

# Maternal obesity speeds up offspring aging, increases likelihood of diabetes and heart disease

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It has long been known that obesity impairs our metabolism and predisposes to diabetes and heart disease. New research published today in *The Journal of Physiology* has shown that the effects of maternal obesity even pass across generations to offspring, accelerating the rate of aging of metabolic problems that occur in normal life.

Researchers at the Salvador Zubiran National Institute of Medical Sciences and Nutrition, in Mexico City and University of Wyoming at Laramie, studied offspring of obese rat mothers. They observed the offspring throughout their lives (puberty, early [adult life](#), late adult life and early aging) to determine the rate at which they aged. Offspring of obese mothers had more body fat and showed early prediabetic signs such as an early rise in [insulin resistance](#), increasing susceptibility to diabetes.

Offspring of the obese mothers also showed impaired function of their mitochondria, the power stations of cells that generate the energy cells

need to function properly. These changes make it more likely that organisms will develop [heart disease](#). Interestingly, some of the unwanted outcomes resulting from maternal obesity were different in males and [female offspring](#). The reason for this is not clear, but it is thought to be hormonal in nature.

Encouragingly, exercise by the offspring improves many of the poor offspring outcomes that result from maternal obesity. These new findings add to the accumulating evidence for the influence of conditions in the womb and early life, on the physiology of the offspring, which thus impacts their susceptibility for diseases and the rate at which they age.

Elena Zambrano, senior author on the study, commented on the research saying:

"This reinforces the link between maternal obesity and the aging of offspring, specifically around the increased likelihood of developing diabetes and heart disease. Encouragingly, in previous studies we have shown that exercise by the offspring can help offset the risks brought about by maternal obesity."

**More information:** Guadalupe L. Rodríguez-González et al. Maternal obesity accelerates rat offspring metabolic aging in a sex dependent manner, *The Journal of Physiology* (2019). [DOI: 10.1113/JP278232](https://doi.org/10.1113/JP278232)

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