**Overweight mothers give birth to biologically older babies**

By **Jessica Hamzelou**

Women who are overweight while pregnant are more likely to have babies who are biologically older than those born to women of a healthy weight. This could put the babies at a higher risk of developing chronic diseases later in life, and may reduce their life expectancy.

Our biological age is linked to the [length of our telomeres](https://www.newscientist.com/article/mg21028100-200-telomere-nobelist-selling-a-biological-age-test/) – bits of DNA that cap the ends of our chromosomes. Our telomeres shrink every time our cells divide, and continue to shorten throughout life. “Short telomeres have been associated with [cardiovascular disease](https://www.newscientist.com/article/dn10942-shrinking-telomeres-linked-to-heart-disease/), type 2 diabetes and atherosclerosis,” says [Tim Nawrot](http://www.uhasselt.be/fiche?email=tim.nawrot) at Hasselt University in Belgium.

The length of a person’s telomeres at birth varies, though it is not clear why. Nawrot and his colleagues wondered if having an overweight or [obese](https://www.newscientist.com/article-topic/obesity/) mother might make a difference. The team collected the BMI scores of 743 women who later went on to become pregnant. When the women had babies, they took samples of blood from the umbilical cord and placenta, and measured the length of telomeres in blood cells.

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The team found that a woman’s BMI seems to have a significant effect on the telomere length of her baby. The telomeres of babies born to overweight women were around 2.5 per cent shorter than those whose mothers were a healthy weight, while those born to obese women had telomeres 5.5 per cent shorter than the babies of mothers with a healthy BMI.

“It’s a large, significant difference,” says Nawrot. “In normal ageing, it takes 5 to 10 years to experience a shortening of 5.5 per cent.”

There is no knowing whether babies born to obese mothers will live 5 years less than other babies. “We can’t make a prediction,” says Nawrot. “We would need to conduct longer term studies, and follow these babies.”

How would weight affect telomeres? Nawrot’s team thinks  excess fat tissue could be to blame. Fat can trigger inflammation, and produce reactive chemicals that cause oxidative stress, which can damage cells and shorten telomeres. These could cross into a baby’s body via the placenta, they suggest.

**Watch your weight**

But [Catarina Henriques](https://www.sheffield.ac.uk/humanmetabolism/people/catarinahenriques) at the University of Sheffield, UK, isn’t so sure. Overweight people may already have shorter telomeres, something they may pass on to their children via their genes, rather than through the placenta, she says.

If that is the case, a father’s weight could play a role, too, says Henriques. “Just like for the mother, if the father’s BMI is higher, it may mean that his telomeres are shorter to start with, which could influence telomere length in the child,” she says. “This would need to be tested, though.”

In the meantime, women hoping to get pregnant may want to watch their weight. “For every one unit increase in BMI, the babies’ telomeres shorten by 0.5 per cent,” says [Janet Lord](http://www.birmingham.ac.uk/staff/profiles/inflammation-ageing/lord-janet.aspx) at the University of Birmingham, UK. “Maintaining a healthy body weight whilst trying to conceive will have long-term benefits for the baby, giving it a head start with longer telomeres,” she says.

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