

Child health and the exposome:

What we learned from ATHLETE

The EU-funded ATHLETE project followed 80,000 pairs of mothers and children, revealing how daily environmental exposures — from air pollution, diets, and chemicals — impact children's health into adulthood.



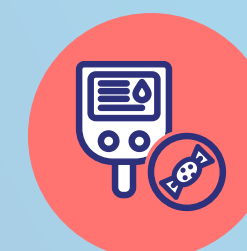
Key scientific results



Exposure to mixtures of parabens and phthalates, common endocrine disruptors, are linked to **poorer overall health in children.**



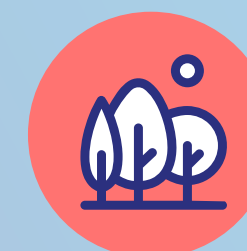
Chemical exposure and maternal weight during pregnancy are linked to **childhood obesity.**



Pregnancy exposure to mixtures of chemicals, such as PFAS, metals, and pesticides, are associated with increased **metabolic syndrome risk in children.**



Prenatal exposure to PFAS is linked to **low birthweight in babies.**



Living in greener areas of cities is linked to **better lung function** and **positive brain development.**



Those living in socioeconomically **disadvantaged areas experience disproportionate exposure** to harmful environmental factors.

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New scientific methods and tools

- A comprehensive early-life exposome toolbox with novel tools
- Integrated, harmonised cohort data to explore links between the exposome and health outcomes over time
- Practical evidence that omics technologies (epigenetics, proteomics and metabolomics) can be applied to detect molecular-level effects of chemical exposures in biological samples
- A plausibility database summarising the evidence on effects of environmental hazards (chemical and urban) influencing children's health

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TOOLBOX



For policymakers:

Recommendations for EU policy action



Build cities with child health in mind

- Mandate exposome impact assessments for major urban development projects across EU member states
- Establish minimum green space standards in line with ATHLETE findings on health-protective urban features



Address mixtures and cumulative risk in chemicals legislation to protect and improve child health

- Revise EU chemical regulation to incorporate mixture effects and cumulative risk assessment methodologies
- Take grouping approaches in the risk assessment of hazardous chemicals to prevent the regrettable substitution of one substance with a closely related chemical



Protect those who are most vulnerable

- Urban planning decisions should mitigate health inequalities from the earliest stages of life
- Consider that children from disadvantaged backgrounds may also be more vulnerable to the effects of the chemical exposome

For schools and the public:

Ways to protect children from harmful exposures



Learn about the effects of air pollution and chemical exposures on health



Monitor levels of air pollution nitrogen dioxide (NO₂) and particulate matter in schools and on commutes



Reduce your chemical exposure by purchasing safer products not containing phenols, phthalates, parabens, and triclosan, by switching your food and drink storage containers to glass and stainless-steel containers and by not heating food up in plastic



Individual action can only do so much, so advocate for change at a higher level by contacting local officials

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The ATHLETE project is funded by the European Union's Horizon 2020 research and innovation programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. The European Union cannot be held responsible for them.