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# Toddlers: Physical Development

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# Summary

Viewers learn the physical growth that takes place during the toddlers years, including the gross and fine motor skills that toddlers master, facts/guidelines concerning proper sleep and nutrition for toddlers, and special needs and concerns that many parents and caregivers of toddlers face.

## Key points:

- Although all children are different, most toddlers weigh between 22 and 30 pounds and measure 29 to 37 inches tall.
- Most of the teeth emerge during this stage, enabling them to eat more complex food such as meat.
- Dramatic growth occurs in the brain where neurons make connections with each other to create a complex network of cells.
- The development of gross motor skills is dramatic due to the mobility toddlers have once they learn how to walk on their own. Unsteady steps soon turn to confident strides and running, along with the enjoyment of climbing.
- Toddlers can do increasingly detailed tasks using the small muscles in their arms, hands, and fingers such as drawing, building, and manipulating toys.
- The grasp toddlers have mastered can be dangerous as they are now able to pick up unsafe materials and small objects that can be choking hazards.
- Fine motor skills encourage toddlers to do self-help tasks like helping to undress and feed themselves.
- Around the ages of 15 to 18 months, toddlers can begin to self-feed using utensils and possibly even drinking from a cup.
- Since the recommended 1,000 to 1,300 calories is not a large amount of food, it is important to make those foods as healthy as possible. Caregivers should make sure that toddlers get the right amount of calcium, vitamin D, and iron each day.
- Since food preferences are established early on, eating a variety of healthy foods as a toddler is the best gateway to good eating habits as children get older.
- During both REM sleep and Non-REM sleep, important growth take's place in a child's body; a toddler should get 12 to 14 hours of sleep each day, despite resistance.
- During this stage of development, toddlers often experience sleep problems and nightmares.
- Children with challenging physical conditions may experience delays in motor development, but early intervention services have been shown to help.
- Parents and caregivers who feel it is time to start toilet training should be sensitive to a child's willingness to participate in the training and watch for the signs that a child can control their bodily functions.

# Physical Growth

The first few years of life are full of dramatic physical changes, and toddlers' bodies are growing every day. When looking at a toddler, you would observe certain physical characteristics such as a large head, long trunk, and short legs. From the day a child is born to their first birthday, they triple in body weight.

- The average one-year-old weighs about 22 pounds and stands about 29 inches tall.
- At age two, height is likely about 33 inches and weight increases to an average of 27 pounds.
- At three years old, the average child weighs around 30 pounds and stands at about 37 inches tall.

These statistics are based on average heights and weights of typically developing children. There are wide variations in height and weight that can be determined or affected by genetics and gender.

Girls tend to weigh and measure smaller than boys. Asian toddlers tend to be smaller than North American Caucasian toddlers of the same age, and African American toddlers tend to be bigger than that.

Another kind of growth that occurs in toddlers is dental growth. Most teeth are cut between 18 months and 2 years of age. Cuspids and molars start to grow in, assisting toddlers with chewing meat and other difficult to chew foods. These new teeth and gums are just as susceptible to cavities and disease as adult teeth. Tooth decay in children ages 2 to 5 has increased in the past 10 years. The American Dental Association suggests to keep children's teeth healthy it is important to take a child to the dentist around their first birthday and then every 6 months after that. It is also suggested that a child's teeth and gums should be cleaned after meals, and to avoid giving a child a sippy cup or bottle (of juice or milk) at naptime or bedtime.

During the first three years of life, a child's brain is rapidly creating an extremely complex network of cells. Neurons are the basic nerve cells in the brain and have the ability to communicate with other cells through branch-like fibers called dendrites. Dendrites receive messages from other neurons through small gaps between them called synapses. During the first few years of life, the brain constructs billions of connections between neurons, and triples its weight. A baby's brain actually reaches three-quarters of its adult weight and size by age 2. The development of these new brain connections allows children to make more complex movements, such as the transition from crawling to walking.

# Gross Motor Development

The human body has over 600 muscles. During the toddler stage children learn how to use them. One type of physical muscle development is the acquisition of gross motor abilities, which are skills that require the large muscles in the arms and legs, as well as strength and stamina. By the end of the toddler stage, most children will reach several gross motor developmental milestones, or tasks most children can perform at certain ages. These are some gradual changes, such as growth and coordination of muscles, as well as gaining a better control of posture and balance. The joints of a toddler are more flexible because ligaments and muscles are attached more loosely than an older child's. The gradual changes and the physical state of the child's muscles help the infant to stand upright and gain the ability to walk.

The average age for children to walk alone is about 12 months. The young toddler walks with their feet widespread to help maintain a steady base for balance. These learning walkers are often top heavy and tend to fall more frequently. As the toddler matures, their feet come together and they can eventually walk in a straightforward manner, also freeing the child's hands to be able to carry objects while traveling. At about 19 months, a child will talk with increased speed and even start running.

Toddlers also learn how to climb in this stage, and some children have an extreme urge to climb onto anything that could present a dangerous situation. Caregivers can assist with climbing skills by providing children with stepping blocks, climbers, and slides. Climbing up stairs usually occurs at about 16 months of age, but climbing down stairs (with both feet on each step) usually occurs at 26 months.

Caregivers can create activities to help children foster gross motor development. For example, creating an obstacle course consisting of cushions, pillows, and large, safe objects will help them practice climbing skills. It is also helpful to play with balls of varying sizes while encouraging and modeling throwing, catching, and kicking. To practice coordination, it is encouraged to take children for walks.

# Fine Motor Development

Fine motor skills require the ability to coordinate small muscle groups in the arms, hands, and fingers. The muscles in the hands of toddlers become coordinated enough in this stage to perform the pincer grasp more easily. This grasp allows fine motor play like using crayons, working with clay, and tearing paper.

## **Fine motor skills acquired by toddlers include:**

- Holding a crayon (about 11 months)
- Building stacks of 2 blocks (14 months)
- Placing pegs in a board (16 months)
- Imitating strokes on paper (24 months)
- Copying a circle shape (33 months)

The pincer grasp also allows for toddlers to create choking hazards by picking objects up off the ground as well as opening drawers and cabinets, so this is the stage where childproofing the child's home is recommended.

## **Ways to foster a toddler's fine motor skills:**

- Provide non-toxic clay or homemade dough for toddlers to squeeze and mold, giving their hand muscles strength.
- Toddlers can gain balancing skills by having blocks spread out before them of different sizes, shapes, and textures, and encouraged to build with them.
- Looking at books with a toddler allowing them to turn the page contributes to skill acquisition as well as encouraging them to participate in dressing and undressing themselves.

# Nutrition

In the toddler stage, children transition from drinking or slurping pureed foods to chewing more textured foods. The acquisition of fine motor skills allows them to move away from being fed by others to self-feeding with their fingers and beginning to use utensils at about 15 to 18 months. They also move from drinking from bottles to sippy cups or straws, and later moving on to a regular cup. To provide toddlers with the best nutrition, caregivers should provide foods that are high in nutrients to help the growth process. Sweets and empty calories should be seriously limited.

According to the USDA, a toddler's healthy diet should consist of 1,000 to 1,300 calories, depending upon their height and activity level.

Toddlers should consume a minimum of 16 grams of protein each day, which is about 10% to 15% of their calorie intake. Thirty percent of their calories should come from fat, which assists in growth and gives energy. The remainder of their calories, about 50 to 60% should come from carbohydrates such as whole grains, fruits, and vegetables. Milk is also an important component of a toddler's diet, as it assists in strengthening bones. They should get 2 to 3 cups a day.

Iron deficiency can cause mental and physical impairments; preventing iron deficiency becomes important after the child reaches age 2. Most children have stopped drinking breast milk or formula at this age, which previously had provided all of the iron they needed.

Ways to prevent iron deficiency include serving iron-fortified cereals and snacks, and increase intake of iron-rich foods such as meat, beans, and tofu. Also limiting toddlers to three 8 oz. cups of cow's milk a day will help their stomach retain enough room to eat the other iron-rich foods. Some foods present more common choking hazards to toddlers such as popcorn, hot dogs, whole grapes, raw carrots, and nuts, and should be avoided.

Childhood obesity and malnutrition are some special concerns for a toddler's diet. Childhood obesity occurs when the child is 20% above the average weight for a given height. Some research suggests that obesity during infancy and the toddler stage may increase a person's chances of becoming obese for the rest of their life. Genetically speaking, children of obese adults tend to have a bigger risk for obesity themselves. In a study examining children's diets, it was found that 25% of toddlers were eating no vegetables, and 25% were also eating no fruit. The most common vegetable eaten was French fries and many were eating pastries and drinking sweetened drinks.

# Sleep

According to the National Sleep Foundation, a child will spend 40% of their childhood asleep. This time is crucial due to the many different types of growth and development that are taking place while asleep.

There are two stages of sleep that are very important to a child's mental and physical development: Non-REM sleep and REM sleep. REM stands for rapid eye movement.

## Non-REM

Non-REM sleep is often referred to as "quiet sleep." During this type of sleep more blood flows to the muscles, hormones are released into the body for growth and development, tissues grow and repair themselves, and energy is restored.

## REM

REM is called "active sleep." During this time, children's bodies become unable to move, but their minds are active and dreams occur. In this stage, breathing and heart rates become irregular.

The National Sleep Foundation recommends that toddlers get about 12 to 14 hours of sleep in a 24-hour period.

Some children have sleep-related problems such as nighttime fears and nightmares due to the development of the imagination. This can cause them to form irrational fears and scary mental images. At around 18 months, some children experience a heightened separation anxiety at bedtime.

### **Some ways to cope with separation anxiety at bedtime:**

- Maintain a daily sleep schedule and consistent bedtime routine.
- Encourage the use of a soothing or security object.
- Talk to the child and assure their safety.
- Create the same bedroom environment every night.
- Clearly communicate bedtime rules to the child.

# Special Considerations

## Challenging Conditions

Some children have physically challenging conditions that can affect their gross and fine motor skills. Conditions such as Down syndrome, cerebral palsy, and visual and hearing impairments can affect physical development.

### **Down syndrome**

Children with Down syndrome may have low muscle tone, which can affect balance and gross motor skill acquisition. Fine motor skills can also present a challenge because they tend to have shorter-than-normal fingers and underdeveloped bones in their wrists. Most toddlers with Down syndrome still reach physical development milestones, but later than their typically developing peers.

### **Cerebral palsy**

Toddlers with cerebral palsy can experience a wide range of gross and fine motor impairments that can range from slight to severe. Some children may only have limited fine motor function, and some may need assistance to remain upright while in a seated position.

### **Visual/Hearing Impairments**

Some children have visual impairments like blindness or severely limited vision, as well as hearing impairments like deafness or severely limited auditory perception. These conditions can impair or cause delays in motor development.

Development of gross and fine motor skills in children with physical differences can be assisted with early intervention services. These services can provide physical therapy, parental support, and social service and have shown to be able to enhance motor skills in toddlers with such challenging conditions.

# Special Considerations

## Toilet Training

As with many other developmental milestones, children become ready to start toilet training at different ages. The success of training is based on the toddler's ability to control their bladder and bowel functions, as well as their willingness to participate in toilet training. The most beneficial aspect for the child during training is the positive reinforcement from caregivers used in the effort to toilet train them.

### **Clues that a toddler might be ready to begin toilet training:**

- A preference for clean diapers.
- An understanding of when they have eliminated.
- A development of a vocabulary that names parts of the body and uses terms for body functions.
- An ability to "hold it" for short amounts of time.
- Behaviors that show that they prefer privacy when eliminating.
- Multiple instances of staying dry during naps.

# Review

- One- and two-year-olds grow in so many ways: weight, height, emerging teeth. Their brains start forming of a complex network of brain cells.
- Toddlers improve their gross motor skills through walking, climbing, and other activities that use the large muscle groups in their arms and legs.
- They also practice fine motor skills such as scribbling, working with clay or dough, and other materials that use the small muscles in the hands and fingers.
- Good nutrition and the proper amount of sleep are crucial to a toddler's development.
- Toddlers with challenging physical conditions can be assisted by early intervention services.
- Some toddlers show signs that they are ready to start the process of toilet training.

## Suggested Activities

1. Have students ask their own caregivers/parents about their toilet training phase. Investigate and report on what techniques were used and if caregivers noticed any typical clues that show a child is ready to be toilet trained. Share stories about humorous occurrences that students have had personally with toddlers or from their parents' stories about toilet training.
2. Observe toddlers at play and report the differences in their gross motor abilities. Which toddlers are walking? Are any of them climbing? Interact with a toddler and observe their pincer grasp and challenge them to try to test their fine motor skills with activities such as coloring holding a crayon, turning the pages of a book, and using buttons.

# Research Project

Research early intervention services for toddlers with challenging physical conditions. Investigate the multiple aspects of these services including physical therapy, parental support, and social services. What are some current trends in this field? Research the outcomes of these services and advancements in the programs that are set up for children with disabilities.

# Toddlers: Physical Development

## Fill-In-The-Blank

Fill in the blanks with the correct words from the bank at the bottom of the page.

\_\_\_\_\_ is a term given to a child of about the age of one or two. From the day a child is born to their first birthday, they triple in \_\_\_\_\_. During dental growth the \_\_\_\_\_ and \_\_\_\_\_ grow in to help with chewing meat and more difficult to chew foods. During brain growth, billions of connections between \_\_\_\_\_ are formed creating a complex network of cells. Toddlers use their \_\_\_\_\_ while walking and climbing. \_\_\_\_\_ are attached loosely to the bones, allowing a toddler's joints to be more flexible. \_\_\_\_\_ are tasks that most children can perform at certain ages; the average age at which toddlers walk alone is 12 months. \_\_\_\_\_ are exhibited when a child uses their muscles in their arms, hands, and fingers. These allow a child to successfully \_\_\_\_\_ or use utensils. During \_\_\_\_\_ sleep, more blood flows to the muscles and tissues grow and repair themselves. During \_\_\_\_\_ sleep, dreaming occurs. Children with \_\_\_\_\_ tend to have shorter-than-normal fingers, impairing their fine motor skill improvement. Children with \_\_\_\_\_ tend to have slight to severe impairments, and could even need assistance sitting up straight in a chair.

### Word Bank:

REM

toddler

fine motor skills

cerebral palsy

weight

Non-REM

self-feed

cuspid

developmental milestones

muscles

Down syndrome

neurons

molars

gross motor skills

# Toddlers: Physical Development

## Fill-In-The-Blank *Answer Key*

Toddler is a term given to a child of about the age of one or two. From the day a child is born to their first birthday, they triple in weight. During dental growth the cuspids and molars grow in to help with chewing meat and more difficult to chew foods. During brain growth, billions of connections between neurons are formed creating a complex network of cells. Toddlers use their gross motor skills while walking and climbing. Muscles are attached loosely to the bones, allowing a toddler's joints to be more flexible. Developmental milestones are tasks that most children can perform at certain ages; the average age at which toddlers walk alone is 12 months. Fine motor skills are exhibited when a child uses their muscles in their arms, hands, and fingers. These allow a child to successfully self-feed or use utensils. During Non-REM sleep, more blood flows to the muscles and tissues grow and repair themselves. During REM sleep, dreaming occurs. Children with Down syndrome tend to have shorter-than-normal fingers, impairing their fine motor skill improvement. Children with cerebral palsy tend to have slight to severe impairments, and could even need assistance sitting up straight in a chair.

# Toddlers: Physical Development

## Multiple Choice

Circle the best available answer for each of the following:

- 1) Toddler is a term generally used for children of which age:
  - a) birth to 1 year old
  - b) 1-2 years old
  - c) 2-3 years old
  - d) 2-4 years old
- 2) Which is not a typical physical characteristic of a toddler:
  - a) larger head
  - b) long trunk
  - c) long fingers
  - d) short legs
- 3) Most teeth are cut between these ages:
  - a) 14 months and 1 year
  - b) 18 months and 2 years
  - c) 24 months and 3 years
  - d) 3 years and 4 years
- 4) A toddler should get this amount of sleep every 24 hours:
  - a) 10-12 hours
  - b) 11-13 hours
  - c) 12-14 hours
  - d) 14-16 hours
- 5) Which is not a sign that a toddler is ready to be toilet trained:
  - a) an understanding of having eliminated
  - b) staying dry during naps
  - c) having an ability to hold it for a short time
  - d) playing with/in an elimination
- 6) 90% of children are walking at this age:
  - a) 12 months
  - b) 14 months
  - c) 16 months
  - d) 24 months
- 7) These toddlers tend to be bigger than the average North American Caucasian toddler:
  - a) Asian
  - b) male North American
  - c) Western European
  - d) African American
- 8) Which of these is not a suggestion given from the American Dental Association concerning toddler dental care:
  - a) clean a child's teeth and gums after every meal
  - b) avoid giving a child fruit juice
  - c) take a child to the dentist around their first birthday
  - d) do not use sippy cups at bedtime
- 9) A toddler's diet should consist the most of this:
  - a) fat
  - b) calcium
  - c) carbohydrates
  - d) protein
- 10) Fine motor developments for toddlers include which of the following:
  - a) climbing out of a crib
  - b) carrying a bottle while walking
  - c) using a spoon
  - d) walking up stairs

# Toddlers: Physical Development

## Multiple Choice Worksheet *Answer Key*

- 1) Toddler is a term generally used for children of which age:
- a) birth to 1 year old
  - b) 1-2 years old**
  - c) 2-3 years old
  - d) 2-4 years old
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- 3) Most teeth are cut between these ages:
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- 4) A toddler should get this amount of sleep every 24 hours:
- a) 10-12 hours
  - b) 11-13 hours
  - c) 12-14 hours**
  - d) 14-16 hours
- 5) Which is not a sign that a toddler is ready to be toilet trained:
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  - d) protein
- 10) Fine motor developments for toddlers include which of the following:
- a) climbing out of a crib
  - b) carrying a bottle while walking
  - c) using a spoon**
  - d) walking up stairs

# Toddlers: Physical Development

## Matching

Match the words in the first column to the best available answer in the second column.

- |       |   |                   |
|-------|---|-------------------|
| _____ | A toddler's diet should consist of 50%-60% of these   | 1) REM            |
| _____ | This physically challenging condition can cause a toddler's fingers to be shorter than normal | 2) fat            |
| _____ | Dreams occur during this type of sleep  | 3) cerebral palsy |
| _____ | Toddlers use this grasp to gain fine motor skills   | 4) Non-REM        |
| _____ | A toddler's diet should contain 30% of this, which helps growth and gives energy              | 5) down syndrome  |
| _____ | During this type of sleep tissues grow and repair themselves                                  | 6) cuspids        |
| _____ | This physically challenging condition can have symptoms that range from slight to severe      | 7) carbohydrates  |
| _____ | These come in at around 18 months through 2 years of age                                      | 8) pincer         |

# Toddlers Physical Development

## Matching *Answer Key*

Match the words in the first column to the best available answer in the second column.

- 7) carbohydrates      50-60% of a toddlers diet should consist of these
- 5) down syndrome      This physically challenging condition can cause a toddler's fingers to be shorter than normal
- 1) REM      Dreams occur during this type of sleep
- 10) pincer      Toddlers use this grasp to gain fine motor skills
- 2) fat      30% of a toddlers diet should be this, which helps in growth and gives energy
- 4) Non-REM      During this type of sleep tissues grow and repair themselves
- 3) cerebral palsy      This physically challenging condition can have symptoms that range from slight to severe
- 6) cuspids      These come in at around 18 months through 2 years of age

# **Toddlers: Physical Development**

## **Short Answer**

**1. What should be included in a toddler's diet? What should toddlers avoid at this stage of development?**

**2. What are some clues that a toddler is ready to be toilet trained?**

**3. What is the appropriate amount of sleep a toddler should get? What happens during sleep that can affect a toddler's physical development?**

# Toddlers: Physical Development

## Short Answer *Answer Key*

### **1. What should be included in a toddler's diet? What should toddlers avoid at this stage of development?**

Toddlers' daily diets should include approximately:

- 10%-15% protein
- 30% fat
- 50%-60% carbohydrates from whole grains, vegetables, and fruit.

Milk is also important to a toddler's diet; it assists in strengthening bones. Toddlers should receive 2 to 3 cups of milk a day.

Small foods that could be easily choked on should be avoided.

### **2. What are some clues that a toddler is ready to be toilet trained?**

- A preference for clean diapers.
- An understanding of when they have eliminated.
- A development of a vocabulary that names parts of the body and uses terms for body functions.
- An ability to "hold it" for short amounts of time.
- Behaviors that show that they prefer privacy when eliminating.
- Multiple instances of staying dry during naps.

### **3. What is the appropriate amount of sleep a toddler should get? What happens during sleep that can affect a toddler's physical development?**

The National Sleep Foundation recommends toddlers get 12 to 14 hours of sleep.

Non-REM sleep or "quiet sleep" is when more blood flows to the muscles, hormones are released for growth, tissues grow and repair themselves, and energy is restored.

During REM sleep, dreaming and the growth of an imagination occurs.

# Glossary

Dendrites	The branch-like extension fibers that can receive messages from other neurons
Developmental Milestones	The tasks most children can perform at certain ages
Fine Motor Skills	Skills that require the ability to coordinate small muscle groups in the arms, hands, and fingers
Gross Motor Skills	Skills that require the large muscles in the arms and legs, as well as strength and stamina
Neurons	The basic nerve cells in the brain, and have the ability to communicate with other cells
Non-REM sleep	The stage of sleep where blood flows to the muscles and tissues grow and repair themselves.
Pincer grasp	A grasp that allows fine motor play like using crayons, working with clay, and tearing paper
REM sleep	The stage of sleep when dreaming occurs
Synapses	The spaces in between neurons in which messages travel