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Testosterone may contribute to colon cancer tumor growth

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Previous cancer research has revealed that women are less likely than men to suffer from non-sex specific cancers such as cancer of the colon, pancreas and stomach. Scientists theorized that perhaps this trend was due to a protecting effect created by female hormones, such as estrogen, that help prevent tumors from forming. Now, researchers at the University of Missouri have found evidence suggesting that the male hormone testosterone may actually be a contributing factor in the formation of colon cancer tumors.

In his study, James Amos-Landgraf, an assistant professor of veterinary pathobiology in the MU College of Veterinary Medicine, observed normal levels of naturally occurring colon cancer in a group of male rats. He then removed testosterone from those rats and colon cancer rates decreased dramatically. After reintroducing testosterone, the colon cancer rates returned to normal.

"Previously, scientists believed that female hormones may have lent some sort of protection against tumor susceptibility," Amos-Landgraf said. "However, by showing that removing testosterone from rats leads to a drastic decrease in colon cancer susceptibility, it appears that male hormones may actually contribute to colon tumor growth rather than female hormones being protective."

Amos-Landgraf also points to higher rates of colon cancer in post-menopausal women as potential evidence to support testosterone as a contributing agent to tumor growth.

"All women have some level of testosterone in their bodies naturally, but those levels typically are much lower than estrogen and other female hormones," Amos-Landgraf said. "Once women experience menopause and their female hormone levels decrease, their testosterone levels become relatively higher. This corresponds to the time when they begin to experience higher rates of colon cancer and could be a sign of a relationship between testosterone levels and colon tumor growth."

Amos-Landgraf says he plans to continue his research by investigating the genetic traits that are responsible for the difference in susceptibility to cancer between men and women.

This study was published in the *Proceedings of the National Academy of Sciences*.

Provided by University of Missouri-Columbia