

Neurofeedback

I. Definition:

is a form of biofeedback that trains patients to regulate their brainwave activity. A therapist attaches sensors to the scalp to monitor brain activity displayed on a computer screen.

Through games, music, or videos, the system rewards patients when they produce desired brainwave patterns.

Over multiple sessions, patients can learn to spend more time in “ideal” brain states. For speech-related conditions, this may help regulate the neural networks involved in language processing, motor planning, and attention.

II. Who may benefit :

- ✓ Children and adults with developmental speech delays
- ✓ Patients with dysarthria following stroke or injury
- ✓ Individuals with stuttering or cluttering
- ✓ Those with childhood apraxia of speech
- ✓ Patients with aphasia recovering language function
- ✓ Children with ADHD have affected communication skills
- ✓ Select individuals with autism spectrum disorders

III. Science's view:

Small-scale studies have shown positive outcomes for speech-related disorders, particularly for attention and motor planning issues that affect communication. A 2017 study in *Frontiers in Human Neuroscience* found neurofeedback improved language recovery in post-stroke aphasia patients when combined with traditional speech therapy.

However, the evidence remains limited. The American Speech-Language-Hearing Association has not issued formal guidance on neurofeedback for speech disorders, reflecting the need for larger, controlled studies. Research suggests approximately 30% of individuals show minimal response to neurofeedback, meaning it's not effective for everyone.

For autism spectrum disorders specifically, experts disagree on efficacy, with some professionals cautioning against overpromising results based on current evidence.

IV. Safety Considerations:

Neurofeedback is generally considered safe with few side effects. Some patients report temporary fatigue or headaches after initial sessions.