

# Surviving lung cancer is just the beginning

July 31 2023, by Catherine Granger and Selina Parry

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More than 14,000 cases of lung cancer [were diagnosed in Australia](#) in 2022. Survival rates are the [worst of all cancers](#), with just 22% surviving five years after diagnosis.

The best survival is seen in people with early-stage, localized

disease—people who may not even feel unwell at the time of diagnosis. Australia is planning to introduce a [National Lung Cancer Screening Program](#) by July 2025, and so we expect to see many more [lung](#) cancers detected early, more people able to be treated with curative surgery and improvements in survival.

This is great news but it's just the first step. It is essential that we consider how we can maximize survivorship outcomes both now and in the future for people receiving lung [cancer](#) surgery.

Concerningly, [a study](#) recently found the prevalence of "[functional limitations](#)" in cancer survivors has rapidly risen over the last 20 years. Functional limitations are difficulties with [physical activities](#) like walking, standing up or carrying objects.

Very few people are limitation-free even years after treatment for cancer. Lung cancer survivors are the second most vulnerable (after [pancreatic cancer](#))—with 76% reported living with functional limitations.

Cancer-related fatigue and breathlessness are also common and often continue long after surgery. This leads to a worsening pattern of difficulty moving, reduced fitness and muscle strength, and poor quality of life.

This comes with an associated economic burden as patients require extra care and other support like adapting their houses to accommodate their limitations.

The positive news for patients is [exercise training](#) has huge potential to address these limitations in people with lung cancer.

[Strong research evidence](#) has been produced over the last decade and we

are now convinced that [exercise](#) is safe and highly effective in lung cancer therapy. We see consistent improvements in functional limitations, cancer symptoms, fitness, strength and quality of life for those who participate in an exercise program.

Surgery is the preferred treatment for people with early-stage lung cancer. This is usually delivered very close to diagnosis. In Australia, [two-thirds of people undergo surgery](#) within 14 days of a lung cancer diagnosis.

Fourteen days. Is that enough time to make a difference with exercise training before surgery? Our research published in the *Cochrane Database of Systematic Reviews*, in collaboration with Curtin University, suggests yes.

We found that exercise training results in a 55% reduction in the risk of lung complications after surgery. One extra person will be saved from a lung complication, like pneumonia, for every five people who exercise before surgery (compared to those not exercising).

Exercise programs as short as 14 days long are beneficial. People who exercise before surgery, compared to those who do not, stay in hospital shorter after their surgery and improve their fitness levels.

More research is needed to understand the long-term benefits of pre-surgery exercise and we are continuing to monitor patients after surgery to complete this picture.

Exercise training after surgery is also critically important and associated with excellent outcomes, including improved fitness, strength, breathlessness and quality of life. These exercise programs are longer, often six to 20 weeks in duration, as they are not restricted to the short timeframe before surgery.

The exercise programs are often delivered in a hospital gymnasium for a group of people with lung cancer. They usually run for 60 minutes and typically include aerobic exercises like stationary bike riding and treadmill walking, performed at a moderate "brisk" intensity. Other elements can include [muscle strength](#) training, balance exercises and stretches.

The strength of evidence now challenges us to consider how all Australians living with lung cancer can be supported to exercise.

People with lung cancer have significant barriers to exercise and we cannot expect most people to exercise without the support of health professionals. The exercise programs that we know work—because they have been tested in clinical trials—are supervised by health professionals, mostly physiotherapists.

It is important for patients to be screened for safety and given a careful, tailored exercise prescription. Yet despite the complexity of care required, we found that in Australia there are very few exercise programs available for people with lung cancer.

This is partly because we have only gathered the evidence to understand the efficacy of exercise for lung cancer in recent years and clinical practice has not yet caught up.

Similar [exercise programs](#) are already well established nationally and internationally for other conditions, including hospital or community-based Pulmonary Rehabilitation. The evidence supporting exercise for people with chronic obstructive pulmonary disease "COPD" was initially generated decades ago.

Many of the pulmonary rehabilitation programs have now expanded to include people with "other" respiratory diseases like lung cancer.

However, demand is very high and waitlists are long.

Our team are currently trialing a remotely delivered exercise program, using physiotherapy support through weekly phone calls for 12 weeks after lung cancer [surgery](#). The trial was outlined in a preliminary article published in *BMJ Open Respiratory Research*.

Whether or not such a hands-off home-based program can achieve the same magnitude of patient gains is the big question we hope to answer.

Certainly, the [exercise program](#) is less resource intensive for patients as they don't need to travel to a hospital gymnasium to see the physiotherapist and exercise. If shown to be effective, the program could be scaled up nationally in time for the introduction of the National Lung Cancer Screening Program.

There are promising times ahead for the management of [lung cancer](#). We are finally at a point where we truly understand the benefits, and safety, of exercise.

For many people, exercise is a positive activity, that they can control, in an otherwise terrible time in their lives.

**More information:** Preoperative exercise training for people with non-small cell lung cancer, *Cochrane Database of Systematic Reviews* (2022). [DOI: 10.1002/14651858.CD012020.pub3](https://doi.org/10.1002/14651858.CD012020.pub3)

Catherine L Granger et al, Effect of a postoperative home-based exercise and self-management programme on physical function in people with lung cancer (CAPACITY): protocol for a randomised controlled trial, *BMJ Open Respiratory Research* (2022). [DOI: 10.1136/bmjresp-2021-001189](https://doi.org/10.1136/bmjresp-2021-001189)

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