

PREFACE

We know that the path to becoming a physician is long and rigorous. It is easy to become discouraged or overwhelmed in your training years. However, the skills you will acquire through the years of dedication and hard work are invaluable.

The particular challenge in the first two years of medical education is the sheer volume of material to be absorbed. You have a heavy load of daily lectures and labs, and even more time is required for nightly studying. Being acutely aware of the time stress this creates, we have attempted to write a user-friendly, goal-directed book using an innovative format intended to engage you. We want you to succeed, and we have created this book with that goal in mind. The structure of each chapter is as follows:

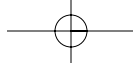
The **Menu** is a list of the goals and objectives of each chapter.

Pre-Step Prep and **Step Prep** are board preparation questions that appear at the beginning and end, respectively, of each chapter. The medical student reader is advised to review the Pre-Step Prep prior to reading each chapter and then review the Step Prep at the end of the chapter. The questions in Pre-Step Prep and the answers in Step Prep prepare the reader for the U.S. Medical Licensing Examination (USMLE) Step 1 and COMLEX Part 1 questions, as this book functions as a basic text and board review primer.

Suggested Readings and Web Sites for the Highly Motivated at the end of each chapter refer the reader to basic sources that will amplify the information given within the chapter.

Consistent with the format of the boards, case vignettes are used extensively for the board-review questions. Information is often presented in brief bulleted lists to allow quick scanning.

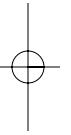
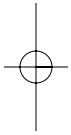
This book is intended to present information to and guide the behavior of student physicians in their patient care and in their own developing professional identity. It will help year-one and year-two



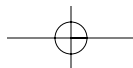
X PREFACE

medical students prepare for the USMLE Step 1 and the COMLEX Part 1. We are concerned not just with your responsibilities to your patients, but also with your responsibilities to your colleagues and, most important, to yourself.

We hope this book will help you appreciate the important role psychiatry and the behavioral sciences play in the practice of medicine. We wish you the best of luck in your career.



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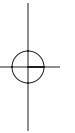




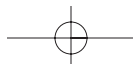
SECTION



THE JOURNEY OF LIFE



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MENU

- Describe the main theoretical concepts used in understanding early childhood development.
- List dimensions of temperament.
- Discuss factors that influence development.
- Summarize normal motor, emotional, cognitive, and interpersonal development.
- Describe the genetic, cultural, and family influences on growth and development.
- Assess the ideas of the leading developmental theorists.

Introduction

Why should the medical student study growth and development?

There are 69.9 million people under the age of eighteen in the United States at present, and the U.S. government estimates that there will be 77.6 million by the year 2020. Health care for the majority of these youth is provided by primary care physicians who will need to understand the concepts of growth and development. Additionally, USMLE and COMLEX consistently include questions on normal growth and development. This reflects the national consensus that all physicians should be aware of these issues. Finally, human growth and development has have a profound impact on disease and illness. Medical students and physicians need to understand this complex interplay.

Pre-Step Prep

1. You are consulted by worried parents who report that their child is showing the following behaviors: increased masturbation, concern about bodily injury and excessive anxiety about insignificant scratches and bumps, increased interest in his infant sister's genital area and his parents' bodies, fears of monsters at night, and an expressed desire to marry his mother when he grows up. This child is most likely showing behaviors typical of which of the following stages of Sigmund Freud:

- Genital
- Oral

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- c. Latency
- d. Anal
- e. Phallic/oedipal

2. Following the birth of a baby sister, five-year-old Sally resumed sucking her thumb and wetting her bed. This is an example of which of the following:

- a. Acting out
- b. Compensation
- c. Isolation
- d. Reaction formation
- e. Regression

3. A social acquaintance asks you for advice regarding her two-year-old son. For several months he has been preoccupied with a small blanket. He carries it everywhere and becomes upset if anyone tries to take it away. When taken to a babysitter's home without the blanket recently, he screamed so incessantly that the mother was forced to take him home to get the blanket. His four-year-old sister never showed similar behavior. Which of the following is correct?

- a. The blanket should be taken away gradually by cutting it in half every few days until it is gone.
- b. The child is showing signs of the oedipal conflict.
- c. The mother should be more attentive to the child.
- d. This could be a sign of autism; it would be advisable to have him evaluated by a child psychiatrist.
- e. This is developmentally normal; eventually, he will give up the blanket by himself.

4. The three-year-olds in a preschool setting are given the following command by their teacher: "All left-handed children with brown eyes go to the back of the room." The children are unable to consistently comply because of the lack of which of the following:

- a. Abstraction
- b. Egocentricity
- c. Lattice formation
- d. Preconventional perspective
- e. Object permanence
- f. Decentration

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6 PSYCHIATRY AND BEHAVIORAL SCIENCE

5. Erik Erikson characterized the tasks and challenges of the four-to five-year-old as which of the following:

- a. Autonomy vs. shame and doubt
- b. Trust vs. mistrust
- c. Generativity vs. stagnation
- d. Identity vs. identity diffusion
- e. Initiative vs. guilt

6. Lauren, age four, tells her parents that she has three friends: Mustard, KooKoo, and Maureen. Lauren says these friends live in the attic and come down to play with her. She insists on having cookies put out for their snack at bedtime and is seen talking to them. Nobody else can see these friends. Her parents consult you and wonder if psychological testing or consultation with a child/adolescent psychiatrist is indicated. You take a careful history and find out that Lauren is somewhat shy but is doing well in all areas of her growth and development. Choose the most appropriate response on the part of the physician:

- a. Order a pediatric neurological workup with EEG.
- b. Refer Lauren to a child/adolescent psychiatrist.
- c. Get a serum lead level.
- d. Suggest that the parents tell Lauren not to speak about her friends and use a time-out technique as punishment if she does.
- e. Explain to the parents that the behavior is normal for a child of this age.

Prenatal and Perinatal Development

Prior to the birth of a child, the mother, father, and extended families on both sides begin to prepare psychologically to endow the child with

desired attributes and characteristics. **During the nine months of pregnancy**, the mother's attention turns inward to the child she is carrying. She dreams of what it will be like to be a mother and what the growth and development of this child will be like. She may worry about the pain of childbirth and how she will manage. The **father may also participate** in this planning and anticipation process. He thinks of what it will be like to be a father and what he will do with a new son or daughter.

Some Not-So-Good News

- The C-section rate has risen 46 percent since 1996.
- The preterm birth rate has increased 20 percent since 1990.
- The percentage of low-birth-weight babies has increased more than 20 percent since the mid-1980s.

Source: Centers for Disease Control, <http://www.cdc.gov>.

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Both anticipate the shift from a dyadic to a triadic relationship and realignment with the families of origin.

Differing Experiences, Differing Expectations

Perhaps the infant will be born to a stable, **married couple** who love one another and are eagerly awaiting the birth of their first child, but in 2006 married-couple families constituted only 50 percent of U.S. households.

Medical students face special challenges as expectant parents. How will they find time to prepare for the birth while preparing for Step 1 USMLE or COMLEX or working long hours including evenings and weekends on clinical rotations?

Maybe the child will be born to an **unwed teen** who scarcely understands what is happening and doesn't have the support and backing of

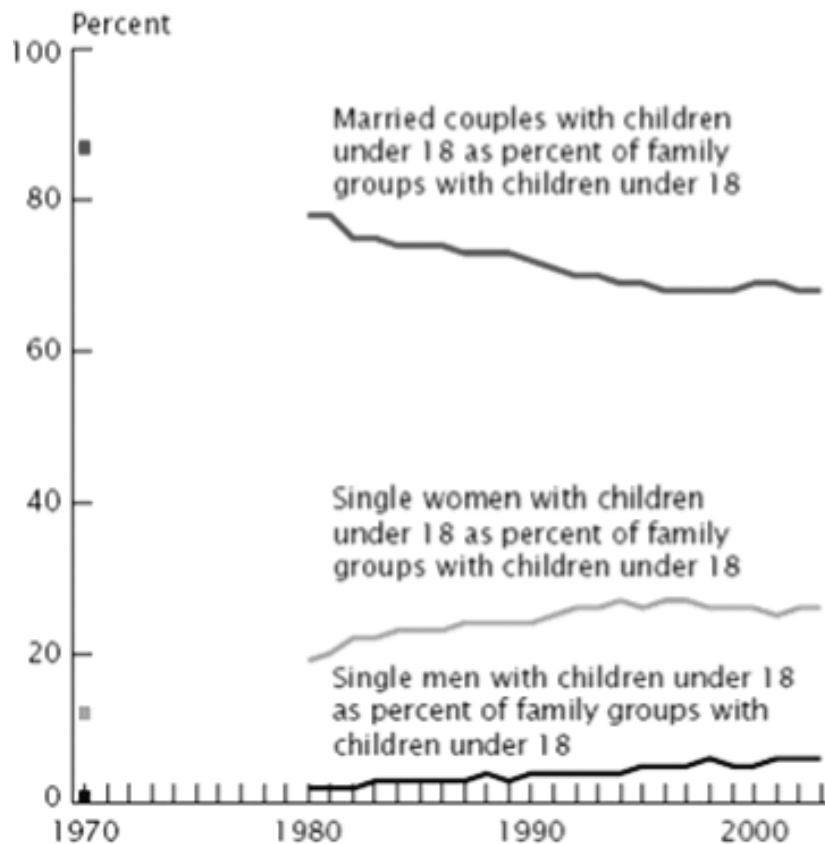


Figure 1.1 Family Groups with Children by Type of Family Groups: 1970–2003

Source: U.S. Census Bureau, www.census.gov (accessed January 2007).

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her family or a partner. Teen mothers have additional risks: As a group they have more medical complications and higher rates of labor and delivery complications; their infants are more likely to be premature, to have neurological difficulties, and to die before age one.

- The teen birth rate was down to the lowest level ever in 2005, 40.4 live births per 1,000, which was 35 percent less than the rate in 1991.
- The greatest decline was in non-Hispanic black teens.

Perhaps the child will be born to a **career woman** who has finally decided that she would like to become a mother before it is too late. Women older than thirty-five or forty have their own risks: increased chance of infertility, more complications during labor and delivery, and increased probability of having an infant with Down syndrome.

A **lesbian or gay couple** may be giving birth via artificial insemination or adopting a child.

There are a myriad of situations in which a birth can occur. These are just a few examples. In each case, the child comes into her parents' lives invested with a set of assumptions that will influence her own growth and development. At the same time, her unique endowment and developmental pattern will influence and change her nuclear family.

Birth Basics

- Regular prenatal care and good nutrition are essential during pregnancy.
- Pregnant women who suffer from, or develop, major depression should be treated and closely monitored. In cases where the mother is highly ambivalent about the birth of the child or doesn't have a support system, the physician will need to be prepared to give additional care and support. More pain medication may be needed during labor in such cases.

Mental Retardation

- Common Genetic Causes:
 - Down Syndrome
 - Fragile X
 - Phenylketonuria (PKU)
- Problems During Pregnancy:
 - Exposure to alcohol
 - Rubella
- Problems at Birth:
 - Anoxia

As the parents and extended families wait for the birth with anticipation, the genetic code of the fetus provides the blueprint for growth and development. The chromosomes in the cell nucleus contain the **DNA** or genetic material of the developing organism.

- The most common identifiable retardation syndromes are Down syndrome and fragile X syndrome. Single gene defects may lead to diseases

such as **phenylketonuria (PKU)**, **sickle-cell anemia**, and **Huntington's disease**. Genetic counseling for the parents is indicated.

- There are more male conceptions than female (160:100), but for reasons that are not clear, there is only a small excess of male births.
- During prenatal development, the brain is “feminine” unless “masculinized” by an influx of testosterone, typically after eight weeks' gestation.
- There is an increase in brain weight and cerebral cortical thickness from infancy through adulthood.
- The **first trimester of development is crucial** to the developing fetus. During weeks two through eight, many structures and organs are developing. Weeks three through sixteen are particularly important **for brain development**.
- The placenta may transmit harmful substances to the fetus. The mother's health is essential for the healthy development of the developing child.

Hazards for Fetus and Mother

Exposure to alcohol and illicit drugs in utero is a major public health problem in the United States; it is associated with poverty and parental psychopathology, although it can occur in any socioeconomic group.

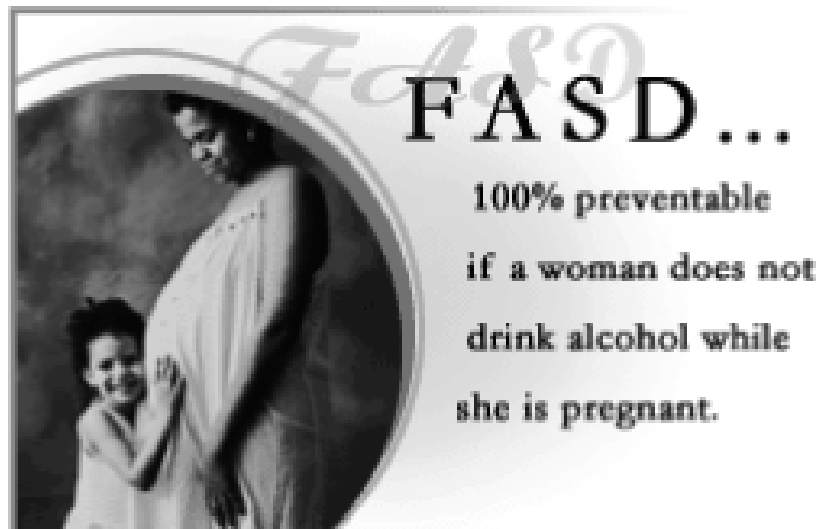


Figure 1.2 Fetal Alcohol Syndrome

Source: Centers for Disease Control, www.cdc.gov.

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Exposing Children to Second-hand Smoke

Cotinine is a breakdown product of nicotine and a marker for recent exposure to secondhand smoke. The most recent government survey data show elevated cotinine levels in:

- 61 percent of white, non-Hispanic children
- 81 percent of black, non-Hispanic children
- 41 percent of Mexican American children

Environmental tobacco smoke increases the probability of adverse health effects on children.

Source: Centers for Disease Control, Child Stats, <http://www.childstats.gov>.

Fetal alcohol syndrome and mental retardation may result from prenatal exposure to alcohol.

Medical students and physicians need to be aware of their own attitudes and responses to all substance-abusing patients. Unprofessional attitudes and behaviors betray biases and negative feelings on the part of health care providers. Substance-abusing mothers and their infants are at high risk and need the highest level of professional medical care.

Tobacco use is associated with low birth weights. Low birth weight is defined as less than 5 pounds, 8 ounces; in 2004, 8.1 percent of infants had low birth weights. Very low birth weight is defined as less than 3 pounds, 4 ounces; in 2004, 1.4 percent of infants had very low birth weights. Two reasons are the increase in the use of fertility drugs and the increase in women giving birth at an older age. Low birth weights are also on the rise in singleton deliveries.

Maternal illnesses such as syphilis, rubella, HIV, and herpes simplex can lead to problems with the fetus. Maternal use of medical drugs such as thalidomide, DES, and tetracycline also present risks. Other hazards to the developing child include exposure to mercury, lead, PCBs, or radiation.

Caesarean section is more expensive and risky for the mother than vaginal delivery. It is often performed when the mother is HIV positive, because it may reduce the chance of transmission of HIV to the newborn child.

Pregnant women have a lower incidence of major hospitalizable mental illness than women who are not pregnant or are postpartum.

If there is **spousal abuse** by a male partner in the relationship, the abuse typically increases during the woman's pregnancy. Extramarital affairs by the male partner occur most commonly in the last trimester of pregnancy.

The Birth

The actual event of birth is usually filled with high emotion. Ideally, the mother is alert, knows what to expect, and is supported emotionally during the process by a partner, family member, or close friend. She

will give birth in a comfortable, homelike room and has a trusting and warm relationship with the health care professionals in attendance, so that she or she and her partner can participate fully in this unique experience. Many couples find this to be a very moving and joyous experience that brings them closer together.

Immediately after the birth, the child needs to be in close proximity to the parents so the attachment and bonding processes can begin. Most mothers wish to touch the neonate and make sure there are no abnormalities. The mother may be put off by the initial infant appearance: little subcutaneous fat, covered with cheesy vernix caseosa, enlarged genitals, and possibly profuse hair growing low on the forehead. The head may have an abnormal shape due to molding during birth.

Careful monitoring of the neonate is essential during the birth process, as oxygen deprivation leads to fetal distress.

In rare cases, the mother or newborn may die at or shortly after the time of birth. Breaking such terrible news to the parents or spouse can be very difficult for the physician. It is essential that the attending physician select a private setting, ask what the parents know or may suspect about their newborn's condition, and then let them ask questions to find out what they wish to know. (This is not a job for a medical student.) Let the parents respond and express emotion. Be empathetic! Conclude the conversation with a plan for next steps and indicate your willingness to be available for further discussion. The parents may hear little of what you say other than that something has gone wrong. Grief for the future and child they had anticipated is a normal part of the process. Later, there may be more questions or requests for clarification of the issues and plans.

Postpartum Depression and Psychosis

"Maternity blues" occur in about half of postpartum women but are not considered a psychiatric disorder because of the mild and self-limiting course.

The risk of major depression for women in the postpartum period is 10–15 percent. Women with a previous history of depressive disorder are at increased risk. Postpartum depression is a serious condition and must be treated. If the mother is suicidal, she may plan to kill her child prior to killing herself. Mothers may reason that there is no adult who will care for the child as well as a mother, so it is best to end the life of the child. This may also be a factor for women with young children. It is essential for the physician to ask about thoughts of injury or death for the children when evaluating the suicidal or psychotic mother.

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Andrea Yates was convicted of drowning all of her five children in a bathtub on June 20, 2001. She stated that Satan told her to kill her children. Psychiatric testimony indicated that she was psychotic at the time of the murders. She was sentenced to prison for life in Texas. Infanticide may be poorly reported and more frequent than statistics reveal.

Medical students and physicians must always be alert to the possibility that mentally ill—depressed or psychotic—mothers of young children may present a danger to their children. Careful assessment and treatment on the part of medical students and physicians may save lives and prevent such tragedies.

In a small percentage of new mothers, autoimmune thyroiditis may occur and mimic the mood symptoms of major depression. This disorder is easy to diagnose, and hormone replacement therapy is readily available and highly effective. *Thyroid function should always be checked* in the case of postpartum mood symptoms.

Postpartum psychosis is less frequent than postpartum depression, affecting about one in one thousand women, typically those with a family history of schizoaffective or bipolar disorder. It is imperative to treat this disorder promptly.

Negotiation must take place within the marriage as the tasks implicit in child rearing, such as financial planning and household tasks, change. Furthermore, there is a realignment of the relationships with the extended family to include parenting and grandparenting roles. During this first year the parents will learn to respond most effectively to their particular infant for social interactions, hunger or sleep and both parents and infant will get to know one another.

The Newborn

At birth infants can orient to sounds, see, and have visual preferences. Their sleep cycles are 3.5 to 4 hours long, and they are in a quiet, alert state about 10 percent of the awake time.

Gestational age and weight at birth are directly related to positive outcome. Prematurity and low birth weight can compromise biologic endowment.

There will be a marked increase in the size and number of cerebral neurons during the first fifteen months of postnatal life. The axons and dendrites of neurons grow to form synapses with one another. This process will continue until about age eleven, when there is maximum synaptic density and the pruning of synapses will begin.

The cortex has an inside-out pattern, with the earliest born neurons in deepest cortical layers. Newer neurons migrate from the ventricles up the glial cell body to the superficial cortical layers.

Infants can consistently distinguish their mother's voice from that of another female at birth but can't distinguish faces clearly until two months of age. A number of primitive reflexes are present at birth. Cognitive development is limited to those reflexes and uncoordinated actions. Grasping and sucking schemas are adapted through assimilation by repetition as the child becomes more adept at those actions. When a breast-fed infant is switched to a bottle, the baby must accommodate his sucking schema to the new situation.

The newborn is not a *tabula rasa* (blank tablet), as previously believed, but is an active being that acts upon and is acted upon by his environment in reciprocal feedback loops.

As a way of evaluating the newborn infant's need for increased levels of observation, Virginia Apgar developed a rating system, which is currently in wide use. A score of 10 indicates an infant in the best possible condition. For infants with dark skin pigmentation, the clinician uses nail beds and other areas to determine oxygenation. The Dubowitz neurological exam and the Brazelton Neonatal Behavioral Assessment Scale are also widely used.

Selected Theories of Development

Social Learning Theories

Learning theorists use concepts of **positive and negative reinforcement** to describe influences on child behavior. They do not focus on the child's genetic endowment, temperament, cultural forces, or interactions with the parent. They postulate that child behaviors that are positively reinforced or rewarded—by the parent, family, or social group—tend to occur more frequently. On the other hand, behaviors that are negatively reinforced or punished occur less frequently.

Albert Bandura, a learning theorist, refined previous learning theories by adding the concept of **observational learning**. Children learn not only by positive or negative reinforcement but also by watching their parents model behavior. This theory is known as **social learning theory**. Gerald Patterson and others have used social learning theory to understand how problems in parenting may lead to disruptive behavior disorders in youth.

Discontinuous Development

Does the worst reader in first grade always lead the rear? Child development is sometimes discontinuous. The child who is last in the class in first grade may be first in the class by fourth grade. The child who is shy and retiring early on may later become a gregarious and popular leader.

Theories of Psychosexual Development

The psychoanalytic theorists based their theories on the work of **Sigmund Freud**, a Viennese neurologist who lived from 1856 to 1939. Freud described a type of sexual energy called **libido**, which was present during the entire life cycle. During childhood, the focus moved successively from the child's mouth, to the anus, then to the genitals. The first, **oral stage**; the second, **anal stage**; and the third, **phallic stage** all preceded the latency stage, during which sexual energy was diminished. During the final, **genital stage**, of adolescence, libido was again

of prime importance. According to this theory, each stage must be successfully negotiated for the child to move on to the next stage.

In addition, Freud described three important components of the personality. The **id** was present at birth and represented the wish for immediate gratification of instinctual drives. Later, the **ego** developed to mediate between the demands of the id and the limitations and needs of the external world. The third agency, the superego, or conscience, developed still later as the child internalized the values of the family and culture.

A follower of Freud, **Margaret Mahler**, elaborated on the stages of the "**psychological birth**" of the young child in his development of a separate sense of self from the caretaker.

Attachment Theory

The nature and genesis of the unique emotional bonds between children and their primary caretakers have been a focus of interest and concern for many investigators. Attachment is the term used to signify the child's relationship to the parent, while the term bonding refers to the parent's relationship to the child. Attachment is the emotional tie between the primary caretaking adult and the child. It is manifested by the child's seeking physical and emotional closeness with the beloved caretaker. It is clear that normal attachment is essential for healthy development. Studies of orphanages in the United States in the first half of the century documented that when a parent is unavailable, even when children are given adequate food and their physical needs are cared for, development is abnormal and resistance to disease is lowered. Infant mortality rates were sometimes over 50 percent in such settings. Children reared without the normal attach-

ment to a caring adult showed lowered intelligence and psychiatric problems including delinquency and developmental deviations.

The Bucharest Early Intervention Project studied children aged twelve to thirty-one months in orphanages in Romania and found serious disturbances of attachment. The children showed two main types of attachment disorders: They were either inhibited and socially withdrawn or indiscriminately social and disinhibited. These disorders are much more common in orphanage children than in children living with their parents.

John Bowlby described stages of attachment from birth to thirty-six months. Many variables—such as the quality of attachment prior to separation, the age of the child at the time of separation, the quality and availability of substitute caretakers, and the length of the separation—affect the child's behavior. He described the behavior seen when a child is separated from the mother or primary caretaker for more than three months:

- Protest—Child cries out for lost person, searches, actively tries to reunite.
- Despair—When the child is not successful in finding the caretaker, she ceases active efforts and appears to give up.
- Detachment—The child emotionally separates herself from the mother, and ongoing development is impaired.

Cognitive Development

The theories of **Jean Piaget** have had exceptional influence on the understanding of child development. Most of his observations were made on his own three children. He described a sequence of four stages in the development of thinking and described tasks central to each of those stages. He believed that each stage was built on the successful mastery of the previous stage. In addition, he described several terms that were central to the understanding of all of his stages.

Piaget's theories are complex and were changed during his career. Current researchers continue to accept Piaget's work as valuable,

Head Start is a federally funded program that provides educational, health, nutritional, social, and other services to disadvantaged children and their families with a goal of promoting school readiness. In 2004–2005, 12.5 percent of Head Start enrollment consisted of children with disabilities.

Research on the effectiveness of this program has been limited, but data suggest that Head Start children display improved cognitive abilities. They also have improved access to health services. Gains in language and social-emotional skills and improvements in parenting have been documented. However, the U.S. General Accounting Office Study 1997 showed a lack of evidence of long-term Head Start effects; the program is dependent on federal funding.

Piaget's Four Stages of Cognitive Development

Sensimotor period	Birth to two years
Preoperational period	Two to seven years
Concrete operational period	Seven to eleven years
Formal operational period	Twelve years to adulthood

but several aspects of his theory have been criticized. Some theorists reject the ideas of Piaget and focus on information-processing approaches. Information-processing theorists reject the idea of stages and have multiple ways of conceptualizing the development of thinking.

Theories of Psychosocial Development

Erik Erikson was also an apprentice of Sigmund Freud. He emphasized libido less, considered culture and society more important determinants of development, and described stages of the entire life cycle in **psychosocial** not **psychosexual** terms. For each stage, he described the outcome of the successful negotiation of the period and contrasted that with the consequences of an inability to complete the task. Like Freud, Erikson emphasized the importance of early life in development and believed the successful negotiation of each stage was essential to subsequent stages, but he emphasized that change could take place throughout the life cycle.

The First Year

Months Two to Six

By six to eight weeks the **social smile** has developed and signals recognition of the human face gestalt. It is thought that this response signals the first consistent recognition by the infant of a “not me.” In 1965, **René Spitz** developed his **genetic field theory**, which drew heavily on an embryological model and postulated three organizers of the differentiation process in humans. He termed the social smile the first organizer, to be followed at seven months by the second organizer, stranger anxiety, and at two years by the third, the “no.”

Margaret Mahler called this period the **normal symbiotic phase**, during which the child does not realize that she is a separate being

from the primary caretaker. More recent research confirms that significant changes occur across different domains at two to three months after birth. These new developments alter both the infant's behavior and that of the primary caretakers.

At about this time, over half of infants have "settled" into becoming night sleepers. The EEG now goes from Stage 1 quiet sleep to Stage 2 REM sleep. Prior to this, the baby went from the awake, alert state directly to REM sleep. (In adults with narcolepsy, there is a similar direct progression from awake to REM sleep.)

By sixteen weeks, there are more dramatic changes. The infant now likes to be held, and she smiles, coos, and laughs out loud. The baby becomes a responsive member of the family group. Her eyes can follow an object through an arc of 180 degrees, and she can reach out for a desired object with her hands. Put on the floor, she is able to maintain a poised position. She loses interest in an object that disappears, as she does not know that an object that disappears still exists. There is a beginning sense of body image and boundaries.

Maturation = biologically based, phylogenetically determined, sequential unfolding of forms and functions (cognition, language, motor and sensory functions)

Growth = increase in physical size

Development = getting functions and capacities that evolve through experiences in one's environment as these experiences influence elements provided by maturation

Months Six to Twelve

The age of seven to eight months marks the beginning of "**stranger anxiety**," during which the child cries or withdraws at the appearance of strangers. This signals an attachment to another human being and the awareness that that person fulfills the satisfaction of one's needs. The baby can sit upright without support, can wave bye-bye, and can enjoy social games such as patty-cake. She may be able to creep.

Margaret Mahler called this second half of the first year "hatching" or subphase 1 of separation-individuation. The child becomes more alert and explores the external world. The child may also protest when the caretaker moves out of her visual field. This "**separation anxiety**" indicates that the child is beginning to understand that she is dependent on a separate human being to meet her needs.

Most recent research confirms the major changes that occur at seven to nine months. Robert Emde calls this the onset of "focused attachment," when the infant develops a strong preference for turning to just a few adults for comfort. Daniel Stern refers to the development of "intersubjectivity," which is when infants act as if they

understand that their thoughts, feelings, and actions can be understood by another person.

Twelve Months

By twelve months of age, the infant can stand upright and walk. She sees the world from a different vantage point and can move toward and away from her caretaker. She now has an adult pattern of sleep, with only 20 percent REM sleep on EEG. She is beginning to speak a few words. She can distinguish phonetic contrasts in a highly refined way. She is beginning to understand that effects have causes other than herself. She has a preferred group of one to three adults.

Erik Erikson followed the model of Sigmund Freud, terming the first year of life an “**oral sensory period**” and indicating that successful completion of the tasks of this period lead to a sense of basic trust: The world is a good place, where one’s needs will be reasonably met. Lack of success in this year leads to mistrust: The world is unpredictable, and one may be subjected to overwhelming stimuli from hunger, cold, and emotional deprivation.

The child often has a “**transitional object**” at this age. This is may be a blanket or stuffed animal that the child prefers to have most of the time but particularly when going to sleep or to the hospital. This object is an important marker between attachment to a primary object and the ability to move away successfully. The rate of development has now slowed; landmarks in the future will come more slowly.

Cognitive development progresses from a **primary circular reaction** to secondary and tertiary circular reactions. During months four to nine, the child likes to repeat novel experiences but has relatively little interest in the outside world, and those experiences are all focused on his own body; they are termed **secondary circular reactions**. Activities of this stage include sucking, grasping, looking, and listening.

Piaget stated that by nine months the child has achieved “**object constancy**.” The child will actively search for a red ball hidden under the blanket, which implies that she sees the object as an entity in its own right and understands that it exists and moves in a space common to it and the subject who

Leading Cause of Death Ages 0–1 Year in the United States

The leading causes of death in children before the age of one in the United States are (1) developmental and genetic conditions present at birth, (2) sudden infant death syndrome (SIDS), and (3) all conditions associated with prematurity and low birth weight. There are almost twice as many deaths in the first year of life than in the next thirteen years total. The death rate then rises rapidly following puberty because of the large number of fatal accidents, homicides, and suicides.

Source: National Institute of Health, <http://www.nlm.nih.gov>.

Table 1.1

Gross and Fine Motor Skills, 2 Months to 1 Year		
Age in Months	Gross Motor Skills	Fine Motor Skills
2	Lifts head	Follows object to midline
	Rolls over	Follows object 180 degrees
4	Lifts chest	Grasps rattle
6	Sits without support	Reaches for object
		Passes block hand to hand
8	Crawls and cruises	Feeds cracker to self
12	Stands well alone	Pincer-grasps raisin
	Walks	Cooperates in dressing

observes it. Also, the continued existence of the object must be construed as separate from and independent of the activity the subject intermittently applies to it. (Note that Piaget's conceptualization of object constancy at nine months contrasts with the object constancy of Margaret Mahler, which is not achieved until thirty-six months.)

By twelve months, with improved visual-grasp ability, **tertiary circular reactions**, which focus on pleasurable or novel experiences in the world outside the infant, have started. For example, an infant lying on her back in a crib regarding a bright mobile sets the mobile in motion via a random vigorous kick and, after several chance repetitions, begins to understand the relationship between the kick and the mobile motion. The infant at this stage tries to prolong interesting sights and sounds and will develop variations to try to get new effects.

The Toddler: One to Three Years

Around the first year, a major change takes place when the "baby" gets up and walks. Suddenly the "toddler" sees the world from a vertical, not a horizontal, vantage point. Everything is possible. Wonderful vistas and possibilities open up, but unanticipated and unrealized pitfalls lead to tears, bumps, and bruises for the enthusiastic explorer. Margaret Mahler called the period from

What Is Meant by "Normal"?

Does the term *normal* mean average, optimal, or what is commonly seen? There is wide variability between individuals, and the physician is often consulted to determine whether a child's behavior or development is within normal limits or represents illness or pathology. Knowledge of usual developmental landmarks or stage-appropriate expectations will help in that determination. In addition, anticipatory guidance to parents and families will help in keeping their responses to the normal landmarks of development appropriate.

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ten to sixteen months the “practicing subphase.” The child is excited about the newfound ability to locomote but returns to the parent for what Mahler termed “emotional refueling.”

Psychological separation from the mother or primary caretaker is a key task for the toddler. The **development of the “no”** and the struggles around **toilet training** are also key developments of this period. Parents will often turn to the physician for advice on child rearing, developmental norms, and problems presented in the preschool period. Knowledge of how the child conceptualizes her world and what constitute normal landmarks in the stages of development will help the physician avoid misunderstanding the problems children experience in this period.

Physical Development

Brain development. Development of the central nervous system is affected by genetic endowment, gender, exposure to toxins, and environmental influences. The majority of neuronal synapses in the brain are formed in the first three years of life. The child has more synapses than the adult.

Fine motor. By the age of two years, the toddler has increasing eye-hand coordination and is able to build a tower of six cubes. By age three, the child can hold a crayon and draw a cross and a circle.

Gross motor. Many toddlers are able to ride a tricycle, and most can run with ease. By the age of two or three years, sphincter control has been developed, as the long tracts from the brain down the spinal cord are fully myelinated. Most parents begin to think about toilet training when their child is between two and three years of age, although this may vary by culture. By that time most toddlers are physically capable of controlling their bowels and bladder. The child may be interested in toilet training if an older sibling or other children are seen toileting. It is most helpful to approach the task so that the toddler develops a sense of mastery and pride in his ability to toilet, and the child’s autonomy is enhanced. If parents become harsh or markedly inconsistent or get into power struggles with the child, the child’s self-esteem may suffer. This is exemplified in Erikson’s stage of “autonomy vs. shame and doubt.”

Temper tantrums are not unusual during this period. Parents need to handle any emotional outbursts firmly yet kindly and should not give in to coercive behaviors on the part of their toddler. (See Case Study on next page.)

Cognitive development. The sensorimotor stage of Piaget continues until two years of age, when the preoperational stage begins. During the last part of the sensorimotor stage, tertiary circular reactions and

CASE STUDY: TEMPER TANTRUMS

Lucy, age thirty months, was at the toy store with her mother. She noticed a wind-up duck that quacked and walked. This enchanting toy was clearly a “must-have” for Lucy. She got her mother’s attention, pointed to the duck, and went to pick it up, clearly intending to take it home. When Mother said no, Lucy held on to the duck more tightly, started to cry, and said again that she wanted it. When Mother pried the duck out of Lucy’s arms, Lucy threw himself on the floor and started to howl. The other customers and sales clerk stared as Mother turned pink with embarrassment and anger. Mother picked Lucy up off the floor, carried her out of the store, and put her in the car. By this time, Lucy was still crying but somewhat calmer. Mother put her in the car seat, gave her a pacifier, and she fell asleep on the way home.

Lucy learned an important lesson: Temper tantrums don’t get you what you want.

the beginnings of symbolic thought are seen. Object permanence continues and solidifies.

Speech and language. Most children start speaking single words at about twelve months of age. The toddler may use jargon, which sounds like speech but has no clear meaning. Word combinations are produced between fourteen and twenty-four months, starting with telegraphic speech without grammatical elements. An example of this would be a phrase like “Kitty eat.” Most children have a large increase in size of vocabulary between eighteen and twenty-two months.

By thirty-six months, most children have mastered the basic structural rules of their native language, which also involves cultural ways of understanding the world. The child has an inborn capacity to distinguish phonetic contrasts in a highly refined manner, and language stimulation by the caretaker enhances and develops this awareness. Reading books and nursery rhymes to children builds their awareness of differences in word sounds and helps them become better readers and spellers. Language stimulation also increases vocabulary, stimulates language pathways in the brain, and may even increase IQ. Large differences in the language ability of children are related both to native ability and to the amount and type of language stimulation the child receives.

What is the difference between the terms *language* and *speech*? Language is the ability to form symbolic thoughts while speaking, as well as the ability to communicate. Speech is the ability to produce the sounds and words.

The toddler can use symbols and take turns in a conversation, but the favorite word of any child in the “terrible twos” becomes “no.” This helps him establish himself as a separate individual but challenges the love, problem-solving ability, and flexibility of the parent. Parents’ appeals to logic and rational explanations hold little weight with toddlers. They want what they want!

Affective Development

During this period, the child develops awareness of him/her self as separate from the parent. By 36 months of age, many children have a stable internal psychological image of significant caretaking adults that can be maintained in their absence and under conditions of emotional distress. Emotions continue to develop. Fear is shown by the end of the first year of life. Erikson taught that the child who does not develop a sense of autonomy during this period will develop shame and doubt. Affection and concern for others and the beginnings of empathy are seen by eighteen months of age. Other emotions such as anger, pride, and sadness are also seen in the toddler.

Social Development

The toddler is very attached to the parent or primary caretaker and has a small circle of clearly preferred adults. New experiences are relished, but the child relies on the parent as a point of reference and a secure base. The toddler enjoys doll play and may act out adult roles. Play with other children doing the same activity or using the same type of toys is enjoyed by most toddlers, but typically, there is little interaction between the children. Roles are not differentiated, and there is an absence of collaboration on means to implement the play. This is called parallel play.

For the toddler, the motor aspect of the play is often more important than the product. For example, when drawing, the child may be more aware of the movement of his hands and arms than of the image appearing on the paper.

Sleeping arrangements are culturally influenced and vary greatly. Most toddlers prefer to sleep with their parents, but in contemporary Western society, that practice is discouraged. In many other cultures, young children usually sleep with their parents. Children often protest being put to bed, but the use of rituals may help ease that transition. Children usually prefer a night-light. They may wake up several times during the night due to frightening dreams or other reasons. Children of this age don’t distinguish dreams from real events and assume that

others can see their dreams. Most toddlers nap in the afternoon and sleep a total of about twelve hours per day.

Gender Identity

Children of two or three years of age know whether they are boys or girls (**gender labeling**) and that their gender will not change in the future (**gender stability**). Young boys and girls become aware of sex role stereotypes and try to follow them. Masturbation is pleasurable and is common and expectable in the toddler. The origin and development of the sense of gender is only partially understood by science; it is related to genetic endowment, hormonal influences, socialization in the family, and cultural norms.

The physician needs to give guidance about appropriate methods of limit setting as well as handling the other issues that come up at a physical exam. Due to the toddler's curiosity and mobility, a major reorganization of the household and outdoor spaces is in order. The parents face new demands in taking fragile or hazardous objects out of their child's reach, putting gates next to stairwells, and generally "childproofing" their home. Disciplinary practices should focus on clear and consistent developmentally appropriate limits. Corporal and harsh punishment should be avoided, and the child's autonomy should be encouraged whenever possible.

When a toddler is hospitalized, his main concern is typically separation from his primary caretaker. He has little ability to understand or cooperate with medical procedures. Elective procedures should be avoided during this period. Play materials can be used to help the child master painful or upsetting experiences in the office or hospital.

The Preschool Child: Ages Three to Six

By age three, the child has made major strides in all areas of development. By age six, she is beginning to move into the world of formal academics in elementary school. With over 7 million children in the United States receiving care from a nonrelative outside the child's home, the term *preschool* may be a misnomer. Many of these children are in day care, preschool, or nursery school.

The number of children in out-of-home care is directly related to maternal employment. Of women with children under the age of five years, about 75 percent are employed outside the home. This represents a dramatic shift in the landscape of child care in the United States; in 1970, the number was 30 percent.

Nature vs. Nurture

The biology of heredity is familiar to us: 46 chromosomes with 22 pairs of autosomes and 1 pair of sex chromosomes. The term genotype refers to the genetic makeup of an individual; phenotype is used to designate the observable characteristics of an individual. The individual is thus a product of genes and environment. The interaction of genetic endowment and environment is dynamic; ongoing throughout the life cycle; and influenced by child, family, culture, and other environmental characteristics. Techniques used to estimate genetic influence include twin studies, adoption and separation studies, and molecular genetic studies.

Physical Development

Brain development. The process of proliferation of neuronal synapses in the cerebral cortex continues during this period. The child's motor activity activates the neural network and stimulates brain development. The cerebellum, a part of the brain integral to motor activity, is fully myelinated by age four, coincident with the increase in motor skills of the child. In many other parts of the brain, myelination is a slow and gradual process that is not finally completed until the third decade of life. Myelin is a fatty substance that "insulates" nerve fibers and speeds conduction of nerve impulses. The dietary recommendation of the American Academy of Pediatrics that children receive whole milk until age two, then low-fat—not non-fat milk—is related to concerns that inadequate fat in the diet would not allow for the essential process of myelination in the brain.

By the fifth year of life, the child's brain has achieved most of its adult size and is the largest organ in the body. Thus, brain development is determined not only by the genetic blueprint but also by environmental influences; together genetics and environment contribute the substrate for the unique human qualities of personality, memory, imagination, dreams, and feelings.

Gross motor development. The child of three can walk downstairs one tread at a time, balance on one foot a very short time, ride a tricycle, and put on her shoes. The child of four can balance longer on one foot, climb on a playground gym, and brush her teeth. The child of five can skip, dress herself, and balance even longer on one foot. The six-year-old can often ride a two-wheel bicycle and tie her shoelaces.

Fine motor development. Most children can copy a circle at three; count three objects, copy a cross, and draw a person with three parts at four; copy a square and draw a person with six parts at five; and print her name at six. Brain laterality and handedness develop throughout the period.

Cognitive Development

By two years of age, the child moves into the **preoperational stage** of Piaget. There is a beginning ability to think abstractly, but thinking is

still very concrete and characterized by egocentrism, animism, and a variety of other systems of thought that do not obey the rules of logic. The boundary between fantasy and reality may be hazy, leading to frustration and conflict between parent and child.

Speech and Language

By age four, most children have learned the rules of grammar and speak in complete sentences. They also have been taught how to be polite by use of words, tone of voice, and sentence structure. The developing language capacity allows symbolic play reflective of daily life experiences and allows children to use language to cope with their feelings. The developing ability to use language to negotiate feelings and interpersonal relationships is a major developmental step. Parents who are authoritative yet allow their children to discuss and negotiate issues stimulate this advance more effectively than parents who are very authoritarian. The educational level and vocabulary of the parent also affect the child's developing language ability.

Does reading to young children prepare them for educational success? Probably!

According to information from the U.S. government information in 2005,

- 60 percent of children ages 3–5 years in the United States were read to daily by an adult.
- Children living in poverty were less likely to be read to daily.
- White non-Hispanic and Asian children were more likely to be read to daily than black non-Hispanic and Hispanic peers.
- Disadvantaged children would benefit from daily reading.

Source: Centers for Disease Control, Child Stats, <http://childstats.gov>.

Affective Development

Emotions of guilt and envy are noted by age three or four, and confidence and humility may be seen by five or six. Empathy and an understanding of others' feelings continue to develop throughout this period. Fears related to injury, death, darkness, monsters, and other things may occur. Because of concerns regarding their body integrity, this period is sometimes known as the "band-aid" period. Children are very concerned about injury and want bandages as well as the parent's reassurance and support when hurt. Failure to successfully negotiate this period leads to guilt, according to Erik Erikson, while success leads to a sense of initiative. During this period, the child develops an increasing ability to regulate and modulate moods. The storms and temper tantrums of the toddler have subsided.

It is common for a younger sibling to be born during this period. This may lead to "sibling rivalry," with the preschooler feeling angry, hurt, and resentful toward the newcomer in the family. Skillful han-

dling by the parent in supporting the first child and including her as an important family member in interactions with the baby can help alleviate those feelings.

Social Development

Children of this age continue to develop prosocial skills and the ability to interact cooperatively with peers. When those skills are well developed, the child is more likely to be popular with peers and well liked by adults. The child who is oppositional and uses coercive techniques with others is typically more isolated socially and more likely to develop psychiatric problems during development.

Play with peers is more likely to be associative; children play with similar materials, talk to one another about the play, and share materials. By the age of five or six, more children engage in cooperative play; this may be dramatic play with each child taking a different role, play in which each child is responsible for a different portion of the project, or conventional games. Imaginary companions, who may ward off feelings of isolation or loneliness, are often invented by well-adjusted children ages three to five. They may name these “friends” and talk to or about them. These inventions typically spontaneously disappear before ten years of age.

Television viewing should be limited and closely supervised by parents. Most young children in the United States watch several hours of unsupervised television per day. Not only is watching TV a sedentary, passive activity, but many television programs show excessive violence and sexual content and convey biased views of life. The child’s ability to play, to develop peer relationships and to be physically active may be stunted. Television viewing should be monitored and limited by parents to ensure that the child watches only appropriate programming, which will give parents and children the opportunity to discuss what has been seen.

Sleep

Fears of monsters and the dark may interfere with the preschool child’s ability to go to sleep. A night light is usually preferred. The preschool child’s dreams are concerned with death or injury and may reflect conflicts or life experiences during the day.

One to three percent of children may have obstructive sleep apnea hypoventilation syndrome, typically due to adenotonsillar hyperplasia. Its frequency is the same in boys and girls prior to adolescence. The

peak incidence is at two to five years of age. It occasionally but rarely presents as daytime somnolence. It may be associated with problems in learning, attention, or behavior.

Gender and Sexuality

The preschool child has increased interest in the genital area and genital sensations, termed the **phallic-oedipal phase** by Sigmund Freud. He described the child's love for the parent of the same sex and rivalry with the parent of the other sex. Children develop primitive theories of sexual differences. Sex education given to the child by the parent should be geared to the child's developmental level and ability to understand. The child's sense of gender identification continues to develop and solidify. Children are aware of sexual stereotypes and norms. After about four years of age, it is extremely difficult to change a child's gender. If children engage in excessive sexually explicit play or seem unusually preoccupied with sexuality, the **possibility of sexual abuse** or inappropriate exposure to adult sexuality should be considered.

Most preschool boys and girls show occasional cross-gender behaviors, with society and parents generally being more accepting of "tomboy" behavior in girls than effeminate behavior in boys. Boys are referred by parents to mental health professionals for evaluation of cross-gender preferences and behaviors far more frequently than girls. Some youngsters diagnosed with "**gender identity disorder**" in childhood will later be identified as homosexual; there is significant political debate about this issue.

The exact incidence of children and teens with **intersex conditions** is not clear, but it is estimated that in about 1 in 2,000 live births, the genitalia of the newborn is ambiguous. This often presents difficult medical, legal, ethical, and family issues. The Intersex Society of North America (<http://www.isna.org>) advocates for assigning gender at birth and postponing surgery. The issue generates a great deal of controversy.

Moral Development

Piaget described the child's sense of "immanent justice" and "moral realism," in which the child believes that a "godlike" adult will inevitably punish misbehavior. The child will often attribute injuries or accidents to punishment for a misdeed. Until about eight years of age, children judge the seriousness of the misdeed by the damage done and don't consider intent. By this standard, a child who accidentally breaks two glasses will be judged as guiltier than the child who is misbehaving and breaks one glass. **Lawrence Kohlberg** described this

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stage as preconventional, denoting the lack of knowledge of social conventions regarding ethical behavior. At the earliest stage, the child does “the right thing” to avoid punishment by an authority figure, not because of any internal sense of morality.

In his book *The Moral Judgment of the Child*, Piaget described morality in children developing gradually, in tandem with their emerging cognitive abilities. He believed that younger children base their sense of what is moral on what adults tell them. Older children base their understanding on concepts of fairness and honesty. Kohlberg adapted Piaget’s ideas and described six stages of morality in three levels:

Stages of Morality

Level 1—Preconventional morality

- Stage 1—The individual is obedient to avoid punishment from a superior authority.
- Stage 2—Solutions to moral dilemmas are based on what is most advantageous to the individual.

Level 2—Conventional morality

- Stage 3—The individual takes the action society expects—“good boy” morality.
- Stage 4—The individual tries to uphold the social order.

Level 3—Postconventional morality

- Stage 5—The individual upholds the values necessary to a moral society.
- Stage 6—Universal principles require the individual to consider multiple points of view and to act in an honorable manner in all situations.

Kohlberg gave examples to illustrate each stage and devised tests to determine the moral stage of an individual. Some theorists question whether these stages are universal, whether they may be different for girls and women than for boys and men, and how childrearing practices may affect moral development.

Health Risks

Since motor vehicle accidents are a leading cause of death in the United States from birth to age 30 years, parents should be educated to use appropriate child seat restraints. Parents should continue to childproof the home and provide close supervision of the child. Dur-

ing the preschool, band-aide period the child has a heightened concern with illness and injury. Elective medical procedures and surgery should be avoided during that period.

Temperament Studies

In the early 1950s, child and adolescent psychiatrists **Alexander Thomas** and **Stella Chess** started the **New York Longitudinal Study** to study temperament in children. *Temperament* can be defined as the relatively consistent, basic disposition of a person. Thomas and Chess have now followed their subjects for almost fifty years, and other researchers have also studied this construct. Thomas and Chess described the “goodness of fit” between the parents and the temperament of the child. Children do well when they are of a temperament that the parents can handle and value. They characterized temperament according to nine parameters:

1. Activity level
2. Rhythmicity/regularity
3. Approach/withdrawal
4. Adaptability
5. Threshold of responsiveness
6. Mood
7. Distractibility
8. Attention span/persistence
9. Intensity of reaction

Thomas and Chess found the following:

- 40 percent of infants are “easy”—of high rhythmicity, positive mood, high approach, high adaptability, and low intensity.
- 10 percent of infants are “difficult”—have irregular biological functions, negative mood, excessive crying; are slow to adjust to change, difficult to soothe; termed “parent busters” by Sholevar.
- 15 percent of infants are “slow to warm up”—active, withdrawing, slow to adapt, of negative mood and low intensity.
- The remaining infants are mixtures of the above.
- Overall conclusions—reviews of all temperament studies.
 - Good continuity of temperament over short periods, poor over longer periods.

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— Temperamentally difficult but otherwise healthy infants are likely to do well later.

Step Prep

1. You are consulted by worried parents who report that their child is showing the following behaviors: increased masturbation, concern about bodily injury and excessive anxiety about insignificant scratches and bumps, increased interest in his infant sister's genital area and his parents' bodies, fears of monsters at night, and an expressed desire to marry his mother when he grows up. This child is most likely showing behaviors typical of which of the following stages of Sigmund Freud:

- a. Genital
- b. Oral
- c. Latency
- d. Anal
- e. Phallic/oedipal

2. Following the birth of a baby sister, five-year-old Sally resumed sucking her thumb and wetting her bed. This is an example of which of the following:

- a. Acting out
- b. Compensation
- c. Isolation
- d. Reaction formation
- e. Regression

3. A social acquaintance asks you for advice regarding her two-year-old son. For several months he has been preoccupied with a small blanket. He carries it everywhere and becomes upset if anyone tries to take it away. When taken to a babysitter's home without the blanket recently, he screamed so incessantly that the mother was forced to take him home to get the blanket. His four-year-old sister never showed similar behavior. Which of the following is correct?

- a. The blanket should be taken away gradually by cutting it in half every few days until it is gone.
- b. The child is showing signs of the oedipal conflict.
- c. The mother should be more attentive to the child.

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d. This could be a sign of autism; it would be advisable to have him evaluated by a child psychiatrist.

e. This is developmentally normal; eventually, he will give up the blanket by himself.

4. The three-year-olds in a preschool setting are given the following command by their teacher: "All left-handed children with brown eyes go to the back of the room." The children are unable to consistently comply because of the lack of which of the following:

a. Abstraction

b. Egocentricity

c. Lattice formation

d. Preconventional perspective

e. Object permanence

f. Decentration

5. Erik Erikson characterized the tasks and challenges of the four- to five-year-old as which of the following:

a. Autonomy vs. shame and doubt

b. Trust vs. mistrust

c. Generativity vs. stagnation

d. Identity vs. identity diffusion

e. Initiative vs. guilt

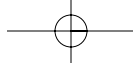
6. Lauren, age four, tells her parents that she has three friends: Mustard, KooKoo, and Maureen. Lauren says these friends live in the attic and come down to play with her. She insists on having cookies put out for their snack at bedtime and is seen talking to them. Nobody else can see these friends. Her parents consult you and wonder if psychological testing or consultation with a child psychiatrist is indicated. You take a careful history and find out that Lauren is somewhat shy but is doing well in all areas of her growth and development. She functions well at home and in nursery school two mornings per week. She is in good health. A baby brother was born two months before she started to talk about her three friends. Choose the most appropriate response on the part of the physician:

a. Order a pediatric neurological workup with EEG.

b. Refer Lauren to a child psychiatrist.

c. Get her serum lead level.

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- d. Suggest that the parents tell Lauren not to speak about her friends and use a time-out technique as punishment if she does.
- e. Explain to the parents that the behavior is normal for a child of this age.

Suggested Readings and Web Sites for the Highly Motivated

American Academy of Child and Adolescent Psychiatry, www.aacap.org.

American Academy of Pediatrics, www.aap.org.

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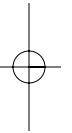
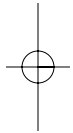
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Wiener, Jerry, and Dulcan, Mina. (2004). *Textbook of Child and Adolescent Psychiatry* (3rd ed.). Washington, DC: American Psychiatric Publishing.

Answers to Step Prep

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