

The TORPEdO Trial: Comparing proton beam therapy and IMRT for oropharyngeal cancer

A Summary for Participants

Dear participant in the TORPEdO trial,

Thank you for taking part in the TORPEdO trial, which ran from 2020 to 2023 across 20 hospitals in the UK. Your contribution has helped us learn more about treating oropharyngeal cancers, which are cancers that affect the tonsil and back of the tongue. This summary explains the results.

What was the trial about?

The TORPEdO trial compared two types of radiotherapy given with chemotherapy for oropharyngeal cancer:

- 1) **Intensity-Modulated Radiation Therapy (IMRT)**, the standard treatment available at all hospitals.
- 2) **Proton Beam Therapy**, a newer treatment only available at specialised centres, which aims to reduce radiation doses to healthy tissues around the cancer.

We wanted to see if proton therapy could reduce side effects and improve quality of life compared to IMRT. Both treatments were given with chemotherapy, and the same radiation dose was used to treat the cancer.

You were one of 205 participants assigned at random to receive either proton therapy (136 patients) or IMRT (69 patients). You filled out questionnaires about your quality of life, including swallowing, chewing, speech, taste, appearance, and saliva, before and after treatment. Your hospital also shared information about side effects, such as weight loss or feeding tube use. We have followed participants up for at least two years and now have enough data to be able to share key findings.

What did we find?

The results showed that both treatments worked well:

Quality of life: One year after treatment, participants in both groups reported similar experiences with swallowing, speech, chewing, taste, and other functions.

Side effects: During the treatment period and in the few weeks after treatment, all participants had moderate side effects of radiotherapy. Fewer participants in the proton group (50 out of every 100 participants) had severe side effects compared to the IMRT group (72 out of 100 participants), mainly due to inflammation or pain in the mouth and throat. From 3 months after treatment, side effects were similar for both treatments. Very few participants needed a feeding tube one year after treatment - fewer than 2 out of 100 participants in both groups. At one year, more participants in the proton group had greater than 20% weight loss compared to the IMRT group (18 out of 100 participants, compared to

6 out of 100 participants); there may be several reasons, and few participants became underweight.

Cancer treatment: Both treatments were excellent at treating the cancer. After about two years, 95 out of 100 participants were alive, and cancer returned in the throat or neck for less than 6 in 100 participants.

Radiation to healthy tissues: Proton therapy reduced radiation doses to areas like the swallowing muscles and salivary glands, but this did not lead to better quality of life or functional differences at one year, compared to IMRT.

What does this mean for you?

These results are good news. They show that whether you received proton therapy or IMRT, you received a high-quality treatment that worked just as well in terms of treating the cancer, managing side effects, and supporting your quality of life. Modern IMRT performed better than expected compared to older studies, with fewer long-term side effects like feeding tube dependence. It shows that IMRT is a very effective option for patients with oropharyngeal cancer.

Why is this important?

Oropharyngeal cancer affects your throat, which can make things like chewing, swallowing and speaking challenging if side effects occur. Knowing that both IMRT and proton therapy are effective gives us confidence in using IMRT, which is more widely available.

What will happen now?

You'll continue filling out questionnaires and attending follow-up appointments for up to five years after your treatment. This will help us learn more about the long-term effects of both treatments.

The trial's initial findings were shared at a medical conference in San Francisco on 29th September 2025. The full report has now been published in The Lancet and is open access and available at the following weblink: [https://authors.elsevier.com/sd/article/S0140-6736\(26\)00314-4](https://authors.elsevier.com/sd/article/S0140-6736(26)00314-4)

Thank you

Your participation in the TORPEdO trial has made a huge difference. Without you and the other 204 participants, we wouldn't have this important information to help future patients. We're so grateful for your support and encourage you to keep completing questionnaires to help us learn even more.

The trial was led by Professor David Thomson at The Christie NHS Foundation Trust in Manchester, sponsored by The Institute of Cancer Research coordinated by the Clinical Trials and Statistics Unit at The Institute of Cancer Research (ICR-CTSU), and funded by Cancer Research UK and The Taylor Family Foundation.

Kind regards

The TORPEdO Trial Team