Key role of ‘good’ gut bacteria in healthy pregnancy

BOOST FOR EXPECTANT MOTHERS

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A ‘GOOD’ gut bacteria found in probiotic drinks and tablets leads to a healthier pregnancy, according to new research.



The Cambridge University-led study has found the first “clear evidence” that Bifidobacterium breve in pregnant mothers regulates the placenta’s production of hormones critical for a healthy pregnancy.
They say it could help prevent common pregnancy complications including preeclampsia and miscarriage.
The research team compared the placentas of mice with no gut bacteria to those of mice with Bifidobacterium breve in their gut during pregnancy.
Pregnant mice without Bifidobacterium breve in their gut had a higher rate of complications including foetal growth restriction and foetal low blood sugar, and increased foetal loss.
Researchers say the gut bacteria seems to play a “crucial” role in prompting the placenta to produce pregnancy hormones that allow the mum’s body to support the pregnancy.
The study, published in the Journal of Translational Medicine, is the first time scientists have found a link between the gut microbiome and the placenta. The research team say it paves the way for testing the mother’s gut microbiome to identify pregnancy complications – such as gestational diabetes, preeclampsia or miscarriage – early, and then manipulating it with probiotics to improve the chances of a healthy baby.
Report first author Dr Jorge Lopez Tello, of Cambridge University, said: “Our results open up an entirely new way to assess the health of a pregnant mother and her developing foetus by looking at the mother’s gut microbiome. Everybody ignores the placenta – after nine months of pregnancy it just gets thrown in the bin.
“But now we understand more about how it works, in the future pregnancy complications like gestational diabetes, preeclampsia, miscarriage and stillbirth might be prevented simply by adjusting the mother’s gut microbes to improve the function of the placenta.”
The placenta connects mother to foetus, and provides the nutrients, oxygen and hormones essential for healthy development of the baby.
In the study, more than 150 biological processes in the placenta – involving more than 400 different proteins – were found to be different in mice with, and without, Bifidobacterium breve in their gut.

The mice with Bifidobacterium breve in their gut lost fewer of their pregnancies. Their placentas were also better at absorbing and transporting nutrients, such as amino acids and lactate, from mother to foetus.

The placentas of mice with Bifidobacterium breve in their gut also produced more of the hormones important for pregnancy, such as prolactins and pregnancy-specific glycoproteins.

By studying mice, whose diet, activity and gut microbiome could be tightly controlled, the researchers are sure their findings are not caused by other factors. Using mice allowed them to pinpoint the importance of Bifidobacterium breve – a finding that is also relevant to human pregnancies.

The team say more research is needed to understand how “good” bacteria work within the human body’s full gut microbiome, and whether they could be manipulated in the gut without any negative effects.

Bifidobacterium breve occurs naturally in the human gut microbiome, but in pregnant women the levels of this “good” bacteria can be altered by stress or obesity. It is available as a supplement in probiotic drinks and tablets.

The babies of up to 10 per cent of first-time mothers have low birth weight or foetal growth restriction. If a baby doesn’t grow properly in the womb, there is an increased risk of conditions such as cerebral palsy, as well as anxiety, depression, autism, and schizophrenia in later life.

Study senior author Professor Amanda Sferruzzi-Perri, of Cambridge University, said: “Our research reveals a whole new layer of information about how pregnancy works, and will help us find new interventions that can improve the chances of a healthy pregnancy for mother and baby.”

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