

## 03: PHYSICAL ACTIVITY AND CANCER

**A**lthough Cancer develops at a cellular level it is known to be influenced amongst others, by genetic, environmental and lifestyle factors via a number of interacting biological mechanisms.

**A sedentary lifestyle is now widely recognised as a key component in the risk factors of several cancers.**

There is clear data for the positive effects of physical activity both on the prevention of some cancers and on clinical outcomes after diagnosis.

### Physical activity and primary prevention

The leading authority on the links between physical activity as an independent risk factor for the primary prevention of cancer is the World Research Fund's Continuous Update Project.<sup>1</sup> The evidence here is for physical activity as the only independent risk factor, some cancers also have weight as a risk factor.

Strong convincing evidence		Limited – no conclusion	
Colon		Prostate	Pancreatic
Strong probable evidence		Rectal	Skin
Breast (post-menopausal)		Ovary	
Breast (pre-menopausal) if vigorous exercise		Mouth/throat	
Endometrial		Bladder	
Limited - suggestive		Kidney	
Liver	Oesophagus	Unlikely effect on risk	
Lung	Breast (pre-menopausal)	None identified to date	

### Physical activity pre-treatment:

Pre-surgical exercise, through aerobic, resistance or pelvic floor training, may benefit cancer patients through effects on function and cardiovascular and pulmonary fitness with significant improvements shown in:<sup>2-5</sup>

- Rates of incontinence in prostate cancer
- Functional walking capacity
- Cardiorespiratory fitness
- Reduced hospital stays

### Physical activity during treatment:

Although patients often feel unwell before or during treatment for cancer, we know that physical activity during treatment:<sup>6-8</sup>

- Significantly improves fitness and muscle strength
- Shows small improvements in anxiety levels and self esteem
- Shows no worsening of fatigue levels and some small evidence of an improvement
- Increases lean muscle mass
- Improves arm function with no worsening of lymph-oedema in breast cancer patients<sup>9,10</sup>

### Physical activity after treatment:

Patients often experience loss of physical function as a result of their cancer treatments, but evidence shows that physical activity after treatment can improve several aspects:<sup>6-8,11</sup>

- Increase in cardiovascular fitness and muscular strength
- Reduced fatigue
- Improvements in quality of life, anxiety and depression
- Some reductions in body fat and increase in muscle mass

Physical activity has been shown to improve cancer patients' quality of life during the rehabilitation phase and should therefore be encouraged.<sup>12-16</sup>

### Physical activity and palliative care:

Despite a small evidence base, intervention studies are promising and support the use of physical activity in patients with advanced stages of cancer.<sup>17-20</sup>

Benefits demonstrated include:

- Slowed decline in quality of life
- Preserved functional outcomes (e.g. walking ability, muscular strength)
- Less severe symptoms (dyspnoea, appetite loss)

### Physical activity and survival rates:

An increasing number of studies have studied the relationship between physical activity and cancer survival. There have been reviews and studies across breast, colorectal, prostate, ovarian, lung and glioma brain cancer.<sup>21-29</sup> Although, this is still emerging evidence, these studies have shown an inverse relationship between physical activity and mortality in patients undertaking post diagnosis physical activity.

Risk reduction rates varies on these studies, from 15-67% for cancer specific mortality and 18 -67% for all-cause mortality.<sup>24</sup> However, the dose of physical activity to reduce cancer mortality varied between studies from 9 MET-hr (metabolic equivalent time) to 27 MET-hr, equivalent to approximately 180 to 500 minutes per week respectfully, of moderate intensity physical activity. It is suggested that the association between physical activity and cancer-specific mortality is not uniform and may vary according to the volume of physical activity and between different cancer types.<sup>24</sup>

**NICE guidelines NG101 (2018)<sup>30</sup> and CG81 (2014)<sup>31</sup>** back up the advice to patients with early and advanced breast cancer, that we should provide the information and access to an exercise programme to help with cancer related fatigue, lymph oedema and quality of life.

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### Safety considerations during and after treatment<sup>32</sup>

To avoid symptom exacerbation	To prevent falls
<ul style="list-style-type: none"> <li>• Modify exercise</li> <li>• Start moderately and progress slowly</li> </ul>	<ul style="list-style-type: none"> <li>• Practice balance exercises</li> <li>• Practice strength exercises</li> </ul>
During immunosuppression	For patients with lymph-oedema
<ul style="list-style-type: none"> <li>• Avoid high load/intensity</li> <li>• Monitor bloods for neutropenia</li> </ul>	<ul style="list-style-type: none"> <li>• Progress slowly</li> <li>• Wear compression garments</li> </ul>

### Contraindications<sup>33</sup>

In disease or treatment avoid activities that:

- Require high intensity in patients with low Hb < 8.0g/dl
- Entail an increased risk for bacterial infection in patients with a low wbc < 0.5 x 10<sup>9</sup>/l
- Involve contact sports if platelets < 50 x 10<sup>9</sup>/l

### Key message:

Exercise is an important part of any treatment plan for a patient with cancer at all stages. It can improve their quality of life, contribute to the management of their disease, mitigate against co-morbidities and complications and lead to better treatment outcomes.

### Consider:

1. Auditing your cancer patients to see if they have been offered any physical activity advice.
2. Advising on diagnosis of the importance of this lifestyle approach for their own well-being.
3. Signpost to Macmillan support resources [here](#)

### Benefits to health professionals:

Reduced drug costs, appointments and visits.

*Extracted from the Wales HEIW CPD module on physical activity Motivate2Move. Now part of the RCGP Clinical Priority on physical activity and lifestyle. (Planned review date Dec 2021)*

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