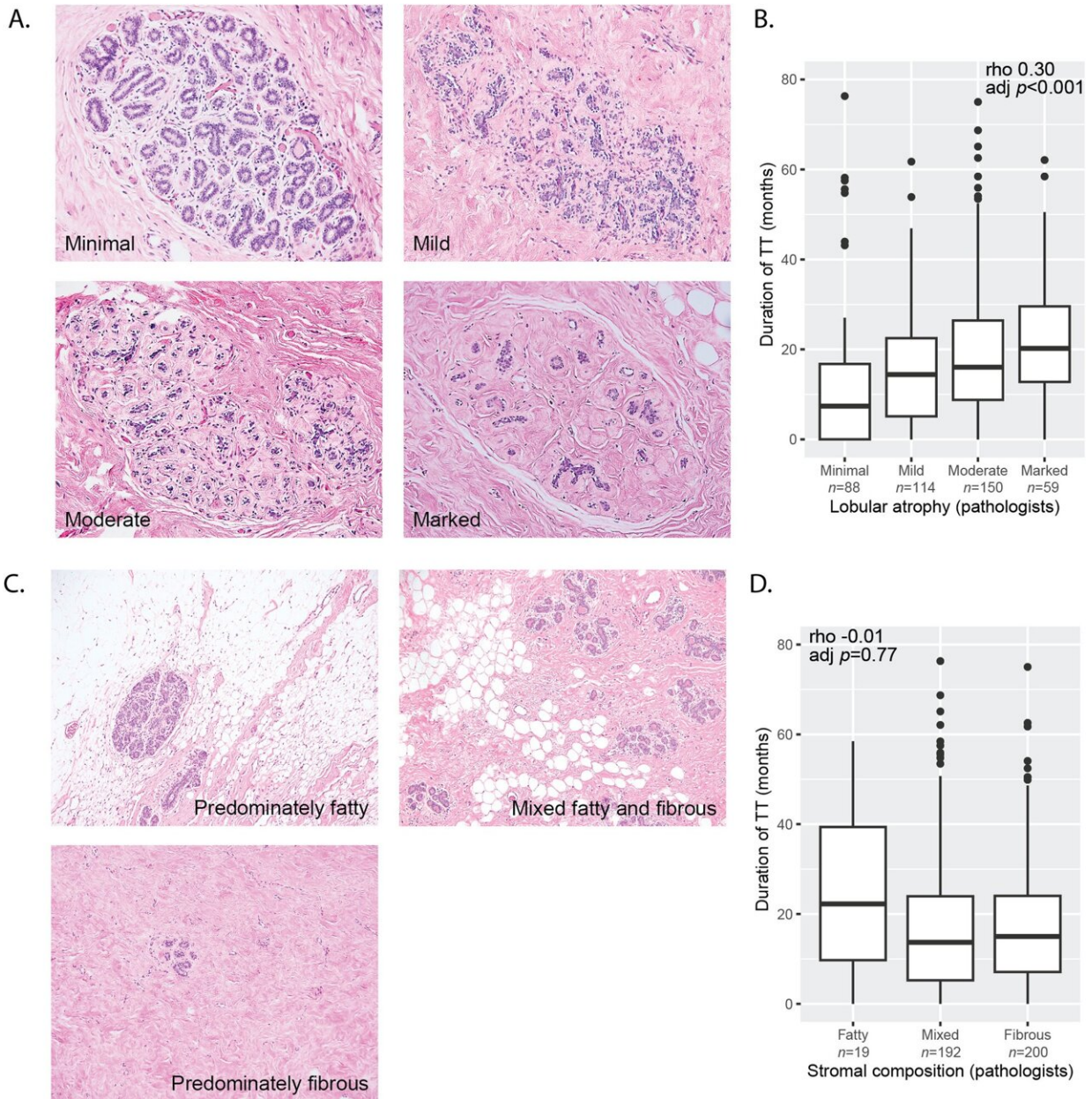


Testosterone therapy may protect against breast cancer in trans masculine individuals

July 17 2024, by Jacqueline Mitchell



a) Lobular atrophy was assessed by the pathologists using four categories. b) The duration of testosterone therapy (TT) significantly correlated with increasing degrees of lobular atrophy. c) Stromal composition was assessed by the pathologists using three categories. d) There was no correlation between duration of TT and stromal composition as assessed by the pathologists. Credit: *Breast Cancer Research* (2024). DOI: 10.1186/s13058-024-01867-w

In a recent study, investigators at Beth Israel Deaconess Medical Center (BIDMC) led by Jan Heng, Ph.D., examined the effects of testosterone therapy in the breast tissue of 425 trans masculine individuals.

Leveraging an artificial intelligence algorithm created by the team to analyze breast tissue composition—the relative amounts of breast epithelium, fibrous stroma, and fat—the findings suggest that gender-affirming testosterone [therapy](#) may decrease the breast cancer risk for trans masculine individuals.

The work is [published](#) in the journal *Breast Cancer Research*.

To treat their [gender dysphoria](#), some trans masculine individuals undergo chest-contouring surgeries, the primary goal of which is to create a male-appearing chest, not to remove all grossly identifiable breast tissue. While chest-contouring surgery will reduce breast cancer risk, that risk cannot be eliminated as residual [breast tissue](#) remains hormonally responsive.

Most breast cancers arise in the breast epithelium, which is highly sensitive to sex hormones—estrogen increases the potential for cancer by stimulating epithelial cell proliferation while testosterone's anti-proliferative effects reduce the risk of cancer.

As part of gender-affirming testosterone therapy, baseline testosterone levels of trans masculine individuals are supplemented to match levels in cis gender men and gain secondary sex characteristics.

However, excess testosterone can be converted to estrogen in the body. As such, it is unknown if testosterone therapy may increase—by contributing to more estrogen in the body—or decrease breast cancer risk in trans masculine individuals.

Heng's team found that the amount of breast epithelium in trans masculine individuals who used testosterone therapy was 28% lower than that of those who did not use testosterone therapy. Testosterone therapy did not affect the amount of fibrous stroma and fat.

Additional analyses revealed that the effect of testosterone therapy on reducing the amount of breast epithelium was less pronounced in overweight/obese subjects.

A [previous study](#) that used the same [artificial intelligence algorithm](#) also led by Heng, women with higher amounts of breast epithelium had increased breast cancer risk.

Together, these findings led the authors to conclude that testosterone therapy generally has the potential to decrease breast cancer risk in trans masculine individuals.

The protective effect of testosterone may be offset by the endocrine activity of adipose tissue, such that testosterone therapy affects breast cancer risk differently in overweight/obese trans masculine subjects compared to normal weight subjects.

More studies are needed to understand the complex relationship between [testosterone](#), obesity, and [breast cancer risk](#) in the trans masculine

population.

More information: Yujing J. Heng et al, Effect of testosterone therapy on breast tissue composition and mammographic breast density in trans masculine individuals, *Breast Cancer Research* (2024). [DOI: 10.1186/s13058-024-01867-w](https://doi.org/10.1186/s13058-024-01867-w)

Provided by Beth Israel Deaconess Medical Center

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