

Being poor can suppress children's genetic potentials

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Growing up poor can suppress a child's genetic potential to excel cognitively even before the age of 2, according to research from psychologists at The University of Texas at Austin.

Half of the gains that wealthier [children](#) show on tests of [mental ability](#) between 10 months and 2 years of age can be attributed to their genes, the study finds. But children from poorer families, who already lag behind their peers by that age, show almost no improvements that are driven by their [genetic makeup](#).

The study of 750 sets of twins by Assistant Professor Elliot Tucker-Drob does not suggest that children from wealthier families are genetically superior or smarter. They simply have more opportunities to reach their potential.

These findings go to the heart of the age-old debate about whether "nature" or "nurture" is more important to a child's development. They suggest the two work together and that the right environment can help children begin to reach their genetic potentials at a much earlier age than previously thought.

"You can't have environmental contributions to a child's development without genetics. And you can't have genetic contributions without environment," says Tucker-Drob, who is also a research associate in the university's Population Research Center. "Socioeconomic disadvantages suppress children's genetic potentials."

The study, published in the journal [Psychological Science](#), was co-authored by K. Paige Harden of The University of Texas at Austin, Mijke Rhemtulla of The University of Texas at Austin and the University of British Columbia, and Eric Turkheimer and David Fask of the University of Virginia.

The researchers looked at test results from twins who had taken a version of the Bayley Scales of Infant Development at about 10 months and again at about 2 years of age. The test, which is widely used to measure early cognitive ability, asks children to perform such tasks as pulling a string to ring a bell, putting three cubes in a cup and matching pictures.

At 10 months, there was no difference in how the children from different socioeconomic backgrounds performed. By 2 years, children from high socioeconomic background scored significantly higher than those from low socioeconomic backgrounds.

In general, the 2-year-olds from poorer families performed very similarly to one another. That was true among both fraternal and identical twins, suggesting that genetic similarity was unrelated to similarities in cognitive ability. Instead, their environments determine their cognitive success.

Among 2-year-olds from wealthier families, identical twins (who share identical genetic makeups) performed very similarly to one another. But fraternal twins were not as similar — suggesting their different genetic makeups and potentials were already driving their [cognitive abilities](#).

"Our findings suggest that socioeconomic disparities in cognitive development start early," says Tucker-Drob. "For children from poorer homes, genetic influences on changes in cognitive ability were close to zero. For children from wealthier homes, genes accounted for about half

of the variation in cognitive changes."

The study notes that wealthier parents are often able to provide better educational resources and spend more time with their children but does not examine what factors, in particular, help their children reach their genetic potentials. Tucker-Drob is planning follow-up studies to examine that question.

More information: The study can be found at
pss.sagepub.com/content/early/.../392926.full.pdf+html

Provided by University of Texas at Austin

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