



# Understanding Physical Development in Young Children

**Sean Brotherson**  
Family Science Specialist  
NDSU Extension Service

Seeing a baby roll over for the first time or watching a preschooler learn to kick a ball are precious moments in the life of a parent or caregiver.

Rolling over or eating with a spoon are examples of **physical development**. Think about the importance of physical abilities and the role they play in a child's life.

## Muscles and Motor Skills

The growth of a young child's physical abilities is truly amazing. Think of all the physical abilities a child must develop to adjust to the world: learning to see and recognize others, rolling over, holding a bottle or cup, crawling around objects and more.

These are all complex physical tasks that require strength, coordination and perception. They also are developmental moments, those windows of time when parents or caregivers can see the ways in which a young child is growing and developing new skills and abilities.

**Physical development** provides children with the abilities they need to explore and interact with the world around them.

A young child's physical growth first begins as muscles gain strength with use and children gradually develop coordination. The development of muscular control is the first step in this process.

Think about the words **physical development**. They encompass so many different tasks and abilities. What are some of them and what role do they play? For example, crawling across the floor is a task young children engage in that involves physical development.

It also involves activities such as running around outside, jumping on the bed, grasping a parent's finger or using a pencil to draw in a coloring book.

Where do these tasks all fit in the world of physical growth and development?

**NDSU**  
**Extension Service**

North Dakota State University  
Fargo, North Dakota 58105

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## Patterns of Physical Development

The findings of a variety of research efforts suggest parents' goals for their children related to physical development often vary across cultures and socioeconomic groups.

The expectations parents have for a child's physical development thus will depend on culture, family status or the presence of physical limitations.

For example, in a culture where a sport such as soccer is played early and very competitively, a parent's assessment of a child's physical abilities may be linked to performance on the soccer field. But the basic patterns of physical development in children are universal.

The concept of development includes two major categories: **normative development** and **dynamic development**. Each of these is defined as follows:

- **Normative development** concerns the typical (normal) capabilities, as well as limitations, of most children of a given age within a given cultural group. It indicates a typical range of what children can and cannot be expected to do and learn at a given time.

- **Dynamic development** concerns the sequence and physical changes that occur in all aspects of a child's functioning with the passage of time and increasing experience, and how these changes interact.

**Normative development** is important because it allows parents and other adults to understand what to expect of a child physically at different ages. For example, expecting a 3-year-old child to zip her own coat would be unrealistic because she still is developing the physical ability to use fingers in that way.

How do you know what a child should be able to do physically? Typically, we refer to **developmental milestones** to indicate steps in physical ability for a child that should be reflected at different ages, such as during the 3- to 6-month period or between 2 and 3 years.

Charts indicating common developmental milestones in physical abilities are included with the NDSU Extension Service publication "Supporting Physical Growth and Development in Young Children," which is available at your local Extension office or on the Internet at the NDSU Extension Service Web site.

The term **motor development** refers to physical growth, or growth in the ability of children to use their bodies and physical skills. Motor development often has been defined as the process by which a child acquires movement patterns and skills.

Genetics, size at birth, body build and composition, nutrition, rearing and birth order, social class, temperament, ethnicity and culture influence motor development. Physical growth follows several basic principles.

Many times in thinking about physical development, we think most about **large-muscle** or **gross-motor development**. This type of development refers to the use of large-muscle groups in the legs (running) or arms (throwing).

However, **small-muscle** or **fine-motor development** also is included in the physical development of a child, and deals with such areas as smiling, picking up a fork or tying a shoe.

Small-muscle development is evident as infants grasp cereal to put in their mouths and is enhanced by activities such as picking up blocks or drawing with crayons.

## Activity No. 1 – Thinking About Outdoor Activities

Outdoor activities are important for children to learn and develop their physical abilities as they grow older. Brainstorm and list responses to the following questions related to outdoor activities. Discuss them with a spouse, friend, family member or group.

■ What was your favorite outdoor activity as a child? \_\_\_\_\_

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■ What is one thing you enjoy doing outside now that could include your child? \_\_\_\_\_

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■ What are the benefits of outdoor play? \_\_\_\_\_

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■ What are some barriers to outdoor play for children and possible solutions? \_\_\_\_\_

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## How Children's Bodies Grow

A number of principles regarding physical growth can be helpful in understanding a child's physical development.

### • Directional Growth

First, the growth of a child's body follows a directional pattern in three ways. Knowing this is important so expectations of a child's physical abilities are appropriate. The patterns of development are:

1. **Large to small muscle or gross to fine motor development** – Large- to small- muscle development means large muscles develop in the neck, trunk, arms and legs before the small muscles in the fingers, hands, wrists and eyes develop. Children can walk before they can write or scribble.
2. **Head to toe or top to bottom** – A second pattern is children's muscles develop from head to toe. This is why babies can hold up their heads long before they can walk.
3. **Inside to outside or center to outside** – A third pattern is muscles develop from the center of the body first and then toward the outside of the body. Muscles around the trunk of the body develop earlier and are stronger than muscles in the hands, feet, etc.

- **General to Specific Growth**

Large-muscle movement begins with waving of the arms and legs of infants, and it then develops into the more specific movements of an older child who can walk and draw a picture. So, muscle growth begins with more general abilities and becomes more specific and defined as children get older.

- **Differentiation and Integration in Growth**

Differentiation is the process that a child's muscles go through as he or she gains control over specific parts of the body and head.

Once children have found (differentiated) the parts of their body, they can integrate the movements and combine specific movements to perform more complex physical activities, such as walking, building a block tower or riding a bike.

- **Variations in Growth**

Children vary in their physical abilities at different ages. Different parts of the body grow at different rates. The range of physical skills to be expected in gross- or fine-motor development will be very different for infants versus preschoolers.

Further information on variations in physical abilities among children at different ages is explored in a separate publication.

- **Optimal Tendency in Growth**

In children, growth generally tries to fulfill its potential. If growth is slowed for a particular reason, such as malnutrition, the body will try to catch up when it is able to do so. This is one reason why children may develop skills in later years even if delays occurred at an earlier point in their development.

- **Sequential Growth**

Different areas of a child's body will grow at different times. In other words, development is orderly and occurs in a pattern. Children must be able to stand before they can walk. This pattern is evident in a number of ways, such as rolling over before sitting up, sitting up before crawling and crawling before walking, etc.

- **Growth During Critical Periods**

Growth in certain areas of a child's physical development may be more important at particular times during childhood. For example, recent brain research indicates the first few years of life are very important in the development of the brain's growth and for intellectual competence. Similarly, the critical time for the development of motor skills is between 18 and 60 months of age (1½ to 5 years).

Research suggests children go through four physical growth cycles: two of slow growth and two of rapid growth. The first period of rapid physical growth goes from conception to the age of 6 months. The rate of growth gradually slows during the toddler and preschool periods. The second period of rapid growth is during puberty in the years of pre-adolescence and adolescence. Another period of leveling off occurs after puberty until adult growth is achieved.

## Activity No. 2 – Brainstorming Activities for Physical Development

Brainstorm ideas for the use of materials to promote physical development through different activities. Record activity ideas, identify materials needed and highlight the areas of physical development addressed. Share with a family member, friend or group.

Record activity ideas	Identify materials needed for the activity	Describe the areas of physical development addressed (fine motor, hand-eye coordination, etc.)
<ul style="list-style-type: none"> <li>• Example – Rolling a ball back and forth with a toddler or preschooler.</li> </ul>	Soft plastic ball	Gross-motor skills – arm muscles, fine-motor skills – hands, hand-eye coordination

# Types of Movement and Their Benefits for Children

Children need to move and be active in many different ways to reach their full physical development. Remember the following points:

- *Children grow and mature at individual rates.*
- *Children’s motor development progresses through a sequence.*
- *Children need to build on what they know, going from simple to complex.*

Different types of physical movement are important in a child’s physical development. Parents and caregivers can benefit from learning the importance of patterns of physical development to support children as they learn to move and develop physical abilities.

The types of physical movement that children engage in and are important to their physical development include the following categories:

- **Locomotor Movement**

Movement of the body from place to place is involved in locomotor movement. Physical abilities such as crawling, walking, hopping, jumping, running, leaping, galloping and skipping are examples of locomotor movement. This type of movement helps develop **gross-motor skills**.

- **Nonlocomotor Movement**

Movement of the body while staying in one place is involved in nonlocomotor movement. Physical abilities such as pushing, pulling, twisting, turning, wiggling,

sitting and rising are examples of nonlocomotor movement. This type of movement helps develop **balance and coordination skills**.

- **Manipulative Movement**

Movement that involves controlled use of the hands and feet is reflected in manipulative movement. Physical abilities such as grasping, opening and closing hands, waving, throwing and catching are examples of manipulative movement. This type of movement helps develop **fine-motor skills and hand-eye coordination**.

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## Conclusion

Running, jumping, skipping, hopping, drawing, cutting, pasting, stacking – these are the skills young children develop as they grow physically.

They make possible the interactions and activities that bring richness and enjoyment to anyone’s life.

From muscles to motor skills, the unfolding picture of a child’s physical development is an exciting experience to observe.

Parents and caregivers should pay attention to their child’s physical growth and give loving support as their children develop these skills.



# Recommended Resources

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## ■ Books and Articles

Bayley, N. (1993). *Bayley Scales of Infant Development* (2nd ed.). New York: Psychological Corp.  
*Research-based guidelines related to a child's growth and development. Useful for assessment and understanding of key growth indicators.*

Hammet, C.T. (1992). *Movement Activities for Early Childhood*. Champaign, Ill.: Human Kinetics.  
*Useful resource highlighting different types of movement activities that can assist young children with physical development.*

Kristensen, N. (2001). *Basic Parenting Focus Issue: Motor Development*. Minneapolis, Minn.: Family Information Services.  
*Very useful set of materials and handouts summarizing key points related to a young child's physical growth and development.*

Mayesky, M. (1999). *Creative Activities for Children*. Thomson Publishing.  
*Useful resource highlighting activities that can be done with young children to stimulate growth and development.*

Malina, R.M., and C. Bouchard. (1991). *Growth, Maturation, and Physical Activity*. Champaign, Ill: Human Kinetics.  
*Excellent text on the scientific understanding of physical growth and development in human beings.*

*Your Baby is Growing Strong; Your Baby is Learning to Play; Your Baby is Becoming a Person; Your Child is Growing Strong; Your Child is Learning to Play; Your Child is Becoming a Person* (charts). (1997.) Minneapolis, Minn.: MELD.

*Useful set of charts on a baby's growth and development.*

## ■ Individuals and Organizations

If you have concerns about your child's physical growth and development, you have a number of individuals and organizations you can contact for further information. These might include:

- Your local pediatrician or family doctor
- Your local county or public health unit
- Your local Head Start program
- Your county Extension office

## ■ References

Bayley, N. (1993). *Bayley Scales of Infant Development* (2nd ed.). New York: Psychological Corp.

Berk, L.E. (1989). *Child Development*. Boston, Mass.: Allyn and Bacon.

Clare, L., and H. Garnier. (2000). Parents' goals for adolescents diagnosed with developmental delays in early childhood. *Journal of Early Adolescence*, 20(4), 442-446.

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Payne, V. G., and L.D. Isaacs. (1987). *Human Motor Development: A Lifespan Approach*. Mountain View, Calif.: Mayfield.

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