

Study suggests humans are slowly but surely losing intellectual and emotional abilities

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Human intelligence and behavior require optimal functioning of a large number of genes, which requires enormous evolutionary pressures to maintain. A provocative hypothesis published in a recent set of Science and Society pieces published in the Cell Press journal *Trends in Genetics* suggests that we are losing our intellectual and emotional capabilities because the intricate web of genes endowing us with our brain power is particularly susceptible to mutations and that these mutations are not being selected against in our modern society.

"The development of our intellectual abilities and the optimization of thousands of intelligence genes probably occurred in relatively non-verbal, dispersed groups of peoples before our ancestors emerged from Africa," says the papers' author, Dr. Gerald Crabtree, of Stanford University. In this environment, intelligence was critical for survival, and there was likely to be immense [selective pressure](#) acting on the genes required for intellectual development, leading to a peak in [human intelligence](#).

From that point, it's likely that we began to slowly lose ground. With the development of agriculture, came urbanization, which may have weakened the power of selection to weed out mutations leading to [intellectual disabilities](#). Based on calculations of the frequency with which deleterious mutations appear in the [human genome](#) and the assumption that 2000 to 5000 genes are required for intellectual ability, Dr. Crabtree estimates that within 3000 years (about 120 generations) we have all sustained two or more mutations harmful to our intellectual

or emotional stability. Moreover, recent findings from neuroscience suggest that genes involved in [brain function](#) are uniquely susceptible to mutations. Dr. Crabtree argues that the combination of less selective pressure and the large number of easily affected genes is eroding our intellectual and emotional capabilities.

But not to worry. The loss is quite slow, and judging by society's rapid pace of discovery and advancement, future technologies are bound to reveal solutions to the problem. "I think we will know each of the millions of human mutations that can compromise our intellectual function and how each of these mutations interact with each other and other processes as well as environmental influences," says Dr. Crabtree. "At that time, we may be able to magically correct any mutation that has occurred in all cells of any organism at any developmental stage. Thus, the brutish process of natural selection will be unnecessary."

More information: Crabtree et al.: "Our fragile intellect. Part I." *Trends in Genetics*
Crabtree et al.: "Our fragile intellect. Part II." *Trends in Genetics*

Provided by Cell Press

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