

Neurofeedback Quick Reference Card

Clinical Guide for Trauma Therapists

What is Neurofeedback?

Neurofeedback (NFB), also known as EEG biofeedback, is a non-invasive technique using brain/computer interface technology that permits individuals to learn to change the pattern of their electroencephalogram (EEG) through operant conditioning.

Core Principle: The brain learns to produce desired frequencies when rewarded with visual and auditory feedback, leveraging neuroplasticity to literally rewire the brain.

Brain Wave Frequencies

Wave	Frequency	State	Clinical Notes
Delta	0.5-4 Hz	Deep sleep, unconscious	Elevated delta may indicate dissociation or head trauma
Theta	4-8 Hz	Twilight, creativity, memory	3-6 Hz often elevated in trauma survivors (dissociation)
Alpha	8-12 Hz	Relaxation, bridge state	Right frontal alpha training reduces trauma symptoms
SMR	12-15 Hz	Calm, focused attention	Foundation protocol for trauma; calms nervous system
Beta	15-30 Hz	Active thinking, alertness	High beta (18-30 Hz) = anxiety, hypervigilance
Gamma	30-100+ Hz	Peak focus, integration	Less commonly targeted in trauma treatment

Common Training Protocols

SMR Training (12-15 Hz)

- **Sites:** C3, Cz, C4 (central strip)
- **Indications:** Anxiety, hyperarousal, sleep difficulties
- **Mechanism:** Increases sensorimotor rhythm for calm, focused attention

Alpha Enhancement (8-12 Hz)

- **Sites:** Pz, O1, O2 (posterior regions)
- **Indications:** Depression, emotional dysregulation, trauma symptoms
- **Mechanism:** Strengthens alpha activity for improved emotion regulation

Alpha-Theta Training

- **Sites:** Pz (posterior midline)
- **Indications:** PTSD, addiction, complex trauma
- **Mechanism:** Aims for 7 Hz crossovers for trauma processing

Beta Reduction (18-30 Hz)

- **Sites:** Based on QEEG assessment
 - **Indications:** Anxiety, PTSD hyperarousal, panic
 - **Mechanism:** Inhibits excessive high beta activity
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Complex Trauma Modifications

1. Extended Stabilization Phase

- Begin with SMR training at C4
- May require 20-40 sessions of stabilization alone

2. Slower Pace

- Use shorter training segments (2-3 minutes)
- Monitor for signs of overwhelm or dissociation

3. Careful Protocol Selection

- Avoid alpha-theta training until significant stabilization
- Start with SMR and low beta protocols

4. Integration with Psychotherapy

- NFB builds capacity; therapy processes content
- Combine with trauma-informed psychotherapy

5. Attention to Dissociation

- Monitor for elevated 3-6 Hz theta

- Adjust protocols to reduce dissociative states
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Session Language Examples

Introducing Neurofeedback

“Neurofeedback is a way of training your brain to function more efficiently. We’ll be using sensors on your scalp to measure your brain’s electrical activity.”

“Think of it like a mirror for your brain - you’ll get feedback when your brain produces the patterns we’re looking for.”

Working with Trauma Clients

“We’re going to start slowly and focus on calming your nervous system first. We won’t rush into anything.”

“If at any point you feel overwhelmed, we can stop. You’re always in control here.”

Contraindications

Absolute

- Active seizure disorder (without neurologist supervision)
- Unstable medical conditions
- Active psychosis

Relative

- Severe dissociative disorders (requires specialized training)
 - Active substance abuse
 - Certain medications affecting EEG
 - Implanted electronic devices
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Key Research

- **van der Kolk et al. (2016):** RCT showing significant PTSD symptom reduction
 - **Gapen et al. (2016):** Positive results in therapy-resistant complex PTSD
 - **Kleutsch et al. (2014):** Increased DMN activity and calmness after one session
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Resources

Professional Organizations

- **BCIA:** www.bcia.org (Certification)
- **ISNR:** www.isnr.org (Research)
- **AAPB:** www.aapb.org (Professional Association)

Key Texts

- Fisher, S.F. (2014). *Neurofeedback in the Treatment of Developmental Trauma*
 - Hamlin, E. (2018). “Growing the Evidence Base for Neurofeedback”
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Part of Integrative Trauma Treatment Resources Curated by Linda Curran, BCPC, LPC, CACD, CCPD