**What is perception?**

- What changed? Not the picture! Your understanding!
- Perception helps us make sense of the world around us.
  - Picture (just a bunch of blobs, till you know).
  - Sports (just a blur, till you know).
  - Ultrasound, x-rays, the alphabet, survival...
- Nothing makes sense without experience.
- Experience can make us pay attention to some things we previously ignored and vice versa.
- Infants likely see, hear, smell more or more than we do, but what they make of this, is much different.

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**Visual Acuity**

Fantz’s Visual Preference Procedure

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**20/400 @ Birth**

![Image of visual acuity test over time]

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**CONES = COLOR!**

![Image of color vision test]

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**Infant Vision**

- Infant eye tracking is
  - Jerky (saccade)
  - That’s good
  - Disorganized
  - That’s not.
  - Easily tired

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**Infant Eye Tracking**

![Image of infant eye tracking]
Retinal Disparity

- What each eye sees is a little different. The amount of disparity (difference) between the two images can be used as a cue for distance.
- Close one eye.
- Line up one finger with something far away.
- Open that eye and close the other.
- What happened?
- Repeat with finger further away.

Use of edges: Interposition

- What shapes do you see?
- Which ones are closer?
- The shapes aren’t there.
- We use edges to see.
- And so do 3-month-old infants!

Common Fate, Color, & Shape

- And how do we know?
- Watch babies react.
- 3m turn toward sounds.
- 9m responds to name
- 12m says a word
- Auditory Threshold - quietest sound you can hear:
  - Higher or lower in infants?
- Higher.
Hearing
- Newborns hear well, though not quite as accurately as adults.
- Could be because of fluid in the ear canal, or lack of experience.
- Infants’ hearing is best for sounds that have pitches in the range of human speech.
- Ba, ba, ba, ba, Pa! or Ba.
- Infants use sound to locate objects.

Intersensory Redundancy

That’s right! —> Infants prefer information presented simultaneously to different senses.
Which one do infants prefer?

Smell
- Tested with facial expression, and preference.
- More sensitive than adults!
- Newborns react strongly to vinegar, ammonia, rotten eggs, shrimp.
- 1-week-old recognizes mom’s odor: breast smell.

Taste
- Can apparently taste everything!
- The expression says it all.
- “Sweet-tooth” over bitter, sour, salty, or neutral.
- And will nurse more if mom drank vanilla.
- More sensitive than adults!

Touch: Pain & Temp
- The nerves are there (same proportions as adults!)
- Reaction says it all.
- Babies cry when given shot, (newborns even more distressed than 5-11mos.)
- Circumcision very stressful!
- Top with ice swaddling.
- High plasma cortisol level and screaming looks bad.
- But topical anesthesia and sweetens help.
- Won’t drink milk if too hot.
- Become more active when it gets cold.

Habituation
- Present same stimulus over and over till babies bored
- Rapid habituators tend to be smarter.
- Hard to keep the kids on task
- Useful for testing because orienting something new means they noticed.
Attention

• Infants and young children not as selective in attention as adolescents and adults.
• Frontal lobes are late to develop.
• Results in a baby that can’t stop orienting response.
• And a lack of focused attention or executive control.

Increasing Attention

• We can help children be more attentive by
  • reminding them to be attentive
  • teaching strategies to be attentive (systematic search)
  • removing distractions

ADHD

• What’s wrong with Stephen? See page 148.
• Symptoms: inattentive, hyperactive, impulsive
• Mostly boys. Do poorly in school and are often disliked.
• Causes:
  - Not sugar, TV, food allergies, or poor home life.
  - Hereditary, poor frontal lobe activation.
• 37-50% of children with ADHD have problems as adults.
• Not necessarily over-diagnosed, we are just more aware.
• Treatment: medication (stimulants) + psychosocial (academic).

Motor Development

• How do we learn to walk?
• How does maturation and experience influence motor skills?
• How do we learn to coordinate our hands? And why do we prefer one over the other?
**Locomotion & Dynamic Systems**
- Differentiation of component skills (posture/balance, stepping, and perceptual factors).
- Integration of different component skills.

**Slater’s The Sixth Sense**
- More than just knowing how to walk.
- Babies can walk if supported.
- Even newborns have the stepping reflex.
- Use perception
  - Will fall in moving room.
  - Use proprioception

**Do we learn to walk?**
- Maturation is important:
  - Hopi infants can walk without practice.
- But experience matters, too:
  - African infants can walk sooner with practice & piggyback (to strengthen muscles).

**Fine-Motor Skills**
- Reaching and grasping (starts 4 months) becomes more coordinated throughout infancy
  - Initially quite random due to muscle coordination.
- Toddlers prefer to use one hand and this preference becomes stronger during the preschool years.
  - Heredity and culture play a role.