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Evolution and fear-fainting

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Dear Sirs,

In evolutionary terms, when, where and why did our brains acquire the vasovagal reflex and the ability to faint?

Bracha et al. [1] theorize that during combat back in Paleolithic times, women and children (for whom fighting was not a good option) could protect themselves (and pass on their genes) by falling to the ground and playing dead. Thus, in frightening situations fainting triggered by fear-circuitry activation had an evolutionary advantage.

An opposing theory postulates that playing dead by fainting protected humans from being eaten by predators [3]. However, simply playing dead by fainting is not

enough to prevent a hungry animal from seeing you as a meal, since large carnivores also scavenge. While they do not eat decomposing carcasses, they do eat fresh dead flesh [2].

One animal that has perfected a very different form of faking death is the opossum. Opossums fake rigor mortis by peripherally vasoconstricting, dropping skin temperature, appearing pale, and tensing voluntary muscles. However, they are tachycardic and hyper alert, responses that are essentially the *opposite* of vasovagal syncope. The opossum's Oscar-worthy act is completed by the peri-anal glands secreting a greenish liquid with a rotting-flesh smell, and nasal and oral frothy secretions resembling rabies [4]. The fear response of the opossum is a *decomposing carcass* act, off-putting to even the hungriest of predators. It is not a vasovagal syncope. We believe the vasovagal reflex first evolved in the brains of Paleolithic humans.

References

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