

# Mechanical ventilation a key indicator for Pre-Term Children's maths problems

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This latest study, led by Dr Julia Jaekel and Professor Dieter Wolke, found that preterm children's specific mathematic abilities decrease exponentially with lower gestational age.

However, the study also establishes two significant individual key indicators of future mathematic problems for preterm children; the duration of neonatal medical treatment in hospital immediately after birth and the use of mechanical ventilation.

The researchers used path analyses to establish two neurodevelopmental cascade models. Their findings are based on the fact that, on average, a healthy full term child had a general maths score of 100, a specific maths score of 101 and was never ventilated. In contrast, a very preterm child, on average, had a general maths score of 88, a specific maths score of 97 and was ventilated for 17 days.

A total of 51 very preterm children were ventilated longer than 30 days (thus the highest risk group) and these, on average, had a general maths score of 73 and a specific maths score of 91.

Dr Julia Jaekel, from both the University of Warwick's Department of Psychology, and the Ruhr-University Bochum said:

"It is difficult to see how one could reduce the duration of neonatal medical treatment, as this may relate to a number of medical needs. However there are now less invasive options to [mechanical ventilation](#) as

the adverse effects on brain development are well known. Future studies will have to show if the less invasive treatment of new generations of [preterm children](#) may also have decreased their risk for specific impairments in mathematic tasks."

"Our findings may have significant implications for the choice of mode of respiratory support in neonates."

Provided by University of Warwick

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