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## Neuroscientists Work Their Magic

Two neuroscientists at Barrow Neurological Institute at St. Joseph's Hospital and Medical Center are turning magic tricks into science. Stephen Macknik, Ph.D., director of the Laboratory of Behavioral Neurophysiology; and Susana Martinez-Conde, Ph.D., director of the Laboratory of Visual Neuroscience; are working with world-famous magicians to discover the brain's mechanisms underlying attention and awareness.

The collaboration between the magicians and scientists in a recent study have led to new insights and may benefit the fields of education and medical rehabilitation by using magical techniques to help treat ADHD, Alzheimer's disease and brain trauma.

"Magicians have developed powerful cognitive principles and intuitions about attention and awareness that are not understood scientifically," says Dr. Martinez-Conde. "We've been able to learn more about cognition from magicians who have developed illusions that trick audiences."

The scientists have studied how magicians mix humor into their performances because a laughing audience is unable to pay attention to the magician's hand. The study also determined that there are various levels of misdirection that magicians use to trick an audience. These insights, which were previously unknown to scientists, suggest that humor and misdirection can help manipulate levels of attention.

The magicians working with Drs. Macknik and Martinez-Conde include James Randi (The Amazing Randi), Teller (of Penn & Teller), Apollo Robbins, Mac King and John Thomson (The Great Tomsoni).

"The collaboration on this project has led to many exciting insights to help us understand the brain's underlying cognition," says Dr. Martinez-Conde.

Note:

Drs. Macknik and Martinez-Conde have been featured on the cover of *Scientific American* and in the *Wall Street Journal* for their research on fixational eye movements.

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