HOW DO WE BECOME SOCIALLY SKILLED?

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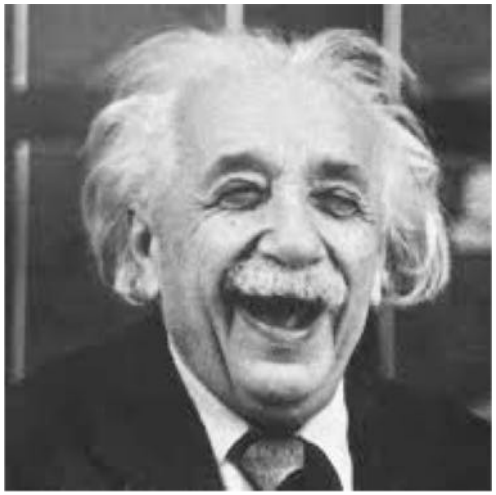
COGS 1 S19

Why study development?

"explaining [physics] is child's play
compared to [explaining] child's play"

– Albert Einstein



The rest of the psychological and behavioral sciences are algebra

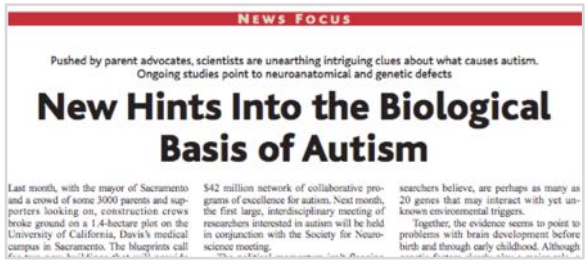
The study of development is calculus

Modeling the trajectory of complex, multi-factorial phenotypes

Why study development?

Real-world importance

- Better treatment for individuals w/ disabilities
- Potential to improve education & parenting
- Improve lives of infants/children/adol. at risk


NEWS FOCUS

Pushed by parent advocates, scientists are unearthing intriguing clues about what causes autism. Ongoing studies point to neuroanatomical and genetic defects

New Hints Into the Biological Basis of Autism

Last month, with the mayor of Sacramento and a crowd of some 3000 parents and supporters looking on, construction crews broke ground on a 1.4-hectare plot on the University of California, Davis's medical campus in Sacramento. The blueprints call

$42 million network of collaborative programs of excellence for autism. Next month, the first large, interdisciplinary meeting of researchers interested in autism will be held in conjunction with the Society for Neuroscience meeting.

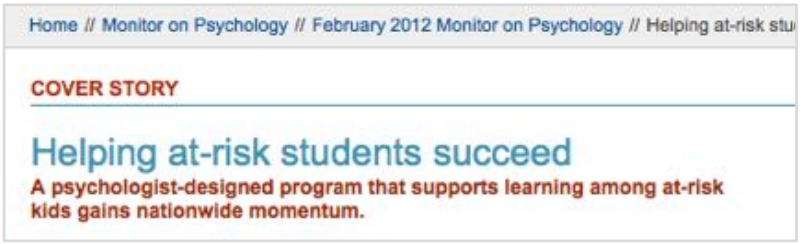
searchers believe, are perhaps as many as 20 genes that may interact with yet unknown environmental triggers.

Together, the evidence seems to point to problems with brain development before birth and through early childhood. Although


OBSESSIONS QUARTZ

The best way to teach kids math is not in a classroom

By Wayne Kelsoe October 6, 2014


Home // Monitor on Psychology // February 2012 Monitor on Psychology // Helping at-risk stu

COVER STORY

Helping at-risk students succeed

A psychologist-designed program that supports learning among at-risk kids gains nationwide momentum.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TECHNOLOGY LEADERSHIP ENTERTAINMENT IDEAS VI

01.29.18 | 7:00 AM

Our Screenless Future Calls For Augmented Parenting

How will parents manage their children's screen time when there are no screens?

Theoretical importance

- To understand any trait, you have to understand how it emerges

Development of social skills

Complex, diverse, multivariate

What sorts of skills?

- Hunting/foraging/feeding
- Playing
- Mating
- Parenting
- Aggression/dominance
- Kin recognition
- Communicating

Kin recognition

Learn that some things are "like you,"

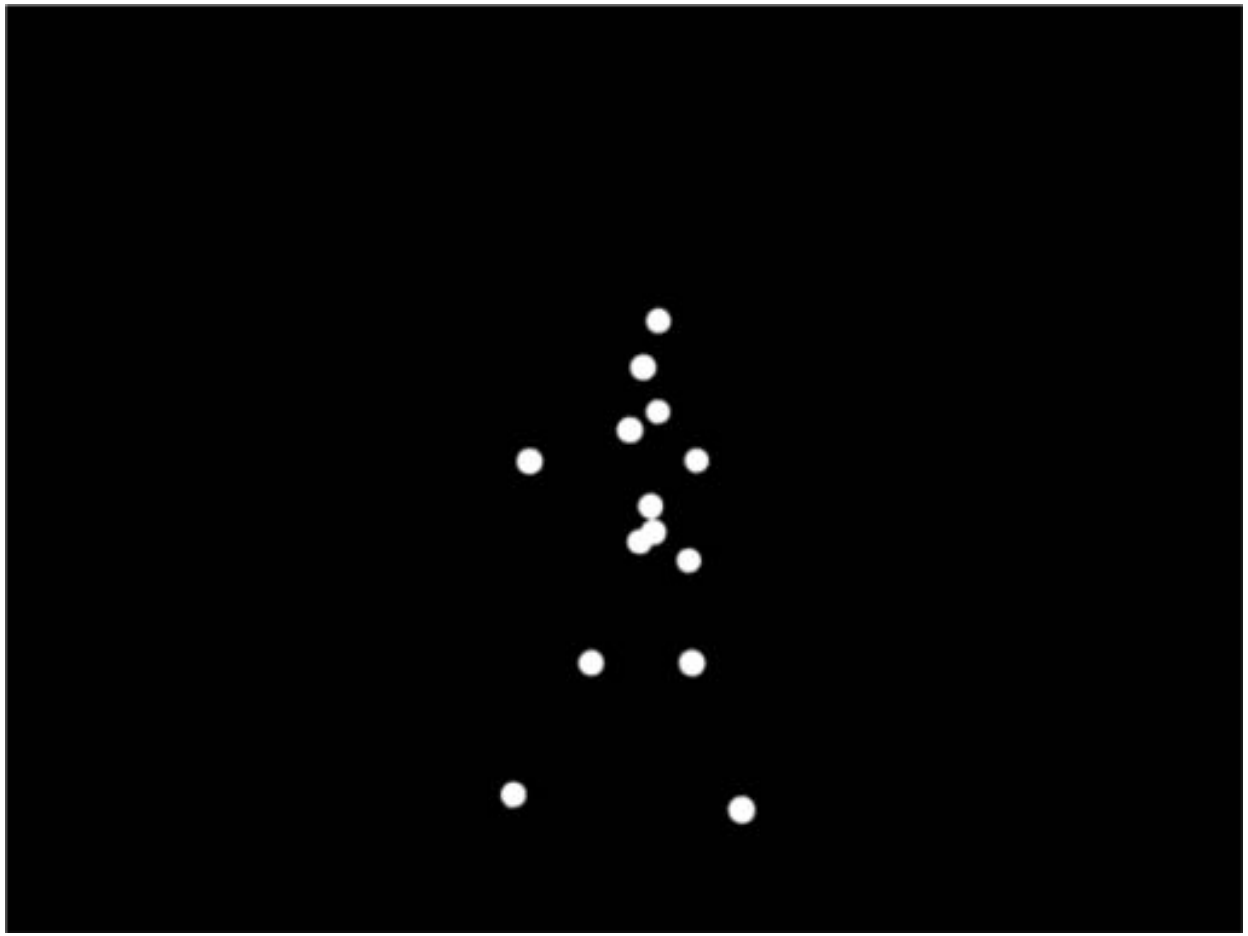
and some of these will help you survive

How do you know what's a person?

How do you know which of these are caregivers?

What do people look like?

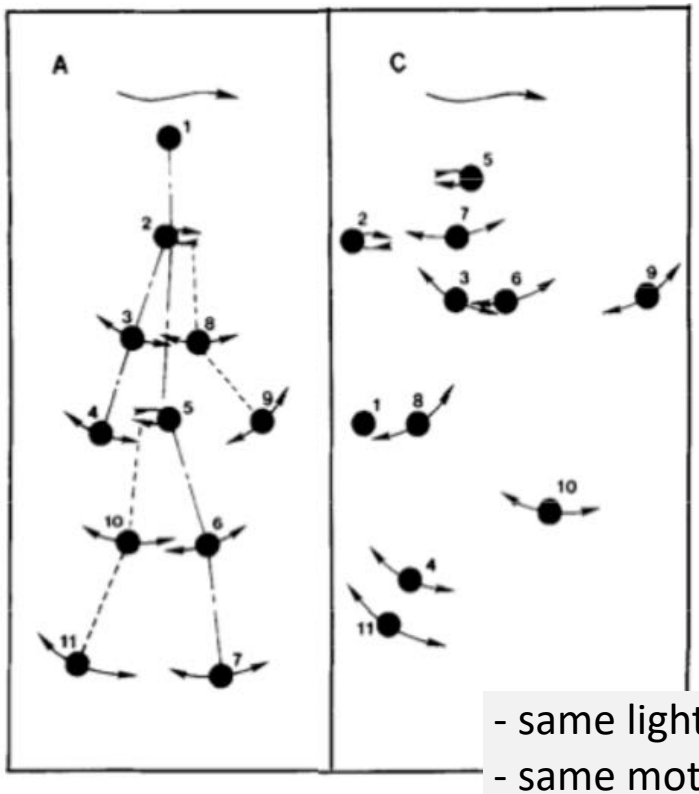
How do they move? Point-light display:



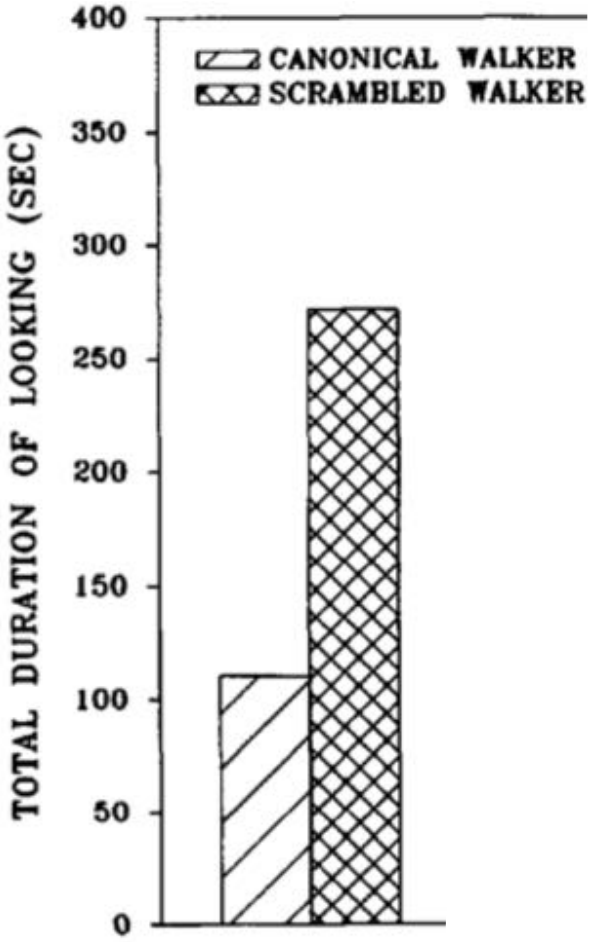
What do these demonstrate?

When do infants recognize human motion?

Bertenthal et al. (1987): 3-month-olds' discrimination of biological motion (walking patterns)



- same lights
- same motion
- scrambled locations



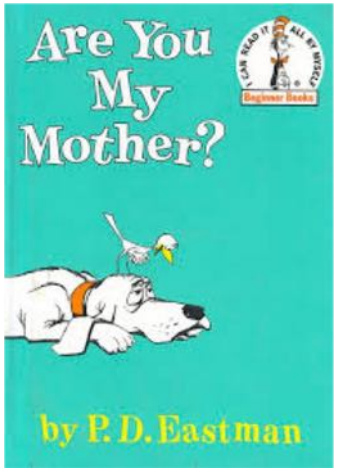
What do *specific* people look like?

Do infants discriminate a parent's face from a stranger's?

When do infants start responding to face-like shapes? (<1 week)

Smiling "at" people? (3 months)

Stranger anxiety, preferential affection (7-9 months)



Test: *Habituate* to stranger #1;

then *Dishabituate* to stranger #2 or mother

(Layton & Rochat, 2007)

What is *habituation?*
What is *dishabituation?*

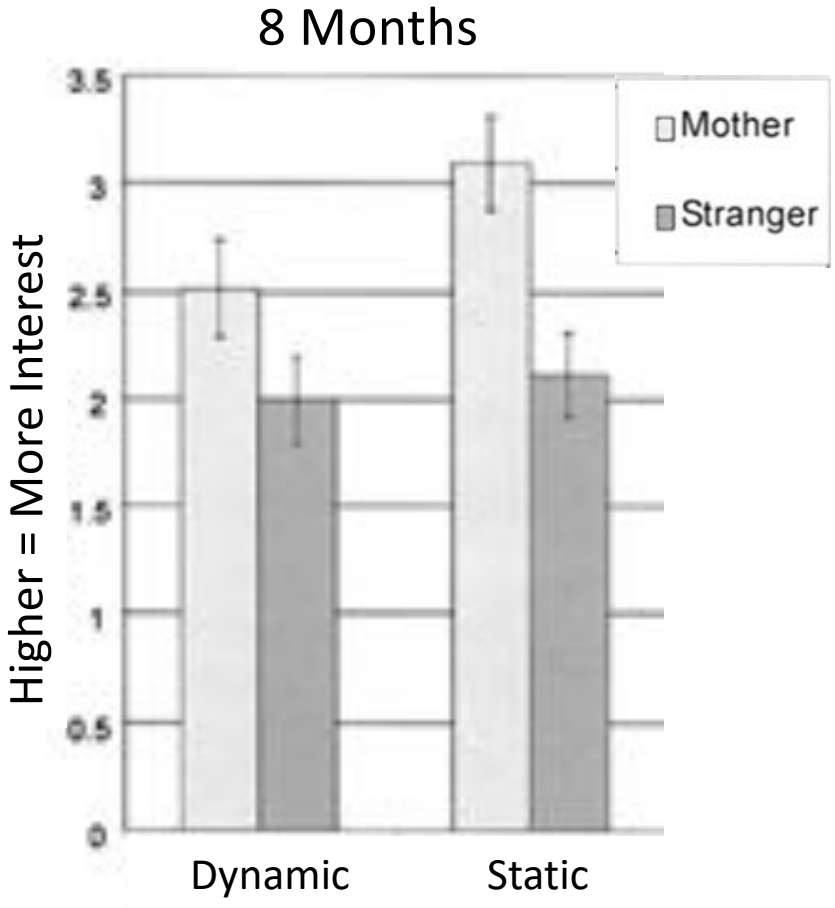
4 months: no reliably different response (mom vs. stranger #2)

8 months: more dishabituation to mom's face (still or moving)

So young infants can't recognize parent??

They probably can using multiple cues

Suggests that face representations improve from 4 to 8 months



What does kin recognition buy you?

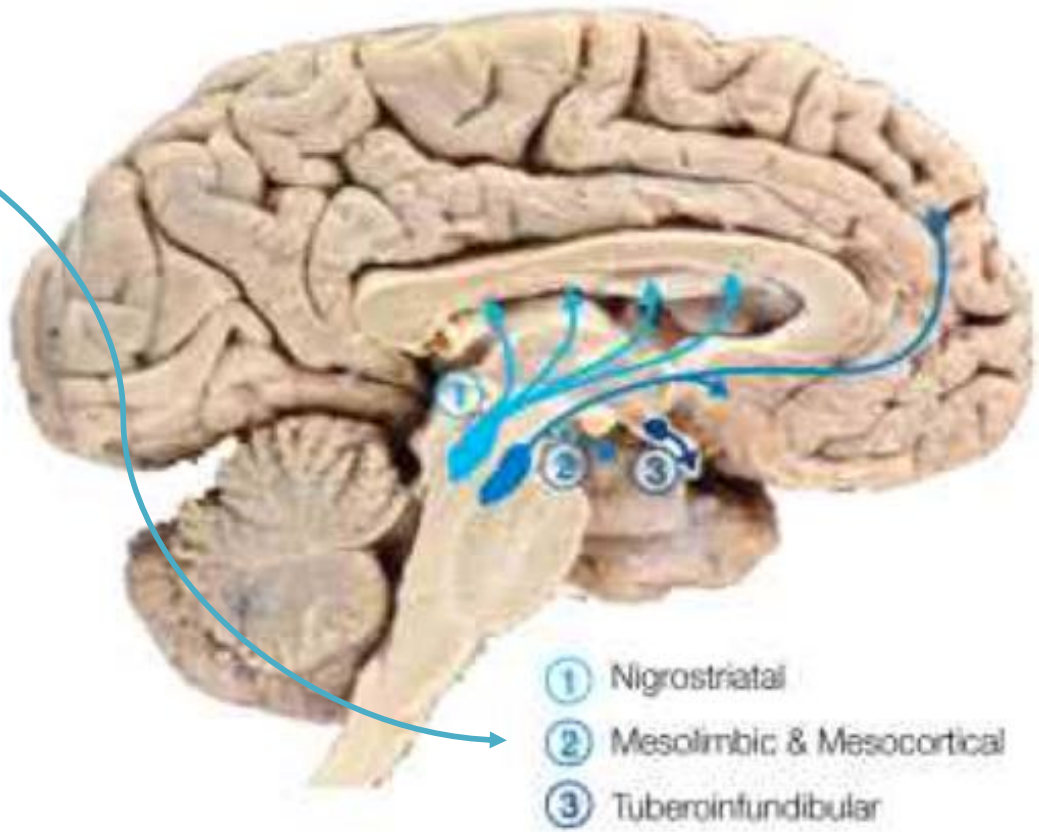
- Survival
- *Attachment* relationship
  - John Bowlby (1969): 'emotional tether'
  - Facilitates exploration and learning
- How are these emotional states controlled?

Neural control of emotion and regulation of infant-parent behaviors

Important concept: *neuromodulation*

Some neuromodulatory systems

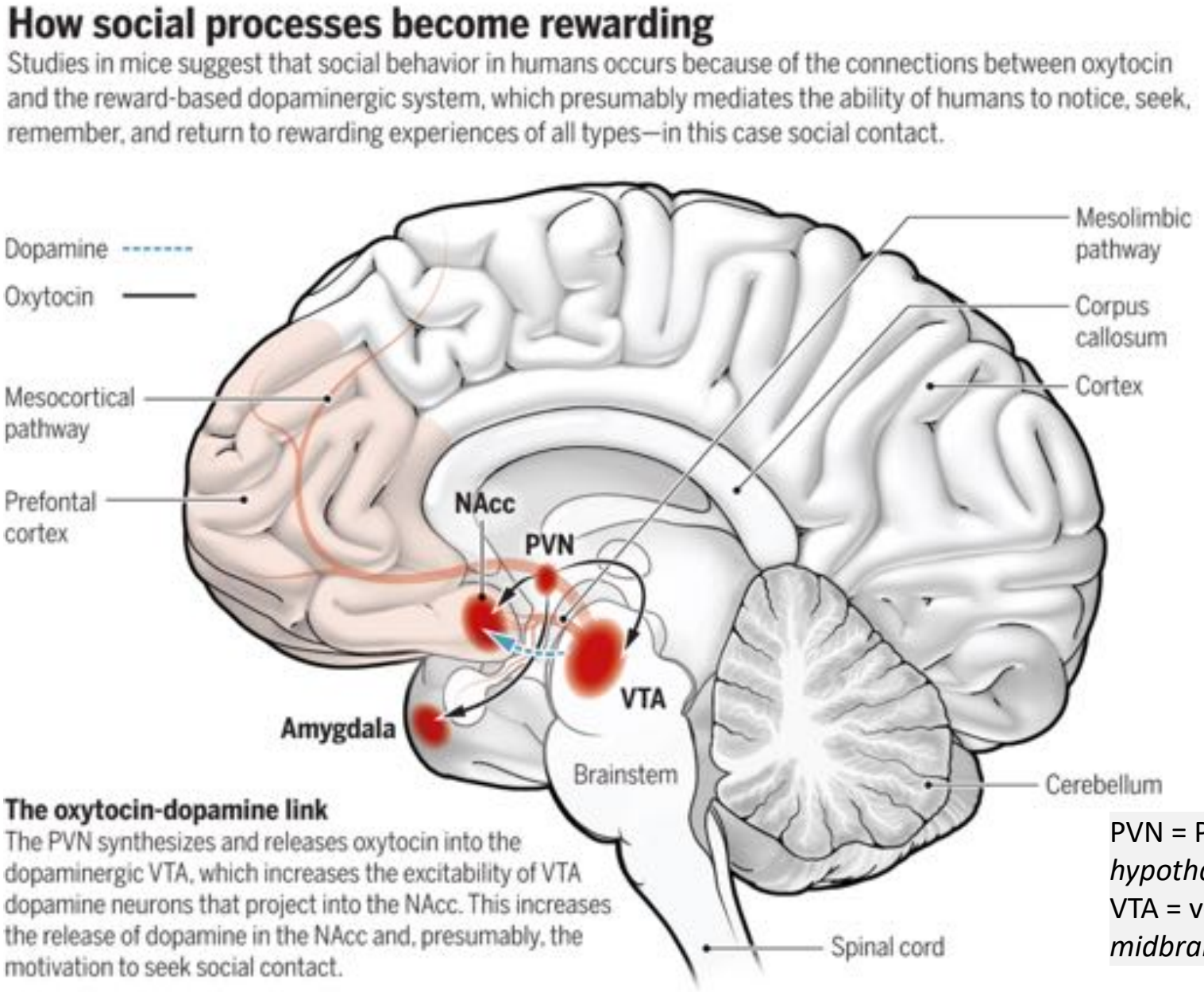
Dopamine (Da)
Norepinephrine (Ne)
Serotonin (5-HT)
Acetylcholine (ACh)



others (neuropeptides; hormones)

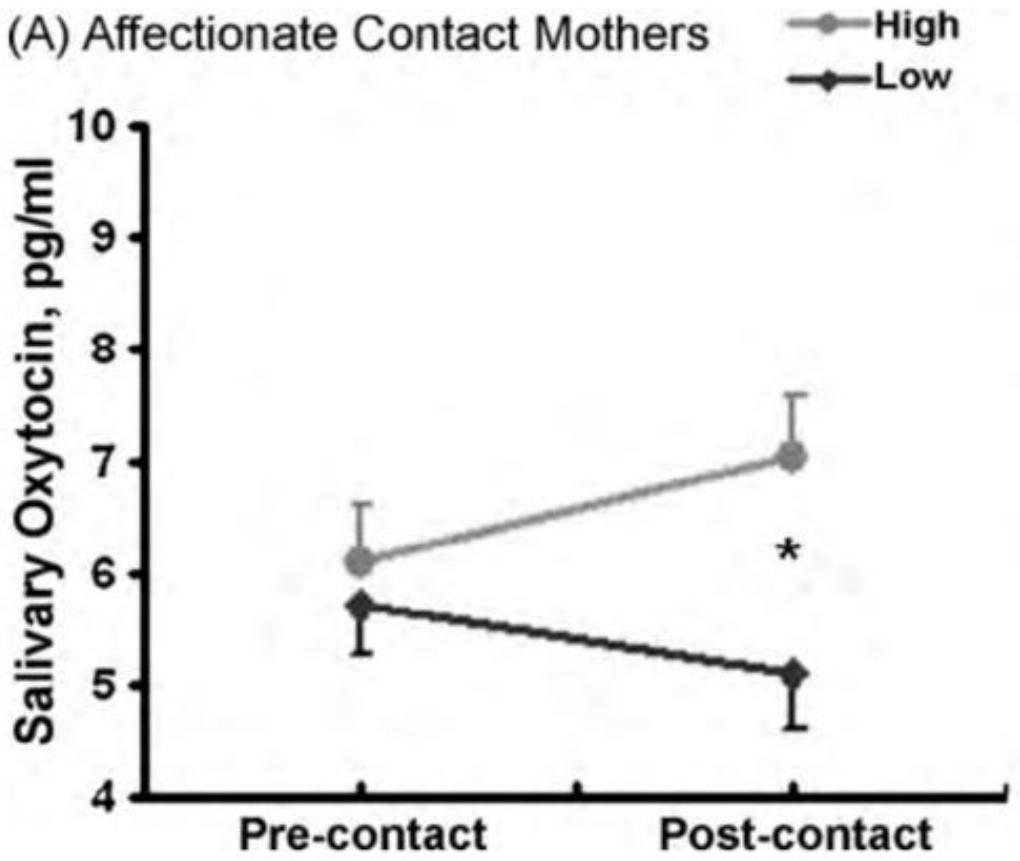
- Oxytocin
- (many others – e.g., endogenous opiates; andogens)

Neuromodulation of social reward



PVN = Paraventricular nucleus in *hypothalamus*
VTA = ventral tegmental area in *midbrain*

Does Oxy correlate with parent-infant interaction?



Feldman et al. (2010)

Oxy neuromodulation is related to the 'tone' (reward, salience) of *parenting* behaviors

What does kin recognition buy you?

- Survival
- *Attachment* relationship

  John Bowlby (1969): 'emotional tether'

  Facilitates exploration and learning

  Shaped by neuromodulation

- Is this enough? No:
  - Interaction lets infants learn to *communicate*
  - Communication skills for: peer interaction, aggression, mating, parenting, skill learning, etc.

Communication requires "common ground" How is it established?

Attention-sharing

- Look where someone is looking

- Get someone to look where you're looking

- Important for teaching & learning

Gaze-following: Early attention-sharing skill

Around 8-12 months

Why does it matter?

Learn *what's important* to other people

Figure out what they mean

What is attention sharing for?

- Learning skills?
  - Watch what skilled conspecifics (e.g. parents) *do:* safe way to learn how to interact with the world
- Learning language

Attention-sharing skill ->

Social & *n*on-social skills [language!] ->

Learning more skills (e.g., reading)

How could this work?

How could attention-sharing help infants learn what an adult is talking about?

How attention-sharing could help infants learn language

- Problem: You say a word.
  How do *I* know what you mean?
- *"Gavagai"* problem…

- *Partial* solution: What you are looking at…

Situation #1
Shared Attention

What does infant associate with the word??

Situation #2
Non-Shared Attention

- 18-month-olds associate word with object only in *shared* attention context (Baldwin, 1991, 1993)
  - Non-shared: ignore word *or* see what adult is looking at
  - 14-month-olds: do not seem to consider adult's attention
- By 18 months expect adults to talk about objects of shared atten.

What we covered

- Infants learn what people look like, and how they move
  - Individuals as well as people in general
  - Important for attachment: explore (learn) & survive
- Infant-adult interactions: necessary for learning and development
  - affected by neuromodulation
    - mechanisms that adjust mood, state, and learning
- Communication requires "common ground"
  - Attention-sharing
    - Learning skills from attending to others
  - Learning language & shared meaning!

Questions?

Visit our lab page: cogdevlab.ucsd.edu