ONCOLOGY

Measuring the Benefits of Exercise for Cancer Patients

Much research has shown that exercise can help improve physical and mental health in cancer patients, but meta-analyses haven't been keeping pace with the latest randomized, controlled clinical trials. So researchers from the University of Hong Kong, Queen Mary Hospital, Queen Elizabeth Hospital, the Hong Kong Baptist University, all in Hong Kong, and the University of Birmingham, United Kingdom, updated the most recent meta-analysis to reflect current thinking.

They reviewed 34 randomized controlled trials. More than half the studies assessed aerobic exercise; 4 also assessed resistance or strength training. The duration of physical activity was 13 weeks (range 3 to 60 weeks). Only 13 studies stated the intensity level of physical activity: 11 were of moderate intensity; 2 were of vigorous intensity. Most control groups were considered sedentary or were assigned no exercise. The 48 outcomes studied included changes in physiologic markers, such as insulin and glucose; physical functions, such as peak heart rate; and psychologic states, such as depression.

In patients who had completed cancer treatment, physical activity significantly reduced insulin-like growth factor-1 (IGF-1), BMI, body weight, fatigue, and depression. Exercise was also associated with increasing peak oxygen consumption, peak power output, and right handgrip strength. Combining aerobic and resistance exercise led to significantly larger improvements on both the physical and functional well-being scales compared with studies that examined aerobic exercise alone.

Perhaps most marked were the effects on quality of life—physical, social, and mental. The meta-analysis included 21 quality-of-life domains. In mixed types of cancer survivors, physical activity improved physical function, social function, and mental health scores by 2 to 3 points on the Short Form-36, compared with the control group.

The effects on fatigue, one of the most common and debilitating adverse effects of cancer and cancer treatment, were variable, although the studies that measured changes in energy and fatigue found at least small-to-moderate beneficial effects of physical activity. In one study of breast cancer patients, aerobic plus resistance training was significantly more effective than aerobic training alone on physical, emotional, and functional well-being.

The effects of physical activity on depression, however, were unequivocal. As measured by the Beck Depression Inventory, depression was significantly reduced at a level of near-clinical importance. That finding has not been reported in other meta-analyses, the researchers say.

In addition to making patients feel better, exercise has the potential to reduce recurrence and relapse. Higher concentrations of IGF-1 have been associated with a higher risk of colorectal cancer; a significant reduction by aerobic, weight, or strength training might mean a lower risk of cancer recurrence. However, the researchers caution that they found no clear trend of an effect of physical activity on blood insulin or glucose.

Because more than half the studies were done in breast cancer patients, the researchers say future studies should focus on other cancers. All the benefits they enumerated were applicable to breast cancer patients. When they included studies of other types of cancer, such as prostate, gynecologic, colorectal, gastric, and lung, they found evidence of clinically important benefits in peak oxygen consumption, peak power output, and quality of life.

Further research into the long-term benefits of exercise could also be useful. The researchers point out that the median duration of the physical activity interventions in their meta-analysis was only 13 weeks. Most mainstream studies advise that physical activity needs to become integrated into everyday life to have long-term benefits.

Source: Fong DYT, Ho JWC, Hui BPH, et al. *BMJ.* 2012;344:e70. doi:10.1136/bmj.e70.