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IIT Delhi and AIIMS Delhi uncover neural mechanisms of Yoga Nidra in groundbreaking study

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Mumbai: A pioneering study conducted by researchers from IIT Delhi, AIIMS Delhi, and Mahajan Imaging Delhi has shed light on the neural mechanisms underlying Yoga Nidra, a practice designed to induce deep relaxation while maintaining heightened awareness. The study, supported by the Department of Science and Technology, India, under the Science and Technology for Yoga and Meditation (SATYAM) program, was carried out at the National Resource Centre for Value Education in Engineering (NRCVEE), IIT Delhi.

The study, titled "Functional connectivity changes in meditators and novices during Yoga Nidra practice" and published in the prestigious international journal Scientific Reports, involved two groups: 30 meditators with an average of 3000 hours of experience in meditation and/or yogic practices, and 31 matched novice controls. The findings revealed that the Default Mode Network (DMN), a group of interconnected brain regions active when not focused on the outside world, behaves differently in experienced meditators compared to novices. This difference in brain communication patterns helps understand how Yoga Nidra modulates brain functions, promoting deep relaxation while maintaining awareness.

The study also found a strong correlation between the amount of meditation and yoga practice participants had and the reduction in DMN connectivity during Yoga Nidra. This suggests that experienced meditators may have reduced mind-wandering compared to novices, leading to changes in DMN connectivity. Additionally, both experienced meditators and novices showed activity in brain regions involved in processing language, movements, emotions, and sleep control while listening to guided instructions during Yoga Nidra.

Prof. Rahul Garg from IIT Delhi, a Co-PI in the study, noted that according to Yogic texts, Yoga Nidra helps bring "samskaras" buried in the deep subconscious mind to the surface, eventually helping to release them and promote health. The activation of brain areas involved in processing emotions is a significant finding in this context, potentially explaining why Yoga Nidra has been found effective in reducing anxiety in certain studies. Dr. Vaibhav Tripathi, currently a Postdoctoral Fellow at Harvard University, highlighted that the study allows for the identification of both state and trait level changes in the default mode connectivity of experienced meditators, which could be used to quantify the ability to meditate and help practitioners track the depth of their meditative practice.