

WHAT ARE THE MISSING VARIABLES IN STRENGTH TRAINING FOR THE HIGHLY STRESSED WOMAN?

A Comparative Analysis of Remote Heart Rate Variability (HRV) and Exercise Adherence in Neurotypical and Neurodivergent Profiles

THE POPULATION

Women navigating **chronic stress, life overload, and perimenopausal transitions** experience a profound clinical blind spot. Standard protocols completely ignore the **cumulative physical cost** of sustained environmental stress and cognitive masking. When a system is chronically overwhelmed, the body perceives threat, resulting in **deep autonomic fatigue**, involuntary protective tissue bracing, and exceptionally high dropout rates.

BACKGROUND

The case for training women differently is well-established. **Hormonal physiology, life stage, and cycle phases** deeply impact physical capacity. Yet, highly stressed and neurodivergent women are still burning out and dropping out of standard, rigid fitness models.

To resolve this, training parameters must **adapt to a woman's real-time baseline capacity** rather than forcing her body to conform to standard, non-regulated training volumes.

THE PREFRONTAL CORTEX

Under **acute stress**, the prefrontal cortex hyperactivates. Under **chronic load**, it completely loses capacity. For highly stressed perimenopausal women, where **dropping oestrogen directly worsens executive function**. These states cycle continuously without recovery^{1,2}. Adding standard physical training load into an already exhausted cognitive system **compounds the internal threat response** rather than building long-term capacity.

***They are not inconsistent.
The framework was never built
for them.***



THE FRAMEWORK : 3 INTEGRATED LENSES

Cognitive & Lived Experience

Evaluating the profound, lifelong energy cost of ADHD masking, sensory management, and executive fatigue.³

Nervous System Regulation

Assessing real-time autonomic down-regulation remotely before any training load is applied.

Hormonal Health

Mapping how perimenopausal oestrogen declines directly destabilise autonomic regulation and shift training recovery.



Key Principle

The Body Cannot Build Strength in a System That Perceives Threat.

METHODOLOGY

The Remote Somatic Audit: A three-domain, 12-week longitudinal protocol conducted 100% remotely to optimise participant compliance:

- **1. Objective Biometrics:** Continuous sleep HRV tracking as a direct proxy for autonomic nervous system resilience, mapping distinct recovery thresholds via commercial wearables.
- **2. Subjective Somatic Mapping:** Weekly digital logging of localised fascial tension using a standardised visual body map and clinical bracing scales.
- **3. Contextual Screening:** Baseline tracking of lifestyle load variables, menopausal timelines, and baseline neurodivergence screening (ASRS and AQ).

IMPLICATIONS

- **Autonomic Assessment:** Analyses nervous system readiness via baseline HRV metrics before applying physical load.
- **Cohort Profiling:** Maps distinct recovery boundaries using HRV biometric trends and ASRS/AQ scores.
- **Adaptive Coaching:** Transitions from rigid workout programmes to fluid, bio-regulated training.
- **Digital Scalability:** Translates subjective stress profiles into trackable tools for Femtech platforms.



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FULL REFERENCE LIST

FURTHER RESEARCH

- **Somatic Audit Validation:** Multi-centre longitudinal studies tracking remote HRV and self-reported tissue bracing.
- **Adherence Metrics:** Comparing long-term programme consistency between neurotypical and neurodivergent cohorts under chronic stress.
- **Femtech Development:** Designing scalable, self-directed logging tools and interactive visual body maps.
- **Collaborations Sought:** Active partnerships with researchers in neurodiversity, menopausal health, and remote health technologies.