Body Changes

Growth Patterns

• Children become slimmer as the lower body lengthens.
• From age 2 through 6, well-nourished children grow almost 3 inches and gain about 4 1/2 pounds annually.
• Center of gravity moves from the breastbone down to the belly button.
Body Changes

**Nutrition**

- Children need far fewer calories per pound of body weight than infants do.
- Obesity is a more frequent problem than malnutrition.
- Children in low-income families are especially vulnerable to obesity - cultures still guard against undernutrition and parents may rely on fast foods.
- Overfeeding is causing an epidemic of illnesses associated with obesity
  - Such as heart disease and diabetes
Oral Health

• Many children want foods that are high in fat, salt, and sugar.
• Adults frequently give in, even rewarding children with candy.
  – Too much sugar and too little fiber rot the teeth.
  – Tooth decay is the most common disease of young children in developed nations
    • Affects more than one-third of all children under age 6 in the United States
Hazards of “Just Right”

• Some children only eat certain foods, prepared and presented in a particular way.
  – Would be pathological in adults but is normal in children under 6.

• The responses of 1,500 parents surveyed about their 1- to 6-year-olds (Evans et al., 1997) indicated that over 75% of the 3-year-olds evidenced some just-right tendency, they:
  – preferred to have things done in a certain order or way
  – had a strong preference to wear (or not wear) certain clothes
  – prepared for bedtime by engaging in a special activity or routine
  – had strong preferences for certain foods
Brain Development

• By age 2, the brain weighs 75% of what it will in adulthood
  – extensive sprouting and then pruning of dendrites has already taken place.

• The brain reaches 90% of adult weight by age 6.
Brain Development

- **Prefrontal cortex**: Performs brain's "executive functions"—planning, selecting, and coordinating thoughts.
- **Auditory cortex (on temporal lobe)**: Conscious processing of sounds.
- **Amygdala**: Neural centers in the limbic system linked to emotion.
- **Hippocampus**: A structure in the limbic system linked to memory.
- **Corpus callosum**: Axon fibers connecting two cerebral hemispheres.
- **Thalamus**: Relays messages between lower brain centers and cerebral cortex.
- **Hypothalamus**: Controls maintenance functions such as eating; helps govern endocrine system; linked to emotion and reward.
- **Pituitary**: Master endocrine gland.
- **Visual cortex (on occipital lobe)**: Conscious processing of sights.
- **Spinal cord**: Pathway for neural fibers traveling to and from brain; controls simple reflexes.
- **Cerebellum**: Coordinates voluntary movement and balance.
- **Cerebral cortex**: Ultimate control and information-processing center.
Brain Development

Speed of Thought

• The primary reason for faster thinking is new and extensive myelination.  
  – Myelin is a fatty coating on the axons that speeds signals between neurons.

• A gradual increase in myelination makes 5-year-olds much quicker than 3-year-olds, who are quicker than toddlers.
Brain Development

• The **corpus callosum**, a band of nerve fibers that connects the left and right sides of the brain, grows and myelinates rapidly during early childhood.

• Growth of the corpus callosum makes communication between the two brain hemispheres more efficient.

• **Lateralization**- Literally, sidedness, referring to the specialization in certain functions by each side of the brain, with one side dominant for each activity.
The Left-Handed Child

- Handedness is genetic and cultural
- *Difference-equals-deficit-error*: many cultures believe being right-handed is better than being left-handed
- Customs favor the right hand
- Switching a child’s handedness may interfere with lateralization
Maturation of the Prefrontal Cortex

• From ages 2 to 6, maturation of the prefrontal cortex has several notable benefits:
  – sleep becomes more regular
  – emotions become more nuanced and responsive
  – temper tantrums subside
Maturation of the Prefrontal Cortex

• Enables children to focus attention and curb impulsiveness
• Before such maturation, many young children jump from task to task; they cannot stay quiet.
• Others act in the opposite way: In a phenomenon called *perseveration*, some children persevere in, or stick to, one thought or action, unable to quit.
Emotions and the Brain

Three major areas of the *limbic system*:

- **Amygdala** - A tiny brain structure that registers emotions, particularly fear and anxiety.

- **Hippocampus** - A brain structure that is a central processor of memory, especially memory for locations.

- **Hypothalamus** - A brain area that responds to the amygdala and the hippocampus to produce hormones that activate other parts of the brain and body.
Improved Motor Skills

• By age 6, most North Americans ride tricycles; climb ladders; pump their legs on swings; and throw, catch, and kick balls.

• Muscle growth, brain maturation, and guided practice advance every gross motor skill.

• Practice improves dexterity and advances fine motor skills, which involve small body movements.
Environmental Hazards

• Pollutants do more harm to young than older people

• Some substances including lead, pesticides, BPA in plastic and secondhand smoke are proven to be harmful to children’s brain development
Fine Motor Skills

• More difficult to master than gross motor skills
• Many involve two hands and both sides of the brain
• Typically mature about 6 months earlier in girls than boys
Artistic Expression

Maturation is evident in the progression of skills development
Injuries and Abuse

• Accidents are the leading cause of death worldwide for people under age 40.

• Among 2- to 6-year-olds in the United States, four times more children die in accidents than die of cancer, the second most common cause of death.

• **Injury control/harm reduction** - Practices that are aimed at anticipating, controlling, and preventing dangerous activities.
Three levels of Prevention

- **Primary prevention** - Actions that change overall background conditions to prevent some unwanted event or circumstance, such as injury, disease, or abuse.

- **Secondary prevention** - Actions that avert harm in a high-risk situation, such as stopping a car before it hits a pedestrian or installing traffic lights at dangerous intersections.

- **Tertiary prevention** - Actions, such as immediate and effective medical treatment, that are taken after an adverse event (such as illness, injury, or abuse) occurs and that are aimed at reducing the harm or preventing disability.
Child Maltreatment

• Child maltreatment
  – Intentional harm to or avoidable endangerment of anyone under 18 years of age.

• Child abuse
  – Deliberate action that is harmful to a child’s physical, emotional, or sexual well-being.

• Child neglect
  – Failure to meet a child’s basic physical, educational, or emotional needs.
Child Maltreatment

• **Reported Maltreatment**: harm or endangerment about which someone has notified the authorities, up to 3.5 million a year in the U.S.

• **Substantiated Maltreatment**: harm or endangerment that has been reported, investigated and verified, 1 in 80 children in the U.S.
Warning Signs

• Delayed development, slow growth
• **Post-traumatic stress disorder**: child is fearful, startled by noise, defensive, etc.
• Fantasy play around violence and sex
• Repeated injuries, physical complaints
• Hyper vigilance, absences from school
• Fear of caregiver, going home
Consequences of Maltreatment

• Severely maltreated children suffer physiologically, academically, and socially in every culture.

• Maltreated children come to consider other people to be hostile and exploitative, making them fearful, aggressive, and lonely.

• The earlier abuse starts and the longer it continues, the worse their peer relationships are.
Three Levels of Prevention, Again

- **Primary prevention** - any measure that reduces financial stress, family isolation, and unwanted parenthood.

- **Secondary prevention** - home visits by nurses, high-quality day care, and preventive social work—all designed to help high-risk families.

- **Tertiary prevention** reduces harm when maltreatment has already occurred. Requires **permanency planning**, an effort to find a long-term solution to the problem.
Three Levels of Prevention, Again

- **Foster care**- maltreated child is removed from the parents’ custody and entrusted to another adult or family, which is reimbursed for expenses incurred in meeting the child’s needs.

- **Kinship care**- A form of foster care in which a relative of a maltreated child, usually a grandparent, becomes the approved caregiver.

- **Adoption**- A legal proceeding in which an adult or couple unrelated to a child is granted the obligations and joys of parenthood.