

Feel the Noise

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National Geographic:

If you've ever clenched up at the sound of nails on a chalkboard, or felt a pleasant chill when listening to an opera soprano, then you have an intuitive sense of the way our brains sometimes mix information from our senses. For the latest issue of *Nautilus* magazine I wrote a story about a woman whose brain mixes more than most, allowing her to feel many types of sounds on her skin.

Over the past decade or so, neuroscientists have revamped their view of how the brain processes sensory information. According to the traditional model, the cortex, or outer layers of the brain, processes only one sense at a time. For example, the primary visual cortex at the back of the head was thought to process only input from the eyes, while the auditory cortex above the ears dealt with information from the ears and the somatosensory cortex near the top of the head took in signals from the skin. But a growing number of studies have found that these cortical areas actually integrate information from many senses at once.

One of the most fascinating examples of this line of work, just published in *Psychological Science*, took advantage of a technology called transcranial direct current stimulation, or tDCS. This tool essentially gives researchers a safe, non-invasive way to activate specific parts of the human brain. Pretty wild, right? Here's how it works. Researchers place two electrodes in various positions on a volunteer's scalp. A small electric current passes between the electrodes, stimulating the neurons underneath.

Read the whole story: [*National Geographic*](#)