

Testosterone nasal spray to treat anxiety disorders

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Research has shown that although there is no difference in anxiety disorders among prepubescents, puberty introduces a sharp uptick in anxiety disorders in girls, who naturally have about one-tenth the amount of testosterone as boys. Credit: University of Texas at Austin

A testosterone-containing nasal spray received its second U.S. patent and its first patent in Europe, making it the first testosterone therapy licensed to treat anxiety disorders.

Although testosterone therapy is most often marketed and prescribed to men suffering from "low T"—testosterone deficiency or hypogonadism—researchers with The University of Texas at Austin and MedCara Pharmaceuticals developed a nasal [spray](#) in response to a long-standing research question about why women are twice as likely as men to develop [anxiety](#) disorders.

"A growing body of research points to testosterone's importance in the etiology of anxiety disorders," said Robert Josephs, a professor of psychology at UT Austin who along with MedCara pharmacist Craig Herman developed the spray.

Research has shown that although there is no difference in anxiety disorders among prepubescents, puberty introduces a sharp uptick in anxiety disorders in girls, who naturally have about one-tenth the amount of testosterone as boys. The researchers speculated that men's higher concentrations of circulating testosterone may protect against anxiety and began developing a treatment to address the issue.

"With this second U.S. [patent](#) and a first European patent supporting these claims, we're one step closer to introducing a new weapon in the ongoing battle against mental illness," said Josephs, who is also an adjunct professor of psychiatry in UT Austin's Dell Medical School.

The first patent for his invention was issued in April 2019, with broad claims as a treatment option for fear-based disorders. This second U.S. patent, however, has the power to change the way [testosterone therapy](#) is used and how [anxiety disorders](#) are treated.

Although testosterone is not currently prescribed for anxiety, Josephs hopes that a short-term, fast-acting testosterone product might be prescribed alongside a lower dosage of benzodiazepines—such as Xanax or Klonopin—for treating [anxiety disorders](#) such as PTSD and OCD.

"Although benzodiazepines work well, they have strong sedative effects," Josephs said. "Testosterone is not sedating."

The aqueous-based nasal spray also addresses a current market need for comfortable, controlled, and fast-acting dosages of testosterone for people struggling with "low T" or a decreased libido. Traditional [testosterone](#) supplements, including drops, transdermal creams and gels, injections and subcutaneous "seeds," can take days and/or multiple doses to reach full potential. Testosterone is in high demand, with prescriptions [increasing](#)

[fivefold](#) since 2011.

The [nasal spray](#) (U.S. Patent No. 10,258,63, issued April 16, 2019; U.S. Patent No. 10,751,348, issued Aug. 25, 2020) has been [licensed to Acerus Pharmaceuticals Corporation](#), which has the flexibility under the current agreement to use the technology in whatever medical field it deems most appropriate.

A Chinese patent is also forthcoming, paving the way for the psychology professor's invention to be available worldwide.

Provided by University of Texas at Austin

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