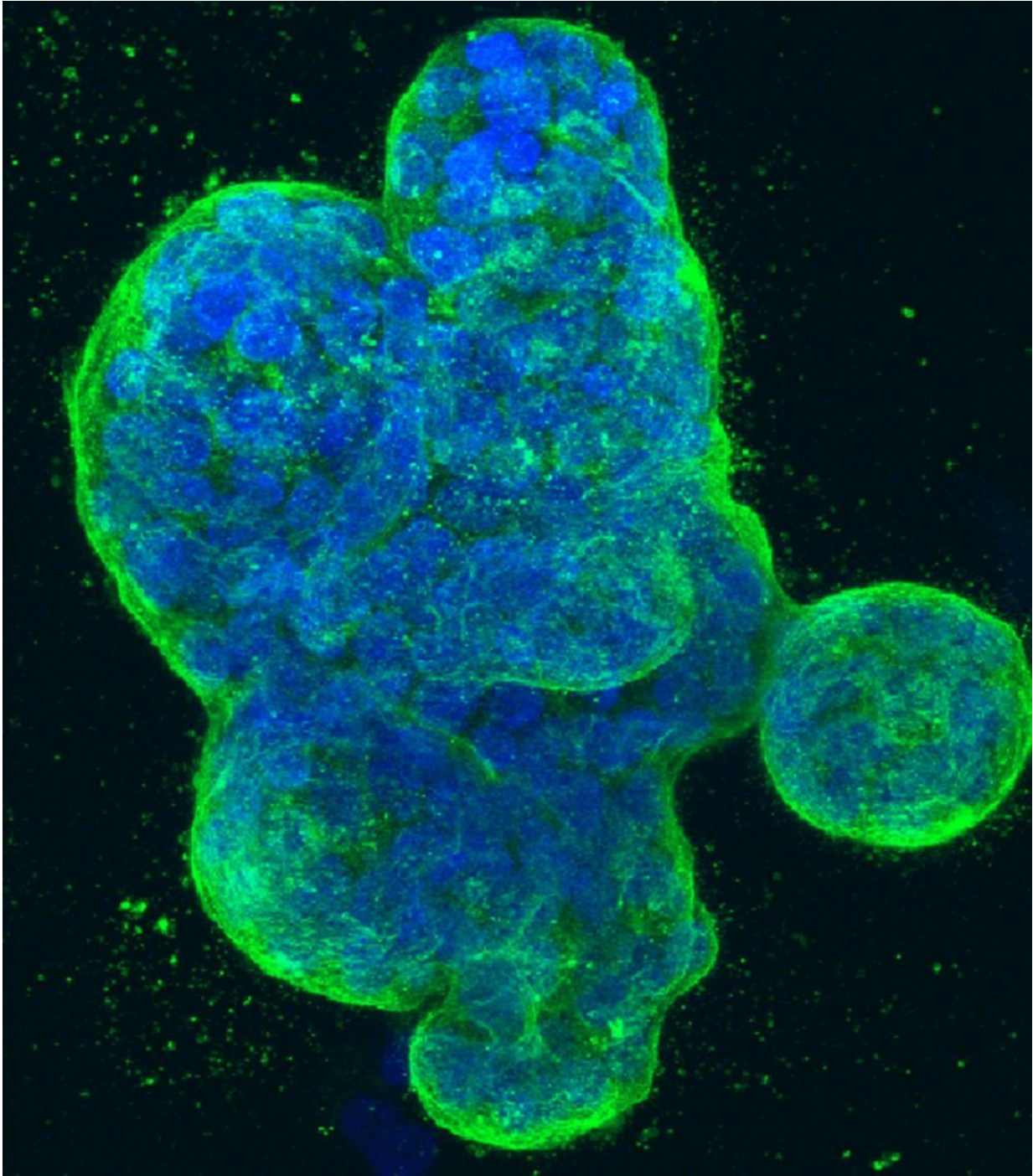


Low-dose radiotherapy boost helps prevent local recurrence with better cosmetic outcomes in young breast cancer patients

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Three-dimensional culture of human breast cancer cells, with DNA stained blue and a protein in the cell surface membrane stained green. Image created in 2014 by Tom Misteli, Ph.D., and Karen Meaburn, Ph.D. at the NIH IRP.

The vast majority of young patients given a low-dose boost of radiotherapy to the site where their breast cancer was removed in addition to whole breast radiotherapy, remained free of local recurrence after ten years, according to results of the "Young boost trial" presented at the [14th European Breast Cancer Conference](#).

Patients treated with a high-dose boost had an even lower risk of recurrence; however, they were much more likely to develop scar tissue in the breast, resulting in hardening of the breast.

The research was presented by Dr. Sophie Bosma, a radiation oncologist at The Netherlands Cancer Institute in Amsterdam. She said, "Young breast cancer patients generally have a worse prognosis than [older patients](#). However, because breast cancer is more common in older women, younger women are under-represented in most breast cancer studies.

"We know that in young patients, there is a higher chance of the breast cancer returning in the same place following breast-conserving treatment. In this trial we were aiming to lower that risk by giving patients a high radiotherapy boost directed at the site of the tumor. We were also comparing a higher and lower dose to see which one worked best for young patients in terms of local control and cosmetic outcome."

The trial included 2,421 patients who were all aged 50 or younger, with an average age of around 45, and being treated at one of 32 centers in The Netherlands, France, or Germany. Following surgery to remove their tumors and whole breast radiotherapy, the patients were randomly assigned to be treated with either the low-dose (16 grays) or high-dose (26 grays) radiotherapy boost. The majority of patients also received chemotherapy.

Patients were monitored for an average of 11 to 12 years, and during that time, 109 patients suffered a recurrence in the same breast. Among patients who received a low-dose boost, there were 61 recurrences, equating to a ten-year local recurrence rate of 4.4%. In those who received a [high-dose](#) boost, there were 48 recurrences with a ten-year local recurrence rate of 2.8%.

However, 48% of patients who received the high dose experienced severe or moderate fibrosis ([scar tissue](#)) in the breast, compared with 27% of patients who received the low dose. Overall, the researchers conclude that the "benefit does not justify the increased impact on cosmetic outcomes."

Dr. Bosma said, "In both groups local recurrence rates were very low and much better than expected. Although we did find a difference between the two groups in terms of the recurrence rate, this was a small difference which must be weighed against the increase in side effects, such as fibrosis. Knowing the long-term impact of a treatment on cancer control as well as on unwanted side-effects is crucial in helping individual patients get the best possible treatment."

Professor Michail Ignatiadis from the Institut Jules Bordet in Brussels, Belgium, is Chair of the 14th European Breast Cancer Conference and was not involved in the research. He said, "Radiotherapy plays an important role in breast cancer treatment, especially in young women where there is a higher risk of the [breast cancer](#) returning. This important study provides critical information for the optimal boost [radiotherapy](#) dose for achieving local control without compromising the cosmetic outcome."

More information: Abstract no: 4LBA, "Young boost randomized phase III trial of high vs. low boost radiation in young breast cancer patients: 10-year results", Young Investigator Innovation Award and Oral

abstracts, Thursday 21 March, 09.30-10.55 hrs CET, Silver room.
[cm.eortc.org/cmPortal/Searchab ... details/0000107220_0](https://cm.eortc.org/cmPortal/Searchab...details/0000107220_0)

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