may contribute to the disorder, at least in men. This genetic alteration reduces the production of the enzyme catechol-O-methyltransferase, or COMT, which helps terminate the action of the neurotransmitters dopamine and norepinephrine, reports a research team headed by psychiatric geneticist Maria Karayiorgou of Rockefeller University in New York.

"This is the first linkage of this gene to a psychiatric disorder," Karayiorgou says. "It may be one of several 'susceptibility' genes that pose a risk for developing OCD."

She and her colleagues focused on the COMT gene because it has a known function and falls within a DNA segment that, when missing, is associated with symptoms of manic depression, schizophrenia, and OCD (SN: 1/4/97, p. 7).

The team collected DNA samples from 73 people diagnosed with OCD and 148 individuals who had not experienced any mental disorder. All participants were white adults, and each group contained approximately equal numbers of men and women.

The variation in the COMT gene's usual sequence, inherited from both parents, occurred in nearly half of the men suffering from OCD, the researchers report in the April 29 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES. In contrast, only 1 in 10 women with OCD displayed the same genetic trait, as did about one in six of the men and women who displayed good mental health.

Statistical analysis identified the COMT variant as a likely contributor to OCD in men. However, because some psychiatrically healthy volunteers have two copies of the same version of the gene, an inherited susceptibility to OCD must involve several genes, Karayiorgou asserts. As yet unknown environmental influences may prompt such genes to carry out functions that promote obsessions and compulsions, she suggests.

The precise biological mechanism by which the altered COMT gene influences OCD and the reason for its prominence among men are unclear, the Rockefeller scientist adds.

"This new study has located a promising [gene] variation, but I consider the evidence for its linkage to OCD to be flawed until genetic studies are conducted with families in which this condition occurs frequently," remarks psychiatrist James F. Leckman of Yale University School of Medicine.

In such a study, researchers would assess whether family members showing symptoms of OCD possess two copies of the COMT gene variant more often than members without symptoms. —*B. Bower*