

Pediatric Growth and Development
GROWTH AND DEVELOPMENT

INFANT TO ADOLESCENT GROWTH AND DEVELOPMENT

Growth and development begin with birth. As infants and children grow and mature, they pass through predictable stages of development. Knowledge and assessment of growth and development help the nurse provide screening for physical and emotional problems; offer anticipatory guidance to parents and caregivers; develop a rapport with the child to enhance the provision of health care; and provide education to the family to build a healthy lifestyle for the future

TABLE 40-1 Infant to Adolescent Growth and Development

AGE AND PHYSICAL CHARACTERISTICS	BEHAVIOR PATTERNS	NURSING CONSIDERATIONS
Birth-4 Weeks (1 Month)	<i>Motor development</i>	<i>Play stimulation</i>
<ul style="list-style-type: none"> • Significant neurologic disorganization. • Strong Moro reflex. • Sleep cycle disorganized. • GI system too immature for solid foods. 	<ul style="list-style-type: none"> • Momentary visual fixation on objects and adult face. • Eyes follow bright moving objects. • Lies awake on back. • Immediately drops objects placed in hands. • Responds to sounds of bell and other similar noises. • Keeps hands fisted. 	<ul style="list-style-type: none"> • Use human face smile and talk. • Dangle bright and moving object (eg, mobile) in field of vision. • Hold, touch, caress, fondle, kiss. • Rock, pat, change position. • Play soft music or have infant listen to ticking clock, sing. • Talk to infant, call by name.
	<i>Socialization and vocalization</i>	<i>Parental guidance</i>
	<ul style="list-style-type: none"> • Mews and makes throaty noises. • Shows interest in human face. 	<ul style="list-style-type: none"> • Begin to expose infant to different household sounds. • Change crib location in room. • Use bright-colored clothing and linen. • Put infant to sleep on back until old enough to roll. • Keep infant nearby. • Play with infant when awake. • Hold during feeding.
	<i>Cognitive and emotional development</i>	
	<ul style="list-style-type: none"> • Reflexive. • External stimuli are meaningless. • Responses are generally limited to tension states or discomfort. • Gains satisfaction from feeding and being held, rocked, fondled, and 	

cuddled.

- Has an intense need for sucking pleasure.
- Quiets when picked up.

NURSING ALERT Educate parents about infant sleep stages and putting infant to sleep on back.

4-8 Weeks (2 Months)

Motor development

Play stimulation

- Crossed extensor reflex disappears.
- Tonic neck reflex begins to fade.

- Reflexive behavior is slowly being replaced by voluntary movements.
- Turns from side to back.
- Begins to lift head momentarily from prone position.
- Shows eye coordination to light and objects.
- If bell is sounded nearby, infant will stop activity and listen.
- Eyes follow better, both vertically and horizontally. Focuses well.

- Arrange mobile over crib so infant's movement will set it in motion.
- Hang wind chimes near infant.
- Hang bright-colored pictures on wall (yellow and red-colored stripes, for example).
- Use cradle gym and infant seat.
- Use rattles.
- Hold infant and walk around room.
- Allow freedom of kicking with clothes off.

Socialization and vocalization ***Parental guidance***

- Begins vocalization coos, especially to a voice.
- Crying becomes differentiated.
- Visually looks for sounds.
- May squeal with delight when stimulated by touching, talking, or singing.
- Begins social smile.
- Eyes follow person or object more intently.

- Talk to infant and smile; get excited when infant coos.
- Place infant seat on a secure surface (eg, floor, center of a table—never near edge of table) near mother's activities.
- Put infant in prone position in bed or on floor.
- Expose infant to different textures.
- Exercise infant's arms and legs.
- Sing to infant.
- Provide tactile experience during bathing, diapering, and

Cognitive and emotional development

- Recognizes familiar face.
- Becomes more aware and interested in environment.
- Anticipates being fed

- when in feeding position.
 - Enjoys sucking puts hand in mouth.
- feeding.

8-12 Weeks (2-3 Months)

Motor development

- Landau reflex appears at 3-4 months.
- Positive support reflex disappears.
- Posterior fontanelle closes.
- Increase in body fluidsâ real tears appear, drooling, and GI juices increase.

- When prone, will rest on forearms and keep head in midline makes crawling movements with legs, arches back, and holds head high; may get chest off surface.
- Indicates preference for prone or supine.
- Discovers handsâ bats objects with hands.
- Holds objects in hands and brings to mouth.
- Has fairly good head control.

Socialization and vocalization

- Smiles more readily, babbles and coos.
- Stops crying when mother enters room or when caressed.
- Enjoys playing during feeding.
- Stays awake longer without crying.
- Turns head to follow familiar person.

Cognitive and emotional development

- Shows active interest in environment.
- Recognizes familiar faces and objects.
- Focuses and follows objects.
- Shows repetitiveness in

Play stimulation

- Encourage socialization, smiling, and laughing.
- Place on mat on floor.
- Continue to introduce new sounds.

Parental guidance

- Take outdoors with proper clothing (similar warmth as that of adults), hat, and PABA-free sunscreen.
- Bounce on bed.
- Play with infant during feeding.
- Rattles can be used effectively for visual following and for hand play.
- Encourage older siblings to make faces, sing, and talk to infant.

NURSING ALERT Children of all ages should avoid intense sun exposure, particularly during the middle of the day. PABA-free sunscreen with a sun protection factor of at least 15 should be used on children of all ages, particularly if sun exposure is longer than 30 minutes.

- play activity.
- Is aware of strange situations.
- Derives pleasure from sucking purposefully gets hand to mouth.
- Begins to establish routine preceding sleep.

12-16 Weeks (3-4 Months) *Motor development*

- Moro reflex fades.
- Stepping reflex disappears.
- Rooting reflex disappears.
- By 4-5 months infant's weight approximately doubles birth weight.
- Average weekly weight gain, 4-7 ounces (113.5-198.5 g).
- Average monthly height gain, 1 inch (2.5 cm).
- Pulse rate slows to 100-140 beats/minute.
- Respirations, 20-40 breaths/minute.
- Grasp becomes voluntary.
- Sucking becomes voluntary.

- Eyes focus on small objects, may pick a dangling ring.
- Holds head up (when being pulled to sitting position).
- Becomes more interested in environment.
- Hand comes to meet rattle.
- Listens and turns head to familiar sound.
- Sits with minimal support.
- Intentional rolling over, back to side.
- Reaches for offered objects.
- Grasps objects with both hands, and everything goes into mouth.

Socialization and vocalization

- Laughs and chuckles socially.
- Demands social attention by fussing.
- Recognizes mother.
- Begins to respond to No, no.
- Enjoys being propped in sitting position.

Cognitive and emotional development

Play stimulation

- Encourage mirror play.
- Provide soft squeeze toys in vivid colors of varying texture.
- Allow infant to splash in bath.
- Infant still enjoys holding and playing with rattles.
- Enjoys old-fashioned clothespins and playing pat-a-cake and peek-a-boo.

Parental guidance

- Be certain button eyes on toys and other small objects cannot be pulled off.
- Hold rattle and let infant reach and grasp it.
- When infant is in high chair, strap in.
- Move mobile out of reach infant may grab it and cause injury.
- Repeat child's sounds.
- Talk in varying degrees of loudness.
- Begin looking at and naming pictures in book.
- Begin roughhousing play by both parents.
- Give space in playpen or

on sheet on floor to practice rolling over.

- Actively interested in environment.
- Enjoys attention; becomes bored when alone for long periods.
- Recognizes bottle.
- More interested in mother.
- Indicates increasing trust and security.
- Sleeps through night; has defined nap time.

16-26 Weeks (4-7 Months) *Motor development*

- By 5-6 months, tonic neck reflex disappears.
- By 6-7 months, palmar grasp disappears.
- By 7-9 months, develops eye-to-eye contact while talking; engages in social games.
- Two central lower incisors erupt.
- Spine C-shaped lacks lordotic and lumbar curves.
- Eustachian tube short and horizontal, which may be a factor in ear infections.
- GI system mature enough for solid foods.

Socialization and vocalization

- Shows momentary sitting with hand support.
- Bounces and bears some weight when held in standing position.
- Transfers and mouths objects in one hand.
- Discovers feet.
- Bangs objects together.
- Rolls over well.
- May begin some form of mobility.
- Discriminates between strangers and familiar people.
- Crows and squeals.
- Starts to say Ma, Da.
- Play is self-contained.
- Laughs out loud.
- Makes talking sounds in response to others' talking.
- Begins fear of strangers, 8½-10 months

Cognitive and emotional development

Play stimulation

- Enjoys social games, hide-and-seek with adult, toys, and large blocks.
- Likes to bang objects.
- Plays in bounce chair and walker.
- Enjoys large nesting toys (round rather than square).
- Likes to drop and retrieve things.
- Likes metal cups, wooden spoons, and things to bang with.
- Loves crumpled paper.
- Enjoys squeeze toys in bath.
- Likes peek-a-boo, bye-bye, and pat-a-cake.

Parental guidance

- Will play as long as you can.
- Tie toys to chair with short string.
- Let play with extra spoon at feeding.
- Give soft finger foods.
- Because infant puts

- Secures objects by pulling on string.
 - Searches for lost objects that are out of sight.
 - Inspects objects; localizes sounds.
 - Likes to sit in high chair.
 - Drops and picks up objects.
 - Displays exploratory behavior with food.
 - Exhibits beginning fear of strangers.
 - Becomes fretful when mother leaves.
 - Shows much mouthing and biting.
- everything in mouth, *use safety precautions.*
 - Keep small items away from infant; could choke on them.
 - Show excitement at achievements.
 - Supply safe kitchen items for toys.

26-40 Weeks (7-10 Months) *Motor development*

- Four upper incisors erupt around 7-9 months.
- By 9-12 months, plantar reflex disappears.
- By 9-12 months, neck-righting reflex disappears.

6-12 months

- Average weekly weight gain, 3-5 ounces (85-141.7 g).
- Average monthly height gain, ½ inch (1.25 cm).

- Sits without support.
- Recovers balance.
- Manipulates objects with hands.
- Unwraps objects. Creeps.
- Pulls self upright at crib rails.
- Uses index finger and thumb to hold objects.
- Rings a bell.
- Can feed self a cracker and can hold a bottle. Chewing reflex develops.
- Can control lips around cup.
- Does not like supine position.
- Can hold index finger and thumb in opposition.

Socialization and vocalization

- Claps hands on request.
- Responds to own name.
- Is very aware of social

Play stimulation

- Encourage use of motion toys—rocking horse and stroller.
- Water play.
- Imitate animal sounds.
- Allow exploration outdoors.
- Provide for learning by imitation.
- Offer new objects (blocks).
- Child likes freedom of creeping and walking, but closeness of family is important.
- Good toys: plastic milk carton; bean bag for tossing; fabric books; things to move around, fill up, empty out; pile-up and knock-down toys.

Parental guidance

- Protect from dangerous

- environment.
 - Imitates gestures, facial expressions, and sounds.
 - Smiles at image in mirror.
 - Offers toy to adult, but does not release it.
 - Begins to test parental reaction during feeding and at bedtime.
 - Will entertain self for long periods.
- objectsâ€™cover electrical outlets, block stairs, remove breakable objects from tables.
 - Have child with family at mealtime.
 - Offer cup.
 - Talk and sing to infant.

Cognitive and emotional development

- Begins to imitate.
- Shows more interest in picture books.
- Enjoys achievements.
- Has strong urge toward independence locomotion, feeding, dressing.

10-12 Months (1 Year)

Motor development

Play stimulation

- Develops lordotic and lumbar curves to make walking possible.
- By 12-24 months, Landau reflex disappears.
- Weight should be approximately triple birth weight.
- Two lower lateral incisors appear.
- Four first molars appear by 14 months.

- Cruises around furniture.
- Beginning to stand alone and toddle.
- Turns pages in book.
- Tries tossing object.
- Shows hand dominance.
- Navigates stairs; climbs on chairs.
- Builds a tower of 2 blocks.
- Puts balls in box.
- May use spoon.
- Can release objects at will.
- Has regular bowel movements.

- Ball play.
- Cloth doll.
- Motion objects and toys.
- Transporting objects.
- Name and point to body parts.
- Put-in• and take-out toys.
- Sand box with spoons and other simple objects.
- Blocks.
- Music.

Child development theories

- Freudian: Behavior Birth-1 year Oral Stage
- Eriksonian:

Socialization and vocalization

- Uses jargon.
- Points to indicate wants.

Parental guidance

- Allow self-directed play rather than adult-directed play.
- Continue to expose to foods of different textures, taste, smell, and

- Emotion/Personality Birth-1 year Sense of Trust vs. Mistrust
- Piagetian: Intellectual Activity (Thought Process)
- Birth-2 year sensorimotor Period

- Loves give-and-take game.
- Responds to music.
- Enjoys being center of attention and will repeat laughed-at activities.

Cognitive and emotional development

- Shows fear, anger, affection, jealousy, anxiety, and sympathy.
- Experiments to reach new goals.
- Displays intense determination to remove barriers to action.
- Begins to develop concepts of space, time, and causality.
- Has increased attention span.

- substance.
- Offer cup.
- Show affection and encourage child to return affection.
- Safety teaching: Child gets into everything within reach. Place medications in safe, locked place. Create a safe environment for child. Use stair guards, faucet protectors, and drawer locks. Have Poison Control Center phone number on hand.

12-18 Months

Motor development

Play stimulation

- *Note:* Between ages 1 and 3 years the child is called a toddler.
- Anterior fontanelle closes.
- Abdomen protrudes, arms and legs lengthen.
- Big muscles become well developed.
- Four cuspids appear by 18 months.
- Fine muscle coordination begins to develop.
- Average yearly weight gain, 4½-6½ (2-3 kg).
- Average height gain during second year, 4

- Walks up stairs with help, creeps downstairs.
- Walks without support and with balance.
- Falls less frequently.
- Throws ball.
- Stoops to pick up toys, look at bug.
- Turns pages of book.
- Holds and lifts cup.
- Builds 3-block tower.
- Picks up and places small beads in container.
- Begins to use spoon.

Cognitive and emotional development

- Has vocabulary of 10 words that have

- Allow unrestricted motor activity (within safety limits).
- Offer push-pull toys.
- Child selects favorite toy.
- Child likes blocks, pyramid toys, teddy bears, dolls, pots and pans, cloth picture books with colorful large pictures, telephone, musical top, and nested blocks.

Parental guidance

- Begin to teach tooth brushing to establish good dental habits;

1 3/4 inch (12 cm).

- meanings.
- Uses phrases, imitates words.
- Points to objects named by adult.
- Follows directions and requests.
- Imitates adult behavior.
- Retrieves toy from several hiding places.

- however, continue to brush child's teeth.
- Establish limits to give toddler sense of security, but encourage exploration.
- Reinforce safety teaching.

Psychosocial development

- Develops new awareness of strangers.
- Wants to explore everything in reach.
- Plays alone, but near others.
- Is dependent on parents, but begins to reach out for autonomy.
- Finds security in a blanket, toy, or thumb sucking.

1 1/2-2 Years

Motor development

Play stimulation

- Protruding abdomen less noticeable.
- Landau reflex disappears.
- During first 2 years, 14 inches (35 cm) are added to height.
- Slight bowing of legs with a wide-based walk.
- Handedness may become apparent.

- Walks up and down stairs.
- Opens doors; turns knobs.
- Has steady gait.
- Holds drinking cup well with one hand.
- Uses spoon without spilling food (may prefer fingers).
- Kicks a ball in front of him without support.
- Builds a tower of 4-6 blocks.
- Scribbles.
- Rides tricycle or kiddie car (without pedals).

- Shows parallel play, although enjoys having other children around.
- Has very short attention span.
- Enjoys same toys as child of 18 months.
- Likes doll play and balls.
- Imitates parents in domestic activities.
- Likes swing, hammering, paper, and large crayons.

Parental guidance

- Has need for peer companionship, although displays immaturity by

Cognitive development

- Has 200-300 words in vocabulary.
- Begins to use short sentences.
- Refers to self by pronoun.
- Obeys simple commands.
- Does not know right from wrong.
- Begins to learn about time sequences.

inability to share and take turns.

- A decrease in appetite normally occurs at this stage.
- Toilet training should be started (each child follows own pattern).
- Begin to have child eat meals with family if not already doing so.
- Begin to read to child; child likes storybooks with large pictures.

Psychosocial development

- Uses word mine constantly.
- Is possessive with toys.
- Routine and rituals are important.
- May begin cooperation in toilet training.
- Resists restrictions on freedom.
- Has fear of parents' leaving.
- Shows parallel play.
- Dawdles.
- Resists bedtime uses transitional objects (blanket, toy).
- Vacillates between dependence and independence.

2-3 Years

Motor development

Play stimulation

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> • Height approximates one-half adult height. • Legs are about 34% of body length. • Begins 5 lb (2.3 kg) or more weight gain per year until age 5 years. • At 2½ years has full set (20) of baby teeth. • Four second molars | <ul style="list-style-type: none"> • Throws objects overhead. • Pedals tricycle. • Walks backward. • Washes and dries hands. • Begins to use scissors. • Can string large beads. • Can undress himself. • Feeds himself well. • Tries to dance. • Jumps in place. | <ul style="list-style-type: none"> • Plays simple games with other children. • Enjoys story-telling and dress-up play. • Colors. • Uses scissors and paper. • Rides tricycle. • Read simple books to child. • Will assist in developing |
|--|---|--|

- appear by 2½ years.
- Height gain, 23/8-3¼ inches (6-8 cm).
- Lordosis and protuberant abdomen of toddler disappear.

Child development theories

- Freudian: 1-3 years Anal Stage
- Eriksonian: 1-3 years Sense of Autonomy vs. Shame and Doubt
- Piagetian: 2-7 years Preoperational Period; shows egocentrism and centering

Cognitive development

- Builds tower of 8 blocks.
- Balances on one foot.
- Swings and climbs.
- Can eat an ice cream cone.
- Drinks from a straw.
- Chews gum without swallowing it.

- Shows increased attention span.
- Gives first and last name.
- Begins to ask "why."
- Is egocentric in thought and behavior.
- Beginning ability to reflect on own behavior.
- Talks in short sentences.
- Uses plurals.
- May attempt to sing simple songs.
- Has vocabulary of 900 words.
- Begins fantasy.
- Begins to understand what it means to take turns.
- Can repeat three numbers.
- Shows interest in colors.

Psychosocial development

- Negativism grows out of child's sense of developing independence says no to every command.
- Ritualism is important to toddler for security (follows certain pattern, especially at bedtime).
- Temper tantrums may result from toddler's frustration in wanting to

memory skills, visual discrimination skills, and language.

Parental guidance

- From 2-3 years, the child develops a seeming maturity; do not expect more than child is able to do.
- Arrange first visit to the dentist to have teeth checked.
- Be aware that negativistic and ritualistic behavior is normal.
- Be consistent in discipline.
- Control temper tantrums.
- Begin to teach traffic safety.
- Supervise outdoor play.

- do everything for self.
- Shows parallel play as well as beginning interaction with others.
- Engages in associative play.
- Fears become pronounced.
- Continues to react to separation from parents but shows increasing ability to handle short periods of separation.
- Has daytime bladder control and is beginning to develop nighttime bladder control.
- Becomes more independent.
- Begins to identify sex (gender) roles.
- Explores environment outside the home.
- Can create different ways of getting desired outcome.

3-4 Years

Motor development

Play stimulation

- *Note:* Between ages 3 and 5 years, the child is called a preschooler.
- May appear knock kneed. •

- Drawings have form and meaning, not detail.
- Copies a circle and a cross.
- Buttons front and side of clothes.
- Laces shoes.
- Bathes self, but needs direction.
- Brushes teeth.
- Shows continuous movement going up and down stairs.
- Climbs and jumps well.
- Attempts to print letters.

- Plays and interacts with other children.
- Shows creativity.
- Likes ring-around-the-rosy.
- Helps • adults.
- Likes costumes and enjoys dramatic play.
- Toys and games: record player, nursery rhymes, housekeeping toys, transportation toys (tricycle, trucks, cars, wagon), blocks, hammer and peg bench, floor trains, blackboard and chalk, easel and brushes,

Cognitive development

- Awareness of body is more stable; child becomes more aware of own vulnerability.
- Is less negativistic.
- Learns some number concepts.
- Begins naming colors.
- Can identify longer of two lines.
- Has vocabulary of 1,500 words.
- Uses mild profanities and name-calling.
- Uses language aggressively.
- Asks many questions.
- May not be abstract enough to understand body parts that cannot be seen or felt.
- Can be given simple explanation as to cause and effect.
- Thinks very concretely; demonstrates irreversibility of thought.
- Immature concept of death believes it is reversible.
- Has beginning understanding of past and future.
- Is egocentric in thought.

clay, crayon and finger paints, outside toys (sandbox, swing, small slide), books (short stories, action stories), drum, scrapbook.

Parental guidance

- Base your expectations within child's limitations.
 - Provide limited frustrations from environment to assist in coping.
 - Give small tasks to do around the house (putting silverware on table, drying a dish).
 - Expand child's world with trips to the zoo, to the supermarket, to restaurant, etc.
 - Prevent accidents.
 - Provide for brief nonthreatening separation from parents and home.
 - Reinforce correct use of language.
 - Use opportunities for simple sexual education as child's needs arise.
 - Accept masturbation as a normal phenomenon to be discouraged in public.
 - Provide consistent discipline, motivated by love rather than anger.
 - Consider nursery school.
- Psychosocial development***
- Is more active with peers and engages in cooperative play.
 - Performs simple tasks.
 - Frequently has imaginary companion.
 - Dramatizes experiences.
 - Is proud of

accomplishments.

- Exaggerates, boasts, and tattles on others.
- Can tolerate separation from mother longer without feeling anxiety.
- Is keen observer.
- Has good sense of "mine" and "yours."
- Behavior still frequently ritualistic.
- Becomes curious about life and sex. Often indulges in masturbation.

4-5 Years

Motor development

Play stimulation

- By 2-5 years adds 9½ inches (25 cm) to height.
- At age 4, legs comprise about 44% of body length.

- Hops two or more times.
- Dresses without supervision.
- Has good motor control "climbs and jumps well."
- Walks up stairs without grasping handrail.
- Walks backward.
- Washes self without wetting clothes.
- Prints first name and other words.
- Adds three or more details in drawings.
- Draws a square.

- Demonstrates gross motor activity "likes to jump rope, skip, climb on jungle gyms, etc."
- Prefers group play and cooperates in projects.
- Plays simple letter, number, form, and picture games.
- Plays with cars and trucks.
- Still likes being read to.
- Continues to enjoy fantasy play.

Child development theories

- Freudian: 3-6 years Phallic Stage
- Eriksonian: 3-6 years Sense of Initiative vs. Guilt
- Piagetian: 2-7 years "Preoperational Period; shows egocentrism and centering

Cognitive development

- Has 2,100-word vocabulary.
- Talks constantly.
- Uses adult speech forms.
- Participates in conversations.
- Asks for definitions.
- Knows age and residence.
- Identifies heavier of two

Parental guidance

- Child no longer takes an afternoon nap.
- Prepare child for kindergarten.
- Tell him stories.
- Provide opportunities and reassurance for group play; have his friends visit for lunch and an afternoon of playing.

- objects.
- Knows weeks as time units.
- Names days of week.
- Begins to understand kinship.
- Knows primary colors.
- Can count to 10.
- Can copy a triangle.
- Has high degree of imagination.
- Questioning is at a peak.
- Begins to develop power of reasoning.
- Prevent accidents.
- Encourage child's participation in household activities.

Psychosocial development

- May have an imaginary companion.
- Has a sense of order (likes to finish what was started).
- Is obedient and reliable.
- Is protective toward younger children.
- Begins to develop an elementary conscience with some influence in governing behavior.
- Has increased self-confidence.
- Accepts responsibility for acts.
- Is less rebellious.
- Has dreams and nightmares.
- Is cooperative and sympathetic.
- Shows generosity with toys.
- Begins to question parents' thinking.
- Identifies strongly with parent of same sex.

Middle Childhood (5-9

Motor development

Parental guidance

Years)

6 years

- Growth rate is slow and steady.
- Gains an average of 7 lb (3.2 kg) per year. Height increases approximately 2½ inch (6.3 cm) per year.

- Is active and impulsive.
- Balance improves.
- Uses hands as manipulative tools in cutting, pasting, hammering.
- Can draw large letters or figures.

- Family atmosphere continues to have an impact on the child's emotional development and future response within the family.
- The child needs ongoing guidance in an open, inviting atmosphere. Limits should be set with conviction. Deal with only one incident at a time. When punishment is necessary, the child should not be humiliated. Child should know that it was the *act* that the adult found undesirable, not the child.
- Needs assistance in adjusting to new experiences and demands of school. Should be able to share experiences with family. Parents need to have communication with the teacher to work together for the health of the child.
- Convey love and caring in communication. The child understands language directed at feelings better than at intellect. Get down to eye level with the child.
- Focus attention on child's abilities and accomplishments rather than shortcomings and limitations.
- The child is sex-conscious and should be able to discuss questions at home rather than with

Among children there is considerable variation in height and weight.

7 years

- Appears taller and slimmer.
- Early lordosis disappears.
- Begins to lose baby teeth; permanent teeth appear at a rate of about 4 teeth per year from 7-14 years.

- Has lower activity level.
- Capable of fine hand movements; can print sentences.
- Nervous habits, such as nail biting, are common.
- Muscular skills, such as ball throwing, have improved.

- Neuromuscular and skeletal development allows improved coordination.
- Eyes become fully developed; vision approaches 20/20.
- Handedness should be well developed.

8 years

- Moves with less restlessness.
- Has developed grace and balance, even in active sports.
- Has developed coordination of fine muscles, allowing child to write in script.

Child development theories

- Freudian: 5-9 years Beginning of Latency Period
- Eriksonian: 5-9 years Industry vs. Inferiority
- Piagetian: 5-9 years Enters Stage of Concrete Operations

9 years

- Uses both hands independently.
- Has become skillful in manual activities because of improved eye-hand coordination.

Cognitive development

6 years

- Begins to learn to read. Defines objects in terms of use. Time sense is as much in past as present.
- Is interested in relationship between home and neighborhood; knows some streets.
- Uses sentences well; uses language to share others' experiences; may swear or use slang.
- Distinguishes morning from afternoon.

7 years

- More reflective and has deeper understanding of meanings.
- Interested in conclusions and logical endings. Begins to have scientific interests in cause and effect.
- More responsible in relation to time, is more punctual. Sense of space is more realistic; child wants some space of own.
- Knows value of coins.
- Concept of death maturing—includes idea of irreversibility.

8 years

- Thinking is less animistic. Is aware of impersonal forces of nature. Begins to understand logical reasoning, conclusions, and implications.
- Less self-centered in thinking. Personal space

friends. Requires simple, honest answers to questions.

- Common problems include teasing, quarreling, nail biting, enuresis, whining, poor manners, swearing, lying, cheating, and stealing. These are usually fleeting phases and should not be handled negatively. The causes for such behavior should be investigated and dealt with constructively.
- The child needs order and consistency to help in coping with doubts, fears, unacceptable impulses, and unfamiliar experiences.
- Encourage peer activities as well as home responsibilities and give recognition to child's accomplishments and unique talents.
- Television may stimulate learning in several spheres, but should be monitored.
- Accidents are a major cause of disability and death. Safety practices should be continued. (Refer to section on safety, page 1357).
- Exercise is essential to promote motor and psychosocial development. The child should have a safe place to play and simple pieces of equipment.

is expanding; goes places on own. Aware of time; plans events of day. Understands right from left.

9 years

- Intellectually energetic and curious. Realistic; reasonable in thinking. Able to plan in advance. Breaks complex activities into steps.
- Focuses on detail.
- Sense of space includes the entire earth.
- Participates in family discussions.
- Likes to have secrets.

Psychosocial development

5-9 years

- Still requires parental support, but pulls away from overt signs of affection.
- Peer groups provide companionship in widening circle of persons outside the home. Child learns more about self as he learns about others.
- 10. Child chooses a special friend of same sex and age in whom to confide. This is usually child's first love relationship outside of home, when someone becomes as important to him as himself.
- Play teaches the child new ideas and independence. Child progressively uses

- A school health program should be available and concerned with the child's physical, emotional, mental, and social health. This should be augmented by information and example at home.
- Medical supervision should continue with yearly examination to detect developmental delay and disease. Appropriate immunizations should be administered.
- The child frequently has periods of shyness, which should be tolerated as part of growing up and deciding who he or she is.
- The child may be subject to nightmares, a situation that requires reassurance and understanding.
- Parents, teachers, and health professionals should be available and able to provide information and answer questions about the physical changes that occur.

tools of competition, compromise, cooperation, and beginning collaboration.

- Body image and self-concept are fluid because of rapid physical, emotional, and social changes.
- Latency-stage sexual drive is controlled and repressed. Emphasis is on the development of skills and talent.

Patterns of play
6-7 years

- Child acts out ideas of family and occupational groups with which he has contact.
- Painting, pasting, reading, simple games, watching television, digging, running games, skating, riding bicycle, and swimming are all enjoyed activities.

8 years

- Child enjoys collections; loosely formed, short-lived clubs; table games; card games; books; television; and records.

Late Childhood (9-12 Years)

- Vital signs approach adult values.
- Loses childish appearance of face and takes on features

Motor development

- Energetic, restless, active movements such as finger-drumming or foot-tapping appear.
- Has skillful manipulative movements nearly equal

Parental guidance

- Continue appropriate interventions related to early childhood.
- Continue sex education and preparation for adolescent body changes.

- that will characterize individual as an adult.
- Growth spurt occurs, and some secondary sex characteristics appear: in girls, between ages 10 and 12 years; in boys, between ages 12 and 14 years.
- Increased height and weight, increased perspiration and activity of sebaceous glands; vasomotor instability; increased fat deposition.

Physical changes in girls:

- Pelvis increases in transverse diameter; hips broaden; tenderness in developing breast tissue; enlargement of areola diameter; appearance of pubic hair.

Physical changes in boys:

- Size of testes increases; scrotum color changes; breasts enlarge, temporarily; height and shoulder breadth increase.
- Appearance of lightly pigmented hair at base of penis.
- Increase in length and width of penis.

Child development theories

to those of adults.

- Works hard to perfect physical skills.

Cognitive development
10 years

- Likes to reason, enjoys learning.
- Thinking is concrete, matter of fact.
- Wants to measure up to challenge.
- Likes to memorize, identify facts.
- Attention span may be short. Space is rather specific (ie, where things are).
- Can write for relatively long time with speed.

11 years

- Likes action in learning.
- Concentrates well when working competitively.
- Can understand relational terms, such as weight and size.
- Perceives space as nothingness that goes on forever.
- Can discuss problems.
- Can conceptualize symbolically enough to understand body parts.
- Can describe some abstract terms.

12 years

- Enjoys learning.
- Considers all aspects of a situation.
- Motivated more by inner

- Understanding is important.
- Encourage participation in organized clubs and youth groups.
- Democratic guidance is essential as child works through a conflict between dependence (on parents) and independence. The child needs realistic limits set.
- Needs help channeling energy in proper direction work and sports.
- Requires adequate explanation of body changes. Special understanding is required for the child who lags in physical development.
- Continue consistent disciplinary style.

- Freudian:
9-12 years Latency
Period continues
 - Eriksonian:
9-12 years Industry
vs. Inferiority
continues
 - Piagetian:
9-12 years Stage of
Concrete Operations
continues
- drive than by competition.
 - Able to classify, arrange,
and generalize.
 - Likes to discuss and
debate.
 - Begins conceptual
thinking.
 - Verbal, formal reasoning
now possible.
 - Can recognize moral of a
story.
 - Defines time as duration;
likes to plan ahead.
 - Understands that space is
abstract.
 - Can be critical of own
work.

Psychosocial development

- Gang becomes important,
and gang code takes
precedence over nearly
everything. Gang codes
are typically characterized
by collective action
against the mores of the
adult world. Here,
children begin to work out
their own social patterns
without adult interference.
Early gangs may include
both sexes; later gangs are
separated by sex.
- May strive for
unreasonable
independence from adult
control.
- Usually interested in
religion and morality.
- Has increased interest in
sexuality.
- May reach puberty;
resurgence of sexual
drives causes
recapitulation of Oedipal

struggle.

Patterns of play

- Continues to enjoy reading, TV, and table games.
- More interested in active sports as a means to improve skills.
- Creative talents may appear; may enjoy drawing, and modeling clay. By age 10, sex differences in play become profound.
- Occasional privacy is important.
- Begins to have vocational aspirations.

Early Adolescence (12-14 Years)

Motor development

- Usually uncoordinated; has poor posture.
- Tires easily.

Cognitive development

- Mind has great ability to acquire and use knowledge.
- Abstract thinking is sufficient to learn multivariable ideas such as the influence of hormones on emotions.
- Categorizes thoughts into usable forms.
- May project thinking into the future.
- Is capable of highly imaginative thinking.

Parental guidance

- Stresses frequently result from conflicting value systems between generations. The parents may need help to see that the adolescent is a product of the times and that actions reflect what is happening around the youngster.
- The parents' limits and rules should be realistic and consistent. They should convey the parent's love and concern and should be a source of comfort and reassurance, protecting the child from activities for which he is not ready.
- The home should be an accepting, emotionally stable environment.

- Phase of development begins when reproductive organs become functionally operative; phase ends when physical growth is completed.
- Skeletal system grows faster than supporting muscles.
- Hands and feet grow proportionately faster than rest of body.
- Large muscles develop more quickly than small muscles.

Girls:

- Physical changes include beginning of menarche; growth of

Psychosocial development

axillary and perineal hair; deepened voice; ovulation; further development of breasts.

- Nutritional need for iron and calcium increase dramatically.

Boys:

- Physical changes include growth of axillary, perineal, facial, chest hair; deepening of voice; production of spermatozoa; nocturnal emissions.

Child development theories

- Freudian: 12-14 years Begins Stage of Sexuality
- Eriksonian: 12-14 years Identity vs. Role Diffusion
- Piagetian: 12-14 years Begins Stage of Formal Operations

- Interest in opposite sex increases.
- Often revolts from adult authority to conform to peer-group standards.
- Continues to rework feelings for parent of opposite sex and unravel the ambivalence toward parent of same sex.
- Affection may turn temporarily to an adult outside of the family (for example, crush on family friend, neighbor, or teacher).
- Uses peer-group dialectic highly informal language or specially coined terminology.
- Peer groups are especially important and help adolescent to define own identity, to adapt to changing body image, to establish more mature relationships with others, and to deal with heightened sexual feelings. Cliques may develop.
- Dating generally progresses from groups of couples to double dates and finally single couples.
- Teenage hangouts become important centers of activity.
- Begins questioning existing moral values.

- Continue sex education, including discussion of ovulation, fertilization, menstruation, pregnancy, contraception, masturbation, nocturnal emissions, and hygiene.
- Adolescents have an increased need for rest and sleep because they are expending large amounts of energy and are functioning with an inadequate oxygen supply.
- Recreational interests should be fostered. Favorite activities include sports, dating, dancing, reading, hobbies, and television. Socializing via telephone or computer and listening to music are favorite pastimes.
- Adolescent health problems that require preventive education are accidents, obesity, acne, pregnancy, sexually transmitted disease, and drug abuse.
- Allow the adolescent to handle his own affairs as much as possible, but be aware of physical and psychosocial problems that may require help. Encourage independence but allow the child to lean on the parents for support when frightened or unable to attain goals.
- Adolescents with special problems should have access to specialists,

such as adolescent clinics and psychologists.

- Requires reassurance and help in accepting a changing body image. Parents should make the most of the child's positive qualities.
- Give gentle encouragement and guidance regarding dating. Avoid strong pressures in either direction.
- Understand conflicts as the child attempts to deal with social, moral, and intellectual issues.

DEVELOPMENTAL SCREENING

Assessment tools have been created to determine the overall developmental age of a child or to detect specific areas of development that are lacking. The most widely used developmental screening tool is the Denver II Developmental Screening Test (Denver II). This tool provides for a quick overview of development in children from birth to age 6 years and identifies areas of strength and weakness relative to age norms. Denver II test forms and an instruction manual can be obtained from <http://www.denverii.com>.

Another method for developmental screening involves interviewing the parent or caregiver about attainment of developmental milestones. Persistent deficits or deficits in multiple areas indicate a more serious problem than deficits in a single area. See Table 40-2, pages 1320 and 1321.

TABLE 40-2 Developmental Milestones

A method of evaluation has been developed using an interview technique in which parents are asked questions regarding milestones in achievements that most will remember. The child's developmental quotient (DQ) can be determined according to the parents' answers. A DQ less than 70% signifies a delay requiring further evaluation.

AGE	GROSS MOTOR	VISUAL-MOTOR/PROBLEM-SOLVING	LANGUAGE	SOCIAL/ADAPTIVE
1 month	Raises head slightly from prone, makes crawling movements	<i>Birth:</i> visually fixes has tight grasp, follows to midline	<i>1 mo:</i> Alerts to sound	Regards face
2 month	Holds head in midline, lifts chest off table	No longer clenches fist tightly, follows object to midline	Smiles socially (after being stroked or talked to)	Recognizes parent
3 month	Supports on	Holds hands open at rest,	Coos (produces long	Reaches for familiar

month	forearms in prone, holds head up steadily	follows in circular fashion, responds to visual threat	vowel sounds in musical fashion)	people or objects, anticipates feeding
4 month	Rolls front to back, supports on wrists and shifts weight	Reaches with arms in unison, brings hands to midline	Laughs, orients to voice	Enjoys looking around environment
5 month	Rolls back to front, sits supported	Transfers objects	orients to bell (localizes laterally)	
6 month	Sits unsupported, puts feet in mouth in supine position	Unilateral reach, uses raking grasp	Babbles	Recognizes strangers
7 month	Creeps		Orients to bell (localized indirectly)	
8 month	Comes to sit, crawls	Inspects objects	Dada indiscriminately	Fingerfeeds
9 month	Pivots when sitting, pulls to stand, cruises	Uses pincer grasp, probes with forefinger, holds bottle, throws objects	Mama• indiscriminately, gestures, waves bye-bye, •	Starts to explore environment; plays gesture games (eg, pat-a-cake)
10 month	Walks when led with both hands held		Dada/mama• discriminately; orients to bell (directly)	
11 month	Walks when led with one hand held		One word other than dada/mama, follows 1-step command with gesture	
12 month	Walks alone	Uses mature pincer grasp, releases voluntarily, marks paper with pencil	Uses two words other than "dada/mama," immature jargoning (runs several unintelligible syllables together)	Imitates actions, comes when called, cooperates with dressing
13 month			Uses three words	
14 month			Follows 1-step command without gesture	
15 month	Creeps up stairs, walks	Scribbles in imitation, builds tower of 2 blocks in	Uses 4 to 6 words	15 to 18 mo: uses spoon, uses cup independently

17 month	backwards	imitation	Uses 7 to 20 words, points to 5 body parts, uses mature jargoning (includes intelligible words in jargoning)	
18 month	Runs, throws objects from standing without falling	Scribbles spontaneously, builds tower of 3 blocks, turns 2 to 3 pages at a time	Uses 2-word combinations	Copies parent in tasks (sweeping, dusting), plays in company of other children
19 month			Knows 8 body parts	
21 month	Squats in play, goes up steps	Builds tower of 5 blocks	Uses 50 words, 2-word sentences	Asks to have food and to go to toilet
24 month	Walks up and down steps without help	Imitates stroke with pencil, builds tower of 7 blocks, turns pages one at a time, removes shoes, pants, etc.	Uses pronouns (I, you, me) inappropriately, follows 2-step commands	Parallel play
30 month	Jumps with both feet off floor, throws ball overhand	Holds pencil in adult fashion, performs horizontal and vertical strokes, unbuttons	Uses pronouns appropriately, understands concept of repeats 2 digits forward	Tells first and last names when asked; gets self drink without help
3 year	Can alternate feet when going up steps, pedals tricycle	Copies a circle, undresses completely, dresses partially, dries hands if reminded	Uses minimum 250 words, 3-word sentences; uses plurals, past tense; knows all pronouns;	Group play, shares toys, takes turns, plays well with others, knows full name, age, sex
4 year	Hops, skips, alternates feet going down steps	Copies a square, buttons clothing, dresses self completely, catches ball	Knows colors, says song or poem from memory, asks questions	plays cooperatively with a group of children
5 year	Skips alternating feet, jumps over low obstacles	Copies triangle, ties shoes, spreads with knife	Prints first name, asks what a word means	Plays competitive games, abides by rules, likes to help in household tasks

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