

HEALTH & SCIENCE / PREGNANCY

When Can a Fetus Feel Pain in the Womb?

For most expecting parents the issue only becomes pertinent in the rare cases where fetal surgery may be necessary.

By [Christian Dashiell](#) Mar 26 2021, 3:59 PM

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experience pain has proven both difficult and controversial. The biological system allowing a fetus to feel pain develops early in pregnancy, but it takes weeks to fully connect the complex system of neurons and cerebral structures that allow sensory organs to send pain messages that can be decoded by the brain. While there is some ambiguity and variation to how all of these pieces fit together, there is a broad consensus of when pain pathways are mature enough for a fetus to feel pain. Luckily for most expecting parents the issue only becomes pertinent in the rare cases where fetal surgery may be necessary.

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What Science Says About When a Fetus Can Feel Pain

A 2005 multidisciplinary review of evidence published the Journal of the American Medical Association looked into the subject of fetal pain. Led by the University of California San Diego, researchers looked at 360 articles published in medical

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unpleasant.” In other words, pain stimulus requires recognition. And recognition arrives at a very specific moment in fetal development.

Touch is the first sense to develop, with receptors present in the fetus’ face by week 8. But it takes until week 12 for sensory receptors to develop in palms and soles, and it’s not until week 17 that receptors are present in the abdomen. However, the fetus still needs to develop a communication pathways to the brain.

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That pathway is long and complex, the JAMA study notes. Before week 24 nerves aren’t typically developed enough to carry information to the spinal cord, and eventually, the brain’s cortex. The cortex that people perceive the feeling of pain.

But there’s a final piece to the puzzle: the connection between the cortex and the thalamus. That connection, according to researchers does not begin to develop until around week 23 of

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ability.

A more contemporary Italian study, published in the journal *Pediatric Research* in 2020 looked at 10 years of fetal pain studies and reached a similar conclusion. However, that study links the ability to feel pain to the produce stress hormones. Researchers note, “The fetus in the second half of pregnancy, in reaction to a potentially painful stimulus, produces stress hormones.”

So, based on available research, a fetus is likely able to start feeling some semblance of pain around the 23 week of pregnancy.

What are the Implications of Fetal Pain

Our understanding of fetal pain informs medical ethical discussions surrounding the use of anesthesia during fetal surgery, as well as medical and political conversations on abortion. The scientific consensus has remained static over the past decade and has some admitted ambiguities which can make these conversations difficult.

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However, most expectant parents will carry their baby to term, so barring some kind of major trauma or birth defect, fetal pain is unlikely to be a part of their pregnancy concerns. That said, a fetus does have a rich sensory life towards the end of pregnancy with the possibility of pain being a small part of the picture. Parents-to-be are better off considering the fact that before birth their baby can smell, taste, feel and hear. They may also be learning. So singing, talking and rocking will increase bonding and help a bay orient to its postnatal world.

What if My Baby Felt Pain While in the Womb?

If you are concerned that your baby may have experienced pain or trauma in the womb, contact your healthcare provider immediately for assistance as they will be equipped to monitor the health of the fetus.

After birth, physical touch is crucial for building neural pathways that help babies feel safe and secure. Skin-to-skin contact from either parent is key for any infant that experienced pain or trauma in the womb. In a 2019 study that appeared in *Advances in Neonatal Care*, Dr. Dorothy Vitner and her team explored the potential of parental touch, especially during skin-to-skin contact to mediate stress hormones in infants. They determined that “significant relationships exist between parental engagement and salivary oxytocin and cortisol levels.”