GEM PATIENT EDUCATION CENTER

Genes, Environment and Endometriosis

Version 1.1 · Reviewed 13 September 2026

A simple explanation of why endometriosis may behave differently from one woman to another

WHAT MAY DRIVE ENDOMETRIOSIS?

Endometriosis is a complex disease. Research suggests that it develops through interaction between **inherited genetic susceptibility** and biological changes that occur during life. Hormones, inflammation, the immune system, acquired cellular changes and **epigenetic changes** may all contribute.

WHERE MAY THE ENVIRONMENT FIT?

Inherited genes are largely fixed, but gene activity is dynamic. Environmental exposures – including air pollution and some endocrine-disrupting chemicals – may influence hormones, inflammation, oxidative stress and epigenetic regulation. How much these exposures affect an individual woman's disease remains under investigation.

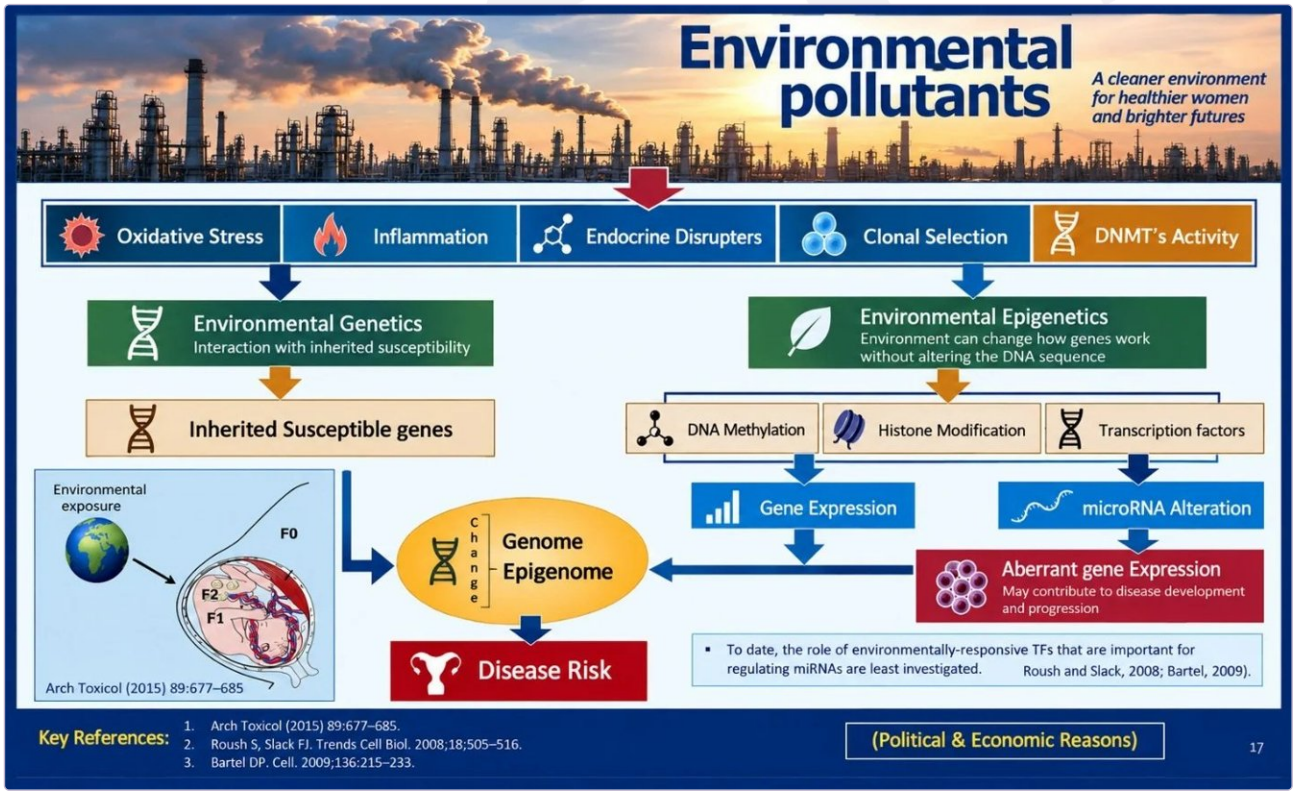
FOUNDER'S CLINICAL PERSPECTIVE

During more than four decades of training, teaching and operating on women with endometriosis in different parts of the world, I have repeatedly observed differences in the presentation and behavior of the disease among patients from different geographic environments. My clinical, teaching and humanitarian work has included the Middle East – particularly Iran – as well as Africa and China.

This is my clinical observation and should not be interpreted as proof that pollution caused the disease. But I believe the consistency of this observation is important and deserves serious scientific investigation.

If environment can influence gene regulation and disease biology, we should investigate whether geography and environmental exposure help explain why endometriosis may appear or behave differently in different populations.

The concept at a glance



GEM KEY MESSAGE

The teaching slide is a hypothesis model, not a proven causal sequence. Inherited susceptibility and environmental influences may interact through molecular pathways, but the arrows do not establish why any individual developed endometriosis.

Evidence & references

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Genetic susceptibility

Rahmioglu et al. analyzed 60,674 cases and 701,926 controls and identified 42 loci with 49 distinct association signals. These associations support polygenic susceptibility, not a deterministic test for an individual.

Epigenetics and environment

The slide combines possible mechanisms; it is not a proven chronological causal chain. Observational exposure associations and epigenetic findings do not show why a particular person developed disease. The epigenetic review is a 2025 publication, online in 2024.

Founder observation and treatment

The Founder's geographic impressions are retained as attributed personal observations, not independently measured epidemiology. Hormones can suppress activity and symptoms; they do not surgically excise lesions. Genetic or environmental findings alone do not establish the diagnosis.

Full references

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- **[R35565013]** Wieczorek K, Szczęsna D, Jurewicz J. Environmental Exposure to Non-Persistent Endocrine Disrupting Chemicals and Endometriosis: A Systematic Review. Int J Environ Res Public Health. 2022;19(9):5608. doi:10.3390/ijerph19095608. PMID 35565013. Freely available
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- **[RTRANS]** Heard E, Martienssen RA. Transgenerational epigenetic inheritance: myths and mechanisms. Cell. 2014;157(1):95-109. doi:10.1016/j.cell.2014.02.045. PMID 24679529. Freely available

No listed institution endorses GEM.

Medical information

Do not delay care; seek emergency help for a suspected emergency.