

Nervous System Regulation

Understanding the Brain, Trauma, and Tools for Healing

1. The Nervous System and the Brain

The nervous system is the body's **safety and communication system**. Its main job is to detect danger or safety and respond in a way that helps us survive.

Main Parts

- **Central Nervous System (CNS):** Brain and spinal cord
- **Peripheral Nervous System (PNS):** Connects the brain to the body

Within the PNS is the **autonomic nervous system**, which controls automatic responses like breathing, heart rate, and muscle tension.

2. The Autonomic Nervous System

Sympathetic Nervous System (Fight or Flight)

- Activates during perceived danger
- Increases alertness and energy
- Helpful short-term, stressful long-term

Parasympathetic Nervous System (Rest and Digest)

- Activates when safety is sensed
- Slows breathing and heart rate
- Supports digestion, rest, and emotional balance

Nervous system regulation tools help shift the body from survival mode back into balance.

3. Brain Areas Involved in Regulation

Amygdala – The Alarm

- Detects threat
- Activates stress responses
- Can become overactive after trauma

Hippocampus – Memory and Time

- Helps tell past from present
- Trauma can make the brain react as if old danger is happening now

Prefrontal Cortex – Thinking and Choice

- Reasoning, emotional control, and decision-making
 - Helps calm the amygdala
 - Often goes offline during stress
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4. Childhood Trauma and Neural Pathways

Childhood trauma happens when stress or overwhelm occurs **without enough safety or support**. The brain adapts by strengthening survival pathways.

How Trauma Affects the Brain

- Stress pathways become more active
- The nervous system may stay on high alert
- Calm and safety pathways may be underused

These changes are **adaptive**, not failures. The brain learned how to survive.

5. Neuroplasticity: How Healing Happens

The brain is changeable throughout life. This is called **neuroplasticity**.

- Repeated safe experiences build new neural pathways
 - Regulation tools teach the nervous system that safety exists now
 - Gentle, consistent practice reshapes the brain over time
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6. Nervous System Regulation Tools

These tools work **bottom-up (body to brain)** and **top-down (brain to body)** to restore balance and safety.

1. Gratitude Practice

(Strengthening Safety Pathways in the Brain)

Gratitude activates areas of the brain linked to perspective, connection, and emotional regulation.

How It Helps

- Engages the prefrontal cortex
- Reduces threat signaling from the amygdala
- Builds neural pathways for calm awareness

Practice

- Name **three things you are grateful for**
- Small or neutral things count
- Say them silently or out loud

This practice gently shifts the brain from survival to presence.

2. Grounding Through the Senses

(Bringing the Nervous System Into the Present)

Grounding reconnects the brain to the here and now.

How It Helps

- Signals safety to the nervous system
- Reduces overwhelm or dissociation
- Engages the body directly

Practice

- **Sight:** Notice colors or shapes
- **Touch:** Feel your feet, clothing, or an object
- **Sound:** Listen for nearby or distant sounds
- **Smell:** Notice any scent
- **Taste:** Sip water or notice your mouth

Move slowly and with curiosity.

3. Guided Meditation or Hypnosis

(Teaching the Nervous System Calm States)

Guided practices use focused attention and relaxation to support regulation.

How It Helps

- Activates the parasympathetic nervous system
- Allows the brain to practice calm and safety
- Supports emotional and physical awareness

Guidelines

- Always voluntary and safe
- You remain aware and in control
- Short sessions are effective

Examples include body scans, calming imagery, and breath-focused guidance.

4. Vibration and Sound Healing

(Regulation Through Rhythm and Frequency)

Sound and vibration directly affect the nervous system.

Examples

- Sacred drumming
- Sound bowls
- Gentle music
- Singing, humming, or toning

How It Helps

- Rhythm supports regulation of heart rate and breath
- Vibration soothes the vagus nerve
- Singing and humming encourage calm states

Your own voice is a powerful regulation tool.

5. Movement

(Releasing Stored Stress From the Body)

Stress is physical as well as mental. Movement helps complete stress responses.

How It Helps

- Releases tension
- Improves emotional regulation
- Supports nervous system balance

Gentle Options

- Walking
- Stretching
- Swaying
- Dancing
- Shaking out limbs

Movement should feel supportive, not forced.

6. Rest

(Integration and Repair)

Rest allows the nervous system and brain to integrate and recover.

How It Helps

- Lowers stress hormones
- Supports brain healing
- Restores emotional balance

Forms of Rest

- Sleep
- Quiet time
- Lying down
- Low-stimulation activities

Rest is a vital part of nervous system regulation, not a reward.

7. Final Perspective

Strong reactions are signs of a nervous system that learned to survive. Regulation is not about forcing calm—it is about **adding safety**.

Through understanding, repetition, and gentle practice, the brain can build new neural pathways that support balance, resilience, and well-being.

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