

PCOS Patient Goes from Hospital Gown to Lab Coat

By Michelle Brubaker | March 05, 2018

When Noon Makan was diagnosed with [polycystic ovary syndrome \(PCOS\)](#), she was only 14-years-old.

“My periods were so heavy and irregular. I would get my period every three to six months and it would last a month. I am of Indian decent and we don’t talk about these things in our culture,” said Makan. “But my condition was so bad, I became anemic and that’s when I decided I needed to see a gynecologist.”



Up to 10 percent of women are diagnosed with PCOS — a hormone condition that often contributes to infertility and metabolic problems, such as pre-diabetes, high cholesterol and heart disease.

“Hearing the word infertility from my doctor was heartbreaking, even as a teenager. I wanted to have a family and be a mom,” said Makan. “I felt like a part of my femininity was taken away.”

According to the Hormone Health Network, women are diagnosed with PCOS when they have at least two of the three key features of the condition:

Increased numbers of cysts in the ovaries (called polycystic ovaries) detected by ultrasound

Slightly higher levels of testosterone or clinical symptoms, such as excess body hair

Irregular or no menstrual periods

“PCOS is the most common hormonal condition in women of child bearing age. It usually starts in adolescence and persists for many years,” said [Antoni Duleba, MD](#), chief of the Division of Reproductive Endocrinology and Infertility at UC San Diego Health. “Teenagers are faced with acne, weight gain and excessive hair growth, while later in life, women are at risk for diabetes and high cholesterol.”

“I had to start getting hair removal treatments at age 9,” said Makan. “The symptoms definitely led to some anxiety.”

Duleba said many patients develop anxiety and depression from the condition due to the physical changes that develop and the challenges of sometimes diagnosing PCOS.

A clinical evaluation, blood work to test hormone levels and an ultrasound to check the ovaries, are steps taken if a patient is suspected of having PCOS.

“The hardest part for me was not knowing what was wrong with my body. That was traumatic,” said Makan. “Once I was diagnosed, I felt some weight lifted and some worry melt away because I knew what I was up against.”

The exact causes of PCOS are unknown but hereditary and environmental factors that lead to increased insulin and testosterone levels are thought to contribute to development of the disease.

Recently, researchers at University of California San Diego School of Medicine found that women with PCOS tend to have less bacterial diversity in their gut.

The researchers examined fecal swabs from 73 women diagnosed with PCOS. Their samples were compared to swabs from 48 women who did not have PCOS and 42 women who had polycystic ovaries but did not have the other features of PCOS.

[The study](#) found the women who had PCOS had the least diverse gut bacteria, women who did not have the condition had the most diverse gut bacteria and women who had polycystic ovaries tended to have more diverse gut bacteria than women with PCOS, but less diversity than women without the condition.

“Our findings suggests testosterone may help shape the gut microbiome, and these changes may influence the development of PCOS and the impact it has on a women’s quality of life,” said Varykina Thackray, PhD, senior author of the study and associate professor in the Department of Obstetrics, Gynecology, and Reproductive Sciences at UC San Diego School of Medicine.

The study also confirmed findings recently reported in two other studies that Caucasian and Han Chinese women with PCOS have less bacterial diversity in their gut microbiome than healthy women.

“Further studies are needed to understand how the gut microbiome contributes to PCOS and if modification of the gut microbiome may be a potential treatment for this disorder,” said Duleba, a co-author of the study.

There is no cure for PCOS but symptoms can be managed with lifestyle changes and medications.

“The medications I take have significantly improved my quality of life,” said Makan.

Duleba added that medications can also help patients with PCOS to get pregnant and to stop excessive hair growth. “We can’t treat both of those issues at the same time because the medications to stop hair growth can actually prevent fertility. It’s really understanding what the patient’s needs are and addressing them one at a time for optimal outcomes.”

Makan, now 21-years-old, has not given up on her dream to have a baby. “With modern medicine, I have a lot of hope that I will continue to live my life to the fullest and become a mother. I have so much more confidence than I did as that scared teenager. PCOS has actually made me stronger and more determined than I ever was before.”

And that motivation has led Makan to a lab at UC San Diego where she is both a research assistant and a participant in a study that is looking at the effects of androgen on an ovary follicle, a fluid-filled sac that contains an immature egg. Due to high levels of androgen in PCOS patients, the study is looking to see if that hormone on a follicle could be a potential cause of infertility.

“Because of my health experiences, I was passionate about going into medicine and research. I am honored to be contributing to science for a topic that hits home so personally,” said Makan. “I want to use my past to help women of the future.”

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