

Human Development

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- This lecture examines different conceptualizations of children and childhood through the ages and the ideas and theoretical models that have shaped popular, as well as professional, views on how children develop.
- Children behave differently at different ages. The clinician must be familiar with the range of behaviors and their age-appropriateness in separating the normal from the abnormal.
- An understanding of the normal sequences and ages permits a judgement as to whether the child has deviated in his or her development.
- Different stages of development are associated with different stresses and different developmental tasks. Bladder and bowel training are normally achieved between the ages of 2 and 4 years. Major stresses on the child or the family at the time may interfere with the achievement of proper bladder and bowel control. Mood swings are very common in adolescence, making it difficult to diagnose the severity of depression at this stage.
- An understanding of the processes which underlie both normal and abnormal development will help in the understanding of how the problems have arisen.
- A better understanding of the *processes* underlying a child's development will lead to far better interventions and prevention.

Research on humans has found that approximately 40 to 70 percent of aspects of cognition, temperament, and personality are attributable to genetic factors. Because these are the very domains that are affected in mentally ill patients, it would not be surprising to discover a similar level of genetic influence on mental illness.

Parameters of development:

- Psychosocial development.
- Cognitive development.
- Moral development.
- Motor development.

Psychosocial development

Alongside cognitive development, children are developing both socially and emotionally. It has been recognized for years that children brought up in institutions, away from their natural parents, often develop serious and subtle problems in social interactions and emotional development.

1. Temperament

Children differ in their personality, character, or temperament.

Temperament describes the inborn mood-related personality characteristics or it is the style that characterizes each child. It determines how someone reacts to the world.

Chess and Thomas identified nine behavioral dimensions, in which reliable differences among infants can be observed.

Most temperamental dimensions of individual children showed considerable stability over a 25-year follow-up period but some temperamental traits did not persist. This finding was attributed to genetic and environmental effects on personality. A complex interplay exists among the initial characteristics of infants, the mode of parental interactions, and children's subsequent behavior. Observations of the stability and plasticity of certain temperamental traits support the importance of interactions between genetic endowment (nature) and environmental experience (nurture) in behavior.

Three broad types of temperament were characterized—children who were regular, predictable, and showed generally positive reactions—the easy babies; those who were almost the opposite—whom Chess called the mother killers and a sizeable minority who were slow to warm up to new situations but who adjusted eventually. The difficult children were over represented in those who developed behavioural problems in later childhood.

Box 2.5.1.1 Temperamental characteristics

The repertoire of infant behaviour is so different from that of the pre-school child that it proved very difficult to examine whether there were any continuities of behaviour across the ages. Thomas *et al.*⁽¹⁸⁾ and their collaborators in the New York Longitudinal Study were among the earliest to show continuities across the age, but continuities in *style* of behaviour rather than *content*. Through a mixture of observation and exhaustive interviews with mothers, they originally developed nine different categories of behavioural style or *temperament*.

Mainly

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|--|--|
| 1. Active | 1. Passive |
| 2. Regular: (e.g. in feeding and sleeping habits) | 2. Irregular |
| 3. Reacts intensely (strongly) | 3. Reacts mildly |
| 4. Shows approach behaviour to new people, places, toys, foods, etc. | 4. Shows withdrawal behaviour |
| 5. Adaptive—adapts fairly easily to change | 5. Non-adaptive |
| 6. Reacts easily to small changes | 6. Reactions slow |
| 7. Predominantly good moods—happy, contented disposition | 7. Predominantly bad disposition—fretful, hard to please |
| 8. Persistent in what she/he is doing as regards time, and in the face of difficulties | 8. Non-persistent |
| 9. Easily distracted from whatever she/he is doing | 9. Not easily distracted |

Attachment Theory

Attachment can be defined as the emotional tone between children and their caregivers and is evidenced by an infant's seeking and clinging to the caregiving person, usually the mother.

Attachment theory originated in the work of John Bowlby, a British psychoanalyst (1907-1990). In his studies of infant attachment and separation, Bowlby pointed out that attachment constituted a central motivational force and that mother-child attachment was an essential medium of human interaction that had important consequences for later development and personality functioning.

- Attachment not only deepens the parent-child relationship, but may have contributed to human survival.

Attachment thus gives infants feelings of security. The process is facilitated by interaction between mother and infant; the amount of time together is less important than the amount of activity between the two.

- Bonding

How does love develop between mother and child?

Much research reveals that the bonding of mother to infant occurs when there is skin-to-skin contact between the two or when other types of contact, such as voice and eye contact, are made.



Harry Harlow (1959) “The Monkey Love experiments”

- Harlow evaluated whether feeding or contact comfort was more important to infant attachment.
- The young animals were “raised” by two kinds of surrogate monkey mother machines.
- One mother was made of soft terry cloth, the other made of wire mesh
- Harlow's research showed that the need for affection created a stronger bond between mother and infant than did physical needs (food).

Harlow’s work suggested that the development of a child’s love for their caregiver was **emotional** rather than physiological

Harry Harlow (1959)
“The Monkey Love experiments”



- Harlow showed that the development of attachment was closely associated with critical periods in early life.
- It is difficult or impossible to compensate for the loss of initial emotional security

Harlow demonstrated the emotional and behavioral effects of isolating monkeys from birth and keeping them from forming attachments. The isolates were withdrawn, unable to relate to peers, unable to mate, and incapable of caring for their offspring.

- Monkeys raised without their mothers or other monkeys were socially maladjusted the rest of their lives.
 - When confronted with fear, they displayed autistic and institutionalized behaviors-throwing themselves on the floor, clutched themselves, rocked back and forth, and screamed in terror.
- They were incapable of having sexual relations and they were also unable to parent their offspring, either abusing or neglecting them.

Types of Attachment

Mary Ainsworth's based her Strange Situation Procedure (**SSP**) around observations of infants for assessing the quality and security of an infant's attachment.

In this procedure, the infant is exposed to escalating amounts of stress; for example, the infant and the parent enter an unfamiliar room, an unfamiliar adult then enters the room, and the parent leaves the room.

Types of Attachment

Types of attachment:

1. Secure attachment (60-65%) : is a relationship of trust and confidence. During infancy this relationship provides a *secure base* for exploration of the environment.

According to Ainsworth's studies, about 65 percent of infants are securely attached by the age of 24 months.

2. Insecure-Avoidant attachment (20%): Infants or young children seem somewhat indifferent toward their caregivers and may even avoid their caregivers. If they do get upset when left alone, they are as easily comforted by a stranger as by a parent.

As if to say, “you left me again, I always have to take care of myself!”

3. Resistant/ambivalent Attachment: Infants or young children are clingy and stay close to their caregivers rather than exploring their environment. The baby is upset when the mother leaves and remains upset or even angry when she returns, and is difficult to console.

4. Disorganized attachment (5%): Infants or young children have no consistent way to coping with the stress of the “Strange Situation”. The baby seems confused when the mother leaves and when she returns. This leads to problems with emotional regulation, social function and severe emotional problems.



Table 2.2-2
The Strange Situation

Episode^a	Persons Present	Change
1	Parent, infant	Enter room
2	Parent, infant, stranger	Unfamiliar adult joins the dyad
3	Infant, stranger	Parent leaves
4	Parent, infant	Parent returns, stranger leaves
5	Infant	Parent leaves
6	Infant, stranger	Stranger returns
7	Parent, infant	Parent returns, stranger leaves

^aAll episodes are usually 3 minutes long, but episodes 3, 5, and 6 can be curtailed if the infant becomes too distressed, and episodes 4 and 7 are sometimes extended. (Reprinted from Lamb ME, Nash A, Teti DM, Bornstein MH. Infancy. In: Lewis M, ed. *Child and Adolescent Psychiatry: A Comprehensive Textbook*. 2nd ed. Philadelphia: Williams & Wilkins; 1996:256, with permission.)

Mary Ainsworth expanded on Bowlby's observations and found that the interaction between the mother and her baby during the attachment period significantly influences the baby's current and future behavior. Patterns of attachments vary among babies; for example, some babies signal or cry less than others. Sensitive responsiveness to infant signals, such as cuddling a crying baby, causes infants to cry less in later months, rather than reinforcing crying behavior.

Expressed as tearfulness or irritability, separation anxiety is the response of a child who is isolated or separated from its mother or caretaker. It is most common at 10 to 18 months of age and disappears generally by the end of the third year. Some what earlier (at about 8 months) stranger anxiety, an anxiety response to someone other than the caregiver, appears.

Erik Erikson

Erikson's formulations were based on the concept of epigenesis, a term borrowed from embryology. His epigenetic principle holds that development occurs in sequential, clearly defined stages, and that each stage must be satisfactorily resolved for development to proceed smoothly.

Erik Erikson (1902–1994) was a stage theorist who took Freud's controversial psychosexual theory and modified it into an eight stage psychosocial theory of development.

During each of Erikson's eight development stages, two conflicting ideas must be resolved successfully in order for a person to become a confident, contributing member of society. Failure to master these tasks leads to feelings of inadequacy.

At each stage there is a crisis or task that we need to resolve. Successful completion of each developmental task results in a sense of competence and a healthy personality. Failure to master these tasks leads to feelings of inadequacy.

Erikson's conception of the eight stages of ego development represent points along a continuum of development in which physical, cognitive, instinctual, and sexual changes combine to trigger an internal crisis the resolution of which results in either psychosocial regression or growth and the development of specific virtues.

Erikson's Stages of Psychosocial Development

Stage	Psychosocial Crisis/Task	What Happens at This Stage?
1	Trust vs Mistrust	If needs are dependably met, infants develop a sense of basic trust.
2	Autonomy vs Shame/Doubt	Toddlers learn to exercise will and do things for themselves, or they doubt their abilities.
3	Initiative vs Guilt	Preschoolers learn to initiate tasks and carry out plans, or they feel guilty about efforts to be independent.
4	Industry vs Inferiority	Children learn the pleasure of applying themselves to tasks, or they feel inferior.
5	Identity vs Confusion	Teenagers work at refining a sense of self by testing roles and then integrating them to form a single identity, or they become confused about who they are.
6	Intimacy vs Isolation	Young adults struggle to form close relationships and to gain the capacity for intimate love, or they feel socially isolated.
7	Generativity vs Stagnation	The middle-aged discover a sense of contributing to the world, usually through family and work, or they may feel a lack of purpose.
8	Integrity vs Despair	When reflecting on his or her life, the older adult may feel a sense of satisfaction or failure.

Stage 1 : Trust versus Mistrust (Birth to about 18 Months).

The infant is taking the world in through the mouth, eyes, ears, and sense of touch. The baby is learning a cultural modality that Erikson termed to get, that is, to receive what is offered and elicit what is desired. The infant is no longer passively receptive to stimuli; it reaches out for sensation and grasps at its surroundings. The infant's development of basic trust in the world stems from its earliest experiences with its mother or primary care taker. Erikson asserts that trust depends not on "absolute quantities of food or demonstrations of love, but rather on the quality of maternal relationship.

A person who, as a result of severe disturbances in the earliest dyadic relationships, fails to develop a basic sense of trust or the virtue of hope may be predisposed as an adult to the profound withdrawal and regression characteristic of schizophrenia. Erikson hypothesized that the depressed patient's experience of being empty and of being no good is an outgrowth of a developmental derailment that causes oral pessimism to predominate. Addictions may also be traced to the mode of oral incorporation.

From birth to 12 months of age, infants must learn that adults can be trusted. This occurs when adults meet a child's basic needs for survival. Infants are dependent upon their caregivers, so caregivers who are responsive and sensitive to their infant's needs help their baby to develop a sense of trust; their baby will see the world as a safe, predictable place. Unresponsive caregivers who do not meet their baby's needs can engender feelings of **anxiety**, fear, and mistrust; their baby may see the world as unpredictable. If infants are treated cruelly or their needs are not met appropriately, they will likely grow up with a sense of mistrust for people in the world.

Stage 2: Autonomy versus Shame and Doubt (about 18 Months to about 3 Years)

- **autonomy**: Self-government; freedom to act or function independently.

In the development of speech and sphincter and muscular control, the toddler practices the social modalities of holding on and letting go, and experiences the first stirrings of the virtue that Erikson termed will. Much depends on the amount and type of control exercised by adults over the child. Control that is exerted too rigidly or too early defeats the toddler's attempts to develop its own internal controls, and regression or false progression results. Parental control that fails to protect the toddler from the consequences of his or her own lack of self-control or judgment can be equally disastrous to the child's development of a healthy sense of autonomy.

A person who becomes fixated at the transition between the development of hope and autonomous will, with its residue of mistrust and doubt, may develop paranoid fears of persecution or OCPD.

As toddlers (ages 1–3 years) begin to explore their world, they learn that they can control their actions and act on their environment to get results. They begin to show clear preferences for certain elements of the environment, such as food, toys, and clothing. A toddler's main task is to resolve the issue of *autonomy vs. shame and doubt* by working to establish independence. This is the “me do it” stage. For example, we might observe a budding sense of autonomy in a 2-year-old child who wants to choose her clothes and dress herself. Although her outfits might not be appropriate for the situation, her input in such basic decisions has an effect on her sense of independence. If denied the opportunity to act on her environment, she may begin to doubt her abilities, which could lead to low self-esteem and feelings of shame.

Stage 3: Initiative versus Guilt (about 3 Years to about 5 Years).

Once children reach the preschool stage (ages 3–5 years), they are capable of initiating activities and asserting control over their world through social interactions and play. According to Erikson, preschool children must resolve the task of *initiative vs. guilt*. By learning to plan and achieve goals while interacting with others, preschool children can master this task. Initiative, a sense of ambition and responsibility, occurs when parents allow a child to explore within limits and then support the child's choice. These children will develop self-confidence and feel a sense of purpose. Those who are unsuccessful at this stage— with their initiative misfiring or stifled by over-controlling parents— may develop feelings of guilt.

Stage 4: Industry versus Inferiority (about 5 Years to about 13 Years).

Children begin to compare themselves with their peers to see how they measure up. They either develop a sense of pride and accomplishment in their schoolwork, sports, social activities, and family life, or they feel inferior and inadequate because they feel that they don't measure up. If children do not learn to get along with others or have negative experiences at home or with peers, an inferiority complex might develop into **adolescence** and adulthood.

Stage 5: Identity versus Role Confusion (about 13 Years to about 21 Years)

According to Erikson, an adolescent's main task is developing a sense of self. Adolescents struggle with questions such as "Who am I?" and "What do I want to do with my life?" Along the way, most adolescents try on many different selves to see which ones fit; they explore various roles and ideas, **set** goals, and attempt to discover their "adult" selves. Adolescents who are successful at this stage have a strong sense of identity and are able to remain true to their beliefs and values in the face of problems and other people's perspectives. When adolescents are apathetic, do not make a conscious search for identity, or are pressured to conform to their parents' ideas for the future, they may develop a weak sense of self and experience role confusion. They will be unsure of their identity and confused about the future. Teenagers who struggle to adopt a positive role will likely struggle to "find" themselves as adults.

Stage 6: Intimacy versus Isolation (about 21 Years to about 40 Years)

After we have developed a sense of self in adolescence, we are ready to share our life with others. However, if other stages have not been successfully resolved, young adults may have trouble developing and maintaining successful relationships with others. Erikson said that we must have a strong sense of self before we can develop successful intimate relationships. Adults who do not develop a positive self-concept in adolescence may experience feelings of loneliness and emotional isolation.

Stage 7: Generativity versus Stagnation (about 40 Years to about 60 Years)

Generativity involves finding your life's work and contributing to the development of others through activities such as volunteering, mentoring, and raising children. During this stage, middle-aged adults begin contributing to the next generation, often through childbirth and caring for others; they also engage in meaningful and productive work which contributes positively to society. Those who do not master this task may experience stagnation and feel as though they are not leaving a mark on the world in a meaningful way; they may have little connection with others and little interest in productivity and self-improvement.

Stage 8: Integrity versus Despair (about 60 Years to Death)

Erikson's task at this stage is called *integrity vs. despair*. He said that people in late adulthood reflect on their lives and feel either a sense of satisfaction or a sense of failure. People who feel proud of their accomplishments feel a sense of integrity, and they can look back on their lives with few regrets. However, people who are not successful at this stage may feel as if their life has been wasted. They focus on what "would have," "should have," and "could have" been. They face the end of their lives with feelings of bitterness, depression, and despair.

Cognitive Development

Jean Piaget

Piaget and Cognitive Development

Jean Piaget(1896-1980) is considered one of the greatest thinkers of the 20th century. His contributions to the understanding of cognitive development had paradigmatic influence in developing mental psychology and had major implications for interventions with children, both educational and clinical.

According to Piaget, the following four major stages lead to the capacity for adult thought: (1) sensorimotor,(2) preoperational thought, (3) concrete operations, and (4) formal operations.

Each stage is a prerequisite for the following one, but the rate at which different children move through different stages varies with their native endowment and environmental circumstances

Key Concepts

- **Schemas** - A schema describes both the mental and physical actions involved in understanding and knowing. Schemas are categories of knowledge that help us to interpret and understand the world. In Piaget's view, a schema includes both a category of knowledge and the process of obtaining that knowledge. As experiences happen, this new information is used to modify, add to, or change previously existing schemas. For example, a child may have a schema about a type of animal, such as a dog.
- **Assimilation** - The process of taking in new information into our previously existing schema's is known as assimilation. The process is somewhat subjective, because we tend to modify experience or information somewhat to fit in with our preexisting beliefs. For example, seeing a dog and labeling it "dog" is an example of assimilating the animal into the child's dog schema.
- **Accommodation** - Another part of adaptation involves changing or altering our existing schemas in light of new information, a process known as accommodation. Accommodation involves altering existing schemas, or ideas, as a result of new information or new experiences. New schemas may also be developed during this process.
- **Equilibration** - Piaget believed that all children try to strike a balance between assimilation and accommodation, which is achieved through a mechanism Piaget called equilibration. As children progress through the stages of cognitive development, it is important to maintain a balance between applying previous knowledge (assimilation) and changing behavior to account for new knowledge (accommodation). Equilibration helps explain how children are able to move from one stage of thought into the next.

Sensorimotor Stage (Birth to 2 Years)

Piaget used the term sensorimotor to describe the first stage: Infants begin to learn through sensory observation, and they gain control of their motor functions through activity, exploration, and manipulation of the environment. Piaget divided this stage into six substages, listed in Table 2.1-2. The critical achievement of this period is the development of object permanence or the schema of the permanent object. This phrase relates to a child's ability to understand that objects have an existence independent of the child's involvement with them. Infants learn to differentiate themselves from the world and are able to maintain a mental image of an object, even when it is not present and visible.

At about 18 months, infants begin to develop mental symbols and to use words, a process known as symbolization. Infants are able to create a visual image of a ball or a mental symbol of the word ball to stand for, or signify, the real object.



Table 2.1-2
Piaget's Sensorimotor Period of Cognitive Development

Age	Characteristics
Birth–2 mos	Uses inborn motor and sensory reflexes (sucking, grasping, looking) to interact and accommodate to the external world
2–5 mos	Primary circular reaction: Coordinates activities of own body and five senses (e.g., sucking thumb); reality remains subjective—does not seek stimuli outside of its visual field; displays curiosity
5–9 mos	Secondary circular reaction: Seeks out new stimuli in the environment; starts both to anticipate consequences of own behavior and to act purposefully to change the environment; beginning of intentional behavior
9 mos–1 yr	Shows preliminary signs of object permanence; has a vague concept that objects exist apart from itself; plays peek-a-boo; imitates novel behaviors
1 yr–18 mos	Tertiary circular reaction: Seeks out new experiences; produces novel behaviors
18 mos–2 yrs	Symbolic thought: Uses symbolic representations of events and objects; shows signs of reasoning (e.g., uses one toy to reach for and get another); attains object permanence

Stage of Preoperational Thought (2 to 7 Years)

During the stage of preoperational thought, children use symbols and language more extensively than in the sensorimotor stage. Thinking and reasoning are intuitive; children learn without the use of reasoning. They are unable to think logically or deductively, and their concepts are primitive; they can name objects but not classes of objects .

Events are not linked by logic. Early in this stage, if children drop a glass that then breaks, they have no sense of cause and effect. They believe that the glass was ready to break, not that they broke the glass.

Children in the preoperational stage cannot deal with moral dilemmas, although they have a sense of what is good and bad.

Children in this stage have a sense of immanent justice, the belief that punishment for bad deeds is inevitable.

Children in this developmental stage are egocentric.

Children are unable to modify their behavior for someone else; for example, children are not being negativistic when they do not listen to a command to be quiet because their brother has to study. Instead, egocentric thinking prevents an understanding of their brother's point of view.

During this stage, children also use a type of magical thinking, called phenomenalistic causality, in which events that occur together are thought to cause one another (e.g., thunder causes lightning, and bad thoughts cause accidents). In addition, children use animistic thinking, which is the tendency to endow physical events and objects with life-like psychological attributes, such as feelings and intentions.

Semiotic Function. The semiotic function emerges during the preoperational period. With this new ability, children can represent something-such as an object, an event, or a conceptual scheme with a signifier, which serves a representative function (e.g., language, mental image, symbolic gesture). That is, children use a symbol or sign to stand for something else. Drawing is a semiotic function initially done as a playful exercise but eventually signifying something else in the real world.

Stage of Concrete Operations (7 to 11 Years)

Egocentric thought is replaced by operational thought, which involves dealing with a wide array of information outside the child. Therefore, children can now see things from someone else's perspective.

Syllogistic reasoning, in which a logical conclusion is formed from two premises, appears during this stage; for example, all horses are mammals (premise); all mammals are warm blooded (premise); therefore, all horses are warm blooded (conclusion). Children are able to reason and to follow rules and regulations. They can regulate themselves, and they begin to develop a moral sense and a code of values.

The most desirable developmental outcome in this stage is that a child attains a healthy respect for rules and understands that there are legitimate exceptions to rules.

- Conservation
- Reversibility

Stage of Formal Operations (11 through the end of adolescence)

The stage of formal operations is so named because young persons' thinking operates in a formal, highly logical, systematic, and symbolic manner. This stage is characterized by the ability to think abstractly, to reason deductively, and to define concepts.

Hypothetico-deductive thinking, the highest organization of cognition, enables persons to make a hypothesis or proposition and to test it against reality.

Deductive reasoning moves from the general to the particular and is a more complicated process than inductive reasoning, which moves from the particular to the general.

Depending on individual capacity and intervening experience, some may not reach the stage of formal operational thought at all and may remain in the concrete operational mode throughout life.

PSYCHIATRIC APPLICATIONS

Piaget's theories have many psychiatric implications. Hospitalized children who are in the sensorimotor stage have not achieved object permanence and, therefore, have separation anxiety. They do best if their mothers are allowed to stay with them overnight. Children at the preoperational stage, who are unable to deal with concepts and abstractions, benefit more from role-playing proposed medical procedures and situations than by having them verbally described in detail. For example, a child who is to receive intravenous therapy is helped by acting out the procedure with a toy intravenous set and dolls.

Moral Development

Kohlberg

Morality is a set of values and beliefs about codes of behavior that conform to those shared by others in society. Adolescents, as do younger children, tend to develop patterns of behaviors characteristic of their family and educational environments and by imitation of specific peers and adults whom they admire.

Lawrence Kohlberg integrated Piaget's concepts and described three major levels of morality. The first level is **pre-conventional** morality, in which punishment and obedience to the parent are the determining factors. The second level is morality of **conventional** role-conformity, in which children try to conform to gain approval and to maintain good relationships with others. The third and highest level is morality of **self-accepted moral principles**, in which children voluntarily comply with rules on the basis of a concept of ethical principles and make exceptions to rules in certain circumstances.

Physical and Motor development

The phases of development described in this section are defined as follows: prenatal is the time frame from conception to 8 weeks; the fetus, from 8 weeks to birth; infancy, from birth to 15 months; the toddler period, from 15 months to 2.5 years; the preschool period, from 2.5 years to 6 years; and the middle years, from 6 to 12 years.

Maternal stress correlates with high levels of stress hormones (epinephrine, norepinephrine, and adrenocorticotrophic hormone) in the fetal bloodstream, which act directly on the fetal neuronal network to increase blood pressure, heart rate, and activity level. Mothers with high levels of anxiety are more likely to have babies who are hyperactive, irritable, and of low birth weight, and who have problems feeding and sleeping than are mothers with low anxiety levels.

The delivery of the fetus marks the start of infancy. The average newborn weighs about 3,400 g (7.5 lb.). Small fetuses, defined as those with a birth weight below the 10th percentile for their gestational age, occur in about 7 percent of all pregnancies.

Premature infants are defined as those with a gestation of less than 34 weeks or a birth weight less than 2,500 g (5.5 lb.). Such infants are at increased risk for learning disabilities, such as dyslexia, emotional and behavioral problems, mental retardation, and child abuse.

Postmature infants are defined as infants born 2 weeks or more beyond the expected date of birth. Because pregnancy at term is calculated as extending 40 weeks from the last menstrual period. The postmature baby typically has long nails, scanty lanugo, more scalp hair than usual, and increased alertness.

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1. Reflexive behavior.

At birth, the typical infant possesses simple reflexes such as the sucking reflex, startle reflex (Moro reflex), palmar grasp reflex, Babinski reflex, and rooting reflex. All of these reflexes disappear during the first year of life (Table 1.4).

2. Motor, social, verbal, and cognitive development (Table 1.5)

a. Although there is a reflexive smile present at birth, the social smile is one of the first markers of the infant's responsiveness to another individual.

b. Crying and withdrawing in the presence of an unfamiliar person (stranger anxiety) is normal and begins at about 7 months of age.

(1) This behavior indicates that the infant has developed a specific attachment to the mother and is able to distinguish her from a stranger.

(2) Infants exposed to many caregivers are less likely to show stranger anxiety than those exposed to few caregivers.

c. At about 1 year the child can maintain the mental image of an object or of the mother without seeing it or her ("object permanence").

t a b l e

1.4

Reflexes Present at Birth and the Age at which they Disappear

Reflex	Description	Age of Disappearance
Palmar grasp	The child's fingers grasp objects placed in the palm	2 mos
Rooting and sucking reflexes	The child's head turns in the direction of a stroke on the cheek when seeking a nipple to suck	3 mos
Startle (Moro) reflex	When the child is startled, the arms and legs extend	4 mos
Babinski reflex	Dorsiflexion of the largest toe when the plantar surface of the child's foot is stroked	12 mos
Tracking reflex	The child visually follows a human face	Continues

t a b l e

1.5

Motor, Social, Verbal, and Cognitive Development of the Infant

Age (in Months)	Skill Area		
	Motor	Social	Verbal and Cognitive
1–3	Lifts head when lying prone	Smiles in response to a human face (the “social smile”)	Coos or gurgles in response to human attention
4–6	Turns over (5 mos) Sits unassisted (6 mos) Reaches for objects Grasps with entire hand (“raking grasp”)	Forms an attachment to primary caregiver Recognizes familiar people	Babbles (repeats single sounds over and over)
7–11	Crawls on hands and knees Pulls self up to stand Transfers toys from hand to hand (10 mos) Picks up toys and food using “pincer” (thumb and forefinger) grasp (10 mos)	Shows stranger anxiety Plays social games such as peek-a-boo, waves “bye-bye”	Imitates sounds Uses gestures Responds to own name Responds to simple instructions
12–15	Walks unassisted	Shows separation anxiety	Says first words Shows object permanence

Age (Years)	Skill Area		
	Motor	Social	Verbal and Cognitive
1.5	Throws a ball Stacks three blocks Climbs stairs one foot at a time Scribbles on paper	Moves away from and then returns to the mother for reassurance (rapprochement)	Uses about 10 individual words Says own name
2	Kicks a ball Balances on one foot for 1 sec Stacks six blocks Feeds self with spoon	Shows negativity (e.g., the favorite word is "no") Plays alongside but not with another child (" parallel play ": 2–4 yrs of age)	Uses about 250 words Speaks in two-word sentences and uses pronouns (e.g., "me do") Names body parts and objects
3	Rides a tricycle Undresses and partially dresses without help Climbs stairs using alternate feet Stacks nine blocks Copies a circle	Has a sense of self as male or female (gender identity) Usually achieves bowel and bladder control (problems such as encopresis ["soiling"] and enuresis ["bedwetting"] cannot be diagnosed until 4 and 5 yrs of age, respectively) Comfortably spends part of the day away from mother	Uses about 900 words in speech Understands about 3,500 words Identifies some colors Speaks in complete sentences (e.g., "I can do it myself") Strangers can now understand her
4	Catches a ball with arms Dresses independently, using buttons and zippers Grooms self (e.g., brushes teeth) Hops on one foot Draws a person Copies a cross	Begins to play cooperatively with other children Engages in role playing (e.g., "I'll be the mommy, you be the daddy") May have imaginary companions Curious about sex differences (e.g., plays "doctor" with other children) Has nightmares and transient phobias (e.g., of "monsters")	Shows good verbal self-expression (e.g., can tell detailed stories) Comprehends and uses prepositions (e.g., under, above)
5	Catches a ball with two hands Draws a person in detail (e.g., with arms, hair, eyes) Skips using alternate feet Copies a square	Has romantic feelings about the opposite sex parent (the "oedipal phase") at 4–5 yrs of age Overconcerned about physical injury at 4–5 yrs of age	Shows further improvement in verbal and cognitive skills
6	Ties shoelaces Rides a two-wheeled bicycle Prints letters Copies a triangle	Begins to develop an internalized moral sense of right and wrong Begins to understand the finality of death	Begins to think logically (see Chapter 2) Begins to read

THE TODDLER YEARS: 15 MONTHS–2.5 YEARS

1. After reaching 3 years of age a child should be able to spend a few hours away from the mother in the care of others (e.g., in day care).
2. A child who cannot do this after age 3 is experiencing separation anxiety disorder.
3. Preschool children do not yet understand that death is permanent; they typically expect that a dead relative (or pet) will come back to life.

1. The child's vocabulary increases rapidly. The 3-year-old child can typically say about 900 words and speaks in complete sentences.
2. Toilet training typically occurs at age 3 years. Delayed toilet training is most often related to physiological immaturity due to genetic factors, for example, the father was also a "bedwetter" as a child.
3. The birth of a sibling or other life stress, such as moving or divorce, may result in a child's use of regression, a defense mechanism in which the child temporarily behaves in a "baby-like" way (e.g., although he is toilet-trained, he starts wetting the bed again). Regression often occurs in typical children as a reaction to life stress.
4. Children can distinguish fantasy from reality (e.g., they know that imaginary friends are not "real" people), although the line between them may still not be sharply drawn.
5. Preschool children are typically active and rarely sit still for long.

Changes at 6 years of age

1. The child begins to understand that death is final and fears that his or her parents will die and leave. It is not until about age 9, however, that the child understands that he or she also can die.
2. At the end of the preschool years (about age 6), the child's conscience (the superego of Freud) and sense of morality begin to develop.
3. After age 6, children can put themselves in another person's place (empathy) and behave in a caring and sharing way toward others.
4. Morality and empathy increase further during the school-age years

The End