

WOMEN'S HEALTH

Polycystic Ovarian Syndrome

Kaleb Montgomery, DTCM

I decided to write this article because I realized that in my own practice, which focuses on fertility and pregnancy care, almost half my patients have polycystic ovarian syndrome (PCOS). This is a big change from only a year ago when I would have one or two PCOS patients at a time. A good place to start this article is with the question: "What is PCOS?" First, it is important to understand that PCOS is a syndrome, which means it is a collection of symptoms/signs without a known specific cause. This is code for fuzzy diagnostic boundaries and difficulty in diagnosis.

Generally women with PCOS do not ovulate. This is usually what brings them into the doctor's office. They only get a few periods a year or less. On an ultrasound, the ovaries will be packed full of immature eggs. Unfortunately, these eggs usually do not get big enough and mature enough to pop out of the follicle and ovary. A possible reason for ovulation not occurring is that often the woman's follicle stimulating hormone (FSH) response is blunted. For whatever reason, her body is unable to respond to her often-normal range levels of FSH in the usual way. Often women with PCOS will have elevated levels of lutenizing hormone (LH) though, usually in the range of two to three times higher than her FSH.

Normally, the ratio of LH and FSH is 1:1. This is because the relationship between LH and FSH is one of positive feedback. Producing more of one induces the production of the other. In a normal cycle, the LH and FSH levels should rise in concert with each other, the FSH stimulating her follicles to grow and the LH rising towards the peak needed to cause ovulation. Both are needed because ovulating an immature egg is no good, as is maturing an egg that will not ovulate.

To complicate this further, there are generally two types of women who get PCOS; one heavier and one thinner. The heavier PCOS woman usually has low energy, is hypothyroid, has extra body/facial hair, tends to loose stool and is usually fairly overweight. Her body mass index (BMI) is usually in the low 30s. Her insulin and blood sugar are most often high, and she is usually on the verge of type 2 diabetes presenting with at least some insulin resistance. They also most often do not exercise much or at all and do not eat well.

A researcher at Queen's University in Ontario, Canada found that the BMI of heavier PCOS women only had to drop one or two points before their cycles became regular and their fertility returned. Guessing as to why this happened gives us a clue as to what is going on from a Western perspective. To do this, we first have to look into type 2 diabetes a bit.

Type 2 diabetes starts because someone eats too much sugar and refined carbohydrates. These simple sugars digest quickly and cause high levels of glucose in our blood stream. The body responds by making the pancreas rapidly pump out insulin. The quicker the sugar enters our blood stream, the more and quicker the pancreas pumps out the insulin. These now high levels of insulin quickly process the sugar by putting it into our cells to use as energy. Because highly processed snack foods have a high glycemic index, most of the calories enter the blood stream quickly in the form of sugar. Insulin then rises quickly to a high level, and we get a rush of energy.

However, because the insulin level is so high, it quickly metabolizes any calories from the glucose you cannot use into fat cells, thereby using up all the sugar in the bloodstream. Eventually, the cells get used to these high levels of insulin. In people who eat poorly, their insulin and blood glucose levels are high so their bodies get numb to these high levels of insulin, and the pancreas has to pump out ever-increasing amounts of insulin to get their cells to respond.

In the study at Queen's University, the women were asked to start exercising and eating better in order to lose weight and regulate their insulin and blood glucose levels. They lost the weight slowly over time, depending on the calorie deficit they sustained However, it is interesting that their periods returned to normal quickly after only losing a bit of weight. It suggests that the weight is not the problem but that the high insulin and glucose levels is.

To the ovaries, levels of insulin are high. In trying to act on this, the ovaries over-respond, getting blocked up with too many immature eggs and becoming unable to function properly. To help these women start ovulating normally, it is critical to level out their glucose and insulin levels by getting them to eat properly and exercise regularly. Further confirming this is that metformin, a blood glucose regulating drug is the most commonly prescribed by Western clinicians. Most of the studies on PCOS focus on these heavier women because they are relatively easy to treat and some simple lifestyle modifications will often get everything working again.

Conversely, the thin PCOS patients tend to have lots of energy and have hyperthyroidism. They also tend to have not so much body/facial hair, be more constipated and have fairly normal blood glucose and insulin levels. The model of the ovaries hyperstimulating to high glucose and insulin levels does not work. They do have ovaries that are full of immature eggs and tend to have the skewed FSH/LH ratios. However, these women typically get put on metformin by their Western doctors, with usually not much change in their insulin/glucose levels or much change in their cycle regularity or how often they ovulate.

Can you guess which type of PCOS patient I see more in my clinic? By a massive margin, the thin type. Once they come to me, they are generally frustrated because the only thing that their Western fertility doctor has to offer them is an expensive IVF with less than usually success rates because of their finicky ovaries. I also find that it takes longer than the normal two to six months to treat these women, but rather anywhere from eight to 18 months. I will discuss the reasons for this and some treatment methods I have found effective next article.

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