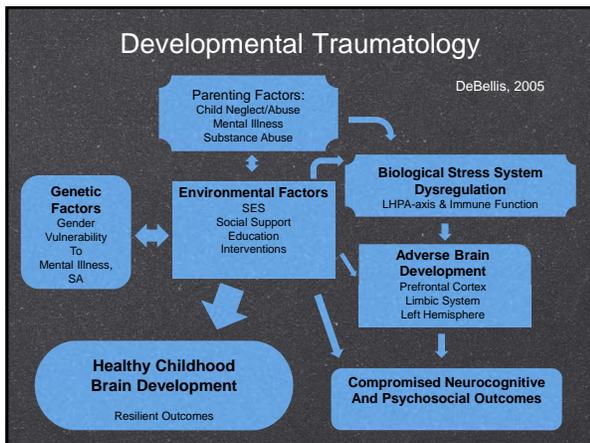
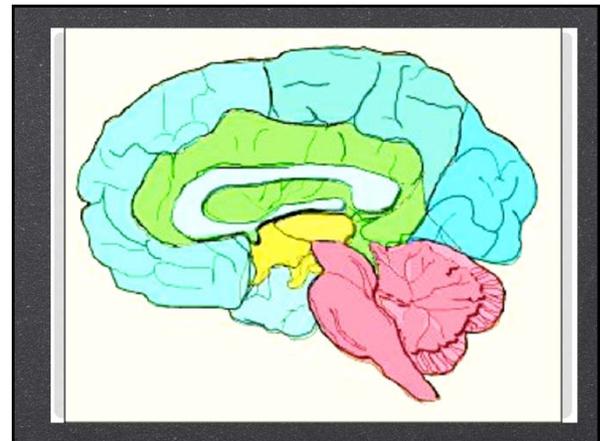




Current Perspectives in Neurobiology:
Working with Juveniles with Sexual Behavior Problems



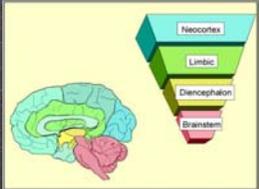
- Developmental Insults Leading to Behavior Problems**
- 🔗 emotional abuse (59%)
 - 🔗 loss of important emotional relationship (56%)
 - 🔗 impaired caregivers (47%)
 - 🔗 domestic violence (46%)
 - 🔗 sexual abuse (41%)
 - 🔗 neglect (34%)
 - 🔗 physical abuse (28%)
- NCTSN, 2003



Cumulative harm

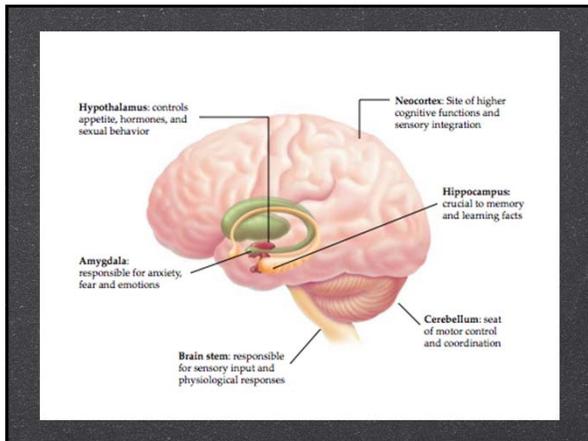
Neurodevelopment and Trauma

- 🔗 Increased limbic irritability
- 🔗 Decrease left hemisphere development
- 🔗 Decrease left/right hemisphere integration
- 🔗 Limited activation of cerebellar vermis in self-regulation



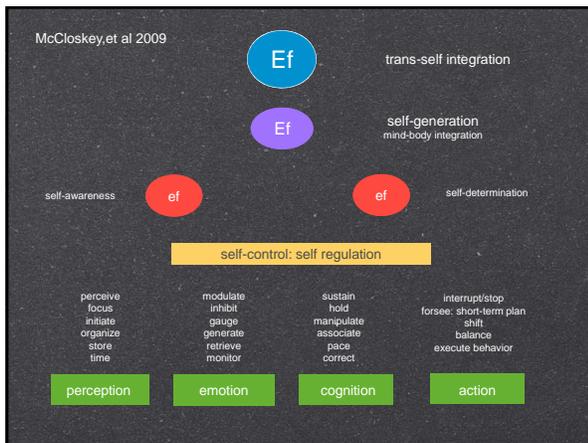
The Human Brain: The brain can be divided into four interconnected areas: brainstem, diencephalon, limbic and neocortex. The complexity of structure, cellular organization and function increases from the lower, most simple area, the brainstem to the most complex, the neocortex.

Teicher, et al 2002



Attachment and Brain Function

- Positive experiences of attunement develop neurophysiological mechanisms that allow for:
 - ✓ emotional regulation
 - ✓ responsiveness to social cues
 - ✓ evaluation of meaning

Interventions for EF Difficulties

- For Developing Internal Control
 - increasing awareness of internal cues (e.g. biofeedback, body mapping)
 - teach specific executive skills like self-regulation, problem-solving, focused attention (e.g. yoga, tai chi, BrainWise, DBT, Lumosity, sensory integration)

Interventions for EF Difficulties

- Interventions for External Control
 - structure the environment
 - structure time
 - externalize cues for processing
 - provide coaching
 - provide feedback
 - identify and provide rewards

Brain Plasticity

- 2 approaches to neural change
 - 1) direct intervention and stimulation in specific brain or skill area
 - 2) change in environmental experiences



Direct intervention

- 🔧 specific and repeated skill training
- 🔧 attunement/attachment
- 🔧 biofeedback
- 🔧 neuro-feedback
- 🔧 organization and problem solving
- 🔧 psychopharmacology

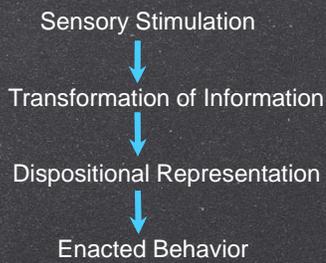


Environmental

- 🔧 structure
- 🔧 stability
- 🔧 stimuli
- 🔧 schedule
- 🔧 supports
- 🔧 ritual
- 🔧 resources



Transformations



Crittenden, 2005

Intervention



Intervention Approaches

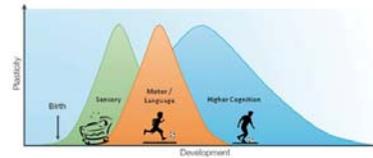
- 🔧 Be guided by neurodevelopmental process
- 🔧 Consider "Bottom-Up" before "Top Down"
- 🔧 Environmental and Specific
- 🔧 Persistent/Regular stimulation of pathway



Developmental

- Target interventions to early developmental obstacles and then move forward
 - > safety, attunement, attachment, self-regulation, motor skills, social skills, cognitive skills, moral development
 - > resource: Child Development and Trauma Guide www.secasa.com.au

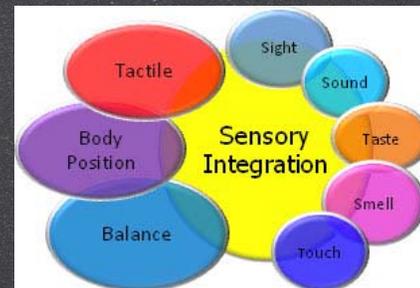
Fig 1: Windows of plasticity in brain development



Adapted from Minichiello, V. A. (2005). Critical periods of plasticity in the central nervous system. *Neuron*, 45(1), 87-98.

Bottom-Up

- Sensory based
 - Environmental: light, sounds, smells
 - ▶ Examples: change lighting to activate or calm; use music to modify mood and attention; use lavender or other smells to help with calming or attention



Bottom-Up

- Sensory Interventions
 - Body based:
 - ▶ deep pressure (massage, weighted blankets, other use of touch)
 - ▶ movement (rocking, spinning, walking, Brain Gym)
 - ▶ proprioception: ("power sitting", exercise bands)

Right-hemisphere activated

- use of rhyme, rhythm, music, in conveying information
- use of movement, art, music to identify and convey emotions
- using role-play and psycho-drama for education, examining cognitive assumptions, exploring trauma, developing new narrative

Top down



Top-Down

- Examining cognitive assumptions
- Setting realistic goals
- Cognitive processing of traumatic events
- Developing a new narrative
- Prevention planning