

Near-death experiences, a survival strategy ?

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Near-death experiences are known from all parts of the world, various times and numerous cultural backgrounds. This universality suggests they may have a biological origin and purpose, but exactly what this could be has been largely unexplored.

A new study conducted jointly by the University of Copenhagen (Denmark) and the University of Liege (Belgium) and published in *Brain Communications* shows how near-death experiences in humans may have arisen from evolutionary mechanisms.

"Adhering to a preregistered protocol, we investigated the hypothesis that thanatosis is the evolutionary origin of near-death experiences," says Daniel Kondziella, a neurologist from Rigshospitalet, Copenhagen University Hospital.

When attacked by a predator, as a last resort defense mechanism, animals can feign death to improve their chances of survival, one example being the opossum. This phenomenon is termed thanatosis, also known as death-feigning or tonic immobility. "As a survival strategy," Kondziella adds, "thanatosis is probably as old as the fight-or-flight response."

Charlotte Martial, neuropsychologist from the Coma Science Group at ULiège explains: "We first show that thanatosis is a highly preserved [survival strategy](#) occurring at all major nodes in a cladogram ranging from insects to fish, reptiles, birds and mammals, including humans. We then show that humans under attack by big animals such as lions or [grizzly bears](#), human predators such as sexual offenders, and 'modern' predators such as cars in traffic accidents can experience both thanatosis and near-death experiences. Furthermore, we show that the phenomenology and the effects of thanatosis and near-death experiences overlap."

Steven Laureys, neurologist and head of GIGA Consciousness research unit and Centre du Cerveau (ULiège, CHU Liège) is excited: "In this paper, we build a line of evidence suggesting that thanatosis is the evolutionary foundation of near-death experiences and that their shared biological purpose is the benefit of survival."

The authors propose that the acquisition of language enabled humans to transform these events from relatively stereotyped death-feigning under predatory attacks into the rich perceptions that form near-death experiences and extend to non-predatory situations.

"Of note, the proposed cerebral mechanisms behind death-feigning are not unlike those that have been suggested to induce near-death experiences, including intrusion of rapid eye movement sleep into wakefulness," Kondziella explains. "This further strengthens the idea that [evolutionary mechanisms](#) are an important piece of information needed to develop a complete biological framework for near-death experiences."

No previous work has tried to provide such a phylogenetic basis. Laureys concludes that "this may also be the first time we can assign a biological purpose to near-death experiences, which would be the benefit of survival."

Kondziella adds that "after all, near-death experiences are by definition events that are always survived, without exception."

More information: Costanza Peinkhofer et al, The evolutionary origin of near-death experiences: a systematic investigation, *Brain Communications* (2021). [DOI: 10.1093/braincomms/fcab132](https://doi.org/10.1093/braincomms/fcab132)

Provided by University de Liege

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