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Developmental Timing of Somatic and Autonomic Dysregulation Predicts Distinct Neurobehavioral Phenotypes and Developmental Trajectories

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PROPOSED 2–4-YEAR WINDOW · HEIGHTENED AWARENESS

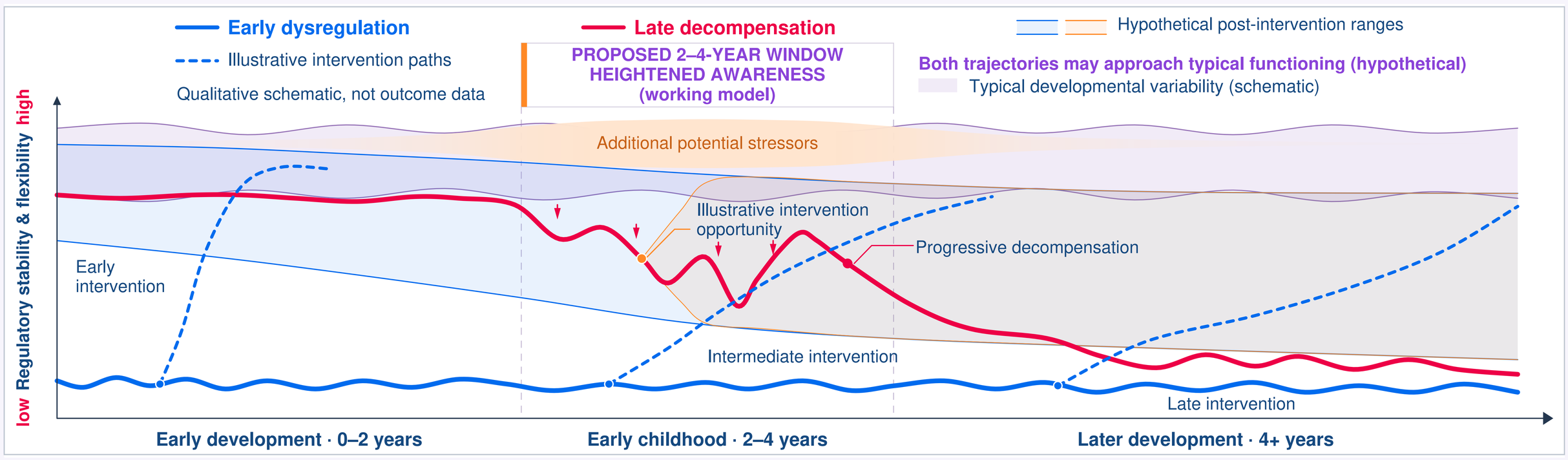
Atypical neurodevelopment at any age: actively seek signs of somatic disruption and/or autonomic dysregulation; if present, consider SPAD as a possibility.

SPAD = somato-psychic autonomic dysregulation · Proposed sensitive/awareness window: watch for emerging regression; prompt recognition may allow timely intervention (working model).

WORKING MODEL: TWO PROPOSED DEVELOPMENTAL TRAJECTORIES

SOMATIC DISRUPTION (AxBb) — Impaired somatic integrity; often with axial dysfunction.
→ **e.g. DPI** — Distorted Proprioceptive Information; inconsistent afferent input from the body.
→ **SAD** — Somato-autonomic dysregulation; response to DPI.
→ **SPAD** — Somato-psychic autonomic dysregulation; higher-order regulation/ mental functioning.
→ **SPS Somato-psychic syndrome** — psADHD/psASD/psDLD Anxiety/depression (MADD-like symptoms) ps = pseudo or -like phenotype

AxBb + DPI → SAD → SPAD → SPS · Dynamically interacting system; not a rigid linear chain



1. EARLY DYSREGULATION

Early vulnerability

EARLY SIGNS	DPI + SAD	CONTINUOUS COURSE	SPAD → SPS PHENOTYPES
Atypical crying Sleep/feeding Reflux Low tone/asymmetry Sensory over-response Handling intolerance	DPI + SAD from early development Without effective compensation	Developmental difficulties persist Atypical psychomotor development Low frustration tolerance	Impulsivity/ self-stimulation psADHD-like (psASD-like) Anxiety/ depression (MADD-like)

Further early signs: abnormal/asymmetric postures; ocular asymmetry; arching; congenital/neonatal torticollis; positional plagiocephaly.

2. LATE DECOMPENSATION

Previously (sub)compensated child

EARLY LIFE	LATENT PHASE	SENSITIVE/ AWARENESS PERIOD	DECLINE SPAD → SPS
Apparently compensated during infancy Adequate sleep/feeding Sometimes lower reactivity	DPI + SAD may remain compensated within available regulatory capacity	2–4 years Monitor somatic, autonomic and developmental warning signs	Regression/ stagnation Speech/social Hypersensitivity psDLD/psASD (psADHD-like) Anxiety/ depression (MADD-like)

Regulatory capacity exceeded → gradual decompensation or regression
Document injuries, infections and acute reactions after some vaccines.

Working model: proposed mechanisms, sensitive/awareness period, clinical contexts and treatment scenarios were not evaluated in this pilot.

RETROSPECTIVE PILOT RESULTS · EXPLORATORY (n = 22)

STUDY & METHODS

113 Clinical cohort Evaluated at 2–6 y

22 Pilot analysis Included cases

Retrospective structured histories; sufficient baseline information required.

Onset: first consistent somatic and/or autonomic disturbance, independent of later diagnosis.

Phenotypes: dominant clinical presentation.

RESULTS · ONSET TIMING

<12 months — 12/22 · 54.5%
Typically continuous regulatory disturbance.

12–24 months — 6/22 · 27.3%
Mixed course: regression or gradual emergence.

24–48 months — 4/22 · 18.2%
Emerging motor-postural/autonomic dysfunction.

No analyzed cases had onset after 48 months.

CLINICAL PATTERNS

REGRESSION
Earlier somatic/autonomic disturbance preceded reported neurodevelopmental regression.

VERTICALIZATION
Onset coincided with verticalization in a subset.

ONSET & CLINICAL FEATURES
More often associated with:
Earlier onset: regulatory/attention features.
Later onset: motor-postural/mixed presentations.

Exploratory pilot (n = 22); longitudinal validation needed.
Histories suggested clinical recognition occurred after early signs; delay not quantified.

Ongoing analysis: cohort of 726 children and adolescents with SPAD manifestations (age at diagnosis: 0–19 years).

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DPI Distorted Proprioceptive Information
SPAD Somato-psychic autonomic dysregulation
SPS Somato-psychic syndrome
ps Pseudo or -like phenotype (poster notation)
Somato-Psychic Pathway (SPP)

PAB Persistent Afferent Bias
SAD Somato-autonomic dysregulation (poster term)
Persistent Afferent Bias (PAB)

AxB Axial Block
AxBb Multiple Axial Blocks
Axial Block (AxB)

AxO Axial Organ
Axial Organ (AxO)

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