# Timing of COVID-19 shot can change menstrual cycle length: Study

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Catriona Spilde, a resource nurse at the Casey Eye Institute, receives flu and COVID-19 vaccinations administered by Lilian Kim, an OHSU School of Dentistry student. In a new study, OHSU researchers found a link between COVID-19 vaccine timing and changes in menstrual cycle length. Analysis of nearly 20,000 individuals finds a temporary increase of one day among those who received a vaccine in the first half of their menstrual cycle. Credit: OHSU / Christine Torres Hicks

Oregon Health & Science University researchers have confirmed that the timing of COVID-19 vaccination is associated with slight, temporary changes in menstrual cycle length.

The study, published in the journal *Obstetrics & Gynecology*, found that individuals receiving a COVID-19 vaccine during the first half of their menstrual cycle are more likely to experience cycle length changes than those receiving a vaccine in the second half.

Building on prior work from the same research team that first identified an association between COVID-19 vaccines and menstrual cycle length, this study furthers understanding how timing of vaccination is associated with this change.

"Understanding these changes on a population level allows us to more effectively counsel patients about what to expect with a COVID-19 vaccine," said Alison Edelman, M.D., M.P.H., the study's lead author and professor of obstetrics and gynecology and division director of Complex Family Planning in the OHSU School of Medicine. "We hope this work helps validate the public's experiences and ease fears and anxiety around vaccination."

With data from nearly 20,000 users of the FDA-cleared birth control application Natural Cycles, researchers sought to determine whether timing of COVID-19 vaccination is associated with changes in menstrual cycle length. Individuals in the cohort analysis granted researchers permission to use their de-identified data.

Researchers compared three groups: individuals vaccinated in the follicular phase, the first phase of the menstrual cycle when the body collects follicles, or small sacs that have the potential to release an egg for fertilization during ovulation; individuals vaccinated in the luteal phase, the second part of the menstrual cycle starting after ovulation; and

an unvaccinated control group.

Analysis shows that individuals who were vaccinated in the follicular phase experienced, on average, a one-day increase in cycle length when compared with their pre-vaccination cycle average. Changes typically resolved in the cycle after vaccination.

While there is now a large body of evidence demonstrating that the COVID-19 vaccine is associated with temporary menstrual cycle disturbances, the exact biological mechanism for these changes is still unknown.

"We are constantly learning about how our bodies work together, but we do know the immune and reproductive systems interact closely with one another," Edelman explained. "Based on this relationship, it is certainly plausible that individuals may see temporary changes in their menstrual cycle due to the immune response that vaccines are designed to produce."

Experiencing an unexpected change in menstrual cycles can be alarming. Researchers emphasize that these findings shouldn't be a cause for concern, but should provide reassurance that if changes in cycle length occur with vaccination, they are likely to be small and temporary. Individuals who notice prolonged changes in menstruation are encouraged to seek guidance from their clinician.

Since the study's data were gathered from individuals with regular menstrual cycles pre-vaccine, the team emphasizes that additional research is needed to establish whether observed differences vary in some people who experience irregularities in their cycle. Additionally, researchers hope to better understand how other aspects of the menstrual cycle are affected by vaccination, such as menstrual-related symptoms and menstrual flow.

"Historically, menstruation has not been prioritized in scientific and medical research, which leaves individuals who menstruate with a lot of unanswered questions, especially when they are experiencing something that's not 'normal' for their body," Edelman said. "Menstruation is a key indicator of fertility and overall health, so understanding these changes is very important to us as reproductive health researchers and to our patients."

**More information:** Alison Edelman et al, Timing of Coronavirus Disease 2019 (COVID-19) Vaccination and Effects on Menstrual Cycle Changes, *Obstetrics & Gynecology* (2024). DOI: 10.1097/AOG.0000000000005550

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