

# Putting babies under general anaesthetic won't affect their development, new research shows

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Credit: AI-generated image ([disclaimer](#))

Making the decision to operate on a baby or toddler can be complex and confronting for parents. It involves weighing the risks versus the expected benefits for the child.

One of the questions impacting the decision has traditionally been whether general anaesthesia is safe for vulnerable, rapidly developing brains.

Parents in this situation can be reassured after a new study published in [\*The Lancet\*](#) this week showed a single episode of general anaesthesia in infancy had no detectable impact on subsequent brain development.

## **Why the worry?**

The Food and Drug Administration in the United States [sounded a note of caution](#) as long ago as 2007 after some studies showed some of the gases used in general anaesthesia seemed to have permanent negative effects on the developing brains of rats and monkeys.

Research was planned and funded to settle this issue by examining evidence in the real world. After all, human brains are not the same as rat brains.

Studies that had been [done in humans](#) were observational (backward-looking). This makes it hard to differentiate the effect of the anaesthesia from effects of the condition for which the surgery was being performed, or other factors affecting the child.

## **What this study offers**

The strengths of the study are significant. First, it was large, involving 722 participants from children's hospitals across seven countries, including Australia.

It was also well-designed. In particular, this was a prospective (forward-looking) study with a design that enabled researchers to clearly discern

the isolated effect of the anaesthesia.

This was achieved by comparing the same procedure done for the same reason using either spinal anaesthesia, where the patient is numb in the area of surgery but awake, or conventional general anaesthesia, where the patient is unconscious.

The procedure chosen for the study was the repair of a [groin hernia](#), a condition where internal tissues of the abdomen protrude through a weak spot in the abdominal muscle. People who undergo the surgery overwhelmingly have [good outcomes and low complication rates](#). It's also performed in children who are generally otherwise fairly healthy.

This surgery is usually done within the first couple of months of a child's life to prevent abnormal development of the lower abdominal wall which would make the hernia difficult and painful to repair later. It also decreases the risk of requiring emergency surgery.

The children recruited into this study were all younger than six months old at the time of surgery.

Another major strength of the study was the length of time the children were followed. Those who were operated on stayed under assessment until they turned five. At this age, the children were given standard tests of brain function which are known to be good at predicting future development. Normal testing at this age would show with a lot of confidence that there was no detriment from the general anaesthesia. And this was found to be the case.

Each of these attributes means the findings are likely to be reliable and able to be generalised from country to country.

## **Some things to be aware of**

The only real weakness of the study was that the population assessed was overwhelmingly male (84% of participants) as groin hernia is much more common in baby boys. The authors acknowledge this and highlight the need for future studies to include more girls.

It's also important to emphasise that in order to enable a clear and definite answer, this study only looked at a single episode of general anaesthesia. It was not designed to assess the risk of repeated or unusually prolonged exposure to general [anaesthesia](#). So it provides a piece of the puzzle, but not the complete picture.

Taken as a whole, this study is reassuring for parents of children undergoing elective surgery at an early age. In a practical sense, it allows other factors such as surgical risk, or the impact of deferring or avoiding the operation, to take a more important place in decision-making.

Parents can put concerns about [general anaesthesia](#) harming their baby's [brain](#) to bed for now, at least as far as one-off operations go.

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