Self-Regulation: A Preventative Health Approach

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Secondary Altriciality

• Portman came up with term in 1940s
• Stephen J. Gould made it famous in ‘Human Babies as Embryos’
• **Altrical**: large litters of undeveloped helpless offspring
• **Precocial**: few, well-developed offspring capable of taking care of themselves at birth
• in some ways humans are precocial, but infant is born 6 months prematurely and is helpless at birth
• For this reason Portmann called babies secondarily altricial
Consequences of Secondary Altriciality

- Post-natal plasticity enables child’s brain to attune to environment in which she is born
- Synaptic growth in the first 2 years is massive: 700 new synapses every single second
- Most of this growth is random
- Huge over-production of synapses that, at 8 months, start to be ‘pruned’ back
- ‘Cells that fire together get wired together’
What are the Primary Systems Present at Birth?

- Sensory systems are all functional but not integrated with one another
- Primitive reflexes but no conscious motor control
- Reactive ‘self-regulating’ mechanisms (e.g., falling asleep)
- Primitive emotion circuits (Fear, Anger, Love, Curiosity)
What is Missing?

• Integration between sensory systems and sensory-motor system
• mechanisms to regulate arousal states
• mechanisms to regulate emotional reactions to stimuli

How does a child acquire these mechanisms?
- Sound
- Vision
- Smell
- Touch
- Proprioception
- Taste
• The primary caregiver serves as an ‘external brain’, regulating the baby’s physiological states.
• It is by being regulated that a child develops the ability to self-regulate.
• Any factors – biological, social, environmental – that constrict dyadic interaction have downstream consequences on self-regulation.
Regulating a Baby

• Caregiver up-regulates and down-regulates a baby, according to the demands of the situation
  • e.g., up-regulates a baby to feed
  • Down-regulates a baby to sleep
• Every baby is different: e.g., what kind of touch or vocalization a baby finds soothing varies from baby to baby
• Caregivers must read their baby’s cues to regulate her
Stages of Arousal

Inhibition
1. Asleep
2. Drowsy
3. Hypoalert
4. Calmly focused and Alert
5. Hyperalert

Activation
6. Flooded
What is Self-Regulation?

- How a child responds to a stressor and recovers from the effort
- All behaviors (except flooded) are self-regulating, but some impede social interaction and learning
- Five levels of self-regulation reflect five primary domains of stressors
Five Levels of Self-Regulation

1. Arousal: Environmental stressors (e.g., visual, auditory)
2. Emotion: Modulate negative and positive emotions
3. Cognitive: Sustain and switch attention
4. Social: Master the skills of co-regulation
5. Prosocial: Development of empathy
What Sorts of Stressors?

- Visual stimuli, odors, ambient temperature, noise are all stressors for a child
- Negative emotions, anxiety
- Problems, sustained attention
- Social situations
- Putting someone else’s needs ahead of oneself
The more a child must deal with stressors, the less they can monitor their internal bodily states (e.g., hunger, thirst, tiredness, body temperature).

The less they monitor their internal needs, the more this exacerbates their feelings of anxiety, stress.

Children under 5 times as much stress as the 1930s (Twenge 2010): hence dramatic increases in both mental and physical domains.
Arousal Regulation

• Arousal regulation is a function of Sympathetic Nervous System *activation* (e.g., adrenalin) and Parasympathetic Nervous System *inhibition* (e.g., cortisol)

• In effect, putting your foot on the gas or the brakes in order to deal with a stressor
Optimal Regulation

• Children vary considerably in their ability to make gradual and rapid changes in response to a stressor and recover back to baseline

• Some children are constantly pushing too hard on the gas or the brake pedal, jumping erratically from one level to another, or not hard enough
• If child subjected to too much stress, the result can be an allostatic load condition:
  • Sudden transitions between energy states
  • Prolonged over-activation of SNS and/or PNS
  • Inappropriate activation of SNS or PNS (i.e., in situations not warranting a heightened stress response)
  • Diminished ability to return to baseline after activation of the stress response
Consequence of Over-Exposure to Stress

• Disrupts development of the brain (HPA pathway)
• Child becomes chronically hypoaroused or hyperaroused
• Child has difficulty staying focused and alert, which is the ideal state for learning to occur
Chronic Hypoarousal

- Might be because of problems reaching a threshold to activate awareness of a stimulus
- or because this serves as a defensive mechanism because child finds certain stimuli or experiences overwhelming;
- Or because child has difficulty differentiating internal signals
- Child finds it soothing to be in a hypoaroused state
Chronic Hyperarousal

- Child might be highly sensitive to certain kinds of stimulus (internal or external)
- He might be sensory craving and need to maintain a certain level of activity in order to feel fully aware of his body or to register certain kinds of sensation
- He might be experiencing too many stressors and his parasympathetic system is in constant overdrive
• marked tendency to equate problems in self-regulation with poor self-control
• The more hypo- or hyperaroused a child, the more vulnerable to shutting down or impulsivity
• Children that are chronically tuned out, hyperactive, aggressive, are not somehow ‘weak’, but are experiencing too much stress
A Change in Attitudes is Imperative

• No child is lazy, stupid, or bad, but if we do the wrong things we can make a child lazy, stupid, or bad

• We need individualized attention to help parents understand their child’s needs and how to enhance ability to stay calmly focused and alert

• We need to enhance self-regulation in parents and even communities as well
Video
