

Sarcopenia Reduces the Benefits of Exercise in COPD

Jason Harris

Patients diagnosed with chronic obstructive pulmonary disease and sarcopenia appeared to derive less benefit from short-term high-intensity exercise than those without sarcopenia.

Researchers conducting the study at University Clinic Golnik in Slovenia found that a regimen of pulmonary rehabilitation reduced homeostasis model assessment of insulin resistance (HOMA-IR), fat mass index, waist circumference, and low-density lipoprotein (LDL) cholesterol only in patients who did not have sarcopenia. Both groups saw declines in total cholesterol.

“Our main finding is that the rehabilitation-induced changes in cardiometabolic risk factors are sarcopenia-dependent. Insulin resistance was common in both sarcopenic and non-sarcopenic patients, but the HOMA-IR decreased in non-sarcopenic patients only,” wrote Nanca Cebren Lipovec, MPharm, and colleagues (*J Am Med Dir Assoc* 2016;17:814–20). “Short-term high-intensity pulmonary rehabilitation also resulted in decreased adiposity indices in the non-sarcopenic group and in decreased total cholesterol and LDL cholesterol and, surprisingly, HDL cholesterol, in both sarcopenic and nonsarcopenic patients.”

There is little literature investigating cardiometabolic risk in patients with advanced COPD. In this study, researchers sought to evaluate the cardiometabolic effects of short-term high-intensity pulmonary rehabilitation in patients with advanced COPD with and without sarcopenia.

Eighty-five patients with COPD completed a 5-week program that included a baseline assessment, 4 weeks of intervention, and a post-rehabilitation assessment. Patients underwent 20 training days of at least one daily session of combined endurance and resistance training, including:

- 30 minutes of interval training on a cycle-ergometer with alternating between 40%–50% maximal capacity and 80% maximal capacity
- 20 to 30 minutes of treadmill training with alternating slope
- Transcutaneous electrostimulation of thigh muscles
- Upper-limb and trunk muscles training
- Respiratory muscle training.

At baseline, 55% of patients had sarcopenia and 59% had insulin resistance. Seventy patients were included in the body composition assessment, and 68 in the HOMA-IR assessment.

After completing the training, more than half of the patients in both the sarcopenic and non-sarcopenic groups improved in physical performance beyond a minimal clinically important difference, and more than 75% improved in quality of life. Researchers found the non-sarcopenic group experienced a 10% decline in IR

prevalence along with significant declines in HOMA-IR and fasting glucose.

In sarcopenic patients, however, there was a slight increase in IR prevalence, along with increases in fasting insulin levels and HOMA-IR.

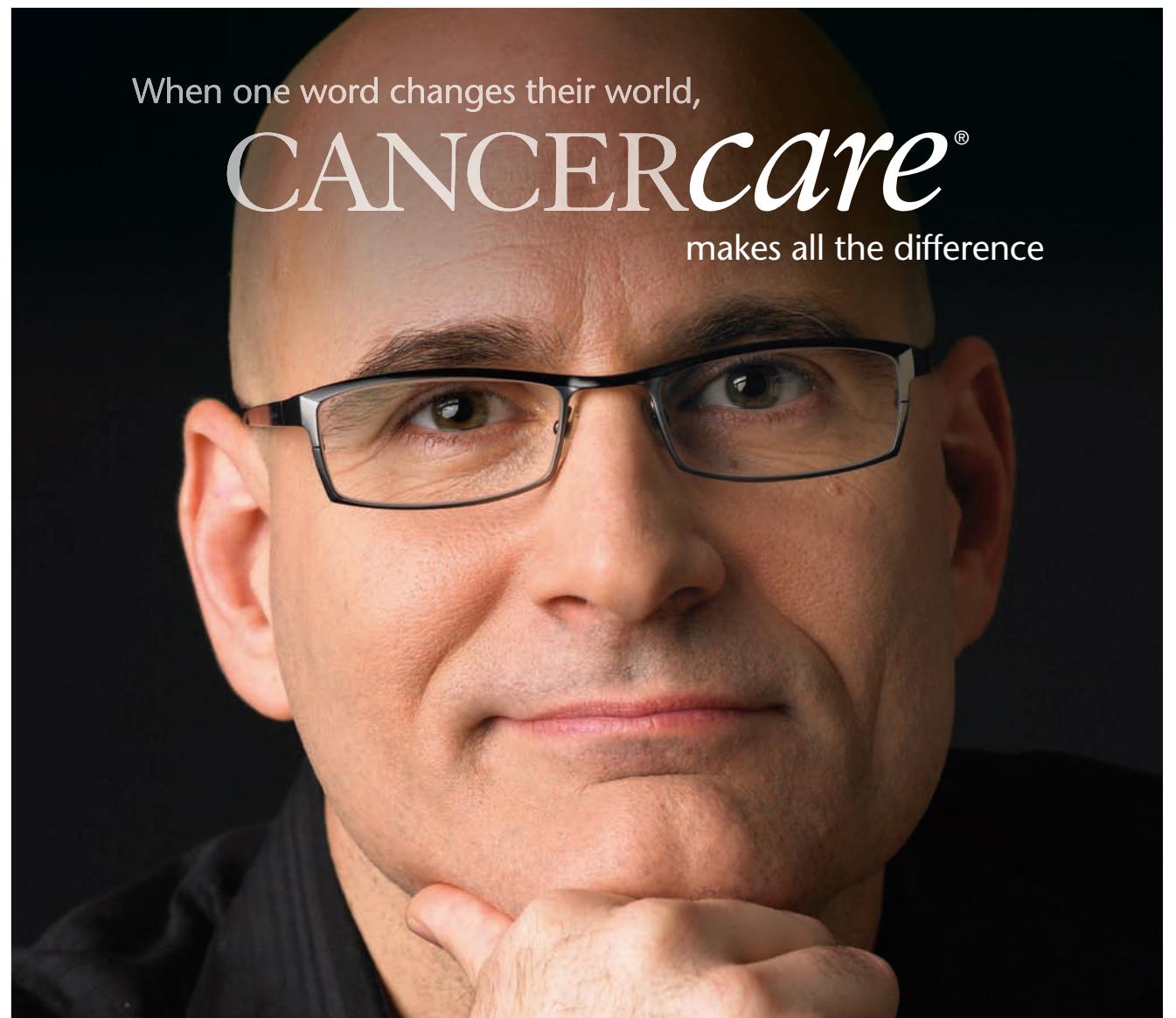
Although neither group experienced a significant change in lean mass, the researchers observed a decrease in LDL

cholesterol levels, body fat, and waist circumference in the non-sarcopenic group. Researchers also noted a significant decrease in total cholesterol levels as well as high-density lipoprotein cholesterol levels at the group level.

The researchers wrote that more research is needed to “better understand the causal relationships between these

metabolic abnormalities and to evaluate the best treatment options. Furthermore, our findings support the recent call for a more personalized pulmonary rehabilitation program.”

Jason Harris is a freelance writer based in Philadelphia.



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