Child Growth and Development

Chapter 12: Physical Development & Health in Middle Childhood

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Aspects of Psychological Development

- Height and Weight
- Tooth Development and Dental Care
- Brain Development
Height and Weight

- Growth in middle childhood slows considerably
  - Children grow 2 – 3 inches a year
  - Double their weight between 6 and 11
- Girls retain more fatty tissue than boys
- African American girls have more muscle and bone mass than European American or Mexican American girls
- Mexican American girls have higher percentage of body fat than white girls the same size
Tooth Development and Dental Care

- Most adult teeth arrive in middle childhood
- Primary teeth begin to fall out about age 6
- Permanent teeth are replaced at about four teeth per year for five years
- Number of untreated cavities dropped nearly 80% for children 6 – 18 years since 1971
  - Improvements attributed to use of sealants on the rough, chewing surfaces
Brain Development

- Brain development during childhood is less dramatic than during infancy
  - Important changes occur
- Loss in density of gray matter in certain regions of the cerebral cortex
  - Reflects pruning of unused dendrites
  - Balanced by steady increase in white matter
    - Axons or dendrites that transmit information between neurons to distant regions of the brain
- These changes increase speed and efficiency of brain processes
Brain Development

• Thickness of the cortex changes
  – Temporal and frontal lobes that handle language
• Thinning in the rear portion of the frontal and parietal cortex in the brain’s left hemisphere
  – Correlated with improved performance on the vocabulary portion of an intelligence test
• Corpus callosum myelination leads to rapid transmission of information between two hemispheres
• Sex differences
  – Boys have markedly greater loss in gray matter and growth in white matter and corpus callosum fibers
  – Girls have same changes but slower rate
Losses in gray matter density reflect maturation of various regions of the cortex, permitting more efficient functioning.
Nutritional Needs

- School children need 2,400 calories a day*
  - More for older children, less for younger
- 30% of total calories from fat
- Less than 10% of total calories from saturated fat
- Fruit juice and sweetened beverages should be limited to 8 – 12 ounces daily
- Media strongly influences children on what to eat
- Nutrition education can be helpful when combined with parental education and changes in school lunch menus
- You are the parent; you decide what goes into the grocery cart and into your child!
Sleep Patterns and Problems

- Sleep needs decline from 11 hours a day at 5 years
- Age 9: 10 hours
- Age 13: 9 hours
- Sleep problems are present in part due to children setting their own bedtime
  - Resistance to going to bed, insomnia, daytime sleepiness
- 40% of school-age children have TV in their room
  - These children get less sleep than other children
- Family stress is associated with lower sleep quality
- 1 in 5 children in one study had significant sleep difficulties
  - Most parents were unaware of them
- Sleep problems are highly correlated with psychological and behavioral problems
Motor Development & Physical Play

- Recess-Time Play
- Organized Sports
Recess-Time Play

- Motor skills improve in middle childhood
- In US, children’s lives are more sedentary
- Children spend less time in sports and other outdoor activities than in the early 1980’s
  - Spend more hours on schooling and homework
  - Spend more hours watching television
- Average screen time: 12 – 14 hours a week*
- Boys play more physically active games
- Girls favor games that include verbal expression or counting aloud
  - Hopscotch and jump rope
- Rough and tumble play peaks
  - Universal: hormonal differences in boys and girls, socialization
Recess in Kenya
Gender Choices: Girls (Left), Boys (Right)
Organized Sports

- After rough-and-tumble outgrown, games with rules emerges
- 39% of 9 – 13-year-olds play organized sports
  - Baseball, softball, soccer, basketball
- 77% of children play unorganized activities
  - Bicycling, shooting baskets
- Girls spend less time on sports
  - Spend more time on housework, studying, personal care
- Organized sports improves motor skills, immediate and long-term health benefits
- Organized sports should include all children, focus on building skills rather than winning, include variety of sports for lifetime fitness (tennis, bowling, swimming, running, golf, skating)
- 6 – 9 years need flexible rules, shorter instruction time, more free time for practice
Health & Safety

- Overweight and Body Image
- Medical Conditions
- Factors in Health and Access to Health Care
- Accidental Injuries
Overweight and Body Image

- Overweight in children is a major health issue worldwide.
- Since 1980, childhood obesity increased in almost all countries.
- By 2010, nearly 50% of children in North and South America will be overweight.
- In the US, 19% of school-age children are overweight.
  - 3 times as many as in 1980.
- Concern with body image contributes to eating disorders.
  - Playing with Barbie dolls may influence...
Overweight and Body Image

Causes of Overweight

- Inherited
- Too little exercise
- Too much of wrong kinds of foods
- Overweight parents or other relatives
- Poor nutrition
- Media advertising
- Wide availability of snack foods and beverages
- Inactivity is major factor*
  - National Association of State Boards of Education recommends 150 minutes of physical education a week
- Preadolescent girls in ethnic minorities, children with disabilities, children in public housing, children in unsafe neighborhoods most likely to be sedentary
Overweight and Body Image: Why is Childhood Overweight a Serious Concern?

- Overweight is decided disadvantage for school-age children
  - Fall behind classmates in physical and social functioning by age 10
- Overweight children often suffer emotionally
  - May compensate by indulging with treats
- Overweight children at risk for behavior problems, depression, low self-esteem
- Overweight children have more medical problems
  - High blood pressure
  - High cholesterol
  - High insulin levels
- Overweight children tend to become obese adults
  - High blood pressure, heart disease, orthopedic problems, diabetes
- Childhood overweight may be a stronger predictor of some diseases than adult overweight
- Girls overweight before puberty nearly 8 times more likely to be overweight adults
Overweight and Body Image: *Prevention and Treatment*

- Prevention is easier, less costly, and more effective than treatment
- Effective weight-management programs should include
  - Parents
  - Schools
  - Physicians
  - Communities
  - Larger culture
- What works
  - Less time in front of television and computers
  - Changes in food labeling
  - Changes in advertising
  - Healthier school meals
  - Education for better food choices
  - More time in physical education
  - Parents make exercise family activity (hiking, playing ball, walking, use stairs)
- Treatment should begin early and involve life changes, not just weight loss
Overweight and Body Image

Overweight and Childhood Hypertension

• Once relatively rare in childhood now “evolving epidemic” of cardiovascular risk
  – Especially ethnic minorities
• Average blood pressure rose in children 8 – 17 years
• Weight reduction through dietary modification and regular physical activity is primary treatment for overweight-related hypertension
Medical Conditions

- Development of vaccines for major childhood illness has made middle childhood relatively safe time of life*
- Illness tends to be brief (acute)
- Children’s understanding of health and illness is cognitive
  - Explain disease better, not magical, not transductive
Medical Conditions

Vision and Hearing Problems

• Keener vision in middle childhood
  – Under 6 years, children tend to be farsighted
  – By 6, vision more acute, two eyes better coordinated, focus better

• 13% of children under 18 years estimated to be blind or have impaired vision
  – Vision problems reported more often for white and Latino children than African Americans

• 15% of children 6 – 19 years have some hearing loss
  – Preponderance of boys
Medical Conditions

Stuttering

- Involuntary audible or silent repetition or prolongation of sounds or syllables
- Usually begins between 2 and 5 years
- Neurological condition
- No known cure
  - Speech therapy may help
- Two factors at work:
  1. Structural or functional disorder of the CNS
  2. Parental reactions that may provoke anxiety

http://www.youtube.com/watch?v=tEitDTX2ZAo
Medical Conditions

Asthma
• Chronic (long-term)
• Respiratory disease
• Allergy-based
• Coughing, wheezing, difficulty breathing
• Increasing worldwide
• 12.7% of US children up to 17 years diagnosed with asthma
• More common in boys
• Doubled in US between 1980 and 1995
• Third leading cause of hospitalization of children in US
• Black children 20% more likely to be diagnosed (even adjusting for SES)
  • Twice as likely to have visited ER in year
• Causes: uncertain, genetics, environment, smoke, molds, cockroach droppings, pets, antibiotics
• Miss average 10 days of school
Medical Conditions

HIV and AIDS

- 2.2 million children worldwide
  - High risk of developing AIDS
  - 2004 ½ million died of AIDS
- Prospects have improved due to antiretroviral therapy
- Most school-age children function normally
  - Quality of life may be affected
- Virtually no risk of infecting peers
- Should be encouraged to participate in school activities, including sports
- Early detection is critical
Factors in Health and Access to Health Care

• Social disadvantage plays important part in children’s health
  – Disproportionately minority children
  – Single parent
  – Low educational status
    • More likely to have chronic condition
    • More likely to miss school due to illness or injury
    • More likely to be hospitalized and have unmet medical and dental needs with delays to care

• 1/3 of children with chronic health problems underinsured
• 60% of all children have coverage gaps of at least 4 months
• Differing beliefs and attitudes about health care and healing (culture)
Accidental Injuries

- Accidental injuries leading cause of death in school age
  - Boys more likely to be injured
  - Boys more likely to have repeat injury
- 23,000 children suffer serious brain injuries from bicycle accidents
  - 88% of injuries could be prevented by using helmets
- Protective headgear is vital for many sports
  - Helmets, goggles, mouth guards
    - Minimize “heading” ball
- AAP recommends:
  - No children under 16 on snowmobiles
  - No trampolines
Cultural Attitudes Affect Health Care

- Adherence to ancient beliefs about illness is common in industrialized parts of the world.
- Many cultures see illness and disability as a form of punishment who has transgressed in this or a previous life.
  - Or their ancestor
- Imbalance of elements in the body causes illness (Southeast Asia and Latin America).
- Religious households might hold out for a miracle and refuse surgery or treatment.
Cultural Attitudes Affect Health Care

Australian Medicine Man  Navajo Medicine Man
Cultural Attitudes Affect Health Care

Blood Letting with Leech

Southeast Asia: Coining
Cultural Attitudes Affect Health Care

Native American Medicinal Pipe

Native American Healing through Songs
Cultural Attitudes Affect Health Care

Medicine Dance Stick

Blood letting
Cultural Attitudes Affect Health Care

Ancient Labyrinth

Herbal Healing
To be yourself in a world that is constantly trying to make you something else is the greatest accomplishment.
-Ralph Waldo Emerson