

Why is Human Evolution Accelerating?



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For nearly two million years, ancient humans lived across Europe, Africa and Asia. They hunted ancient animals, lived short lives, and slowly adapted bigger brains, better minds, and more powerful forms of communication. Then, sometime around 100,000 years ago, something changed. A new way of life began to build, and a major dispersal of genes from ancient Africans carried biological adaptations to this new lifestyle. Living human populations owe most of their ancestry to this "out of Africa" event.

But this was only the first chapter of the evolution of our species. Human evolution did not stop with the origins of recent populations, it accelerated. Living in new places -- the far north, oceanic islands, tropical forests -- caused people to transform in surprising ways. As they developed agriculture, cities, and empires, they faced new diseases, social pressures, and diets. Most of all, there were a lot more people: more than 100 times as many as in the hunter-gatherer past. And so, human genes in the last few thousand years have changed as much as 100 times faster than ever before.

The study of this very recent human evolution has led to many insights. Some people carry new genes that protect them from chronic diseases, such as Type 2 diabetes, cardiovascular disease, and Alzheimer's. Some of the most obvious elements of human diversity, such as skin and hair pigmentation, milk tolerance, and eye color, are surprisingly young. These genes help to explain why some populations have grown and others have shrunk during human history, giving us new insights about migrations, conquests, and languages.



Unique among paleoanthropologists, John Hawks is an expert both in skeletal anatomy and in genetic analysis. His research on fossil hominids extends from the earliest evidence of human evolution, 7 million years ago, up to the last 10,000 years.

Neandertals have drawn Hawks' interest since the beginning of his career. These people lived before 30,000 years ago in Europe and West Asia, and their disappearance is one of the great mysteries of human prehistory. Hawks' work was the first to apply genetic models to the skeletal evolution of these ancient humans. The recent recovery of actual DNA evidence from Neandertal bones has opened a new window into our understanding of their evolution.

In his current work, Hawks uses information from the human genome to examine the processes of evolution in the last 20,000 years. This recent time period was a time of massive changes in human populations, when people existed in greater numbers, in much larger groups and ultimately cities, began eating new agricultural foods, and suffering from new diseases. Hawks' genetic work has uncovered the connections between this unique human population history and the rate of evolutionary change, finding that our population has been evolving as much as 100 times faster than ever before. In addition, his skeletal work has begun to connect these genetic changes to rapid evolution of human skeletons in Europe, Africa, and China.

Hawks writes prolifically at his own weblog, johnhawks.net. The blog covers all aspects of human evolution, from new fossil discoveries, genetic research and archaeological digs, to open source science. With over a million visits a year, it is one of the most-read independent science websites. His work on Neandertal genetics has been featured in the National Geographic Channel film, "The Neandertal Code." His work on acceleration has been the subject of feature articles in U. S. News, Seed, and Discover magazines, as well as countless print and radio interviews.