

Physical Development and Health

In all of the ways young children develop, perhaps the most dramatic and probably the earliest observed, is physical growth. New parents are astounded at how quickly their infants grow – on average, tripling in weight and doubling in length during their first year. While that rate does slow somewhat, children are still gaining up to 3.5 inches in height, per year, when they enter kindergarten.¹ Furthermore, the first five years mark an amazing transformation in children’s bodies. Their bones, muscles, joints, nerves, and synapses learn to work together to produce that first smile, that first “DaDa,” that first step – before long the baby is an independent preschooler riding a tricycle.

Information about children’s physical milestones is abundant. At wellness visits, pediatricians talk in percentiles, comparing the height and weight of the patient to his or her peers. *Women, Infants, and Children* programs provide information and resources on what constitutes healthy growth to the parents who receive their services. Numerous books, pamphlets, and internet sites feature descriptions of children’s ages and expected abilities. Even well-meaning grandmothers are happy to share their opinion on the best age to toilet-train. If parents and caregivers somehow escape this deluge of information, it is nonetheless inevitable that they will – on their own – notice differences between their children and their playmates. “Why can’t my daughter form letters as well as her friend does?” “Our Johnny connects with the ball every time, but some of his teammates...”

Expectations that derive from comparing children to their peers – whether formally presented in the guise of height/weight percentiles or informally observed during play – can be both valuable and dangerous. At the first sign of deviance from the “normal,” it may be natural for parents to hit the panic button and ask, “What’s wrong with my child?” In most cases, there is nothing wrong. Children’s growth is highly dependent on many factors, such as genetic potential, quality of prenatal care, and overall nutrition. To expect “by the-book” growth at every checkpoint is unrealistic. On the other hand, repeated occurrences of slower-than-expected growth or patterns of failing to meet physical milestones may be cues for investigating further into possible causes, such as infections or chronic disease, psychosocial health, growth hormone deficiency, and other disorders.² Many children with delayed growth can also have delays in other areas of development, so it is important to rule out metabolic problems.

It is also important to consider the impact that physical development has on learning. As coordination improves and bones grow, children can undertake increasingly complex physical endeavors. They learn to roll over, to scoot or crawl, to walk, to run, and so on. They progress to the next level of complexity when their bodies are able to support that level. Children learning to write, for example,

¹ M.J. Hockenberry and D. Wilson (2007) “Nursing Care of Infants and Children (8th Ed.) St Louis: MI, Mosby Elsevier

² U.S. National Library of Medicine and the National Institutes of Health. *MedLine Plus: Delayed Growth*.

<http://www.nlm.nih.gov/medlineplus/ency/article/003021.htm>

go through distinct stages based, in part, on physical ability. Scribbling is often recognized as an important precursor to writing, but the process of learning to write actually begins far earlier than the first time the child puts crayon to paper. Being able to hold that crayon requires the fine-motor skill of coordinating index finger and thumb. By their first birthday, babies demonstrate this “pincer grasp” by picking up small objects like cheerios. But, babies are progressing toward this skill from as early as six months, when they pick up large objects by pushing their whole hand over a toy and curling their fingers around it.³

Between three and four months, babies begin developing the gross-motor skills that will eventually allow them to control a pencil, which “depends on stability of the shoulder and arm.”⁴ Babies strengthen their shoulders and arms every time they push up to raise their heads and shoulders during “tummy-time” and later, when they begin crawling. Crawling also reinforces the ability to cross the body’s midline, developing directionality, an important skill for writing left to right.⁵ Remarkably, even the act of gazing into babies’ eyes helps them learn to focus their vision, which develops into the eye-hand coordination necessary for forming letters. Proper sensory development, then, is also integral to the multifaceted process of writing.

Placing objects within reach, providing plenty of tummy-time, and interacting one-on-one, eye-to-eye are but a few of the ways that caregivers can promote the fine-motor, gross-motor, and sensory development of children. Perhaps the greatest gift a caregiver can offer, however, is to respect each child as an individual who will develop at a rate unique to him or herself. For each child, there will be abilities, there will be challenges, and there will be supports for those challenges. A child diagnosed with autism may require occupational therapy to address sensory problems. A preschooler struggling with writing may benefit from a pencil grip. It is important that every child, regardless of physical ability or physical challenge, receives the support necessary to not only engage in daily activities, but also to learn.

Teachers’ informal observations of the relationship between children’s physical well-being and their ability to learn have been confirmed by numerous studies. For example, research shows that children who don’t eat breakfast have trouble concentrating at school, becoming restless by late morning as glucose levels, the brain’s basic fuel, drop. This news is made more troubling by a finding in a Carnegie Foundation Report (1990) in which more than half of the teachers surveyed stated that poor nourishment is a problem at their school. Furthermore, “children who suffer from poor nutrition during the brain’s formative years score much lower

³ Graham, Janice. Wondertime, “Get a Grip”. <http://wondertime.go.com/learning/article/get-a-grip-pincer-grasp.html>

⁴ Neuman, Susan B., Carol Copple, & Sue Bredekamp. Learning to Read and Write: Developmentally Appropriate Practices for Young Children (2000) National Association

⁵ Shamberg, Shoshana. Preparing Mind and Body for Childhood Development. Simple sensory motor strategies for childcare providers (2009)

on tests of vocabulary, reading comprehension, arithmetic, and general knowledge.”⁶ On the other hand, children who do eat a nutritious breakfast not only maintain their attention in late morning, but also display a quicker and more accurate working memory, are better able to perform complex tasks, and make fewer errors in problem-solving activities.⁷ It has also been found that regular physical activity can help improve mathematics, reading, and writing test scores, increase concentration, and reduce disruptive behavior, suggesting strongly that the “physical well-being of students has a direct impact on their ability to achieve academically.”⁸

How can children be expected to learn if they are depressed, bullied, stressed, or abused? The National Association of State Boards of Education perhaps summarizes it best: “Health and success in school are interrelated” (1998). While proper nutrition and physical fitness are key contributors to good health, other factors impacting a child’s sense of well being have also been identified. The United States Department of Education’s belief that “[t]oo many of our children start school unready to meet the challenges of learning, and are adversely influenced by... drug use and alcohol abuse, random violence, adolescent pregnancy, AIDS, and the rest” is backed by both state and federal mandates for tobacco-free buildings, drug- and gun-free zones, immunization requirements, and the 2004 Child Nutrition Reauthorization Act.^{9,10} The American Cancer Society maintains that children “who face violence, hunger, substance abuse, unintended pregnancy, and despair cannot possibly focus on academic excellence. There is no curriculum brilliant enough to compensate for a hungry stomach or a distracted mind.”¹¹

⁶ Brown, L and Pollitt, E. 1996 “Malnutrition, poverty, and intellectual development.” as cited in Action for Healthy Kids. “The Role of Sound Nutrition and Physical Activity in Academic Achievement.”

⁷ Dairy Council of California. “Good Nutrition: The First Step in Getting Kids Ready to Learn.” (1997)

⁸ Shephard, R.J. 2008 “Curricular Physical Activity and Academic Performance” as cited in Action for Healthy Kids. “The Role of Sound Nutrition and Physical Activity in Academic Achievement.”

⁹ United States Department of Education. “America 2000: An Education Strategy Sourcebook” as cited in Association of State and Territorial Health Officials (ASTHO) and the Society of State Directors of Health, Physical Education and Recreation (SSDHPER). “Making the Connection: Health and Student Achievement.” 2002

¹⁰ Marx, E., Wooley, S., and Donica, B. “A Coordinated Approach to Health and Learning.” The Healthy Child. Vol 85, No. 3. Jan/Feb 2006. Retrieved 5/28/08 from www.nawsp.org/ContentLoad.do?contentId=1788&action=print

¹¹ American Cancer Society. “*National Action Plan for Comprehensive School Health Education*” as cited in Association of State and Territorial Health Officials (ASTHO) and the Society of State Directors of Health, Physical Education and Recreation (SSDHPER). “Making the Connection: Health and Student Achievement.” 2002

Domain: Physical Development and Health
PreK Content Area: Physical Development – Sensory

PreK Benchmark: Children use their senses to assist and guide learning.

Benchmark Indicators:

- Child identifies sights, smells, sounds, tastes and textures.
- Child compares and contrasts different sights, smells, sounds, tastes, and textures.
- Child uses descriptive words to discuss sights, smells, sounds, tastes, and textures.

PreK Content Area: Physical Development – Sensory/Motor

PreK Benchmark: Children use sensory information to plan and carry out movements.

Benchmark Indicators:

- Child demonstrates appropriate body awareness when moving in different spaces.
- Child exhibits appropriate body movements when carrying out a task.
- Child demonstrates awareness of spatial boundaries and the ability to work within them.

PreK Content Area: Physical Development – Gross Motor

PreK Benchmark: Children demonstrate coordination and control of large muscles.

Benchmark Indicators:

- Child displays an upright posture when standing or seated.
- Child maintains balance during sitting, standing, and movement activities.
- Child runs, jumps, walks in a straight line, and hops on one foot.
- Child climbs stairs using alternating feet.
- Child puts on age appropriate clothing items, such as shirts, jackets, pants, shoes, etc.

PreK Benchmark: Children combine a sequence of large motor skills with and without the use of equipment.

Benchmark Indicators:

- Child navigates age appropriate playground equipment.
- Child peddles a tricycle.
- Child throws, catches or kicks a large, light-weight ball (8" - 10").
- Child participates in a series of large motor movements or activities such as, dancing, follow the leader, or Simon Says.

PreK Content Area: **Physical Development** – Fine Motor

PreK Benchmark: Children demonstrate eye-hand coordination and dexterity needed to manipulate objects.

Benchmark Indicators:

- Child uses pincher grasp (index finger and thumb).
- Child demonstrates ability to engage in finger plays.
- Child uses materials such as pencils, paint brushes, eating utensils and blunt scissors effectively.
- Child manipulates small objects with ease (fits objects into holes, strings wooden beads, stacks mini blocks, uses geo boards, etc.).
- Child uses buttons, zippers, snaps, and hook and loop tape successfully.

PreK Content Area: **Personal Health and Safety** – Physical Fitness

PreK Benchmark: Children engage in a variety of physical fitness activities.

Benchmark Indicators:

- Child engages in large motor activities, (e.g., marching, hopping, running, jumping, dancing) in increasingly longer periods of time as skill and endurance develops.
- Child explores, practices and performs skill sets, (e.g. throwing, pushing, pulling, balancing, catching, etc.).
- Child participates in activities designed to strengthen major muscle groups and to promote balance and flexibility.

PreK Content Area: **Personal Health and Safety** -- Physical Health and Well Being

PreK Benchmark: Children demonstrate personal care and hygiene skills.

Benchmark Indicators:

- Child shows growing independence in using basic personal hygiene skills, such as washing hands, brushing teeth, toileting, etc.
- Child exhibits self help skills when dressing, cleaning up after self, participating in meals, etc.
- Child demonstrates ways to prevent spreading germs to other people.
- Child recognizes and communicates when experiencing symptoms of illness.

PreK Content Area: **Personal Health and Safety** – Physical Health and Well Being

PreK Benchmark: Children demonstrate awareness and understanding of healthy habits.

Benchmark Indicators:

- Child recognizes the importance of good nutrition, water, rest and sleep in order to be healthy.
- Child talks about food choices in relationship to allergies and overall health.
- Child relates healthy behaviors to good personal health (milk for strong bones, spinach for strong muscles).
- Child describes the role of doctors, dentists and other health care workers in keeping him/herself healthy.

PreK Content Area: **Personal Health and Safety** – Safety

PreK Benchmark: Children demonstrate awareness and understanding of safety rules.

Benchmark Indicators:

- Child verbalizes and demonstrates safety rules such as, hold an adult's hand when walking on sidewalks or near a street.
- Child communicates to peers and adults when observing unsafe behavior, e.g., Tommy is throwing rocks.
- Child understands that some practices could be unsafe, e.g. playing with matches, playing near a busy street, not wearing a bike helmet.
- Child demonstrates knowledge of bus safety; i.e., crosses in front of the bus after the driver signals, looks both ways before crossing a street at anytime, etc.
- Child participates in fire evacuation drills, understands what the alarm bell is, the need to go to a safe location, and the importance of remaining calm and quiet.
- Child explains how to get help in emergency situations.