The neurobiological basis of moral reasoning, which was vividly brought to scientific attention by the famous case of Phineas Gage, has attracted considerable interest from contemporary cognitive neuroscience. At the University of Iowa, we have been pursuing a program of research built around systematic investigations of modern-day “Phineas Gage”-type patients — neurological subjects with focal damage to the ventromedial prefrontal cortex (vmPFC). Our research has demonstrated a fundamental role for emotion in many facets of moral reasoning. Deprived of emotion, patients with vmPFC damage make decisions that are myopic and not in their overall long-term best interests, although, oddly enough, they also make decisions that are more utilitarian and driven by outcome rather than intention.

Daniel Tranel received his doctorate in clinical psychology from the University of Iowa in 1982. He completed post-doctoral training at Iowa under Arthur Benton and Antonio Damasio, and he joined the faculty in the Department of Neurology in 1986. Tranel serves as director of the Divisions of Cognitive Neuroscience and of Neuropsychology, and as chair of the Neuroscience doctoral program at Iowa. He studies the neural basis of higher-order cognition and behavior, using the lesion method and functional neuroimaging in human participants. His work has been funded by the National Institute of Mental Health, the National Institute on Drug Abuse, the National Institute of Health, the National Institute of Neurological Disorders and Strokes, and the National Institute on Deafness and Other Communication Disorders. He has published over 300 scholarly articles, including several in Science, Nature, and Nature Neuroscience.

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