

# Environmental exposure, fertility and reproductive health

## Key facts



- Human fertility rates are declining globally and have been below the population replacement threshold in the EU for decades. The decline in fertility rates is due to a variety of factors, including environmental exposures.
- The production and use of chemicals are increasing and most chemicals on the market have not been tested for reproductive or developmental toxicity.
- Endocrine disrupting chemicals (EDCs) are contributing to the worsening of female and male reproductive health. These chemicals are present in food, drinking water, cosmetics, at the workplace, and in- and outdoor air pollution.
- Global heat and air pollution are associated with impaired fertility potential, preterm birth, low birthweight, miscarriage, and stillbirth.



- Reproductive health problems in human males are increasing, including genital abnormalities, infertility linked to poor semen quality and testicular germ cell cancer in young adulthood.
- Genital abnormalities, poor semen quality and testicular germ cell cancer may all be linked in a testicular dysgenesis syndrome caused by genetic factors and/or foetal environmental exposures.



- In females, exposure to environmental stressors such as air pollution, human-made chemicals and occupational pollutants, correlates with altered puberty onset, increased risk of miscarriage, endometriosis, ovulatory disorders, infertility, and earlier menopause.



- The health of the offspring can be affected by environmental stressors through maternal exposure in the preconception period, prenatal and neonatal life, but also through paternal exposure in the preconception period. Environmental exposure includes exposure at the workplace.
- Reducing and potentially eliminating the exposure of children to environmental stressors in the early years of their lives, and even before conception and pregnancy, can protect their health and that of future generations.

## Time for action

ESHRE has serious concerns regarding the impact of environmental factors on reproductive health and declining fertility rates. The following recommendations for policymakers were formulated:

### Facilitate Research

- ✓ Induce research strategies to delineate the roles of voluntary and involuntary childlessness in the global fertility decline and focus on both environmental and genetic factors impacting on female and male reproductive health.
- ✓ Support multidisciplinary studies involving andrologists, gynaecologists, social scientists, and environmental researchers (chemists, epidemiologists, geneticists) with a focus on the development of new epidemiological, endocrine, chemical, and molecular methods to explore the background for the dramatic shifts in reproductive trends.
- ✓ Promote and finance research aimed at identifying environmental factors, including occupational exposures, contributing to reproductive diseases, infertility and offspring health.
- ✓ Promote research on the impact of air pollution and heat exposure on fertility and pregnancy to provide more specific protective measures.
- ✓ Establish and maintain a Europe-wide digital healthcare data collection system for long-term monitoring of reproductive health trends, but also environmental exposure and its effect on reproductive and offspring health.

### Promote Awareness

- ✓ Organise awareness campaigns to educate the public about the potential risks posed by environmental contaminants, including the risks of occupational exposure to chemicals at preconception stage, both in men and women, and during pregnancy.
- ✓ Provide training for healthcare professions to enhance their understanding and ability to communicate about the impact of environmental factors to patients.
- ✓ Support policymakers in recognising and acting on the urgency and importance of addressing reproductive health concerns linked to environmental factors.

### Support Prevention

- ✓ Develop and enforce prevention strategies at both institutional and individual levels to effectively mitigate health risks linked to environmental factors.
- ✓ Promote sustained reductions in greenhouse gas emissions and aerosol pollution to reach net zero CO<sub>2</sub> emissions through committed economic investments and ambitious policies.
- ✓ Revise current testing of pharmaceuticals and industrial chemicals focussing on pregnancy as it is not sensitive enough to identify the effects on fertility and gametes. We recommend that thorough evaluation of reproductive and developmental effects is made part of standard testing for pharmaceuticals and industrial chemicals before they are introduced into the European market.

## Further information

More detailed information on Environmental exposure and reproductive health & fertility is available in 4 fact sheets, see <https://www.eshre.eu/Press-Room/Resources/Fact-sheets> :

- Factsheet on environmental exposure and male reproductive health
- Factsheet on environmental exposure and female reproductive health
- Factsheet on environmental exposure and offspring health
- Factsheet on air pollution, climate change and reproductive health

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