

# The Importance of Being Stable and Balanced – A Therapy Inspired Network Approach for the Development of the Self



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## Therapists report:

- Autism is a *Disorder of the Self*.
- Extreme tuning of sensory, motor and emotion in Autism.
- Fluctuating Autistic state
- Autistic behavior due to aversive experience
- With efficient treatment spontaneity, humor, creativity, TOM can develop
- Also healthy people's regulation patterns greatly effect individual temperament, behavior and personality.

## Neuroscientists report:

- Extreme brain tuning observed in autistic rats and humans
- Many genes associates with autism and developmental disorders are implicated with information processing of the brain.
- Brain connectivity resembles WWW: Any two areas are only <math><2</math> synapses away!
- Amygdala is a central hub like Google
- Brain is a 'complex system' with non linear dynamics.
- Emotion, Sensory, Motor, Memory systems are highly interconnected

## Taken together:

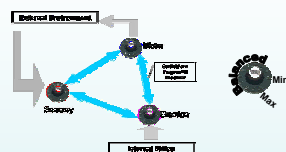
- Identify efficient up to date therapies
- Use their work, observations, intuitions and insights as raw DATA, hints and clues for scientific thinking.
- Translate this to scientific language
- construct model to generate predictions and ideas for experiments.

## Selected references

- The child with special needs: encouraging intellectual and emotional growth . S. Greenspan and S. Wieder, Merloyd Lawrence Publications
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- Competition between brain networks mediates behavioral variability, Clare Kelly et al., NeuroImage, 39, 527-37, 2008
- Self representation in nervous systems, P. Churchland, Science 296, 2002
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## Model for rebuilding of the self:

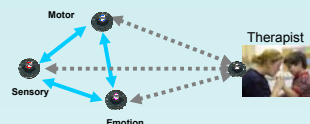
1. Reconnecting and **simultaneously** tuning and stabilizing of Emotion, Sensory, Motor systems



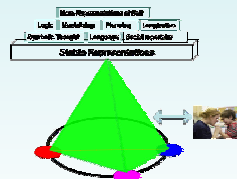
2. Once balanced, system can allocate resources of **attention** and **motivation** to exploration and interactions with outside world.



3. The role of the therapist or caregiver is to serve as **external regulators**



4. A regulated system can allow re-construction of **stable** representations and meta-representations which form the core of a **stable self**.



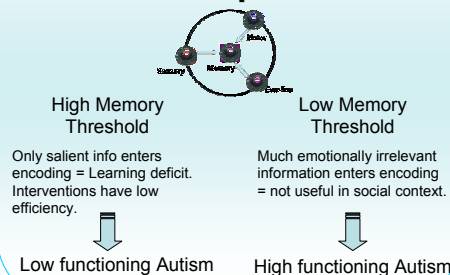
5. Fluctuating or unbalanced information = unstable encoding of representations

→ information **unavailable** for efficient retrieval and generalization

→ A stable sense of self cannot develop.

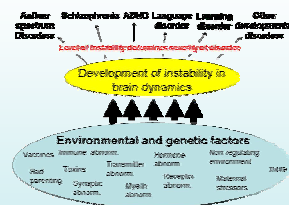
→ Theory of mind cannot develop properly.

## Extending the model to account for whole autistic spectrum



## Model Predictions:

•Many pathways lead to instability.



•Most mental states on one continuous scale of stability level



•Markers of instability can predict risk of pathology

- Extreme sensory/motor/emotion tuning
- abnormal sleep/wake/eating/body temp/bowel sensitivity and regulation
- more

## Rethinking basics:

•**Stability, Balance, Regulation** are core of self

•**Sensory, Motor and Emotion** are its building blocks

•**Stable self** requires **stable representations**

•**Autism and 'typical' development** are not distinct – **continuum of self**.

•**regulating interactions** crucial for development

## Implications

•Aetiology of developmental disorders should focus on **abnormal brain dynamics**.

•Stable switching of default network (attention) depends on general stability.

•Emotion regulation depends on sensory and motor regulation and vice versa.

•Amygdala instability ≈ Google instability...

•The goal of efficient therapy is restoring stability and regulation at many levels

•A good therapist/parent/educator is a regulated regulator

•Why non-regulating environments can shift "normal" children to pathological end

•Markers of instability can enable early screening of vulnerable children

•Direct intervention in memory system should increase responders to therapy