



## COVID-19 vaccine — can it affect fertility?

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### Abstract

Headlines have appeared across multiple social media platforms questioning the effects of newly authorised COVID-19 vaccines on fertility. Although the effects on future fertility were not studied in the initial trials, at present, there is no evidence that the COVID-19 vaccine has any effect of future fertility. It is well known that pregnant women are at a higher risk of complications associated with COVID-19 such as ICU admission and death, and there is a rare but tragic increase in placentalitis and stillbirth, highlighting the importance for those planning a pregnancy any time in the future to be vaccinated. Here we summarise international consensus from multiple organisations advising on fertility and the COVID-19 vaccine. Preliminary studies all suggest that there is neither link, nor indeed any theoretical reason why any of the COVID-19 vaccines might affect fertility. Dissemination of misinformation regarding the impact of the vaccine on future fertility needs to be controlled in order to avoid any hesitancy amongst young women attending for vaccination. It is also vital that the medical profession counteract this information, and, in order to do that, healthcare providers must be well informed on the latest recommendations and research.

**Keywords** Assisted reproduction · COVID-19 pandemic · COVID vaccine · Fertility treatment · SARS-CoV-2

Currently, four COVID-19 vaccines are approved for use in Ireland and the UK: Pfizer/BioNTech, Oxford/AstraZeneca, Moderna and Janssen [1, 2]. The speed and urgency at which the vaccines were initially created and authorised caused some concern. As the vaccine rollout gains momentum, questions regarding the impact of the vaccine on future fertility have begun to emerge. Headlines have appeared across multiple social media platforms questioning the effects of the newly authorised vaccine on fertility, with little or no scientific evidence supporting the claims. Long-term data is lacking and will be for several years. Although the effects on future fertility were not studied in the initial trials, at present, there is absolutely no evidence that the COVID-19 vaccination has any effect of future fertility. On the contrary, it is well known that pregnant women are at a higher risk

of complications associated with COVID-19 such as ICU admission and death and there is a rare but tragic increase in placentalitis and stillbirth, highlighting the importance for those planning a pregnancy any time in the future to be vaccinated [3, 4].

Several fertility and obstetric organisations have published recommendations on the COVID-19 vaccine, and information and guidance are continuously being updated with evolving scientific knowledge. The Royal College of Physicians of Ireland along with the National Immunisation Advisory Committee released a statement in April 2021, emphasising that “there is no evidence that any COVID-19 vaccine affects the fetus or fertility” [5].

The British Fertility Society and Association of Reproductive and Clinical Scientists also released a document in February 2021 encouraging those of reproductive age to accept a vaccination when it becomes available and disputing any link between the vaccine and fertility. “There is absolutely no evidence, and no theoretical reason, that any of the vaccines can affect the fertility of women or men” [6].

Joint guidance from the International Federation of Fertility Societies and The European Society for Human Reproduction in February 2021 advises women, who are trying to conceive but are not yet pregnant, that they have

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the option to “proceed with efforts at conception” and to “seek a COVID-19 vaccination as soon as possible” [7].

And finally, the American College of Obstetricians and Gynaecologists (ACOG), the American Society for Reproductive Medicine (ASRM), and the Society for Maternal–Fetal Medicine (SMFM) also released a statement in February 2021 denying any link between the vaccine and infertility [8]. ASRM went on and reaffirmed their position stating that “everyone, including pregnant women and those seeking to become pregnant, should get a COVID-19 vaccine” [9].

In keeping with these reassuring international recommendations, a study released in April 2021 documents preliminary findings on the safety of mRNA COVID-19 vaccines in 3958 pregnant women and shows no increased risk of miscarriage in women who received the vaccine in early pregnancy compared to the general population [10]. In contrast, increased BMI, smoking and alcohol consumption are all modifiable risk factors that have been definitively associated with increased risks of miscarriage and infertility in both men and women [11–13]. It is important when considering the absolute safety of the COVID-19 vaccines that similar emphasis is placed on other modifiable risk factors where robust long-term data regarding fertility risk is already available.

Multiple studies to date have shown that vaccine hesitancy is higher among the younger and female population, suggesting the possible influence of misinformation linking infertility to the vaccine [14, 15]. As mentioned above, long-term data on the safety of COVID-19 vaccines will be lacking for some time to come. Nevertheless, at present, international consensus from multiple organisations advising on fertility and preliminary studies all suggest that there is neither link, nor indeed any theoretical reason why any of the COVID-19 vaccines might affect fertility. Dissemination of misinformation regarding the impact of the vaccine on future fertility needs to be controlled in order to avoid any hesitancy amongst young women in attending for vaccination. It is also vital that the medical profession counteracts this information, and, in order to do that, healthcare providers must be well informed on the latest recommendations and research.

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## Declarations

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