Chapter 5

Physical Development in Infancy and Toddlerhood (infancy – 2 yrs)

Physical Development Lecture

Body Growth

- Gain 50% in height from birth to age 1; 75% by age 2
- Grow in spurts
- Gain "baby fat" until about 9 months, then get slimmer
- Girls slightly shorter and lighter than boys

Provides insulation

Development of the Brain

- Formation and elimination of synapses occur
- Mental stimulation = formation of new synapses
- = *synaptic priming/pruning*

- Most neurons intact by second trimester however synapses have not actually been formed. After birth the neurons make many connections and those that are not used undergo synaptic pruning which removes unused neurons. Resonsible for the various 'critical periods' of mental development.

Sensitive Periods in Brain Development

- Lack of mental stimulation = brain synapses degenerate
- May have permanent impairments
- ‘spurts’ of brain growth
- May have ***catch-up-growth***
- Over stimulation not good

- What can a 6 month old do?

Breast Feeding vs. Bottle Feeding

- Breast feeding not always a positive experience
- Breast milk
  - Digested easily
  - antibodies
- Bottle
  - Baby full longer
    - Bond developed with either method

Malnutrition

- Body size impacted
- Brain size impacted

Emotional Well Being

- ***Nonorganic Failure to Thrive*** = growth disorder
- 18 months
- Body appears wasted
- Emotionally withdrawn
- Can experience ‘catch up’

No known physical cause
Deprived of touch?
Deprived of affection?

Habituation

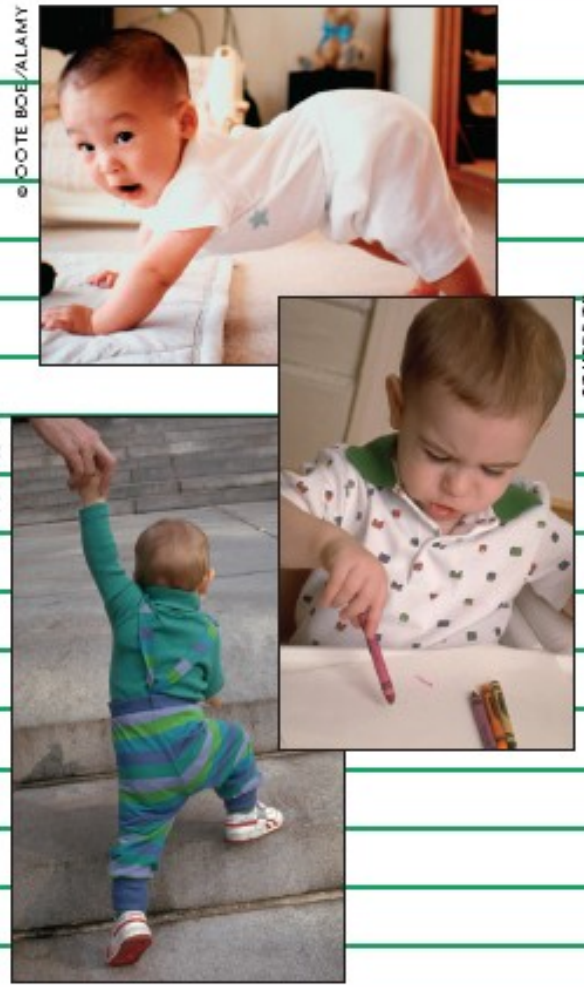
- Brain pre-wired for novelty
- ***Habituation*** = gradual reduction in strength of a response to familiar object
- Memory/recognition
- Physiological changes occur
- Habituation

The Sequence of Motor Development

- Gross motor development -- Large Muscles
  - crawling, standing, walking
- Fine motor development -- Precision
  - reaching and grasping
  - Refer to Table 5.2

Gross and Motor Development in the First Two Years

MOTOR SKILL	AVERAGE AGE ACHIEVED	AGE RANGE IN WHICH 90 PERCENT OF INFANTS ACHIEVE THE SKILL
When held upright, holds head erect and steady	6 weeks	3 weeks–4 months
When prone, lifts self by arms	2 months	3 weeks–4 months
Rolls from side to back	2 months	3 weeks–5 months
Grasps cube	3 months, 3 weeks	2–7 months
Rolls from back to side	4½ months	2–7 months
Sits alone	7 months	5–9 months
Crawls	7 months	5–11 months
Pulls to stand	8 months	5–12 months
Plays pat-a-cake	9 months, 3 weeks	7–15 months
Stands alone	11 months	9–16 months
Walks alone	11 months, 3 weeks	9–17 months
Builds tower of two cubes	11 months, 3 weeks	10–19 months
Scribbles vigorously	14 months	10–21 months
Walks up stairs with help	16 months	12–23 months
Jumps in place	23 months, 2 weeks	17–30 months
Walks on tiptoe	25 months	16–30 months



Grasping

- **Ulnar Grasp** Gross Motor Dev
  - Adjust grip to object
  - Fingers close around palm

  Grab with palm and fingers
- **Pincer Grasp** Fine Motor Dev
  - Thumb and index finger

  Precise grasping with thumb and forefinger

Improvements in Vision

Brain development helps infants reach adult levels of vision skills:

- 2–4 months: focus and color vision
- 6 months: acuity, scanning & tracking
- 6–7 months: depth perception Visual cliff...

Perceptual Abilities

- Pattern Perception
  - Will stare longer at complex object with pattern
  - E.g., checkerboard

- Perception of Faces
  - Infants unable to see facial features (e.g., eyes)
  - 3 months = able to differentiate between 2 faces
  - Recognition of caregivers – stare at stranger longer (novelty)