Rehabilitation following a cancer diagnosis
Juliette Hussey

The National Cancer Registry of Ireland reports an overall improvement in cancer survival, including for cancers traditionally associated with poor outcomes. This has led to an increased population of cancer survivors, many of whom have physical and psychological needs that require interventions in order to optimise quality of life.

Physical functioning is affected by both the disease itself and the adverse side effects of treatment (surgery, chemotherapy, radiation) – studies show that patients complete initial treatment with significantly reduced physical performance (poor exercise tolerance, muscle weakness and lower levels of muscle mass with increased body fat). These impairments need to be addressed to enable the patient to return to pre-morbid functioning (participating in family life, return to work etc). Addressing the adverse changes in body composition and physical performance may also assist in the prevention of secondary disease, particularly cardiovascular disease which cancer survivors are at a greater risk of developing.

Specific personalised exercise prescription — While the general benefits of exercise in both the prevention and treatment of cancer are understood, less is known about specific personalised exercise prescription which considers the specifics of the cancer and its treatment. My research group in the Clinical Research Facility in St James’s Hospital works closely with the Department of Surgery and Prof John Reynolds to evaluate exercise interventions aimed at optimising therapeutic responses to exercise at various time points.

Early work from my group has revealed that, following treatment, breast cancer patients engaged in similar levels of physical activity as controls but had reduced muscle strength and aerobic fitness. Since activity levels in the general population have decreased and approximately 65% of people in Ireland are not engaging in enough physical activity, the aim of ensuring that patients return to pre-diagnosis activity levels is not sufficient. This has led to a paradigm shift for physiotherapists. In patients surviving cancer, major behaviour change is needed to bring exercise levels to those required for health benefits.

Exercise specific to particular cancers
Different cancers have different rehabilitation requirements. People surviving complex cancers such as oesophageal cancer are found to have significant physical and nutritional impairment, and surgery performed after chemo(radio)therapy can have a marked attritional impact on overall wellbeing. Findings from the project RESTORE (Rehabilitation Strategies following Esophagogastric Cancer), include significantly improved cardiorespiratory fitness of disease-free patients without

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compromises in body composition. This initial work formed proof of principle for rehabilitation programmes and was the basis for RESTORE 2 (Rehabilitation Strategies in Oesophagogastric and Hepatopancreatobiliary Cancer) which will investigate the efficacy of the programme as it applies to a wider cohort of cancer survivors (oesophagus, stomach, pancreas and liver).

In patients with lung cancer or oesophageal cancer the symptoms of the disease result, respectively, in breathlessness on activity and difficulty swallowing, which both lead to decreased exercise tolerance. Lower fitness levels are associated with post-operative complications. Prehabilitation or exercise training pre-surgery is the obvious intervention, but the time between diagnosis and surgery does not generally permit gains in exercise tolerance using typical exercise programmes. Early results from pilot work demonstrated that high intensity interval training led to positive changes in exercise tolerance in as little as two weeks and work on a randomised control trial has begun.

The expectation is that this research over the coming years will provide the evidence to support guidelines for rehabilitation including individualised exercise prescription for patients with gastro-intestinal cancer and for prehabilitation for patients facing oesophageal or lung resection.

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