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# Fetal Pain: What We Know, What We Believe, And What This Means For Abortion.



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In recent years, abortion has been posed as a conflict between the interests of the pregnant woman and the interests of the fetus growing inside her. According to this view, it becomes wrong to abort the fetus when the interests of the fetus exceed those of the pregnant woman.

Pain has consequently become of increasing interest to those who oppose abortion because it is generally agreed that all living organisms have a strong interest in avoiding pain. Several US states have enacted legislation to prevent abortion once the fetus reaches a developmental stage where pain is considered possible, typically around 20 weeks' gestation.

This article considers the evidence for fetal pain at various gestational ages. It concludes that whatever experience a fetus may have, this cannot be equivalent to the explicit pain experiences that emerge in early infancy. Further clarity regarding fetal pain, however, cannot be obtained. Fetal pain is necessarily vexed and, as such, is the wrong conceptual vehicle to guide legislation or clinical practice.

## Before 8 weeks' gestation

Debate about fetal pain is dominated by approaches from neuroscience that ask when a minimally necessary neural circuitry for pain might be available. This approach has considerable merit.

People born without nerves that can detect noxious stimuli, including extreme heat, cold or pressure, have a condition called 'congenital insensitivity to pain' – they never experience pain. Consequently, such patients suffer extreme damage. They will, for example, take dishes out of the oven with their bare hands, bite off pieces of their own tongue when eating, break their bones to escape awkward positions, and so forth. Before such nerves develop in the fetus, therefore, it is reasonable to rule out any possibility of pain.

To the author's knowledge, all neuroscientists accept that for pain to be possible there has to be a connection of nerve fibers from the skin to the spinal cord and brain. This connection is formed between 8-12 weeks' gestation. Thus, there is total consensus that fetal pain is not possible before the eighth week of pregnancy.

## Before 24 weeks' gestation

Most neuroscientists, however, believe that pain requires not just a connection from the skin to the spinal cord and lower centers of the brain but also to the cortex – the higher centers of the brain. Cortical connections are not formed before 24 weeks' gestation and so there is a general consensus that pain is not possible before the final trimester of pregnancy.

There is, however, considerable dissent from that general consensus. Those who oppose the consensus have argued that there is a structure underneath the cortex, called the subplate, which develops from 12 weeks' gestation. The subplate shares certain structural features with the cortex proper and, at least from around 18 weeks' gestation, neurons arriving in the subplate demonstrate evidence of functionality.

Also at 18 weeks' gestation, the fetus launches defensive reactions to surgery including behavioral withdrawal, redistribution of blood away from the arms and legs and towards vital internal organs, and the release of protective hormones. These observations imply that the cortex is not necessary for at least some types of defensive behaviors associated with pain.

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In addition, observations with anencephalic infants have also been used to undermine the necessity of the cortex for conscious sensation. In rare cases, the fetal brain fails properly to develop and the skull fills with fluid that prevents development of the cortex. Most such pregnancies spontaneously fail but, very occasionally, the infant is born and survives with only a brainstem. These infants have been demonstrated to laugh, cry and show other signs of emotion that have been interpreted as refuting the idea that a cortex is necessary for the experience of sensations and emotions.

Although the consensus position is that the cortex is necessary for pain, there remains no adequate explanation for how the cortex gives rise to pain. Consequently, it is difficult to dismiss the possibility that coherent activity within other parts of the brain might also give rise to pain. The argument is especially compelling because observation of the fetus and infants born without a cortex gives a direct impression of something being experienced; it just seems intuitively right that something akin to pain might be possible. Often a variation of Voltaire's 1764 challenge is issued:

Answer me, machinist, has nature arranged all the springs of sentiment in this animal that he should not feel?

After 12 weeks' gestation there is a nervous system capable of detecting noxious stimuli and after 18 weeks the fetus can be observed to withdraw and maybe also 'grimace' and show other emotional facial expressions. Intuition, if not hard science, points towards a pain experience.

## The limits of intuition

The argument from intuition has some purchase, but there are important limitations to an argument that relies on what looks or feels right. The most important limitation is precisely that assumptions made based on intuition can be incorrect.

Cartoon characters can be observed to 'emote' and 'experience' but we know that the inference is incorrect and directly manipulated by the makers of the cartoon. Many people get attached to their prized possessions and imbue their cars, washing machines, plants and so forth with emotions. Application of a little logical pressure, however, leads most of us to give up the belief that our washing machine feels pain when it is overloaded.

Interestingly, health professionals who work with fetuses and neonates tend to distinguish between physical and mental states. Certainly, they will describe the fetus as being in pain but that description will often involve a distinction between pain as a direct response to injury and pain as a conscious experience. Injury and behavior can be directly observed but experience cannot be. Experience has to be inferred, and the process of inference is fraught with difficulty.

## Going beyond neuroscience and intuition

A considerable problem with both the approach from neuroscience and the approach from intuition is the lack of any clear statement or investigation of the pain experience itself. The construct of pain is not examined and is, instead, presented as something already known and understood. Consequently, arguments can erupt because those involved are not talking about the same thing.

One possibly useful distinction might be between 'being in pain' and knowing that 'I am in pain'. Knowing will involve an explicit self-reflection on experience and an understanding of how events are unfolding, whereas being will just be without any wider comprehension of events or recognition of experience. Knowing might be more typical of the kinds of experiences we are used to when facing injury, medical intervention or spontaneous pains that come and go without any obvious reason.

Knowing is harder to map onto the fetus because it is not clear how the fetus could know, for example, that his or her leg were being pricked. 'Leg' is a concept that is linked to a broader understanding of bodies being separate entities with separable appendages. 'Pricked' is a concept that is linked to sharpness, distinct from dullness. Importing that much knowledge on behalf of the fetus quickly becomes implausible.

Being, however, just is, without any broader comprehension, understanding or reflection. A state of just being is much easier to map onto the fetus.

Thus, if the fetus does feel pain, then it is a kind of pain that lacks the fear and sensory identity that is typical of pain experiences known to mature human beings. Human beings experience pain partly *through* the unpleasantness and anxiety that comes from associating the outcome (a crushed limb) with concern for greater, more unpleasant outcomes (free movement, infection, death).

It is not clear, however, if a bounded, fleeting and immediate pain experience is possible. At any given moment, many thousands of receptors are firing as different sources of light, sound, smell, touch and so on bounce into your body. Consequently, any number of 'being'-type states might be generated. There is considerable difficulty in explaining how a non-conceptual mind might grab hold of any single sensation amongst the cacophony of other possible sensations.

## What this means for clinicians and health care users

On balance, it is reasonable to conclude that the fetus cannot experience pain, at least not in any equivalent way to how mature infants and adults experience pain. An immediate, fleeting experience, even if possible, will lack the precision and associated fear and dread of a more mature pain experience.

That conclusion may provide sufficient reassurance for many clinicians and women seeking fetal procedures that fetal pain is not something for concern. It is, however, not possible to use fetal pain to provide a definitive guide for clinical practice or legal policy regarding the fetus because the issue is too vexed; it is an unsuitable vehicle for deciding clinical practice or policy.

Therapeutic surgery for the fetus can only be guided by objective measures of outcomes decided in clinical trials. Policy towards termination can only be guided by democratic discussion of when society thinks it is acceptable for a woman to decide that she will not continue to be pregnant.

In contrast, fetal pain is an immensely provocative and thought-provoking non-issue that is not useful in deciding clinical practice or law.

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## Conclusion

In summary, deciding whether the fetus can feel pain cannot be reduced to deciding when certain neural circuits are intact. Neural development is a process, not an event, and, in any case, there is no definitive understanding of how any neural circuit relates to any particular experience. Conclusions that derive from intuition also fail because, at root, intuition is a conclusion reached from assertion; e.g., it **looks** like pain, therefore it **must** be pain. Appearances, however, can be deceptive.

Logically, the fetus should be denied any conceptual, knowledge-based pain experience. The fetus could, however, still be allowed a non-conceptual, raw and immediate pain experience. That distinction, between conceptual and non-conceptual, feels like one that can work. Unfortunately, however, whether a non-conceptual experience is possible, what that kind of experience might feel like, or how the nervous system might deliver that experience, is entirely unknown.

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Ultimately, fetal pain is a necessarily vexed issue because whatever states might be possible for the fetus, the fetus will be psychologically naive with an immature nervous system. There can be no regression from knowledge and maturity into a state of naivety; there is no return to innocence where non-conceptual feeling might be

experienced. Consequently, fetal pain cannot be usefully employed to provide any practical moral guidance for issues concerning good clinical practice or abortion legislation. Fetal pain is an issue that, for all practical purposes, should be ignored.

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