Researchers suggest increased instances of C-sections are causing evolutionary changes

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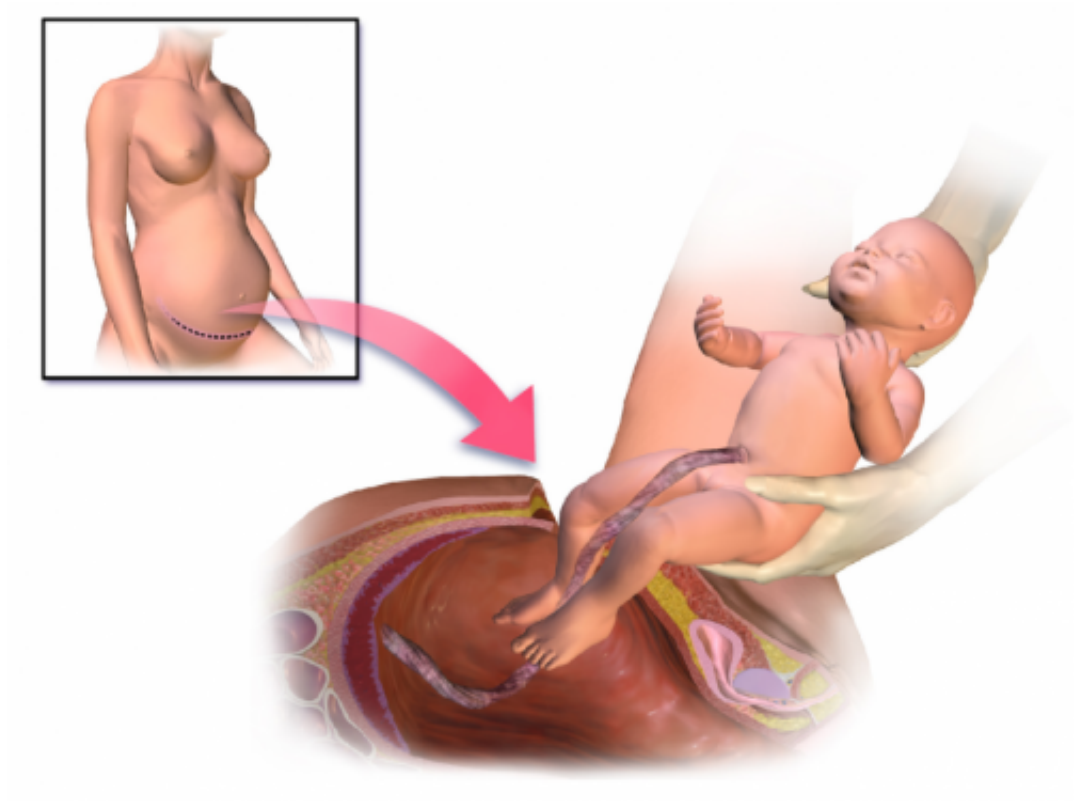

Illustration depicting Caesarean section. Credit: BruceBlaus/Wikipedia/CC BY 3.0

(Medical Xpress)—A small team of researchers with members from Austria and the U.S. has found statistical evidence that an increase in the number of mothers giving birth via C-section over the past several decades has been causing an evolutional change—babies' heads are

getting bigger, even as the birth canal size remains fixed. The team has published the results of their analysis in *Proceedings of the National Academy of Sciences*.

Scientists have known for quite some time that humans have more trouble giving birth than most other animals—this is because of the passage of proportionally larger babies' heads through a relatively small birth canal. When a baby has a head that is too big to pass through (known as fetopelvic disproportion), surgeons manually remove the baby through an incision in the mother's lower abdomen—a procedure known as a Cesarean or C-section (believed to be named after Julius Caesar, who was thought to have been cut from his dying mother's womb.)

But what is the evolutionary impact of resorting to C-section every time a baby cannot fit through its mother's birth canal? The researchers with this new effort believe it has led to even more babies being born with over-large heads. They used logic and math to come to this conclusion. Logic suggests, they note, that if babies with over-large heads are allowed to survive to adulthood—rather than dying during birth, as was the case for most of human history—and thereby carrying the genes for larger heads, then more babies with the same genes will be born in the future—larger babies have been shown to be healthier in general than smaller babies, increasing the odds of reproducing. To bolster their argument, they crunched birth data numbers over the past half-century and found that the global rate of fetopelvic disproportion has grown from 3 percent of births in the 1960s to 3.3 percent of births today, a rate of increase of 10 to 20 percent, depending on which births are included or not.

The researchers suggest the increase could be due to evolutionary changes caused by the use of C-sections to allow such births to proceed, though they acknowledge they do not have any real proof of a connection. They note the possibility that the increase in baby head size

might be due to the modern lifestyle, which is more sedentary and calorie rich than that of past generations.

More information: "Cliff-edge model of obstetric selection in humans, *Proceedings of the National Academy of Sciences*, www.pnas.org/cgi/doi/10.1073/pnas.1612410113