



— YOUTUBE RESEARCH SUMMARY

Research Summary: Nervous System Healing

As featured in Dr. Kenny Mittelstadt's video: [5 Signs Your Nervous System Is Healing \(Not Failing\)](#)

— Research Context

This week's topic explores how nervous system recovery isn't just about feeling calmer. It's about how the autonomic system, the part of your nervous system that runs below conscious awareness and governs everything from heart rate to digestion to sleep, actually reorganizes itself over time. What most people experience as setbacks during that process are often the opposite: coherent signals that the system's regulatory architecture is shifting. Below are the key studies that help connect these dots.

— Key Findings from the Research

STUDY 1 • PMID 40722730

Heart rate variability, or HRV, is the variation in time between consecutive heartbeats. A higher, healthier HRV doesn't mean a slow, unchanging heart rate. It means a heart rate that responds fluidly to what the body needs and recovers quickly when the demand passes. Researchers found that reduced HRV was associated with poorer outcomes, while increasing HRV was one of the strongest predictors of recovery. A rigid, low-variability system isn't a calm system. It's a stuck one. More fluctuation, more emotional peaks, more energy variation may be the first sign your system is regaining the ability to move, which is exactly what the data shows recovery looks like in its early stages.

STUDY 2 • PMID 34603634

Researchers studying traumatic stress and the body's internal clock found that sleep disruption, changes in stress hormones like cortisol, and autonomic instability don't appear randomly or independently. They show up together as a connected pattern because the systems governing sleep, hormone cycling, and autonomic regulation are deeply entangled. When one shifts, the others shift with it. These aren't separate problems requiring separate solutions. The research suggests they reflect a single underlying event: the regulatory architecture reorganizing itself. About 4 in 10 people with significant autonomic disruption show this kind of multi-system pattern simultaneously, which means if you're experiencing it, you're in well-documented territory.

STUDY 3 • PMID 37561977

Researchers applying allostatic load theory, a framework for understanding the accumulated physiological cost of chronic stress over time, found that how individuals respond to that burden varies substantially. The factors shaping recovery include how a person perceives stress, what coping resources they have access to, and their individual history. Predicting who recovers and on what timeline remains an open question in the research. This means comparing your timeline to someone else's, or to a recovery arc a practitioner laid out in advance, is not a useful measure. The accumulated load each person carries is shaped by their entire history. The research supports patience with individual variation as a physiologically accurate position.



— Functional Medicine Connections

Your autonomic nervous system functions as your body's communication network, constantly sending and receiving signals between your brain, your gut, your cardiovascular system, your immune response, and your hormonal rhythms. When that network runs at a high-load baseline for an extended period, every system it connects to adapts to that baseline. Sleep patterns, digestive function, menstrual cycles, appetite, and immune tone all calibrate around a nervous system that has been in a prolonged state of high alert.

When that baseline begins to shift, through consistent work, through changes in the perceived load, through time, those connected systems don't stay still. They shift too. What looks like a cluster of new, unrelated symptoms during that transition is most likely a single coherent event: old compensatory patterns dissolving as a new regulatory baseline begins to establish itself.

The HRV research adds a specific frame to this. The metric that actually tracks recovery isn't average calm. It's variability. A system that was previously rigid and stuck at a fixed high-load state will, as it heals, begin to show more movement, more emotional range, more fluctuation in energy, and more somatic signals that had previously been set aside in service of staying functional. Allostatic load, the running total of accumulated physiological burden, is the bridge concept here. It explains why recovery doesn't happen in a straight line, why some people feel harder moments in the middle of genuine progress, and why the timeline belongs to the individual rather than to any protocol.

— Practical Reflections & Takeaways

Looking back over the past several months, have there been moments you interpreted as setbacks that might look different through this lens? Not to rewrite your experience, but to consider whether the signal was telling you something different than the story you gave it at the time.

If you've been using feeling calm as your primary measure of progress, what would it mean to shift that measure toward range and flexibility instead? Your lived experience, the patterns you've tracked, the moments that didn't fit what you expected, the things that shifted before they made sense, is meaningful data. It deserves a frame that makes it readable.

— References

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Alamoudi, F. A., George, T. J., Horgas, A. L., et al. (2023). Application of allostatic load theory in cancer management and treatment outcomes. *JCO Oncology Practice*. <https://doi.org/10.1200/OP.23.00108>. PMID: 37561977.

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