

Six things we learned from that massive new study of intelligence genes

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Genes [help shape intelligence](#), period. That's not new news, even though it continues to be a source of dispute for a number of reasons, mostly historical.

It's also not new news that no single gene, or even a small group of genes, govern intelligence. In past years, researchers identified a dozen genes associated with intelligence. Now [a huge meta-analysis of studies](#)

on some 6 ... and 20,000 children has unearthed 40 more. So the total is now 52.

Six takeaways from the massive new study of genes for intelligence, published in *Nature Genetics*.

1. This study was not about genes for "intelligence," however you define "intelligence." It was about genes that influence the ability to do well on standardized tests aimed at quantifying [cognitive abilities](#).

At earlier points in the history of Homo sap, "intelligence" might have meant being able to remember where and what time of year a particular tree would be festooned with fruit, or to read the landscape so as to track prey animals. Today, in much of the world, [intelligence tests](#) are a not-unreasonable surrogate for that squidgy concept, "intelligence."

For one thing, test scores correlate with other measures of success in modern life, such as educational achievement and good health and longevity. For another, let's be practical here, [test](#) scores were one kind of data available to the researchers who were studying another kind of data in their subjects: their genes.

2. There's still quite a way to go. Researchers believe thousands of genes could be involved in intelligence. (Not to mention thousands–millions?–of equally important environmental factors, nearly all of which await discovery.)

The researchers describing their new study think that the current haul of [52 genes accounts for less than 5% of variation in IQ scores](#), Ian Sample tells us at The Guardian. Each gene appears to have only a tiny effect on the ability to do well on intelligence tests.

3. Despite the massive number of people included, data obtained by

merging 13 different past studies, all 78,308 study subjects were of [European descent](#), Stephanie Pappas pointed out at LiveScience. Patterns of intelligence genes will probably be at least somewhat different in other ethnic groups.

4. What do these genes do? Lots of stuff. Not surprisingly, [many are active in the human brain](#). "A couple seem to be involved in the controlled death of neurons that takes place as the brain is developing. But many others were more generally involved in development, either of the brain or other organs," says John Timmer at Ars Technica.

One puzzle is how genes active very early in development can contribute to [test scores](#) decades later. It appears that, to understand human cognitive abilities, we'll need to understand a lot more not just about neurons and the early brain but also about how the environment shapes intellectual development.

5. Some of the genes possess [variants that figure in human disorders—or protect against them](#). "Seven genes for intelligence are also associated with schizophrenia; nine genes also with [body mass index](#), and four genes were also associated with obesity. These three traits show a negative correlation with intelligence. So, a variant of a gene with a positive effect on intelligence has a negative effect on schizophrenia, body mass index, or obesity," first author Suzanne Sniekers told GEN. Some of these genes seem even to discourage smoking or make it easier to quit.

Some genes were associated with the autism spectrum and height. Others seem somewhat protective against Alzheimer's, depression, and neuroticism. "So these clearly aren't "genes for intelligence," per se; they're [genes](#) that influence a broad range of biology, some of which influences how we perform on intelligence tests," Timmer observed.

6. Not likely to be possible for a long time but always fun to ponder: Future consequences of intelligence gene studies might include drugs and maybe other treatments to boost [intelligence](#) or prevent its opposite, Sample speculated. Or what about delaying cognitive aging and identifying learning strategies most suitable for particular students?

And, of course, a topic discussed here just last week: [designer babies](#). With designer IQs.

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