

Babies born to healthy mums worldwide are strikingly similar in size

July 6 2014



Credit: Anna Langova/public domain

Babies' growth in the womb and their size at birth, especially their length, are strikingly similar the world over – when babies are born to healthy, well-educated and well-nourished mothers.

That's the finding of a landmark international study, INTERGROWTH-21st, led by Oxford University researchers, which

involved almost 60,000 pregnancies in eight defined [urban areas](#) in Brazil, China, India, Italy, Kenya, Oman, the UK and USA.

Worldwide there are wide disparities in the average size of [babies](#) at birth. This has significant consequences for future health, as small for gestational age babies who are already undernourished at birth often face severe short- and long-term health consequences.

It has previously been suggested that 'race' and 'ethnicity' are largely responsible for differences in the size of babies born in different populations and countries. These new results show that race and ethnicity are not the primary factors. What matters more is the educational, health and nutritional status of the mothers, and care provided during pregnancy.

The researchers carried out ultrasound scans from early pregnancy to delivery to measure babies' bone growth in the womb, using identical methods in all countries and the same ultrasound machines provided by Philips Healthcare. They also measured the length and [head circumference](#) of all babies at birth.

They have demonstrated that if mothers' educational, health and [nutritional status](#) and care during pregnancy are equally good, babies will have equal chances of healthy growth in the womb and future good health.

The researchers report their findings in *The Lancet, Diabetes & Endocrinology*. They were funded by the Bill & Melinda Gates Foundation.

'Currently we are not all equal at birth. But we can be,' said the lead author Professor Jose Villar of the Nuffield Department of Obstetrics & Gynaecology, University of Oxford. 'We can create a similar start for all

by making sure mothers are well educated and nourished, by treating infection and by providing adequate antenatal care.

'Don't tell us nothing can be done. Don't say that women in some parts of the world have small children because they are predestined to do so. It's simply not true.'

Key points

- The study involved almost 60,000 pregnancies in eight defined urban areas in Brazil, China, India, Italy, Kenya, Oman, the UK and USA.
- Babies' bone growth in the womb and their length and head circumference at birth are strikingly similar the world over – when babies are born to educated, healthy and well-nourished mothers.
- Overall, no more than 4% of the total difference in [fetal growth](#) and birth size could be attributed to differences between the eight populations in the study.
- Improving the education, health and nutrition of mothers everywhere will boost the health of their babies throughout life within the next generation.
- Results are in complete agreement with the previous WHO study using the same methodology from birth to 5 years of age.

In 2010, an estimated 32.4 million babies were born already undernourished in low- and middle-income countries, which represents 27% of all live births globally. This is closely associated with illness and death in infancy and childhood. Small size at birth has an impact on adult health too, with increased risks of diabetes, high blood pressure and cardiovascular disease. Smaller babies also result in substantial costs for health services and a significant economic burden on societies as a whole.

Part of the problem in starting to improve pregnancy outcomes is that fetal growth and newborn size are currently evaluated in clinics around the world using at least 100 different growth charts. In other words, there are no international standards at present for the fetus and newborn, while such standards do exist for infants and children.

'This is very confusing for doctors and mothers and makes no biological sense. How can a fetus or a newborn be judged small in one clinic or hospital and treated accordingly, only for the mother to go to another city or country, and be told that her baby is growing normally,' said Professor Stephen Kennedy, University of Oxford, one of the senior authors of the paper.

The final aim of the INTERGROWTH-21st study is to construct international standards describing optimal growth of a baby in the womb and as a newborn – standards to reflect how a baby should grow when mothers have adequate health, nutrition and socioeconomic status.

The researchers adopted the same approach taken by the WHO's Multicentre Growth Reference Study of healthy infants and children, which established international growth standards from birth to 5 years of age that are now used in more than 140 countries worldwide.

The INTERGROWTH-21st results fit perfectly with the existing WHO standards for infants. The mean length at birth of the newborns in the INTERGROWTH-21st study was 49.4 ± 1.9 cm, compared with 49.5 ± 1.9 cm in the WHO infant study.

From now on international standards can be used worldwide to make judgements on growth and size from conception to 5 years. 'Just think, if your cholesterol or your blood pressure are high, they are high regardless of where you live. Why should the same not apply to growth?' said Professor Villar.

Professor Ruyan Pang, from Peking University, China, one of the study's lead investigators, said: 'The INTERGROWTH-21st results fit perfectly with the existing WHO Infant and Child Growth Standards. Having international standards of optimal growth from conception to 5 years of age that everyone in the world can use means it will now be possible to evaluate improvements in health and nutrition using the same yardstick.'

Professor Zulfiqar Bhutta, from The Aga Khan University, Karachi, Pakistan and the Hospital for Sick Children, Toronto, Canada, who is the Chair of the Steering Committee of this global research team, says: 'The fact that when mothers are in good health, babies grow in the womb in very similar ways the world over is a tremendously positive message of hope for all women and their families. But there is a challenge as well. There are implications in terms of the way we think about public health: This is about the health and life chances of future citizens everywhere on the planet. All those who are responsible for health care will have to think about providing the best possible maternal and child [health](#).'

More information: The paper 'The likeness of fetal growth and newborn size across non-isolated populations in the INTERGROWTH-21st Project' is to be published in *The Lancet Diabetes & Endocrinology* on Monday 7 July 2014.

Provided by Oxford University

Citation: Babies born to healthy mums worldwide are strikingly similar in size (2014, July 6) retrieved 27 April 2024 from <https://medicalxpress.com/news/2014-07-babies-born-healthy-mums-worldwide.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.