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Ben-Gurion University Of The Negev Researchers Help Find That Hypnosis Can Induce Synesthesia

Hypnosis can induce "synesthetic" experiences - where one sense triggers the involuntary use of another - within an average brain, according to a new study in the journal *Psychological Science*, the premiere publication of the Association for Psychological Society.

The findings suggests that people with synesthesia, contrary to popular belief, do not necessarily have extra connections in their brain; rather, their brains may simply do more 'cross talking' which can be induced by changing inhibitory processes in the average brain.

The research, "Induced cross-modal synesthetic experience without abnormal neuronal connections," was conducted by an international group that includes Cohen Kadosh, previously a doctoral student at Ben-Gurion University of the Negev under the supervision of Prof. Avishai Henik from BGU's Department of Psychology and now at the University College London (UCL); Andres Catena from the University of Granada, Spain; Vincent Walsh from the UCL; and Luis J. Fuentes from University of Murcia, Spain.

People living with synesthesia (known as synesthetes) experience abnormal interactions between the senses. Digit-color synesthesia, for instance, will experience certain numbers in specific colors (for example, they might experience the number seven as red). A possible reason put forward for this phenomenon is the existence of extra connections between brain areas in synesthesia, but this new study suggests otherwise.

To explore the alternative theory of more cross talk (disinhibition) between brain areas in synesthetes, Cohen Kadosh and colleagues used posthypnotic suggestion to show that people who are not synesthetes can be induced to have synesthetic experiences.

After inducing digit-color synesthesia, the volunteers reported similar experiences to those undergone by real synesthetes in their everyday life. For example, one participant described her experience while under posthypnotic suggestion as "When I'm walking on the street, the car registration numbers, if those numbers are on the registration, I see them in those colors." Moreover, hypnotized participants failed a catch test which was also failed by real synesthetes: when subjects were hypnotized to experience seven as red (for example) they could not detect the number when a black seven was presented on a red background.

Cohen Kadosh explains: "Our study shows that hypnosis can induce synesthetic experiences in people, suggesting that extra brain connections are not needed to experience cross-sensory interactions and that it is a change in inhibitory processes - more cross talk within the brain - that causes these experiences. This takes us one step closer to understanding the causes of synesthesia and abnormal cross-brain interactions."

The research project was funded by a Marie Curie Intra-European Fellowship; the Royal Society; Israel Science Foundation; Junta de Andalucía and the Spanish Ministry of Education and Science, and the Spanish Ministry of Science and Innovation and Fundación Séneca.

Video of the project can be seen online at <http://uk.youtube.com/watch?v=pS7RHD3rXtA> or <http://visualcognition.net/>

About Ben-Gurion University of the Negev and American Associates. Ben-Gurion University of the Negev is a world-renowned institute of research and higher learning with campuses in Beer-Sheva, Sede Boqer and Eilat in Israel's southern desert. It is a university with a conscience, where the highest academic standards are integrated with community involvement, committed to sustainable development of the Negev. Founded in 1972, American Associates, Ben-Gurion University of the Negev plays a vital role in helping the University fulfill its unique responsibility to develop the Negev, reach out to its local community and its Arab neighbors, and share its expertise with the world.