

# Gadget that shines bright red LEDs to mend cancer scars now being used to treat debilitating scarring and swelling in the mouth caused by radiotherapy

[Beth Kennedy](#) 20:51 EDT, 24 February 2024

- **The therapy is currently being offered to NHS patients in Nottingham**

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A 'Lollipop' gadget that emits red light is being used to treat debilitating scarring and swelling in the mouth caused by radiotherapy [cancer](#) treatment.

The device's light-emitting diodes (LEDs) can repair damaged tissue, calm the body's response to injury and reduce inflammation – and patients simply need to pop it in their mouth for a few minutes to feel the benefits.

It is believed that the wavelength of light being produced, called near-infrared, is absorbed by damaged cells and

helps to repair them.

The therapy – known as photobiomodulation – is being offered to [NHS](#) patients in [Nottingham](#), where experts claim it has proved remarkably successful. But there are now hopes it could be rolled out more widely in a bid to improve the lives of cancer survivors across the UK.

Radiotherapy most often involves shooting high-energy X-ray beams into the body to destroy tumours. The treatment is highly effective, but there can be collateral damage to healthy surrounding tissue, which causes scarring to develop both on the skin and internally.



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Also known as fibrosis, this affects one in ten patients who undergo radiotherapy, and the problem can occur months or even years after initial treatment. It can cause discomfort and leads to difficulty in moving the affected areas.

In the case of head and neck cancers, patients may be left unable to turn their head fully or, in the worst scenarios, powerless to chew or speak properly.

The LED treatment is already approved by the National Institute for Health and Care Excellence (NICE) to treat oral mucositis – a common side effect of radiotherapy or

chemotherapy where the mouth becomes sore and inflamed. It is also widely used to treat lymphoedema – when body parts swell due to fluid retention.

But experts at the Macmillan Late Effects Clinic at Nottingham City Hospital, which supports patients hit by severe difficulties following cancer treatment, are the first in the UK to use it to treat fibrosis.

Some 120 patients with either head and neck or breast cancer have been treated at the clinic for radiation-induced fibrosis and lymphoedema using photobiomodulation therapy since 2022. Another attachment, shaped like a shower head, can be used if the scarring is on the skin. Patients are medicated for a few minutes twice a week for six weeks, but can book more sessions if their stiffness returns. Results are usually seen within a few weeks of the first treatment.

It is thought that cells absorb the red light, which then sends chemical messages through the body to promote their repair.

Unlike lasers, which emit heat, LEDs are cool to the touch so the treatment is painless.

Nottingham-based radiographer Emma Hallam, who runs the Late Effects Clinic, says she has seen photobiomodulation

make an incredible difference to her patients' lives. Some have been able to go back to work, give speeches at their children's weddings or move back to eating solid foods – simply because they can once again open their mouths normally.



Experts at the Macmillan Late Effects Clinic at Nottingham City Hospital (pictured), which supports patients hit by severe difficulties following cancer treatment, are the first in the UK to use LED treatments to treat fibrosis

She says: 'I knew that photobiomodulation was being used to help patients with lymphoedema, so I wondered whether it could help to break down radiation-induced fibrosis as well.

'And it has been incredibly successful. It's the only thing we seem to have that's making a difference to these patients.'

Cindy Martin, from Nottingham, has been having

photobiomodulation treatment at the clinic since February 2022.

The 64-year-old mother-of-three was diagnosed with cancer of the saliva gland in early 2021. The tumour was surgically removed, but she needed a one-month course of radiotherapy two months later after the cancer spread to the glands in her neck.

This left her with fibrosis that made it difficult to move her head.

Cindy says: 'I'm really grateful I had radiotherapy, but I hadn't anticipated I'd still be suffering now. It was as if there was a rod behind my ear to my shoulder blade.'

She also suffered from lymphoedema, which made one side of her face swell so much that one eye was forced shut.

Just halfway through her first course of photobiomodulation, Cindy started to notice a difference and could open her eye once more. She began a second round of treatment a few weeks ago after the stiffness and swelling returned, and an immediate improvement soon followed again.

'It's completely changed my life,' she adds, now cancer-free. 'My confidence was shattered, but now I know there's something that can be done.'

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