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Paper 5
The Body That Thinks: Sensory Processing, Autonomic Dysregulation, and the Embodied Experience of Level 1 Autism Spectrum Disorder

Bruce H Knox*

Independent Scholar, New Zealand

***Corresponding Author**
Bruce H Knox, Independent Scholar, New Zealand.

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Abstract

Autism Spectrum Disorder (ASD) is typically conceptualised as a cognitive and behavioural condition; however, emerging evidence and lived experience suggest that it is fundamentally embodied. This paper integrates clinical literature with detailed lived experience to examine the sensory, autonomic, and emotional dimensions of Level 1 ASD. The findings demonstrate that sensory amplification and autonomic dysregulation are central to the experience of overwhelm, shaping cognition, emotional regulation, and functional capacity. A model of embodied cascade is presented, illustrating how environmental stimuli trigger physiological responses that subsequently influence cognitive and behavioural outcomes. The paper argues for a shift toward integrative clinical frameworks that recognise ASD as a whole-body condition, requiring coordinated cognitive, emotional, and physiological interventions.

This paper is also expressed in the terms of musical lyrics, with the composition and presentation for you to listen to. Please click on the following link, turn the page, and click on the bottom right-hand corner.
https://heyzine.com/flip-book/e584dfed88.html

Keywords: Autism Spectrum Disorder, Sensory Processing, Dysautonomia, Interoception, Embodiment, Neurodivergence, Emotional Regulation

1. Introduction

Autism Spectrum Disorder has traditionally been described in terms of observable behaviours, including social communication differences and restricted or repetitive patterns of activity. While these descriptions are clinically useful, they capture only part of the condition. Increasingly, research and lived experience indicate that ASD is also deeply embodied, involving sensory processing, interoception, and autonomic nervous system regulation.

This shift reflects a broader movement in neuroscience toward recognising the integration of brain and body in shaping cognition, emotion, and behaviour.

This paper presents a medical narrative grounded in lived experience, arguing that ASD is best understood not as a purely cognitive condition, but as an integrated mind–body system in which sensory input, physiological state, and cognitive processing are inseparable.

2. Sensory Amplification: Experiencing the World at Volume

The sensory environment is not experienced passively. For many individuals with ASD, it is amplified.

"Life hums louder… a rhythm I partake."

This reflects sensory hyper-responsivity, where auditory, visual, tactile, or multisensory input is processed with increased intensity.

Common features include:

- Heightened sensitivity to sound

- Visual overstimulation
- Tactile discomfort
- Difficulty filtering competing inputs

This amplification alters baseline neurological state, increasing cognitive load and reducing tolerance for additional demands.

3. Interoception: The Internal Sensory Landscape

Beyond external stimuli lies the internal sensory world—interoception, the perception of physiological states such as heart rate, breathing, and internal tension.

Individuals with ASD may experience:
- Heightened interoceptive awareness
- Reduced clarity in interpreting bodily signals
- Strong coupling between physiological and emotional states

The lived narrative reflects this:
"My heart races… the body speaks before the mind can respond."

This illustrates a key clinical insight: physiology may precede cognition. Emotional experience is often shaped by the interpretation of bodily signals already in motion.

4. Autonomic Dysregulation: The Misfiring System

The autonomic nervous system regulates fundamental physiological processes, including cardiovascular function, respiration, and stress response.

In ASD, this system may show patterns of dysregulation, including:
- Increased sympathetic activation
- Reduced parasympathetic recovery
- Greater variability in physiological response

The lived experience captures this instability:
"A delicate dance… regulation slipping beyond control."

When autonomic regulation becomes unstable, the body may respond disproportionately to relatively minor triggers. Recovery may also be prolonged, resulting in extended periods of reduced functional capacity.

5. The Embodied Cascade Model

ASD can be conceptualised as an embodied cascade, in which events unfold sequentially across sensory, physiological, cognitive, and emotional domains.

Stage 1: Sensory Trigger
Environmental input initiates the sequence.
Stage 2: Sensory Amplification
Input intensity exceeds manageable thresholds.
Stage 3: Autonomic Activation
Physiological arousal increases (e.g., heart rate, breathing changes).
Stage 4: Interoceptive Overload
Internal bodily signals dominate awareness.
Stage 5: Cognitive Narrowing
Executive function reduces; flexibility declines.
Stage 6: Emotional Dysregulation
Emotional responses intensify rapidly.
Stage 7: Functional Shutdown or Overwhelm
"Living life in pieces… never quite the same."

This cascade explains why responses may appear disproportionate. The visible behaviour reflects cumulative system activation rather than a single trigger.

6. Emotional Regulation as a Physiological Process

Emotional dysregulation in ASD is often body-mediated rather than purely cognitive.
Physiological arousal:
- Precedes emotional awareness
- Shapes perception of events
- Limits access to regulation strategies

This explains why cognitive strategies alone may be insufficient during periods of high arousal.

7. Recovery: The Essential Phase

Recovery is a necessary phase of the regulatory cycle.

Following overload:
- Sensory input must be reduced
- Physiological state must stabilise
- Cognitive capacity must be restored

Recovery should be understood not as withdrawal, but as functional restoration.

8. Patient Voice

It is not just in my mind—it is in my body.

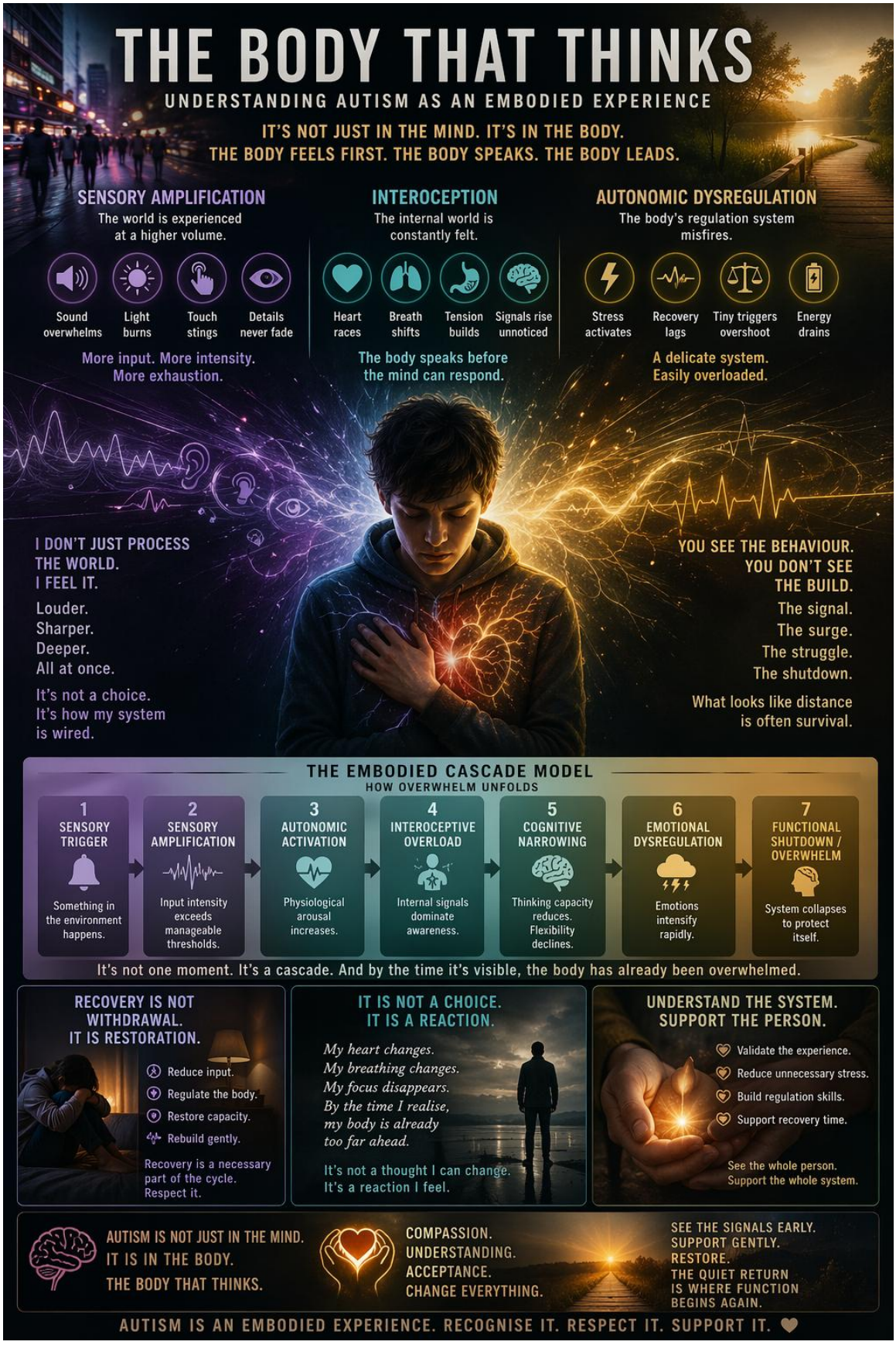
When something overwhelms me, it is not a thought I can change. It is a reaction I feel.

My heart changes.
My breathing changes.
My focus disappears.

By the time I realise what is happening, my body is already engaged.

Others see the reaction.
They do not see the build-up.

Managing my environment is not avoidance.
It is regulation.


THE BODY THAT THINKS
UNDERSTANDING AUTISM AS AN EMBODIED EXPERIENCE
IT'S NOT JUST IN THE MIND. IT'S IN THE BODY.
THE BODY FEELS FIRST. THE BODY SPEAKS. THE BODY LEADS.
SENSORY AMPLIFICATION
The world is experienced at a higher volume.
Sound overwhelms
Light burns
Touch stings
Details never fade
More input. More intensity. More exhaustion.
INTEROCEPTION
The internal world is constantly felt.
Heart races
Breath shifts
Tension builds
Signals rise unnoticed
The body speaks before the mind can respond.
AUTONOMIC DYSREGULATION
The body's regulation system misfires.
Stress activates
Recovery lags
Tiny triggers overshoot
Energy drains
A delicate system. Easily overloaded.
I DON'T JUST PROCESS THE WORLD. I FEEL IT.
Louder.
Sharper.
Deeper.
All at once.
It's not a choice. It's how my system is wired.
YOU SEE THE BEHAVIOUR. YOU DON'T SEE THE BUILD.
The signal.
The surge.
The struggle.
The shutdown.
What looks like distance is often survival.
THE EMBODIED CASCADE MODEL
HOW OVERWHELM UNFOLDS
1 SENSORY TRIGGER
Something in the environment happens.
2 SENSORY AMPLIFICATION
Input intensity exceeds manageable thresholds.
3 AUTONOMIC ACTIVATION
Physiological arousal increases.
4 INTEROCEPTIVE OVERLOAD
Internal signals dominate awareness.
5 COGNITIVE NARROWING
Thinking capacity reduces. Flexibility declines.
6 EMOTIONAL DYSREGULATION
Emotions intensify rapidly.
7 FUNCTIONAL SHUTDOWN / OVERWHELM
System collapses to protect itself.
It's not one moment. It's a cascade. And by the time it's visible, the body has already been overwhelmed.
RECOVERY IS NOT WITHDRAWAL. IT IS RESTORATION.
Reduce input.
Regulate the body.
Restore capacity.
Rebuild gently.
Recovery is a necessary part of the cycle. Respect it.
IT IS NOT A CHOICE. IT IS A REACTION.
My heart changes.
My breathing changes.
My focus disappears.
By the time I realise, my body is already too far ahead.
It's not a thought I can change. It's a reaction I feel.
UNDERSTAND THE SYSTEM. SUPPORT THE PERSON.
Validate the experience.
Reduce unnecessary stress.
Build regulation skills.
Support recovery time.
See the whole person. Support the whole system.
AUTISM IS NOT JUST IN THE MIND.
IT IS IN THE BODY.
THE BODY THAT THINKS.
COMPASSION.
UNDERSTANDING.
ACCEPTANCE.
CHANGE EVERYTHING.
SEE THE SIGNALS EARLY.
SUPPORT GENTLY.
RESTORE.
THE QUIET RETURN IS WHERE FUNCTION BEGINS AGAIN.
AUTISM IS AN EMBODIED EXPERIENCE. RECOGNISE IT. RESPECT IT. SUPPORT IT.

9. Clinical Implications

9.1. Recognising ASD as Embodied

Assessment should include sensory, interoceptive, and physiological dimensions.

9.2. Integrating Physiological Interventions

Effective support includes breathing regulation, sensory modulation, and environmental control.

9.3. Moving Beyond Cognitive-Only Models

Interventions must integrate body and mind.

9.4. Early Identification of Cascade Stages

Recognising early signals allows prevention of full escalation.

10. Key Learning Points for Clinicians

- ASD is a whole-body condition
- Sensory amplification is central to experience
- Autonomic dysregulation drives many outcomes
- Emotional responses are often physiologically mediated
- Recovery is essential for function
- Integrated approaches are required

11. Conclusion

Level 1 Autism Spectrum Disorder cannot be fully understood without recognising its embodied nature.

The lived experience reveals a system in which:

- Sensation shapes physiology
- Physiology influences cognition
- Cognition directs behaviour

Understanding this integration allows for more accurate clinical insight and more effective support [1-15].

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