

# For women with PCOS, acupuncture and exercise may bring relief, reduce risks

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Exercise and electro-acupuncture treatments can reduce sympathetic nerve activity in women with polycystic ovarian syndrome (PCOS), according to a new study. The finding is important because women with PCOS often have elevated sympathetic nerve activity, which plays a role in hyperinsulinemia, insulin resistance, obesity and cardiovascular disease

The study also found that the electro-acupuncture treatments led to more regular menstrual cycles, reduced testosterone levels and reduced [waist circumference](#).

Exercise had no effect on the irregular or non-existent menstrual cycles that are common among women with PCOS, nor did it reduce waist circumference. However, exercise did lead to reductions in weight and body mass index.

"The findings that low-frequency electro-acupuncture and exercise decrease sympathetic nerve activity in women with PCOS indicates a possible alternative non-pharmacologic approach to reduce cardiovascular risk in these patients," said one of the researchers, Dr. Elisabet Stener-Victorin of the University of Gothenburg, Sweden. The findings regarding menstrual cycles and decrease in testosterone levels in the low-frequency electro-acupuncture are also of interest, according to the researcher.

The study, "Low-frequency electro-acupuncture and physical exercise

decrease high muscle sympathetic nerve activity in polycystic ovary syndrome" was conducted by Elisabet Stener-Victorin, Elizabeth Jedel, Per Olof Janson and Vrsa Bergmann Sverrisdottir, all of the Sahlgrenska Academy, University of Gothenburg, Sweden and the Karolinska Institute, Stockholm, Sweden. The study is in the online edition of the *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*, published by The American Physiological Society.

## **Common endocrine disorder**

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders, affecting an estimated 10% of women of reproductive age. Among the problems associated with the condition are elevated levels of androgens (such as testosterone, the 'male' hormone found in both sexes), ovarian cysts, irregular menstrual cycles and infertility.

PCOS is associated with increased sympathetic nerve activity in the blood vessels, part of the 'fight or flight' response that results in blood vessel constriction. Chronic activation of the sympathetic nervous system increases the risk of diabetes, high blood pressure, heart attack and stroke.

The Swedish researchers had previously found that PCOS is associated with increased sympathetic nerve activity and said it may arise from the elevated testosterone level that is characteristic of PCOS.

## **Three groups**

The researchers wanted to find a long-lasting treatment for PCOS that would have no adverse side effects, and so they looked at whether acupuncture or exercise could decrease the sympathetic nerve activity in

women with PCOS. The study included 20 women, average age of 30 years, divided into the following groups:

- low-frequency electro-acupuncture (9)
- exercise (5)
- untreated controls, (6)

The acupuncture group underwent 14 treatments during the 16-week study. Acupuncture points were located in abdominal muscles and back of the knee, points thought to be associated with the ovaries. The needles in the abdomen and leg were stimulated with a low-frequency electrical charge, enough to produce muscle contraction but not enough to produce pain or discomfort.

The exercise group received pulse watches and were told to take up regular exercise: brisk walking, cycling or any other aerobic exercise that was faster than walking but that they could sustain for at least 30 minutes. They exercised at least three days per week for 30-45 minutes, maintaining a pulse frequency above 120 beats per minute.

The researchers instructed the control group in the importance of exercise and a healthy diet, the same instructions the experimental groups received, but were not specifically assigned to do anything differently.

## Key Findings

The researchers measured the muscle sympathetic nerve activity before and after the 16-week study. Following treatment, the study found the following:

- Both the acupuncture and exercise groups significantly decreased muscle sympathetic nerve activity compared to the control group.
- The acupuncture group experienced a drop in waist size, but not a drop in body mass index or weight.
- The exercise group experienced a drop in weight and [body mass index](#) but not in waist size.
- The acupuncture group experienced fewer menstrual irregularities but the exercise group's irregularities did not change.
- In the acupuncture group, there was a significant drop in testosterone. This is an important indicator because the strongest independent predictor of high sympathetic nerve activity in women is the level of testosterone.

"This is the first study to demonstrate that repeated low-frequency electro-acupuncture and physical exercise can reduce high sympathetic nerve activity seen in women with PCOS," according to the authors.

"Furthermore, both therapies decreased measures of obesity while only low-frequency electro-acupuncture improved menstrual bleeding pattern."

The study has some limitations, including a small sample size, so further research is necessary, the authors wrote. To find the full study, click here or go to [ajpregu.physiology.org/cgi/con ... e&resourcetype=HWCIT](http://ajpregu.physiology.org/cgi/con...e&resourcetype=HWCIT) .

Source: American Physiological Society ([news](#) : [web](#))

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