

'Period in a Petri Dish' Could Have a Big Impact on Reproductive Research

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Curious about the menstrual system on a chip? Here's how it could impact your health

Despite the fact that roughly half the world's population has a period at some point during their lives, research into menstruation — particularly menstrual pain — is still lacking. But a new development may be an important step forward in better understanding women's reproductive health.

Yesterday it was announced that researchers at Northwestern University have created a rudimentary model of the female reproductive system called Evatar — the latest in a series of organs-on-chips, or small devices that combine chip technology with human and mouse tissue to mimic biological functions. In this case, that would be the menstrual cycle.

"This is a very exciting breakthrough," Dr. Marc Winter, an OB-GYN at Saddleback Memorial Medical Center in Laguna Hills,

California, tells *SheKnows*. "Using human tissue and hormones in an orchestrated laboratory system opens many research possibilities."

More: [Meet the Future of Egg Freezing](#)

Right now, this may sound like something out of an '80s sci-fi-comedy (*Short Circuit 4: Robot Tampons*) but anything that may make periods easier is worth a closer look.

Here's what you need to know based on what we've learned so far.

1. Safer & faster drug testing

This new technology could revolutionize drug testing. First, having a chip that functions like a female reproductive system would allow researchers to test drugs on the device first, before having to turn to human subjects. And unlike during trials involving humans, multiple drugs can be tested at the same time for both toxicity and overall effects.

Although the chip couldn't completely replace human and animal testing, it could at least reduce our reliance on it and may make the testing safer by the time it gets to the human and/or animal stage.

"Good models are always a plus in bench research," Dr. G. Thomas Ruiz, an OB-GYN at Orange Coast Memorial Medical Center in Fountain Valley, California, tells *SheKnows*. "Without models, whether animal, *in vitro* or *in vivo*, we would not be as successful as we are in designing treatments for disease processes."

More: [Our Bodies, Ourselves Takes On International Surrogacy](#)

2. It's another way to study reproductive diseases

No, they're not *actual* organs, but this chip setup will help researchers learn more about diseases like cervical and ovarian cancers.

Ruiz is particularly enthusiastic about the fact that the model is made of mostly human tissue.

"Treatments are best tested in live animal models, and this is pretty close," he explains. "The Evatar being mostly human is as good an *in vitro* system — without being a live person — as I have read about. If a new treatment or biological behavior does well in the Evatar model, it should better apply when we advance treatments to clinical trials."

3. Advances with contraceptives and fertility treatments

In addition to studying diseases, the chip will allow researchers to test new methods and types of contraception as well as fertility treatments before products or procedures move on to trials or experimental treatments involving people. These are tricky areas to research using human subjects because in addition to the usual possible risks of any trial, there's the whole reproductive side of things to worry about.

"Hopefully, the Evatar system would allow scientists to also test the efficacy of newer, more affordable infertility drugs to make it

more affordable for infertile couples to have children," Dr. Yen Tran, an OB-GYN at MemorialCare Medical Group in Fountain Valley, California, tells *SheKnows*. "There are so many couples with infertility issues in which the root cause is unknown. This type of research may be an answer to identify the cause and make a difference in their lives."

More: [A Quick \(but Important\) Introduction to Pelvic Inflammatory Disease](#)

4. It may not help with research into menstrual pain – at least right away

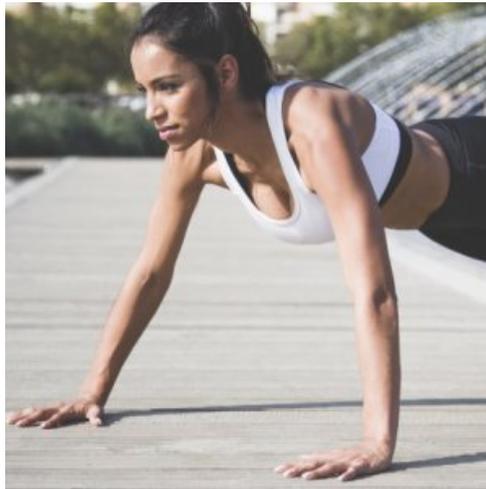
While the Evatar model certainly holds promise for advancing different facets of the female reproductive system, including menstruation, it's too early to determine whether that will translate into furthering research on period pain.

"This model only captures a portion – perhaps a small portion – of what may be influencing pain during menstruation," Dr. Laura Payne, an assistant adjunct professor at the UCLA Pediatric Pain and Palliative Care Program tells *SheKnows*. "Our current understanding of pain really suggests the importance of the brain and how pain signals are processed there in combination with other factors."

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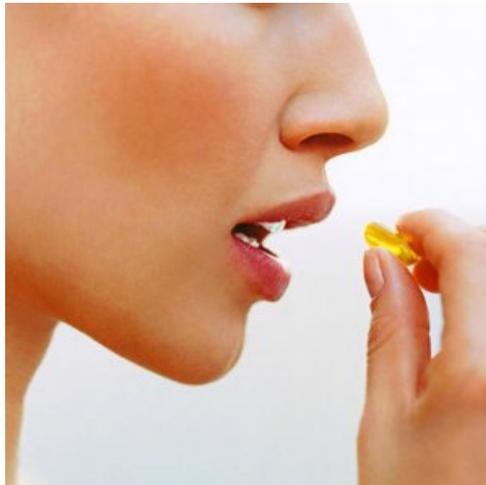
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