Statement - COVID-19 Vaccination - Male and Female fertility, treatments to get pregnant, pregnancy

More than two years into the SARS-CoV-2 pandemic, the effects of the virus on the male and female reproductive system remain controversial. On the one hand, men with active infection harbor the virus for a short period, from 2 to 11 days (Guo et al., 2021; Holtmann et al., 2020), symptoms eventually referred to reproduction or -

scientific community, associated with some government ooped, at record speed, thanks to the efforts of the world

viral RNA and not a live virus active in the semen. In wom-
rectal and vaginal smears (Gacci et al., 2021), indicating
at 21 days of recovery showed that the stable partner, un-
der unprotected sex, tested negative with oropharyngeal,
rameters. A single case described as a positive semen test
seems not to worsen the spermogram pa-

Infections in remission showed the virus in the
gans can be simply attributed to hyperthermia and/or or
hypoxia. Infections in remission showed the virus in the

More than 4 billion doses of vaccines have been
given (Chen et al., 2021) to date, the CDC- Vac-
cine Adverse Event Reporting System, among
more than 72 million Americans vaccinated, has
recorded a small number of mild menstrual disor-
ders (NIH, 2021).

2. Two recent studies demonstrate that vaccination
had no influence on seminal parameters such as
sperm concentration, seminal volume or sperm
motility (Gonzalez et al., 2021; Safrai et al.,
2022). Likewise, follicular steroidogenesis and oo-
cyte quality did not differ between vaccinated and
non-vaccinated individuals (Bentov et al., 2021).

3. Also, Orvieto et al. (2021) recording parameters
of IVF cycles, also reported no difference between
total and mature eggs retrieved, fertilization rates,
and high-quality embryos. Aharon et al. (2022)
complemented the information that nothing differ-
ent was evidenced in relation to the rate of preg-
nancies and ongoing pregnancies, comparing vac-
cinated and non-vaccinated patients.

4. Preconception vaccination or vaccination before the 20th week of pregnancy did not define a high-
er rate of spontaneous abortion in 2,456 pregnant
women (Zauche et al., 2021).

5. There were no descriptions of placental compro-
mise, perinatal or postnatal changes related to
mRNA vaccines (Shanes et al., 2021), for women
or their babies.

6. IgA levels were detected in nursing mothers at 2
weeks after vaccination, with IgG index increased
at 4 weeks (one week after the second dose of
mRNA vaccines), suggesting protection for the
baby (Romero Ramirez et al., 2021).

7. The severity of COVID-19 illness, risk of death and
adverse obstetric outcomes, and growing data on
vaccine safety and effectiveness during pregnancy
should outweigh any potential for individual ad-
verse effects to the woman or her child.
The medical societies hereby represented recommend vaccination against the SARS-CoV-2 virus with the vaccine available, which should be encouraged with patients who are undergoing treatment to become pregnant, who are already pregnant, or even have recently given birth. To date, there is no evidence that the fertility potential of either men or women is affected by the use of vaccines.

REFERENCES

Aharon D, Lederman M, Ghofranian A, Hernandez-Nieto C, Canon C, Hanley W, Gounko D, Lee JA, Stein D, Buyuk E, Copperman AB. In Vitro Fertilization and Early Pregnancy Outcomes After Coronavirus Disease 2019 (COVID-19) Vaccination. Obstet Gynecol. 2022. Epub ahead of print. PMID: 35080199 DOI: 10.1097/AOG.000000000000713

Bentov Y, Beharier O, Moav-Zafrir A, Kabessa M, Godin M, Greenfield CS, Ketzinel-Gilad M, Ash Broder E, Holzer HEG, Wolf D, Oknine-Djian E, Barghouti I, Goldman-Wohl D, Yagel S, Walfisch A, Hersko Klement A. Ovarian follicular function is not altered by SARS-CoV-2 infection or BNT162b2 mRNA COVID-19 vaccination. Hum Reprod. 2021;36:2506-13. PMID: 34364311 DOI: 10.1093/humrep/deab182

Cha AE. False claims tying coronavirus vaccines to infertility drive doubts among women of childbearing age. The Washington Post. 2021 Feb 21.

Chen F, Zhu S, Dai Z, Hao L, Luan C, Guo Q, Meng C, Zhang Y. Effects of COVID-19 and mRNA vaccines on human fertility. Hum Reprod. 2021;37:5-13. PMID: 34734259 DOI: 10.1093/humrep/deab238

Gacci M, Coppi M, Baldi E, Sebastianelli A, Zaccaro C, Morcelli S, Pecoraro A, Manera A, Nicoletti R, Liaci A, Bisegna C, Gemma L, Giancane S, Pollini S, Antonelli A, Lagi F, Marchiani S, Dabizzi S, Degl’Innocenti S, Annunziato F, et al. Semen impairment and occurrence of SARS-CoV-2 virus in semen after recovery from COVID-19. Hum Reprod. 2021;36:1520-9. PMID: 33522572 DOI: 10.1093/humrep/deab026

Garg I, Shekhar R, Sheikh AB, Pal S. COVID-19 Vaccine in Pregnant and Lactating Women: A Review of Existing Evidence and Practice Guidelines. Infect Dis Rep. 2021;13:685-99. PMID: 34449637 DOI: 10.3390/idr13030064

Gonzalez DC, Nassau DE, Khodamoradi K, Ibrahim E, Blachman-Braun R, Ory J, Ramasamy R. Sperm Parameters Before and After COVID-19 mRNA Vaccination. JAMA. 2021;326:273-4. PMID: 34137808 DOI: 10.1001/jama.2021.9976

Guo L, Zhao S, Li W, Wang Y, Li L, Jiang S, Ren W, Yuan Q, Zhang F, Kong F, Lei J, Yuan M. Absence of SARS-CoV-2 in semen of a COVID-19 patient cohort. Andrology. 2021;9:42-7. PMID: 32598557 DOI: 10.1111/andr.12848

Holttmann N, Edimiris P, Andree M, Doehmen C, Baston-Buest D, Adams O, Kruesel JS, Bießfel DP. Assessment of SARS-CoV-2 in human semen—a cohort study. Fertil Steril. 2020;114:233-8. PMID: 32650948 DOI: 10.1016/j.fertnstert.2020.05.028

Jing Y, Run-Qian L, Hao-Ran W, Hao-Ran C, Ya-Bin L, Yang G, Fei C. Potential influence of COVID-19/ACE2 on the female reproductive system. Mol Hum Reprod. 2020;26:367-73. PMID: 32365180 DOI: 10.1093/molehr/gaa030

Li K, Chen G, Hou H, Liao Q, Chen J, Bai H, Lee S, Wang C, Li H, Cheng L, Ai J. Analysis of sex hormones and menstruation in COVID-19 women of child-bearing age. Reprod Biomed Online. 2021;42:260-7. PMID: 33289478 DOI: 10.1016/j.rbmo.2020.09.020

NIH-National Institutes of Health. Office of Extramural Research. Notice of special interest (NOSI) to encourage administrative supplement applications to investigate COVID-19 vaccination and menstruation (Admin Supp – Clinical Trial Optional). Bethesda: NIH; 2021. Available at: https://grants.nih.gov/grants/guide/notice-files/NOT-HD-21-035.html

Orvieto R, Noach-Hirsch 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;19:69. PMID: 33985514 DOI: 10.1186/s12958-021-00757-6

Romero Ramírez DS, Lara Pérez MM, Carretero Pérez M, Suárez Hernández MI, Martín Pulido S, Pera Villacampa L, Fernández Vilar AM, Rivero Falero M, González Carretero P, Reyes Millán B, Roper S, García Bello MÁ. SARS-CoV-2 Antibodies in Breast Milk After Vaccination. Pediatrics. 2021;148:e2021052286. PMID: 34408089 DOI: 10.1542/peds.2021-052286

Safrai M, Herzberg S, Imbar T, Reubinoff B, Dior U, Ben-Meer A. The BNT162b2 mRNA Covid-19 vaccine does not impair sperm parameters. Reprod Biomed Online. 2022. Epub ahead of print. PMID: 35279377 DOI: 10.1016/j.rbmo.2022.01.008 DOI https://doi.org/10.1016/j.rbmo.2022.01.008

Shanes ED, Otero S, Mithal LB, Mupanomunda CA, Miller ES, Goldstein JA. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Vaccination in Pregnancy: Measures of Immunity and Placental Histopathology. Obstet Gynecol. 2021;138:281-3. PMID: 33975329 DOI: 10.1097/AOG.0000000000004457

WHO - World Health Organization. Report of the SAGE working group on vaccine hesitancy. Geneva: WHO; 2014. Available at: https://www.who.int/immunization/sage/meetings/2014/october/1_Report_WORKING_GROUP_vaccine_hesitancy_final.pdf

Zauche LH, Wallace B, Smoots AN, Olson CK, Oduyebo T, Kim SY, Petersen EE, Ju J, Beauregard J, Wilcox AJ, Rose CE, Meaney-Delman DM, Ellington SR; CDC v-safe Covid-19 Pregnancy Registry Team. Receipt of mRNA Covid-19 Vaccines and Risk of Spontaneous Abortion. N Engl J Med. 2021;385:1533-5. PMID: 34496196 DOI: 10.1056/NEJMc2113819