

# People born small for gestational age have a lower IQ throughout development from infancy to adulthood

15 June 2020



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People born small for gestational age (SGA) have a lower IQ throughout development, however the differences in IQ to those born appropriate for gestational age (AGA) reduce by adulthood. The effects of SGA on IQ are nearly as large as being born into lower socio-economic status or receiving poor parenting in infancy.

It has been previously determined by researchers from the University of Warwick that those with a smaller head circumference at birth and subsequent poor head growth have a lower IQ. This research has now led them to look at whether [cognitive performance](#) from infancy to [adulthood](#) is affected by being born small for [gestational age](#).

The researchers also determined whether other aspects such as being very preterm/very low birth weight, [socioeconomic status](#) and parent-infant relationship influence SGA's effect on cognitive performance.

In the paper, "Small for Gestational Age—Cognitive Performance from Infancy to Adulthood: An Observational Study," published in the *British Journal of Obstetrics and Gynaecology*, researchers from the Department of Psychology at the University of Warwick have found that those born small at gestational age have a lower IQ throughout development.



Professor Dieter Wolke. Credit: University of Warwick

The researchers followed 203 VP/VLBW (under 32 weeks gestational age and/or under 1500g) and 198 term born children (between 37 and 41 weeks gestation) in Germany born in 1985-6 into adulthood.

They determined SGA using two different methods, growth charts based on birth weight and growth charts normed on ultrasound measurement in pregnancy (fetal reference). They also assessed the parent's socioeconomic status and parent-infant relationship before the infant was five months old, and had participants do a developmental and IQ

tests on six occasions, from five months to 26 years old.

Infancy to Adulthood: An Observational Study, *BJOG: An International Journal of Obstetrics & Gynaecology* (2020). DOI: [10.1111/1471-0528.16341](https://doi.org/10.1111/1471-0528.16341)

While the fetal reference classified more infants as SGA than the neonatal reference, SGA using either reference was associated with an IQ -8 points lower than those born appropriate for gestational age (AGA), with the difference narrowing into adulthood.

Provided by University of Warwick

Independent of being SGA, being born very preterm or very [low birth weight](#) was associated with IQ -16 points lower than term-born participants. Furthermore coming from a low socioeconomic family was associated with -14 point lower IQ than those from a high socioeconomic status.

It was also found that a poor parent-infant relationship was associated with IQ-10 lower than those with a good relationship between infant and parent.

Professor Dieter Wolke, from the Department of Psychology at the University of Warwick comments:

"SGA, whether born preterm or at term, seems to have adverse effects on cognitive development that are long lasting. Reassuring is that there is some catch-up in IQ into adulthood."

"In contrast, being very preterm, into a lower socio-[economic status](#) or having experienced poor parent-infant [relationship](#) has further and even more severe adverse effects on IQ."

Robert Eves, the first author from the Department of Psychology at the University of Warwick adds: "This shows us that those born SGA need extra interventions to ensure their cognitive development is not put at jeopardy, especially if social risk factors are also experienced by the infant.

"Such interventions could include optimized nutrition to ensure optimal catch up growth following SGA birth or interventions for improving the parent-infant relationships."

**More information:** Robert Eves et al. Small for Gestational Age ? Cognitive Performance from

APA citation: People born small for gestational age have a lower IQ throughout development from infancy to adulthood (2020, June 15) retrieved 15 August 2022 from <https://medicalxpress.com/news/2020-06-people-born-small-gestational-age.html>

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