

# Neurofeedback and Biofeedback for Mood and Anxiety Disorders: A Review

## Context

Mood and anxiety disorders — such as post-traumatic stress disorder, generalized anxiety disorder, and depression — are psychiatric conditions that interfere with daily functioning. Approximately 5.7% of Canadians 18 years and older are affected by generalized anxiety disorder, 6.8% by post-traumatic stress disorder, and 4.8% by major depression. Treatment options for these disorders include both pharmacological and non-pharmacological interventions.

## Technology

Neurofeedback and biofeedback are non-pharmacological treatments for mood and anxiety disorders designed to increase patients' coping skills. During neurofeedback, electrical sensors are placed on the scalp to monitor brain waves, with the aim of helping an individual learn to modify and normalize brain activity. During biofeedback, electrical sensors are placed on various places of the body to monitor physiological functions such as respiration, heart rate, muscle tension, skin temperature, and blood pressure, so that an individual can learn to affect these physiological functions.

## Issue

A review of the clinical effectiveness and safety of neurofeedback and biofeedback for the treatment of mood and anxiety disorders, as well as of related evidence-based guidelines, will help inform decisions regarding the use of these interventions.

## Methods

A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

## Key Messages

- Biofeedback, such as heart rate variability biofeedback, may decrease the symptoms of post-traumatic stress disorder or depression (based on limited evidence).
- No information was found on the use of either biofeedback or neurofeedback to treat generalized anxiety disorder.
- No information was found on the use of neurofeedback for the treatment of any mood or anxiety disorder.
- No evidence-based guidelines were found for the use of biofeedback or neurofeedback to treat mood and anxiety disorders.

## Results

The literature search identified 175 citations, with no additional articles identified from other sources. Of these, 3 met the criteria for inclusion in this review — 1 systematic review, 1 randomized controlled trial, and 1 observational study.

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