

IQ debate: How much of intelligence is determined by genetics?

[Editor's note: Robert Plomin is deputy director of the MRC Social, Genetic and Developmental Psychiatry Center at King's College London.]

Scientists have investigated this question for more than a century, and the answer is clear: the differences between people on intelligence tests are substantially the result of genetic differences.

But let's unpack that sentence. We are talking about average differences among people and not about individuals. Any one person's intelligence might be blown off course from its genetic potential by, for example, an illness in childhood. By genetic, we mean differences passed from one generation to the next via DNA. But we all share 99.5 percent of our three billion DNA base pairs, so only 15 million DNA differences separate us genetically.

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Genes make a substantial difference, but they are not the whole story. They account for about half of all differences in intelligence among people, so half is not caused by genetic differences, which provides strong support for the importance of environmental factors.

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Researchers are now looking for the genes that contribute to intelligence. In the past few years we have learned that many, perhaps thousands, of genes of small effect are involved. Recent studies of hundreds of thousands of individuals have found genes that explain about 5 percent of the differences among people in intelligence. This is a good start, but it is still a long way from 50 percent.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion, and analysis. Read full, original post: [Is Intelligence Hereditary?](#)