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Neurofeedback: an effective placebo treatment?

Dr. Amir Raz, a senior investigator at the Lady Davis Institute at the Jewish General Hospital, argues that, although neurofeedback seems to work, the therapeutic benefits from it largely stem from placebo effects rather than the brain-based mechanisms that practitioners suggest.

“Some people suffering from attention deficit disorders, depression, and insomnia, among other conditions, have turned to neurofeedback out of desperation,” Dr. Raz, who holds a Canada Research Chair in the Cognitive Neuroscience of Attention in the Faculty of Medicine at McGill University, explains. “Of the thousands of papers on the subject, barely half a dozen include adequate placebo controls and implement a double-blind procedure—the gold standard for clinical research. Of those that do, the intervention and the placebo condition affect behaviour comparably. In other words, only sparse data exist to support claims of brain mechanisms in neurofeedback”.

Neurofeedback is a non-invasive procedure where participants watch their brain activity in real-time. This technique promises to give patients control of a particular brain signal and, in turn, improve related symptoms. Very little evidence, however, suggests that regulating a particular brain signal leads to the expected changes in behaviour.

In a paper published in *Brain*, Dr. Raz and his doctoral student Robert Thibault contend that neurofeedback derives its benefits from placebo effects. They highlight that, even if patients receive neurofeedback from a brain other than their own, they improve in the same way as they would when they receive genuine neurofeedback.

People who invest substantial time and money in this treatment modality and have been connected to impressive looking equipment are highly motivated to experience benefits—and in turn, they often do feel better, the authors argue. Patients really do manage to modify behaviour, but not necessarily because of the professed attributes of the treatment, itself.

Neurofeedback is highly profitable, with a proliferation of clinics offering treatment that can cost anywhere from \$4,000 to \$10,000 for between a dozen and forty sessions. The field is largely free of regulatory controls. Many patients turn to neurofeedback after conventional medicine has not provided adequate relief. The procedure is also being marketed to people seeking greater concentration and to athletes looking to enhance their performance.

“While almost six decades of research has focused on understanding the brain-based mechanisms behind neurofeedback, very few studies focus on the underlying psychology at play.” Thibault goes on: “meanwhile, it appears that placebo effects likely drive the major benefits of this contentious therapeutic option”.

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