

# Lung cancer treatment could be having negative health effect on hearts

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Credit: University of Manchester

Radiotherapy treatment for lung cancer could have a negative effect on the health of your heart new research has found.

Scientists from The University of Manchester's Division of Cancer Sciences and The Christie NHS Foundation say it could reduce survival rates in those receiving the therapy by up to 20 per cent.

Radiotherapy plays a major role in curative-intent treatment of [lung cancer](#) and advances in [radiation](#) technology have enabled doses to be delivered to a larger proportion of [patients](#). However, over the past two years, evidence has emerged showing radioactivity of the heart from [radiotherapy](#) is increasing mortality rates.

Dr Alan McWilliam, who led this research which is published in the *European Journal of Cancer*, says: "The effect of radiation on the heart for patients treated with radiotherapy is not well understood at all, that is why we have carried out this initial study.

"We found that the radiation may cause an extra burden on the heart and even small amounts of radiation may have an effect. We have identified the top of the heart in particular as a dose-sensitive region, where excess dose results in poorer patient survival."

Patients receiving a higher dose of radiotherapy to this region of the heart have a 20% higher risk of [early death](#) than those getting a lower dose he says. One of the key reasons for such high numbers in lung cancer patients is that their tumours can often be much closer to the heart than other forms of cancer. This means some radiation will inevitably hit the organ, having an adverse effect.

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Dr McWilliam added: "This is especially true when compared to other patients groups, such as breast cancer and lymphomas, who are also usually younger and healthier than those suffering with [lung cancer](#).

These are patients who have poor cardiac health and conditions such as heart disease which also contribute to the problem."

The researchers analysed 1100 patients, looking at where in the heart there was radiation and how long the patients survived. They identified that the top of the heart in particular as being more sensitive to radiation than the body of the organ.

The testing showed a highly significant region across the base of the heart, where higher doses were associated with worse patient survival.

To carry out the study, a high-resolution, normal-tissue dosimetric analysis was performed. This helped identify regions in the heart that correlated with poorer survival. However, the team's research and analysis only highlights the top of the [heart](#) as important. The next step is to further this work and do clinical studies to investigate clinical causes and ways to combat the issue.

**More information:** Alan McWilliam et al. Radiation dose to heart base linked with poorer survival in lung cancer patients, *European Journal of Cancer* (2017). [DOI: 10.1016/j.ejca.2017.07.053](https://doi.org/10.1016/j.ejca.2017.07.053)

Provided by University of Manchester

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