

Study discovers cause of many preterm births

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A new study by researchers at the University of Texas Medical Branch at Galveston is the first to show that premature aging of the placenta due to oxidative stress is the cause of many preterm births. The study appears today in the *American Journal of Pathology*.

Researchers took fetal membranes, exposed them to oxidative stress in a lab setting (specifically cigarette smoke extract) and examined whether it caused rapid aging of the placental tissue. It did.

Oxidative stress factors include environmental toxins and pollution and are an inevitable component of normal living. However, other factors such as smoking and drinking, high body mass index, poor nutrition and infection could be avoided.

Antioxidants in the body control any damage caused by oxidative stress. But when oxidative stress becomes overwhelming, it can trigger premature placental aging, which can result in [preterm birth](#).

According to the researchers, antioxidant supplements during pregnancy have failed to reduce preterm births because the mechanisms of oxidative [stress](#) damage are still unclear.

"This is the first study to look at and prove that [oxidative stress](#) induces senescence, or aging, in human fetal cells," said Dr. Ramkumar Menon, an assistant professor in the UTMB Department of Obstetrics and Gynecology and lead researcher on the study. "With more than 15 million pregnancies worldwide ending in preterm births, we can now

move forward in discovering how this information may lead to better intervention strategies to reduce the risk of preterm birth."

Previous studies suggested that infection is the major cause of preterm premature rupture of the membranes (pPROM, or breaking of the water bag during pregnancy), for which antibiotics are standard intervention.

However, UTMB researchers discovered that interventions such as antibiotics and antioxidants have not been successful in preventing preterm deliveries. This study provides evidence that there are other factors out there that the medical community should look for when that are causing spontaneous births, said Menon.

More information: [dx.doi.org/10.1016/j.ajpath.2014.02.011](https://doi.org/10.1016/j.ajpath.2014.02.011)

Provided by University of Texas Medical Branch at Galveston

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