

Fat stem cells boost breast cancer tumors "Tulane study"

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Tulane University researchers have found that fat stem cells obtained from obese women lead to greater cancer cell growth than fat cells from non-obese women. The findings are part of a new [study](#) that focuses on the impact of fat stem cells from different parts of the body on the growth of breast cancer tumor cells.

The Tulane research team obtained adipose (fat) stem cell samples from women who had undergone elective liposuction. The team obtained cells from different parts of the donor's bodies—some from the abdomen and some from a non-abdominal region. Samples of each type of fat stem cell also were obtained from obese and non-obese women.

These cell lines were cultured in a laboratory together with breast cancer cells, then were injected into mice, in which estrogen pellets also were implanted.

When tumors from the samples were analyzed, the researchers found that cancer cell growth was greater with fat cells from obese women than from non-obese women, and growth was greater using the abdominal fat cells of obese women than from all other sites. This is because when fat stem cells are exposed to estrogen, signals are sent that boost production of the hormone leptin, in turn stimulating tumor growth, say the researchers.

Bruce A. Bunnell, director of the Tulane Center for Stem Cell Research and Regenerative Medicine and lead author on the study, says: "The results of this study demonstrate that the site of origin and body mass index alter the characteristics of human fat stem cells and their role in cancer progression. Further study is needed to see how these cells behave in the tumor microenvironment in the body."

Targeting the signaling pathway that activates leptin production could lead to new

methods for breast cancer treatment in obese patients, according to Bunnell.