

Improved PCOS symptoms correlate with gut bacterial composition

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Symptoms of polycystic ovary syndrome (PCOS) improved with exposure to healthy bacteria in the gut, according to a study in a mouse model of this common women's endocrine disorder. The study results will be presented Monday at ENDO 2019, the Endocrine Society's annual meeting in New Orleans, La.

This study builds on recent research by the same investigators showing that the human gut microbiome, or gut bacterial composition, is less diverse in women with PCOS.

"Our new results suggest that altering the gut microbiome via prebiotic or probiotic therapies may be a potential treatment option for PCOS," said the study's senior investigator, Varykina Thackray, Ph.D., with the University of California San Diego School of Medicine in La Jolla, Calif.

PCOS affects about 10 percent of women of childbearing age, and the exact causes are unknown, according to the Hormone Health Network. It has no cure, but symptoms are treated with medications and changes in diet and exercise. Signs of the disorder include cystic follicles in the ovaries, higher levels of testosterone, excess body hair, irregular or no menstrual periods, and sometimes weight gain and [insulin resistance](#). Possible long-term health consequences include infertility, miscarriage, pregnancy complications, type 2 diabetes, hypertension, and depression.

Thackray and her research team induced PCOS in [female mice](#) that were

going through puberty by giving them letrozole, an aromatase inhibitor. By blocking the conversion of testosterone to estrogen, this drug results in elevated testosterone levels and in [mice](#) results in other hallmarks of PCOS as well. Another control group of mice received treatment with a placebo in this study, which received funding from the National Institute of Child Health and Human Development.

For five weeks the researchers kept two mice per cage in three different housing arrangements: PCOS mice together, placebo-treated mice together and mice from both treatment groups together. Co-housing results in exposure to each other's gut microbiome, Thackray explained.

PCOS mice that lived with placebo-treated mice had substantially improved [testosterone levels](#), normalized cycles and ovulation compared to PCOS mice housed with each other, the investigators reported. In addition, PCOS mice housed with placebo mice had decreased weight, lower fasting blood sugar and insulin levels, and less insulin resistance (a major risk factor for type 2 diabetes).

Importantly, Thackray said these improvements in PCOS features were linked to changes in the gut microbiome. "Additional research is needed to understand how specific gut bacteria contribute to PCOS and whether the [gut microbiome](#) offers potential avenues for treating the condition," Thackray said.

Provided by The Endocrine Society

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