

Practice Guide for Clinicians

Talking about nervous system regulation without overstating Polyvagal science.

Why this guide matters:

Polyvagal Theory is widely used in trauma therapy, trauma-informed practice, and clinical training. Many practitioners have found its language helpful for explaining nervous system responses to safety and threat.

All the same, advances in neuroscience have questioned aspects of the biological explanations proposed by Polyvagal Theory. Recent critiques argue that some of the physiological claims about vagal pathways, heart rate variability, and evolutionary mechanisms are not supported by current evidence.

For clinicians, this raises an important practical question: how can we continue to talk about nervous system regulation in trauma work while maintaining scientific accuracy? These findings do not negate the need to highlight body-based responses and discussions around regulation. The priority is to ensure that explanations are evidence-informed and transparent about what is known and what is theoretical.

Key principles for clinicians

1. Focus on well-supported concepts:

A large body of research supports the idea that trauma affects physiological regulation. Clinicians can confidently discuss:

- autonomic nervous system activation
- stress responses (fight, flight, freeze)
- dysregulation following trauma
- the role of safety and predictability

- the importance of relational co-regulation
- the connection between body states and emotional experience

These concepts are supported by research across neuroscience, developmental psychology and trauma studies.

2. Avoid presenting simplified models as settled neuroscience

Simplified models can be useful for psychoeducation, but they should not be presented as accurate biological explanations. It is accepted that our nervous system has different ways of responding to safety and threat.

However, it is important to highlight that these responses involve several interacting systems in the brain and body. This approach preserves the helpful clinical message while avoiding over-simplification.

3. Distinguish metaphor from mechanism

In therapy, metaphors can help people understand complex internal experiences.

However, clinicians should distinguish between:

- therapeutic language
- helpful explanations that support understanding and self-compassion
- scientific mechanisms
- precise physiological explanations that may be more complex and still evolving.

When discussing nervous system models with clients or trainees, it can be helpful to acknowledge this distinction explicitly.

4. Emphasise safety and regulation rather than specific neural pathways

In trauma-informed practice, the most important principles stand:

- creating psychological safety
- supporting emotional and physiological regulation

- fostering relational safety
- enabling people to recognise and respond to body signals.

These principles do not depend on any single neurobiological theory.

5. Encourage scientific humility

Trauma science is evolving rapidly. Many aspects of nervous system regulation are still being investigated.

Clinicians can model scientific integrity and celebrate emerging evidence by acknowledging that:

- our understanding of the nervous system continues to develop
- different models may explain regulation in different ways
- new evidence may refine existing theories.