

# Cancer prevention through physical activity in clinical practice

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iPAAC WP5 deliverable task 5.3 Cancer prevention

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Version:	1.0
Date:	22. 11. 2021

This report arises from the Innovative Partnership for Action Against Cancer Joint Action, which has received funding from the European Union through the Consumers, Health, Agriculture and Food Executive Agency of the European Commission, in the framework of the Health Programme 2014-2020. The European Commission is not responsible for the content of this report. The sole responsibility for the report lies with the authors, and the Consumers, Health, Agriculture and Food Executive Agency is not responsible for any use that may be made of the information contained herein. The authors are not responsible for any further and future use of the report by third parties and third-party translations.

According to the World Health Organization (WHO) and the American Cancer Society guidelines of 2020 both healthy people and cancer patients should remain physically active and exercise regularly in order to improve or maintain physical function, aerobic fitness and enhance their quality of life. This includes 150-300 min of moderate intensity, or 75-150 min of vigorous intensity physical activity, or some equivalent combination of both per week (1,2). Any level of physical activity is better than none and physical activity levels should be individualized for optimal health benefits.

As oncologists we know from daily practice that cancer diagnosis is a devastating event for most patients. For many of them it is the worst news they have ever heard. Initially they usually go through the five well-described emotional stages of denial, anger, bargaining, depression and finally acceptance of cancer diagnosis. They are afraid of losing their lives, their relatives and friends, their jobs, their finances. They are afraid their bodies will be deformed as they will be incapacitated from the disease. Out of fear and depression they lose their motivation for physical activity and slowly sink into a more sedentary or even fully inactive life style. This in turn augments and perpetuates their suffering as they initially gain weight, lose their self esteem and may even worsen their prognosis.

After reviewing the existing evidence, a panel of experts issued exercise guidelines for cancer survivors emphasizing that they should avoid inactivity and that specific doses of aerobic exercise, combined aerobic plus resistance training, and/or resistance training is recommended to improve cancer-related health outcomes, including anxiety, depressive symptoms, fatigue, physical functioning and health-related quality of life (3). Moreover, analysis of data from 26 studies of breast, colorectal and prostate cancer patients, indicates an overall 37% reduction in the risk of cancer-specific mortality, comparing the most versus the least active patients (4). This is a clear message that physical activity is highly recommended following cancer diagnosis to ensure quality of life and optimal cancer survivorship.

Despite the evidence that physical activity has multiple benefits in the prevention and treatment of cancer, the majority of patients living with and beyond cancer are not regularly physically active. To change this pattern clinical oncologists should assess, advise and refer patients to appropriate supervised community-based or home-based exercise programs or to other health care professionals who can assist them achieving this goal. Physical therapists and clinical

exercise professionals should be trained to meet the unique needs of patients with cancer and cancer survivors (5).

Starting a few years ago I began advising my cancer patients to remain physically active as much as possible throughout their illness. This includes all stages of cancer therapy e.g. for those with early disease to remain physically active and exercise regularly during their adjuvant chemotherapy and for those with metastatic disease to incorporate physical activity they can tolerate in their daily lives. Ideally I would recommend supervised and individually tailored physical exercise during therapy and beyond for all my patients but this still remains an elusive goal. The implementation barriers to integrating exercise as medicine in oncology are complex and have been well described across all levels of the health care system (6).

What I have witnessed is that for patients who follow my recommendations, physical activity and exercise gave them a sense of security and helped them improving adherence with treatment, especially when feeling depressed or fatigued. Many of them report even improvement of their endurance and strength and this enabled them tolerate or counteract the side effects of chemotherapy. They usually experience positive effects from exercising, both mentally and physically, which rewards them to remain motivated and inspired to continue exercise even after the end of therapy.

A structured exercise program is feasible and recommended even for patients with metastatic disease. Exercise is an alternative to pharmacological treatment for depression which is common among cancer patients. Moreover, exercise may reduce feeling tired (fatigue) a very common symptom among cancer patients and delay or improve sarcopenia (cancer cachexia), a common condition in metastatic cancer, where no effective drug therapy is currently available. Exercise interventions can improve quality of life and prevent skeletal muscle loss during palliative chemotherapy (7).

The reasons why some patients fail to remain physically active or exercise during cancer therapy are diverse and usually related to their personality, previous life style, severity of their illness, side effects of administered therapy but also often affected by social issues such as the absence of an assisting person or care giver at home and financial issues. Some of these issues can be resolved but they often need a multidisciplinary approach including a social worker, a physical therapist and sometimes a visiting nurse to ensure that the physical activity/exercise plan is appropriately implemented and that all obstacles have been overcome.

Many of my patients who fail to adhere to my recommendations are afraid that exercise might aggravate their disease-related symptoms. Others believe that exercise will deplete their energy which is already hampered by disease and/or therapy. Many of them are too depressed to become motivated to change their daily lives.

Those who remain physically active and exercise regularly are proud of it and report to me their progress during their therapy or follow up visits. With aerobic exercise breast cancer patients often experience reduced joint stiffness and muscle cramps from aromatase inhibitor hormonal therapy. Regular exercise helps them to avoid weight gain during the course of their adjuvant hormonal therapy which is associated with better prognosis (8). More importantly, remaining physically active gives them a sense of well-being, improves their self confidence and helps them carry on with their lives focusing on the bright side of their existence.

The following are practical tips that make exercise safer and more enjoyable for cancer patients:

- Any level of activity even for a few minutes a day is better than none.
- Start slow and progress gradually as you tolerate.
- Listen to your body and adapt your plan.
- Never push yourself too much.
- Have someone be with you to help you if you need it.
- Try short periods of exercise with frequent rest breaks.
- Avoid activity that puts you at risk for falls or injury.
- Keep exercise easy and fun.
- Ask your relative or friend to join you.
- Try different activities as you like.
- Set short term and long term goals.
- Recognize and reward yourself for your progress.

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