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How magic informs neuroscience

Although neuroscience has been empirically studied for more than a century, there are certain human traditions that have been studied for even longer. Among these are magic and other sleights of the hand.

Attention and awareness in stage magic: turning tricks into research, a recent article in *Nature Reviews Neuroscience*, attempts to elucidate a few ways that neuroscientists can use the long-studied art of magic in their experiments. The authors explain visual and cognitive illusions, but perhaps the most informative section is where they discuss some principles of magic.

The first principle is that every motion on stage must have a reason. The observer's brain is finely tuned to detect any sort of trickery, so if the magician moves his hand on top of his head for no particular reason, the observer's attention will pique. However, if the motion is easily explainable, the observer may quickly forget that it was even made. This technique suggests some hypotheses about how memories are stored and how our attention is allocated based on surprise.

The next principle is priming and apparent repetition. An example of this is a juggler who repeatedly tosses balls into the air. When she stops tossing the ball, we expect to see it go into the air again, so we are fooled into believing that the ball has vanished. This is sort of similar to the [broken escalator phenomenon](#), which is already an area of study by neuroscientists.

The last principle of magic is to never do the same trick twice. For example, in the classic "man in a gorilla suit" [video](#), viewers are much more likely to see the gorilla the second time through, even if they are not told the specifics of the experiment. The reasons for this phenomenon are less obvious but since it seems to be wide-spread, it is worth further research. This was an enjoyable article, and more of its kind looking at other fields and showing their use to neuroscience would be a net positive.

Reference

Macknik SL, King M, Randi J, Robbins A, Teller, J Thompson, S Martinez-Conde 2008 Attention and awareness in stage magic: turning tricks into research. *Nature Reviews Neuroscience* Online Publication. doi:10.1038/nrn2473. (It's ungated, check it out.)

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