



COVID-19 Vaccines, Fertility and Menstruation: Key Studies

This document provides a summary of recent published research demonstrating that COVID-19 vaccines do not interfere with male or female fertility.

1. COVID-19 vaccination does not reduce fertility among couples trying to become pregnant

A study of more than 2,000 U.S. and Canadian couples trying to conceive found that COVID-19 vaccination did not affect their fertility. Researchers found no differences in the chances of becoming pregnant if either or both the male or female partner had been vaccinated, compared to unvaccinated couples. However, couples in which the male partner had a positive test for COVID-19 within 60 days of a given cycle were 18% less likely to become pregnant in that cycle. The short-term decline in male fertility associated with SARS-CoV-2 infection could potentially be avoided by vaccination.

- Wesselink AK, Hatch EE, Rothman KJ, et al. A prospective cohort study of COVID-19 vaccination, SARS-CoV-2 infection, and fertility. *Am J Epidemiol*. Published online January 20, 2022. doi:10.1093/aje/kwac011

2. COVID-19 vaccination does not affect ovarian function or implantation

In four separate studies of female patients undergoing in vitro fertilization, no meaningful association between COVID-19 vaccination and implantation rates, stimulation characteristics, embryological outcomes or ovarian follicular function was found.

- Aharon D, Lederman M, Ghofranian A, et al. In vitro fertilization and early pregnancy outcomes after coronavirus disease 2019 (COVID-19) vaccination. *Obstet Gynecol*. Published online January 25, 2022. doi:10.1097/AOG.0000000000004713
- Morris RS. SARS-CoV-2 spike protein seropositivity from vaccination or infection does not cause sterility. *F&S Reports*. 2021;2(3):253-255. doi:10.1016/j.xfre.2021.05.010
- Orvieto R, Noach-Hirsh M, Segev-Zahav A, Haas J, Nahum R, Aizer A. Does mRNA SARS-CoV-2 vaccine influence patients' performance during IVF-ET cycle? *Reprod Biol Endocrinol*. 2021;19(1):69. doi:10.1186/s12958-021-00757-6
- Bentov Y, Beharier O, Moav-Zafir A, et al. Ovarian follicular function is not altered by SARS-CoV-2 infection or BNT162b2 mRNA COVID-19 vaccination. *Hum Reprod*. 2021;36(9):2506-2513. doi:10.1093/humrep/deab182

3. COVID-19 vaccination does not affect male fertility

Two studies in couples undergoing fertility treatments and one in the general population found no appreciable difference in semen volume, sperm concentration, or motility measures before and after COVID-19 vaccination.

- Orvieto R, Noach-Hirsh M, Segev-Zahav A, Haas J, Nahum R, Aizer A. Does mRNA SARS-CoV-2 vaccine influence patients' performance during IVF-ET cycle? *Reprod Biol Endocrinol*. 2021;19(1):69. doi:10.1186/s12958-021-00757-6
- Safrai M, Hertzberg S, Imbar T, Reubinoff B, Dior U, Ben-Meir A. The BNT162b2 mRNA Covid-19 vaccine does not impair sperm parameters. *Reprod BioMedicine Online*. Published online January 31, 2021. doi:10.1101/2021.04.30.21255690
- Gonzalez DC, Nassau DE, Khodamoradi K, et al. Sperm parameters before and after COVID-19 mRNA vaccination. *JAMA*. 2021;326(3):273-274. doi:10.1001/jama.2021.9976

4. COVID-19 vaccination is associated with a small, temporary change in menstrual cycle length but not menses length. Temporary changes in menstruation do not indicate problems with current or future fertility.

COVID-19 vaccination was associated with a less than one-day change in menstrual cycle length in the one to two cycles that followed the first and second vaccine doses, compared with pre-vaccine menstrual cycles. No difference was observed on the number of days of menstrual bleeding between participants who were vaccinated and participants who were not vaccinated. A subset of people who received both vaccine doses in a single cycle had, on average, a two-day increase in their cycle length compared with people who were not vaccinated. Differences were adjusted for age, race, body mass index, educational attainment, parity and relationship status. All changes were temporary and could not be detected by the third post-vaccination cycle. Temporary changes in menstrual cycle length do not indicate long-term fertility issues but may cause false hope or concern among individuals who notice these events.

- Edelman A, Boniface ER, Benhar E, et al. Association between menstrual cycle length and coronavirus disease 2019 (covid-19) vaccination: a US cohort. *Obstet Gynecol*. Published online January 5, 2022. doi:10.1097/AOG.0000000000004695

Position Statements

In addition to the studies cited above, several professional medical organizations have released position statements strongly supporting COVID-19 vaccination in people who are pregnant, are breastfeeding or may want to become pregnant in the future.

- Talib H, Berlan ED, Tyson N, et al. NASPAG position statement on COVID-19 vaccines and gynecologic concerns in adolescents and young adults. *J Pediatr Adolesc Gynecol*. 2021;34(4):439-440. doi:10.1016/j.jpag.2021.05.008
- Statement of strong medical consensus for vaccination of pregnant individuals against COVID-19. News release. American College of Obstetricians and Gynecologists, American Academy of Family Physicians, American Academy of Pediatrics, et al. August 9, 2021. Updated September 14, 2021. <https://www.acog.org/news/news-releases/2021/08/statement-of-strong-medical-consensus-for-vaccination-of-pregnant-individuals-against-covid-19>