

Even healthy pregnant women need to worry about oral bacteria

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Even healthy pregnant women can be at risk for pregnancy problems caused by oral bacteria. Researchers from Case Western Reserve University began to understand which bacteria from the 700 species living in the mouth are responsible for the growing health problem of preterm and stillbirths.

Yiping Han from the department of periodontics in the CWRU School of [Dental Medicine](#) led the study, which found several new bacteria originating in the mouth travel through the blood to cause an inflammatory reaction in the placenta and eventually cause a range of health issues from miscarriages to stillbirths.

The findings were reported this month in *Infection and Immunity*.

Pregnant women with or without mild oral health problems have baffled researchers as to why oral bacteria have shown up in the placenta or amniotic fluids of premature or stillbirths.

The researchers found that after injecting the tails of pregnant mice with saliva from healthy people and dental plaque from those with periodontal disease, oral bacteria continued to grow in the placentas after it had left the blood 24 hours later.

Prior to Han's work in connecting oral bacteria to the problems in pregnancy, it was thought that infections were transmitted through the vaginal tract.

Information from Han's previous studies over the past decade shows that oral bacteria can be transported through the blood when there is a cut in the mouth's lining or an oral health problem like gingivitis or periodontitis which breaks down the defenses in the mouth's lining that protect bacteria from entering the bloodstream.

According to Han, this suggests that even healthy pregnant women should be concerned that normally occurring bacteria in the mouth can enter the blood stream and make their way into the placenta's immune-free environment to ignite an [inflammatory reaction](#) that can lead to premature or stillbirths.

"We found many bacteria did locate to the placenta, but they were not the most famous periodontal pathogens," said Han. "In fact, many of the bacteria were the kind that are found in healthy people's mouths." These include Streptococcus, Leptotrichia, Fusobacterium nucleatum, Veillonella, among others.

The researchers are finding that many of the bacteria found in the placentas cannot be grown in the lab, which has been the gold standard. They are identified through DNA cloning techniques that match the bacteria in the placenta with the bacteria found in the mouth. This DNA fingerprinting allows researchers to trace the origin of the bacteria.

Hans notes that as long as these bacteria stay in the mouth, they cause very little problems. However in the uterus, they stimulate the inflammatory response that leads to cervical and membrane weaknesses and ruptures and uterine contractions.

In several case studies, Han said the mothers did not have a pronounced periodontal disease or periodontitis. The mothers did have a form a pregnancy-associated gingivitis, which resulted from changes in the hormones, and disappears after the birth of the baby.

"The normal healthy woman is under risk," Han said. "People should be concerned about it. This is what the experiment is showing."

She added, "We need to know which bacteria colonize in the placenta and design therapies for better treatments."

These are the kinds of bacteria that are with us all our lives, and only cause disease when the opportunity arises, Han said.

She added, "What is happening with the [oral bacteria](#) colonizing in the [placenta](#) happens with other diseases that triggers an inflammatory response."

During CWRU Research ShowCASE 2010, Yann Fardini, one of the paper's researchers, received honors for his presentation on the research.

Provided by Case Western Reserve University

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