

Fat tissue may impede radiotherapy for breast cancer patients

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According to research published online in *The FASEB Journal*, repeated irradiation of breast fat (also known as adipose tissue) produces an inflammatory response that ultimately reduces the efficiency of radiotherapy in breast cancer patients. This research was based on a recent discovery that there is an inflammatory interaction between breast tumors and adipose tissue.

"Patients often undergo 25 daily doses of radiotherapy to the whole breast after surgical removal of the tumor to ensure that any remaining [breast cancer cells](#) are destroyed," said David N. Brindley, Ph.D., D.Sc., professor at the Heritage Medical Research Centre within the Department of Biochemistry at Canada's University of Alberta. "During this treatment, the adipose tissue releases autotaxin, an enzyme that initiates a wound healing response. This response ends up protecting the remaining cancer cells and allowing tumors to establish themselves and avoid destruction."

To test this idea, Brindley and colleagues exposed rat and human [adipose tissue](#) to radiation doses expected during radiotherapy. The radiation produced an increase in autotaxin and an inflammatory wound healing response. The researchers identified several agents that could be used to block inflammation and decrease the wound healing response, which they expect would improve the effectiveness of the radiotherapy.

"This is a potentially major discovery in relation to the efficacy of [breast cancer](#) radiation therapy" said Thoru Pederson, Ph.D., Editor-in-Chief of

The FASEB Journal.

More information: Guanmin Meng et al, Implications for breast cancer treatment from increased autotaxin production in adipose tissue after radiotherapy, *The FASEB Journal* (2017). [DOI: 10.1096/fj.201700159R](https://doi.org/10.1096/fj.201700159R)

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