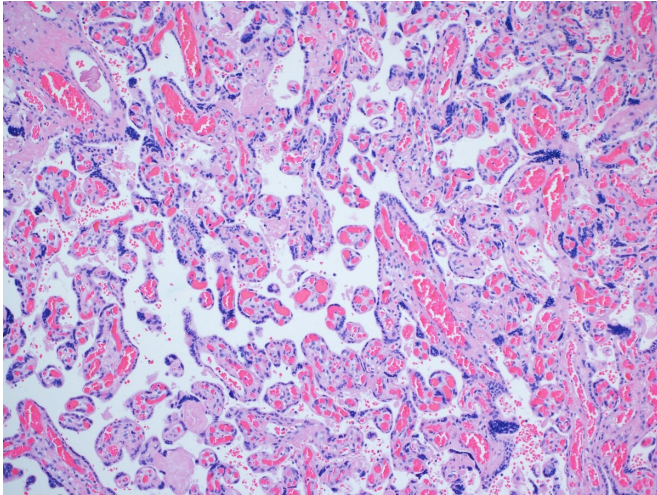


# COVID-19 vaccine does not damage the placenta in pregnancy

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A microscopic look at a placenta in the study, which was not damaged from the COVID-19 vaccine. Credit: Northwestern University

A new Northwestern Medicine study of placentas from patients who received the COVID-19 vaccine during pregnancy found no evidence of injury, adding to the growing literature that COVID-19 vaccines are safe in pregnancy.

"The placenta is like the black box in an airplane. If something goes wrong with a pregnancy, we usually see changes in the placenta that can help us figure out what happened," said corresponding author Dr. Jeffery Goldstein, assistant professor of pathology at Northwestern University Feinberg School of Medicine and a Northwestern Medicine pathologist. "From what we can tell, the COVID [vaccine](#) does not damage the placenta."

The study will be published May 11 in the journal *Obstetrics & Gynecology*. To the authors' knowledge, it is the first study to examine the impact of the COVID vaccines on the placenta.

"We have reached a stage in vaccine distribution where we are seeing vaccine hesitancy, and this hesitancy is pronounced for pregnant people," said study co-author Dr. Emily Miller, Northwestern Medicine maternal fetal medicine physician and assistant professor of obstetrics and gynecology at Feinberg. "Our team hopes these data, albeit preliminary, can reduce concerns about the risk of the vaccine to the pregnancy."

The study authors collected placentas from 84 vaccinated patients and 116 unvaccinated patients who delivered at Prentice Women's Hospital in Chicago and pathologically examined the placentas whole and microscopically following birth. Most patients received vaccines—either Moderna or Pfizer—during their third trimester.

Last May, Goldstein, Miller and collaborators from Northwestern and Ann & Robert H. Lurie Children's Hospital of Chicago published a study that found placentas of women who tested positive for the COVID-19 virus while pregnant showed evidence of injury (abnormal blood flow between mother and baby in utero). Pregnant patients who want to get vaccinated to avoid contracting the disease should feel safe doing so, Miller said.

"We are beginning to move to a framework of protecting fetuses through vaccination, rather than from vaccination," Miller said.

In April, the scientists published a study showing pregnant women make COVID antibodies after vaccination and successfully transfer them to their fetuses.

"Until infants can get vaccinated, the only way for them to get COVID antibodies is from their mother," Goldstein said.

## The placenta's role in the immune system

The placenta is the first organ that forms during

pregnancy. It performs duties for most of the fetus' organs while they're still forming, such as providing oxygen while the lungs develop and nutrition while the gut is forming.

Additionally, the placenta manages hormones and the [immune system](#), and tells the mother's body to welcome and nurture the fetus rather than reject it as a foreign intruder.

"The Internet has amplified a concern that the vaccine might trigger an immunological response that causes the mother to reject the fetus," Goldstein said. "But these findings lead us to believe that doesn't happen."

The scientists also looked for abnormal blood flow between the mother and fetus and problems with fetal blood flow—both of which have been reported in pregnant patients who have tested positive for COVID.

The rate of these injuries was the same in the vaccinated patients as for control patients, Goldstein said. The scientists also examined the placentas for chronic histiocytic intervillitis, a complication that can happen if the [placenta](#) is infected, in this case, by SARS-CoV-2. Although this study did not find any cases in vaccinated patients, it's a very rare condition that requires a larger sample size (1,000 patients) to differentiate between vaccinated and unvaccinated patients.

**More information:** Elisheva D. Shanes et al. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Vaccination in Pregnancy, *Obstetrics & Gynecology* (2021). [DOI: 10.1097/AOG.0000000000004457](#)

Provided by Northwestern University

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