

The contented shall inherit the Earth—The glum? Not so much

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The survival of the fittest might just be the survival of the steadfast instead. Having a positive attitude could be evolutionarily advantageous, according to Cornell researchers who simulated generations of evolution in a computational model.

The findings offer scientific support to the ancient philosophical insights from China, Greece and India, which encourage cultivating long-term contentment or [life satisfaction](#) rather than grasping at the fleeting joy of instant gratification, the [researchers](#) said.

"In an evolutionary sense, you have to evaluate your life on the basis of more than what happened just now," said Shimon Edelman, professor of psychology and a co-author of the study. advantageous in a [computational model](#) that simulates evolution.

The "agents" or simulated actors that survived to produce offspring in the researchers' model were the ones that attached more weight to longer-term happiness than to momentary happiness, especially when [food](#) was scarce. They also "remembered" past happiness for a longer period of time than their less-successful counterparts. No matter whether food was abundant or scarce, the agents that had a more positive outlook - attaching more importance to upswings in their situations than to downswings - also were more evolutionarily fit. Their counterparts that gave more attention to short-term joy and a negative attitude died off.

And when agents compared their food resources with their friends', they

did worse when food was abundant.

"It may indeed be advisable, at least under conditions of scarcity or adversity, to focus on longer-term well-being or contentment over momentary pleasures and to be less envious of one's neighbors. Also, in general, it may be wise to mark happy events more than unhappy ones," Edelman said.

The study is based on an integrative [computational framework](#) for understanding the brain/mind, in which minds are seen as bundles of computational processes implemented by embodied and physically and socially situated brains. The computational framework enables researchers to test explicit functional models of emotions.

"Our hypothesis was, giving more weight to longer-terms considerations like life satisfaction, or at least a longer period than just right now, would be advantageous, at least in some conditions," Edelman said.

The researchers wrote an algorithm in which agents with combinations of traits foraged for food in four types of simulated terrain over the course of six experiments. The traits included positive or negative outlooks, an emphasis on either short-term (hedonic) or long-term (eudaimonic) happiness, and a tendency or an aversion to comparing performance to that of friends. Each type of terrain had a different distribution of food, from a random and scarce pattern to a more clustered and abundant distribution.

Each environment was populated with 400 agents in each generation for 40 generations and repeated each of the six experiments 10 times.

After a set number of cycles, each agent in the top half of performers was allowed to produce offspring that formed the next generation of agents. The bottom 50 percent was terminated. In this way, the

researchers assessed the effectiveness of traits by tracking their prevalence in the population over evolutionary time.

The researchers also found the only situation in which those with a more conservative outlook had a higher level of evolutionary fitness was a harsh environment, in which poison was distributed along with food.

What does the study say for those who seek a clear path to happiness?

Know thyself, Edelman said.

"Instead of relying blindly on advice from self-help authors about how to be happy, get to know yourself - what your brain/mind is like, how it works and how it interacts with the world - and you'll be in a better position to decide for yourself," Edelman said.

The study "Between Pleasure and Contentment: Evolutionary Dynamics of Some Possible Parameters of Happiness," was published May 4 in *PLOS ONE*. Edelman's co-author, Yue Gao, is a doctoral candidate in the field of computer science.

Provided by Cornell University

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