



# Pregnancy Study Online (PRESTO)

BOSTON  
UNIVERSITY



## We are excited to share the 2022 Pregnancy Study Online (PRESTO) annual newsletter with you!

During the past year, we enrolled our **20,000<sup>th</sup> participant**. We translated our main questionnaires into Spanish and launched a substudy to collect biospecimens (urine and blood) by mail. We also received new funding from the National Institutes of Health to study how male factors affect reproductive outcomes and to assess how the COVID-19 vaccine influences menstruation.

We are tremendously grateful for your participation, and we hope you find this newsletter helpful and informative. **We could not do any of this without you!**

1. Research Highlight: COVID-19 Infection, Vaccination, and Fertility
2. Research Highlight: Male Partner Depression, Fertility, and Semen Quality
3. Other Recent PRESTO Findings
4. Ongoing and Future PRESTO Research
5. Team Member Spotlight: Holly Crowe and Tanran Wang

## Research Highlight: COVID-19 Infection, Vaccination, and Fertility

### Take-Home Messages

- COVID-19 vaccination in either partner was not related to fertility.
- For male partners, getting infected with COVID-19 was associated with slightly longer time-to-pregnancy.
- Female COVID-19 infection was not associated with fertility.



Many people have expressed concerns about the effects of the COVID-19 vaccine on fertility. There has also been very limited study of how getting infected with COVID may impact fertility.

We studied the associations between COVID-19 vaccination and infection in both partners with fertility using PRESTO data and published our results in the *American Journal of Epidemiology* in January 2022.

We compared how long it took couples to conceive based on whether they reported being vaccinated and whether they had ever tested positive for COVID-19 infection. We adjusted for many relevant factors, including age, socioeconomic status, and stress.

We found very similar time-to-pregnancy between the vaccinated and unvaccinated participants, regardless of which partner was vaccinated. COVID infection, on the other hand, was associated with slightly longer time-to-pregnancy among couples where the male partner had recently tested positive for COVID-19. The association went away after 60 days.

Other studies, including those among couples using fertility treatment, also suggest that the COVID-19 vaccine does not influence fertility. We are currently studying the relationship between COVID-19 vaccination and the menstrual cycle. We will be sure to update you when those results become available.

You can read the full paper [here](#).

## Men's Health: Depression, Use of Antidepressants, and Fertility



### Take-Home Messages

- Symptoms of depression in male partners may be associated with poorer semen quality and, to a lesser extent, couple fertility.
- Use of anti-depressants was not independently associated with semen quality or fertility.

Fertility is a couple's issue. However, we are still discovering how male factors may contribute to reproductive health. We used PRESTO data to study how depression and anti-depressant medication are related to semen quality and couple fertility. We published these results in *Fertility & Sterility* and the *American Journal of Men's Health*.

To do this, we asked male participants if they had ever been diagnosed with depression, whether they had recently taken medications for depression, and if so, which medications they used. They also answered questions about recent symptoms of depression.

Participants then measured their semen quality at home using the Trak Male Fertility Testing System. We used data from their female partner follow-up questionnaires to measure how long it took couples to conceive.

We found that diagnosed depression and symptoms of depression were associated with lower semen volume, but not sperm concentration or sperm motility. Diagnosed depression and symptoms of depression were associated with slightly longer time-to-pregnancy. The associations were small, and could be due to chance.

Anti-depressant use was not meaningfully associated with semen quality or fertility when considering symptoms of depression and history of depression diagnosis.

You can read the full articles [here](#) and [here](#).

## Other Recent PRESTO Findings

### Cell Phones, Fertility, and Semen Quality

Greater cell phone use among male partners was not associated with either semen quality or time-to-pregnancy. Read the full paper [here](#).



### Periodontitis and Fertility

PRESTO participants who reported a history of periodontitis (inflammation of the gums that can cause tooth loss) took longer to conceive than participants without dental health problems. Read the full paper [here](#).

### Antibiotics and Fertility

Recent antibiotic use was not associated with time-to-pregnancy. Read the full study [here](#).



### Seasonal Variation in Miscarriage

Knowing whether miscarriages are more common at certain times of the year could help us understand the causes of miscarriage. In PRESTO, miscarriage risk was highest in the late summer. Read the full paper [here](#).

### Maternal Age and Daughter's Fertility

PRESTO participants whose mothers were <20 years old when the participants were born had reduced fertility, compared with those whose mothers were older. Read the full paper [here](#).

### Folate Intake and Fertility

Folate is a vitamin recommended during pregnancy which reduces the risk of birth defects. We found that folate intake from both diet and supplements was found to be associated with improved fertility. Read the full paper [here](#).



### Male Occupational Characteristics and Fertility

Male partners who worked non-daytime shifts or were unemployed had slightly longer time-to-pregnancy than male partners who worked daytime shifts. Read the full paper [here](#).

### Asthma and Miscarriage

Female participants with more severe asthma were more likely to have a miscarriage than those without asthma. Read the full paper [here](#).

## Ongoing Research

### Environmental Exposures and Reproductive Health

**E-PRESTO:** Environmental Pregnancy Study Online (E-PRESTO) is ongoing. E-PRESTO participants who reside in the Detroit and Boston areas provide blood and urine samples during a clinic visit and collect an additional three urine samples at home. These samples are then shipped to laboratories where they are analyzed for environmental contaminants.

**Mail-based E-PRESTO:** In January 2022, we expanded E-PRESTO from the Detroit and Boston clinic sites to all of the United States. We are now inviting participants to collect urine samples and blood spots in their homes, and then ship them back to Boston University free of charge.

**Personalized exposure reports:** E-PRESTO participants can view their personal exposures to the various environmental chemicals we plan to study. Participants will receive a link directing them to a secure portal where they will also be provided information about each chemical and ways to reduce exposure.

**Findings:** We have started to look at how chemicals in the blood and urine of E-PRESTO participants are related to future reproductive outcomes. We look forward to sharing these results with you soon.



### Male Reproductive Health

**New grant on male reproductive health:** In July 2021, PRESTO received a new grant to study how male factors impact reproductive health. This grant will support our research on how male lifestyle factors can affect semen quality, fertility, miscarriage, and birth outcomes.

**In-home semen testing:** We have an ongoing semen testing study, where male participants are mailed a device that measures semen volume, sperm count, and sperm motility. Males are also encouraged to complete our dietary questionnaire, be a part of the Fitbit study, and provide urine and blood samples for E-PRESTO.

**Enrolling both partners** is critical to our research on fertility and reproduction. There is little research to date on factors promoting optimal male fertility. We look forward to sharing the results of this research with you.

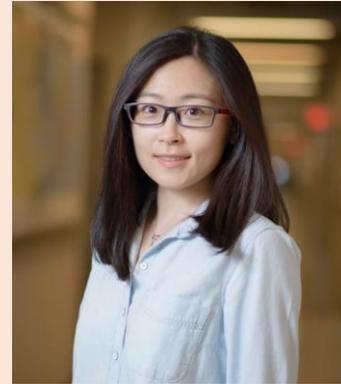
## PRESTO Team Member Spotlight



**Holly Crowe, PhD**

Holly Crowe graduated with a PhD in epidemiology from Boston University School of Public Health in May 2022. She studies how chronic medical conditions and medications influence reproductive health. Holly grew up in Maryland, and earned her Master's of Public Health from George Washington University. In April 2022, Holly started a postdoctoral fellowship in reproductive epidemiology at the Harvard T.H. Chan School of Public Health.

In her spare time, Holly enjoys biking and running in Boston's parks, exploring New England, watching scary movies, and dancing around the house to pop music from the 2000s.



**Tanran Wang, MPH**

Tanran is the Senior Data Analyst for the PRESTO cohort. She joined the PRESTO team in May 2018 after she graduated from Boston University School of Public Health with a Master's of Public Health degree in Epidemiology and Biostatistics. She performs data management and statistical analyses in support of various research projects. She is passionate about solving data management and data analysis issues creatively by applying new programming skills.

In her spare time, Tanran enjoys cooking, baking, and reading science fiction books. She also likes spending time with family in nature.

Have questions about participation in PRESTO?  
Want to enroll again, or invite a friend to enroll?  
Curious to learn more about our findings?  
Have suggestions for future research or future newsletters?  
Contact us at [bupresto@bu.edu](mailto:bupresto@bu.edu) or (617) 358-3424