

# Polycystic ovary syndrome and cardiovascular disease

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One in 15 women of childbearing age is diagnosed with a disorder commonly referred to as polycystic ovary syndrome (PCOS). The condition is one of the most common causes of women not ovulating and thus causes difficulty in conceiving. Fertility is not the only health consequence these women face, however. PCOS has been associated with an increased risk for cardiovascular disease (CVD), the leading killer of women and men alike.

Sarah Berga, MD, former Chair of the Department of Gynecology and Obstetrics at the Emory University School of Medicine, is a researcher whose work focuses on understanding the impact of metabolic and psychological stresses on the [reproductive system](#) and as a cause of infertility, as well as on PCOS. She will provide an overview of her team's work in a presentation entitled, "CVD and PCOS." Her remarks are part of the Physiology of [Cardiovascular Disease: Gender Disparities](#) conference, October 12 at the University of Mississippi in Jackson. The conference is sponsored by the [American Physiological Society](#) with additional support from the [American Heart Association](#).

## PCOS and Health

Among the cardinal features of PCOS are a lack of ovulation and a tendency towards weight gain and obesity. No studies have found a link between the syndrome and [premature death](#). Research has, however, shown PCOS is associated with increases in artery-clogging triglycerides

(fats) and insulin resistance (IR), which boosts the chances for diabetes, a risk factor for cardiovascular disease. "Although we understand that PCOS is a definite risk factor for CVD, we don't know how great of a risk factor PCOS is and thus we need to put the risk in context," says Berga.

Given the ambiguity, there is no universal protocol for treating women with PCOS-related CVD factors, according to Berga. "Some women need intervention based on existing guidelines, either to control their blood sugar to head off diabetes, or reduce their cholesterol to moderate the risk of premature heart disease. For the rest, it's a matter of treating each woman based on their individual needs. We know that PCOS puts these women at risk for CVD-related disease, but we do not yet understand the extent to which it does so."

Does this mean that all women with PCOS should be tested and treated for diabetes? She and others recommend that women with PCOS be periodically screened for diabetes and treated for it if they meet certain formal criteria. However, pharmacological intervention to forestall diabetes has not been endorsed and it has not been established that giving women with PCOS metformin will delay or prevent diabetes.

## **PCOS – An Adaptation from Earlier Times?**

Women with PCOS don't ovulate on a regular basis in their early years, and yet they tend to have better fertility than other women later in their reproductive years. The reason for this may be that the female body adapted to periods of famine by increasing [insulin resistance](#) in order to conserve calories, and extended the period of conception into the future when food might be more abundant. In essence, there is the impression that either oocyte number (the germ cell involved in reproduction) is increased or the rate of loss of oocytes is decreased in women with PCOS.

"PCOS might have been a good thing to have in times of food scarcity because it allowed the window of fertility to be extended and it allowed women to survive and reproduce in low fuel environments. Today we have calories all around us, and yet the body's possible adaptation to another time still remains for some women," according to Berga. "One way to look at PCOS is as a past adaptation gone astray."

## **PCOS vs. Stress-Sensitivity in Infertility**

PCOS is not the only reason women do not ovulate and have difficulty conceiving. Some women are unable to do so as a result of stress sensitivity. Both PCOS and stress-induced reproductive compromise may be rooted in evolutionary circumstances. Stress sensitivity turns off the brain message to the ovaries when the environment is not conducive to gestation and renders the woman anovulatory. "Both PCOS and stress sensitivity are ways to ensure that reproduction is successful. PCOS allows for reproduction in stressful times and stress sensitivity turns off reproduction during adverse conditions," says Dr. Berga.

Provided by American Physiological Society

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