

Chemotherapy and exercise—the right dose of workout helps side effects

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Credit: University of Rochester Medical Center

Researchers at the University of Rochester Wilmot Cancer Institute discovered something simple and inexpensive to reduce neuropathy in hands and feet due to chemotherapy—exercise.

The study, involving more than 300 [cancer patients](#), is to be presented this weekend and honored as a "Best of ASCO" among 5,800 abstracts at the world's largest gathering of oncologists, the American Society of Clinical Oncology (ASCO) annual meeting 2016. More than a dozen other Wilmot scientists also were invited to present data at the meeting.

Investigators for the exercise study directly compared the neuropathic symptoms in non-exercisers to the pain among patients who took part in

a specialized six-week walking routine with gentle, resistance-band training at home.

The exercisers reported significantly fewer symptoms of neuropathy—which includes shooting or burning pain, tingling, numbness, and sensitivity to cold—and the effects of exercise seemed to be most beneficial for older patients, said lead author Ian Kleckner, Ph.D., a biophysicist and research assistant professor in Wilmot's Cancer Control and Survivorship program. Kleckner also won an ASCO Merit Award in the pain and symptom management category, and was invited to give a talk about his work.

Not all chemotherapy drugs cause neuropathy, but 60 percent of people with breast cancer and other solid tumors who receive taxanes, vinca alkaloids, and platinum-based chemotherapies will likely suffer this type of side effect, Kleckner said. Neuropathy is more commonly associated with diabetes or nerve damage. No FDA-approved drugs are available to prevent or treat chemotherapy-induced neuropathy, he added.

Wilmot's specialized exercise program, called EXCAP (Exercise for Cancer Patients), was developed several years ago at the UR by Karen Mustian, Ph.D., M.P.H., an associate professor in the Cancer Control program. In recent years she has copyrighted and evaluated EXCAP in several clinical trials. Last year at ASCO, Mustian presented data from a randomized, controlled study of 619 patients showing that EXCAP reduced chronic inflammation and cognitive impairment among people receiving chemotherapy. Kleckner's study involved a subset of patients from Mustian's trial, which is the largest phase 3 confirmatory exercise study ever conducted among cancer patients during chemotherapy. Their work is funded by the National Cancer Institute and Mustian's PEAK lab.

[Exercise](#)—as a cancer prevention tool and potential treatment—is a hot

topic among the nation's oncologists and their patients.

Kleckner, a longtime drug-free body builder and former college rugby player, said he's committed to understanding more deeply the benefits of exercise for cancer patients. "Exercise is like a sledgehammer because it affects so many biological and psycho-social pathways at the same time—brain circuitry, inflammation, our social interactions—whereas drugs usually have a specific target," he said. "Our next study is being designed to find out how exercise works, how the body reacts to exercise during cancer treatment, and how exercise affects the brain."

Mustian is also giving two talks at ASCO, about the use of exercise in geriatric cancer patients and how innovation can help exercise investigators reach their goals.

"Our program at the University of Rochester, which now includes more than a half-dozen researchers, is becoming a real powerhouse in exercise oncology," Mustian said. "Twelve years ago when we started this work a lot of people said it was not safe for most cancer patients to exercise. Now we know it can be safe when done correctly, and that it has measurable benefits. But more exercise isn't always better for patients who are going through chemo—so it's important to continue our work and find a way to personalize [exercise](#) in a way that will help each individual."

More information: A URCC NCORP nationwide randomized controlled trial investigating the effect of exercise on chemotherapy-induced peripheral neuropathy in 314 cancer patients. *J Clin Oncol* 34, 2016 (suppl; abstr 10000).

abstracts.asco.org/176/AbstView_176_170470.html

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