

Infant Toddler Development Training

Module 1, Lesson 1

Module Description

This module presents basic information about typical child development. Child development theories, causes and characteristics of prevalent developmental disabilities and disorders, and their effect on child development and families are addressed throughout the module. It is important that Infant Toddler Developmental Specialists are knowledgeable about the various factors that impede child growth and development, and the effect developmental disabilities and disorders have on the child, family, and others. Required Readings

The required text for this module is: Sandall, S., McLean, M.E., Smith, B.J. (Eds.) (2000) DEC Recommended Practices in Early Intervention/Early Childhood Special Education. Denver, CO: Division of Early Childhood. Learners will also need to access the Resource Bank for Adobe Acrobat (PDF) documents and website material. Learners should be aware that links to websites and additional articles are likely included within the various lessons of this module. Participants are expected to carefully read assigned materials and be prepared to answer questions regarding all content during the self-assessments and final evaluation.

Module Objectives and Corresponding Florida Department of Health (FDOH)

Competencies

1. Describe prenatal development and birth process. Demonstrate awareness of the critical development that occurs during the prenatal period to three years of age. (FDOH B-1)
2. Define, discuss, and apply major theories of human growth and development (e.g., Erikson, Vygotsky, Piaget) and the interrelatedness of the developmental domains. (FDOH B-2)
3. Distinguish between differences related to cultural practices (ethnic and regional) and educational delays, as these differences relate to coaching families in ways to help their children make developmental progress. (FDOH B-3, B-14)
4. Describe the etiology and symptomology of common developmental disabilities or conditions in young children and their developmental effect, including disorders of central and peripheral nervous system; bones muscles and joints; genetics, metabolic and gastrointestinal tract; heart, lungs, and circulation; chronic illness; sensory systems; and learning disabilities/cognitive delay. (FDOH B-3, B-4, B-5, B-7)
5. Identify characteristics of physical contexts influencing development and learning. (FDOH B-7, B-3, B-4)
6. Describe sequences, characteristics, and interrelationships in development across domains, including attachment and social/emotional development, sensory perceptual and motor development, development of knowledge and understanding, development of communication and language. (FDOH B-14, B-7, B-6, B-5, B-4)
7. Describe theoretical and research models regarding interactions between disabilities, risk factors, environments, and development. (FDOH B-14, B-6, B-7, B-5, B-4, B-3)
8. Identify potential effects of general and specific disabilities, delays, or risk factors of parent-child interactions and on different domains of development. These include attachment and social/emotional development, sensory perceptual and motor development, development of knowledge and understanding, development of communication and language, environmental/cultural, abuse and/or neglect, biological, prematurity, birth trauma, and parental involvement. (FDOH B-3, B-14, B-7, B-4)
9. Explain variations in development that may be the result of a disability or health condition and their potential effect on future development. (FDOH B-7, B-4, B-6)

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Introduction

This lesson presents basic knowledge about typical child development. Samples of typical milestones in the areas of motor/physical, cognitive, social/emotional, communication/language, and self-help/adaptive are presented. Even though no two children mature and develop alike, there are predictable sequences in all the developmental domains.

Learning Objectives

Upon completion of this lesson, you will be able to:

- Define child development
- Define atypical development
- Identify one characteristic of fetal development that occurs during each stage (first trimester, second trimester, third trimester)
- Describe each of the major domains of child development: motor/physical, cognitive, social/emotional, communication/language, and self-help/adaptive
- Describe the typical (normal) sequences of child development as it pertains to the major domains
- Differentiate between qualitative and quantitative differences in child development
- Explain egocentrism and its influence on social relationships in infancy
- Describe trends in the physical development of children from birth to age 3
- Describe how thinking changes from birth to age 3
- Explain why it is important to look at child development from a culturally relevant perspective.

Resources

The following resources are necessary for the completion of this lesson. Learners may wish to access and print a hard copy of the resources prior to beginning the lesson and for future reference. Some resource documents can be found in the Resource Bank. Others are available online.

- [America's Children 2001 Appendix A: Detailed Tables](#)
- [Developmental Domains](#)
- [Intellectual Development](#)
- [Language Development](#)
- [Normal Human Development](#)

Key Words

Definitions of key words are found in the glossary.

- Atypical child development
- Child development
- Cultural differences
- Developmental milestones
- Egocentrism
- Qualitative differences in child development
- Quantitative differences in child development

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What is Child Development?

Child development is typically defined as a normal progression by which children change as they grow older by acquiring and refining knowledge, behaviors, and skills. Child development generally involves observing/assessing five specific areas: motor/physical,

cognitive, social/emotional, communication/language, and self-help/adaptive. Three generally accepted principles of child development are that the rate of development differs among children, development occurs in a relatively orderly process, and development takes place gradually (Woolfolk, 2001). As children grow, various physical and developmental milestones will be reached during each age level which includes increases in height and weight as well as development in the rest of the five specific areas mentioned above. When referring to child growth, generally it is in reference to the specific physical changes of a child's actual size such as increases in height, weight, head circumference, and body shape.

What is a typical child development?

To define atypical child development, one must have basic knowledge of typical or normal child development. The terms *typical* and *normal* child development is often used interchangeably to refer to children acquiring a wide range of skills like many children their same age within their same culture. However, the term "typical" development is more accepted by parents than the term "normal" development. Development not only includes similar skills of peers, but also entails such developmental concepts as maturation, achievement of developmental milestones (significant points of accomplishments in various skill areas), developmental sequence of skills, and age level expectations.

When defining atypical child development, one may note the saying, "There is more than one way to grow up." Taking that into consideration, there is probably no such thing as a truly typically developing child since there is great variation of skills and the age at which those skills are normally acquired. This refers to both typically and atypically developing children. A typically developing child acquires specific skills and behaviors according to a predictable rate and sequence. However, no two children develop and grow at the same rate, acquire the same skills at the same time nor perform those skills in the same way. Therefore, the term *atypical child development* is used to describe children whose differences in development are to a marked degree or whose development appears to be significantly inconsistent with normal child development and/or have significant deviations in the normal sequence of development. A child who is described as having developmental delays would be a child who performs significantly below the average performance of a large group of children of the same age in one or more of the five developmental areas.

Three stages of Prenatal Development

When considering child development, one must consider prenatal development. Prenatal development (development of the fetus prior to birth) is typically divided into three phases: first trimester (first three months of pregnancy), second trimester (second three months of pregnancy), and third trimester (third three and a half months of pregnancy).

During the first trimester, conception to the third month, individuals are made up of trillions of cells which contain a chemical molecule called DNA. Genes, which are segments of DNA, determine unique characteristics. Sex cells or gametes are formed during special cell division, or meiosis, where the usual number of chromosomes in human cells is split in half. At conception, when sperm and ovum unite, each new being has the correct number of chromosomes. A girl child or a boy child will be established depending on the combination of sex chromosomes.

During the first trimester, the fetus grows to about 3 inches long and weighs about 1 ounce. The fetus' nervous system, gastrointestinal system, spinal cord, senses, brain, heart, and lungs begin to develop. The face begins to form, the arms, legs, fingers, and toes begin to move. The fetus can also smile, frown, suck, and swallow and the sex can be distinguished.

During the second trimester, month four through month six of the pregnancy, the fetus grows to about 15 inches long and weighs about 1 ½ pounds. The fetus' fingernails, toenails, hair, eyelashes, and eyebrows form during this time. The fetus can suck its thumb and hiccup. The heartbeat can be heard with a stethoscope and its eyes are opened.



During the last months of the pregnancy, the fetus gains more than five pounds and increases in length by about 7 inches and becomes more active in the womb. During this time, the fetus gains immunities from the mother, becomes less wrinkled, and begins to store iron in its liver. The fetus responds to sounds, particularly the mother's voice, and goes through periods of wakefulness and sleep and as the brain development continues, the fetus spends more time awake. The bones of the fetus' head are soft and flexible prior to the birth process. During the last few weeks of the pregnancy, the fetus becomes active, growth slows, and the fetus will begin to assume the birth position.

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Developmental Domains & Typical Sequences of Development

As previously stated, when looking at child development, several domains or developmental areas are considered: motor/physical, cognitive, social/emotional, communication/language, and self-help. Each domain and a brief description of the typical developmental sequences for each are noted below.

Motor/Physical Domain

The motor/physical domain involves both gross motor and fine motor skills as well as physical growth. Since muscle and bone tissue grows very rapidly during the first two years, infant growth is very rapid and increases in strength, coordination, and stamina occur. Typical infant growth and development proceed from the head downward and from the center of the body outward. At birth, the newborn's head is about 70 percent of its eventual adult size - creating an infant that is top-heavy. The same developmental sequence occurs for muscle control with infants gaining control over muscles that support their head and neck first, then the trunk, and eventually developing muscle control needed for reaching. Muscle control needed for walking is the last to develop. During infancy, motor abilities evolve in a specific sequential order. However, it is important to note that the rate of motor development differs among children (e.g., standing, walking).



Developmental Period	Motor Domain Milestones
Birth - 4 months	The typical sequence of motor development begins with raising head and chest, sitting up with adult support, rolling over and batting at objects
4 - 8 months	Infants begin to gain control of head, trunk, and arm movements, and sit up alone.

8 -12 months	Infants begin to reach for and grasp objects, begin to creep, and stand up holding on. Pincer grasp has evolved which allows a child to pick up objects bringing together the thumb and index finger
12 - 24 months	Toddlers begin to creep, stand alone, and then walk alone. Toddlers begin to creep up stairs, run, draw on paper, and kick a ball.
24 - 36 months	Child can use crayons, ride a tricycle, and jump off a step. Children are typically not ready for toilet training until the end of their second year or beginning of their third year. Prior to this time, muscles that retain and release urine and bowel movements cannot be controlled.

Cognitive Domain

The cognitive domain refers to intellect or mental abilities. Cognition involves receiving, processing, and organizing information that has been perceived through the senses and using the information appropriately. Cognition entails interaction between the individual child and his/her environment or events in the environment. Survival and primitive learning in infants begin with reflexive behaviors.

Developmental Period	Cognitive Domain Milestones
Birth - 4 months	During the first few months of life, babies track objects, begin to study their hands, distinguish some tastes, begin to mouth objects, imitate gestures that are modeled, and look in the direction of a sound source.
4 - 8 months	Cause and effect are developed. Babies begin to realize that they can cause interesting reactions. Another concept learned at this age is object permanence - the world is more permanent than previously thought. The toy that was hidden under the box did not actually vanish but is still there under the box. Depth perception is also evident.
8 -12 months	Babies can follow simple instructions, reach for toys that are out of reach but within sight, and show appropriate use of everyday items by pretending.
12 - 24 months	Children enjoy object-hiding activities, use three to four objects in combination, name many everyday objects, and move objects across the midline (passes something from one hand to another).

24 - 36 months	By age 3, children say on average, 272 words, understand simple pictures, like to look at books, and say phrases and simple sentences.
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Social/Emotional Domain

The social/emotional domain encompasses feelings and emotions, behaviors, attachments and relationships with others, independence, self-esteem, and temperament. Infants like to be held and cuddled when awake and begin to establish a bond or emotional attachment with parents and caregivers which evolve into a sense of trust and security.

Developmental Period	Social/Emotional Domain Milestones
Birth - 4 months	Infants can react differently to changes in adult voices (frown, smile), coo and squeal when awake, stop crying when parent/caregiver nears, and recognize and reach out to familiar faces and objects.
4 - 8 months	Infants develop a beginning awareness of self, become more outgoing, laugh out loud, and begin to exhibit stranger anxiety.
8 -12 months	Babies want parent/caregiver to be in constant sight, offer toys and objects to others, repeat behaviors that get attention, and begin to exhibit assertiveness.
12 - 24 months	Babies become less wary of strangers, play alone for short periods, begin to assert independence, enjoy adult attention, and often imitate adults in play.
24 - 36 months	Children begin to show signs of empathy and caring, become impatient, often become defiant, increase temper tantrums, and use physical aggression if frustrated or angry.

Communication/Language Domain

The communication/language domain refers to perceiving, understanding, and producing communication/language. Communication abilities will vary on age ranging from crying and fussing to eventually communicating with spoken sounds and words.

Developmental Period	Communication/Language Domain Milestones
Birth - 4 months	The infant communicates both directly and indirectly through crying, fussing, blinking, shifting eyes, showing preferences for certain sounds, turning head toward voice/sound, and making sounds other than crying.
4 - 8 months	Babies respond appropriately to their own name and simple requests (i.e., Bye-bye). Babbling begins such as "ba, ba,

	ba" at this age and imitates nonspeech sounds (i.e., cough, lip smacking).
8 -12 months	Babies begin to shake head for "no" and nod for "yes" and say "da-da" and "ma-ma."
12 - 24 months	Children follow simple directions. Speech is intelligible around 40 percent of the time and typically uses five to 50 words. Children also respond to simple questions with "yes" and "no" and appropriate head movement.
24 - 36 months	At 2 years of age, children use from 50 to 300 different words with vocabulary increasing constantly. Speech becomes as much as 75 percent intelligible and repeatedly ask, "What's that" Receptive language is more developed than expressive language (know more than they can talk about).

Self-Help/Adaptive Domain

The self-help or adaptive domain involves adapting to the environment and ability to do things for oneself. Some skills associated with this domain include feeding, dressing, toileting, and drinking independently.

Developmental Period	Self-Help/Adaptive Domain Milestones
Birth - 4 months	Babies express the need for food by crying. They also signal the need for diaper changes and express pleasure when placed in warm water (bathing). Eventually during this time, they begin to help by using their own hands to guide the nipple.
4 - 8 months	Babies show interest in feeding activities. Also, during this time, babies can pull off own socks, and Velcro closures on clothing.
8 -12 months	Children begin to hold their own cup and drink and begin to eat finger foods. They also begin to pull off soiled or wet diaper. Generally, children during this age begin to sleep until 6 or 8 am.
12 - 24 months	Children use a spoon to some degree to feed themselves and have good control of a cup. They also begin to try and wash themselves, help with dressing, and by age 2 they may begin to gain control of bowels and bladder.

24 - 36 months	Children are increasingly able to feed self and use cup/glass. They can generally undress themselves and show signs of being ready for toilet training.
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Quantitative and Qualitative Differences in Child Development

When assessing child development, it is important to note that as a child grows, there are both quantitative and qualitative differences. Quantitative differences in child development refer to the changes children encounter as they acquire more knowledge and grow physically larger and stronger. An example of quantitative differences would be a child who, after two years, has grown two inches and gained 10 pounds. Growth in height and weight indicates a quantitative difference.

Qualitative differences focus on changes in the way children think, behave, and perceive the world differently as they mature. An example of qualitative differences would be a child that at a young age has difficulty understanding the perspectives of others (otherwise known as egocentrism). Children's perceptions in thinking change as they get older and evolve into the ability to see things from others' perspectives. This change in perception represents a qualitative difference.

Considering Child Development from a Culturally Relevant Perspective

As a society, we are becoming more and more diverse. Underrepresented groups-- minorities (African Americans, Latinos, Asian Americans, and Native Americans) who represent 1/3 of the U. S. population now will account for more than one half of the population within twenty years (U.S. Bureau of the Census, 2000).

The table below displays the estimated and projected percentages of children under the age of 18 in the United States by race/origin.

Race/Origin	1980	1990	Estimated Statistics			Projected Statistics	
			1995	1998	2000	2010	2020
Caucasian / non-Hispanic	74	69	67	65	64	59	55
African American, non-Hispanic	15	15	15	15	15	14	14
Hispanic	9	12	14	15	16	21	23
Asian / Pacific Islander	2	3	4	4	5	5	6
American Indian / Alaska Native	1	1	1	1	1	1	1

The above population figures for the year 2000 are estimates based on the 1990 Census, not the 2000 Census.

As noted above, in 2000, 64 percent of the children in this country were Caucasian; 16 percent were Hispanic; 15 percent were African American, 4 percent were Asian/Pacific Islander; and 1 percent was American Indian/Alaska Native. Since 1900, the percentage of Caucasian children has decreased, whereas the percentages of African American and

American Indian/Alaska Native children have remained stable. The percentage of Asian/Pacific Islander children doubled over the past twenty years (1980 - 2000) and is projected to continue to increase to 6 percent by the year 2020. The fastest growing racial/ethnic group of the child population is Hispanic. The percentage of Hispanic children increased from that of 9 percent in 1980 to 16 percent in 2000. Projected statistics reflect a continued increase of Hispanic children to 23 percent by 2020 (America's Children: 2001). The learner may wish to reference the Resource Bank (left menu) for details from the original source of this information.

As our society becomes more multiculturally diverse, the Infant Toddler Developmental Specialist (ITDS) needs to be prepared to meet the unique needs of diverse families and children. It is important to note that many variations in child development may be explained by cultural life experiences (cultural differences). Parental beliefs and child-rearing practices also vary across cultures. Even though child behaviors may vary from those of children in the mainstream society, the behaviors may be very normal (or typical) within the child's own culture. Therefore, it is extremely important for the ITDS to differentiate between developmental delays and cultural differences.



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Activity#1

There are many resources that provide developmental milestones in all domain areas. The following offer more in depth and specific information concerning typical child development. Visit these resources and note the main developmental milestones for each domain. Print out applicable information to use as a resource in your work as an ITDS.

Resource 1, 2 and 3: These resources contain extensive material concerning child development and childhood disorders and provide pertinent information for parents/caregivers:

1. Intellectual Development
2. Language Development
3. Normal Human Development

Resource 4: The Magic of Everyday Moments has books for various developmental ages to help parents/caregivers provide appropriate interactions with their children at specific ages.

Resource 5: Developmental Milestones allows you to view three charts of different age ranges.

- Birth to 8 months
- 8 to 18 months
- 18 to 36 months

Resource 6: Developmental Domains is a site from the University of Michigan which includes information on developmental domains and expectations with an excellent Question and Answer section which could be helpful as the ITDS works with families.

Activity#2

It is important to have a working knowledge of typical child development to identify infants/toddlers who may have significant developmental delays. Using the six resources above from Activity #1 and the chart below as a guide, identify specific "typical" developmental events in the five domains listed below for a child 18 months of age.

Sample of Typical Developmental Milestones for 18 Month Child

Developmental Domain	Typical Developmental Events for 18-Month-Old Child
Motor/Physical Domain	
Cognitive Domain	
Social/Emotional Domain	
Communication/Language Domain	
Self-Help/Adaptive Domain	

Activity#3

As noted above, it is important for the ITDS to be cognizant of both typical and atypical child development. Many times, parents and caregivers rely on the ITDS to provide guidance in this area, particularly concerning appropriate routines and activities. For this activity you will need to use the developmental information for a child 18 months of age from the websites listed in Activity #1 and your findings in Activity #2. In the chart below, identify and list five toys you would consider to be appropriate for a child 18 months of age, keeping in mind the perceptual capacities needed to respond to the toys, motor skills needed to access the toys, and the skills promoted by the toys?

Appropriate toys for an 18-month-old child
1.
2.
3.
4.
5.

Suggested Answers:

Toys below were chosen because a child of 18 months can: pick up the objects due to the size of the knobs and blocks and clown pieces, farm pieces...each toy has more than one object and children aged 18 months can use 3-4 objects...children this age can cross objects across midline, walk and run, imitate adults and animals, and can follow simple directions.

- geometric shapes with jumbo knobs
- stacking clown (or any type of stacker toy)
- mega blocks
- cars/walkers
- play farm set

Lesson 1 Highlights

This lesson provided a basic overview of child development. Typical and atypical child development was defined. The three stages of prenatal development were discussed, and samples of developmental milestones were addressed for each of five domains: motor/physical, cognitive, social/emotional, communication/ language, and self-help/adaptive. Distinctions between quantitative and qualitative differences were discussed as well as the necessity of looking at child development from a culturally relevant perspective due to the ever-increasing diversity in our country.

References

U. S. Bureau of the Census. (2000). Statistical abstract of the United States. Washington, DC: Government Printing Office.

Woolfolk, A. (2001). Educational psychology. Boston: Allyn and Bacon.

Websites

- www.childdevelopmentinfo.com (For activity #1)
- www.zerotothree.org/magic (For activity #1)
- www.med.umich.edu/1libr/yourchild/devmile.htm (For activity #1)

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Introduction

This lesson presents some of the major theories of child growth and development. Each theory describes a unique perspective of how children develop, behave, and learn. Child development theories can guide Infant Toddler Developmental Specialists (ITDS) in their daily interaction with children.

Learning Objectives

Upon completion of this lesson, you will be able to:

- Define theories of child development and identify how they can be useful in working with young children and their families
- Define bioecological systems
- Identify six major developmental theories and an identifying characteristic of each theory
- Describe Erik Erikson's theory on trust and autonomy in social/emotional development during infancy and toddlerhood
- Identify key Piagetian concepts in relation to the Sensorimotor Stage in his Cognitive-Developmental Theory
- Describe the theory of human development that best reflects your own beliefs about children
- Explain how knowledge of developmental theories can guide you in your interactions with children

Resources

The following resources are necessary for the completion of this lesson. Learners may wish to access and print a hard copy of the resources prior to beginning the lesson and for future reference. Some resource documents can be found in the Resource Bank. Others are available online.

- [Behaviorist Theory](#)
- [Bronfenbrenner's Ecological Systems Theory](#)
- [Cognitive Development Theory](#)
- [Erikson's Stages of Development](#)
- [Maturationist Theory](#)
- [Piaget's Cognitive Development Theory](#)
- [Social Development Theory](#)

Key Words

Definitions of key words are found in the glossary.

- Autonomy
- Scaffolding
- Zone of Proximal Development

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What are the Major Theories of Child Development? (Part I)

Several theories exist in early childhood development that attempt to explain how young children develop and learn. A theory is an organized or systematic way of thinking about a particular concept. According to Trawick-Smith (2003), "A theory might include beliefs about the nature of learning and development, the role of heredity and environment, and how adults, other children, schools, and communities contribute to the development process" (p. 36). In the field of early childhood development, some of the prominent

theories of child development are maturationist theory, behaviorist theory, Erikson's psychoanalytical theory, Piaget's cognitive development theory, Vygotsky's sociocultural theory and Bronfenbrenner's bioecological systems theory.

Maturationist Theory

Arnold Gesell was a proponent of one of the oldest theories, the maturationist theory. This theory focuses mainly on maturity and little on environmental influences. Basically, this theory maintains that children mature as they grow older, and personalities and temperament will be revealed with little influence from the surrounding environment. Gesell identified developmental milestones or events that are to occur at specific age levels which have been used as helpful guidelines for parents to track their child's development. From a maturationist's perspective, children's environments should be adapted to their already genetically determined needs and characteristics.

Behaviorist Theory

The behaviorist theory proposed by theorists such as John Watson and B. F. Skinner focuses on a child's experiences. At birth, this theory suggests that a child's mind is a "blank slate" to be gradually shaped by the environment (e.g., personality, reading abilities). This theory suggests that adults critically shape a child's learning through positive reinforcement. Positive reinforcement suggests that if a desirable behavior is rewarded, the appropriate or desirable behavior is more likely to recur. From a behaviorist's perspective, adults can use positive reinforcement techniques (praise, modeling, rewards) to shape a child's development in a desired direction.

Psychoanalytical Theory

Erik Erikson's psychoanalytical theory focuses entirely on personality formation. Erikson suggested eight "ages" individuals progress through from birth to adulthood to feel self-fulfilled. Erikson looks at each age or stage as a struggle between one positive and one negative emotional state. Erikson's stages are characterized by a particular challenge of developmental crisis which is central to that stage of life and must be resolved. The resolution of the developmental crisis is dependent upon the interaction between the individual's characteristics and the support provided by the social environment. The first three stages involve conflict of children through 6 years of age. The last five stages involve conflict of children six years of age to adults. In infancy, the first conflict is trust and mistrust. Emotionally secure babies come to trust that their caretakers will nurture and take care of them. Children who are abused come to mistrust the world and may be unable to advance to later stages of emotional development. During the toddler age, conflict between autonomy and shame and doubt occurs. Once the basic stage (trust) is met, toddlers will be apt to become more independent of adults and often assert and rebel against authority (i.e., the terrible twos). Autonomy is acquired during this time. Autonomy is characterized by a toddler's feeling of independence and uniqueness apart from his/her parent(s) or caregiver(s). Doubt and shame happen when children at this age are overly restricted from attempting to venture out and may eventually become shy and lack confidence and self-esteem. Similar stages involving conflict continue through to adulthood. This perspective suggests that adults can enhance a child's emotional well-being by providing appropriate opportunities for the resolution of the developmental conflict or crises.

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What are the Major Theories of Child Development? (Part II)

Cognitive Development Theory

Jean Piaget's cognitive development theory views children as "busy, motivated explorers whose thinking develops as they act directly on the environment" (Berk, p. 212). This

theory focuses on mental growth as being the most important element in a child's development. Piaget believed that individuals progress through four ages of cognitive development: sensorimotor (0-2 years of age), preoperational (2-7 years of age), concrete operational (7-11 years of age), and formal operational (11 years of age - adulthood).

At the sensorimotor stage the thinking involves forming knowledge via the senses: sight, sound, touch, taste, and smell. It is at this stage that object permanence (objects exist whether perceived or not) is developed. Also, during this stage, goal-directed actions occur using trial and error attempts to reach a particular goal (i.e., reach a toy or open a box). During the preoperational stage, preschoolers begin to use internal thought and symbols to solve problems but rely heavily on perception and physical cues and are therefore easily fooled by the "appearance of things." This perspective suggests that we can get to know about how children think by listening carefully and observing ways in which they solve problems and that children should be guided in actively constructing knowledge.

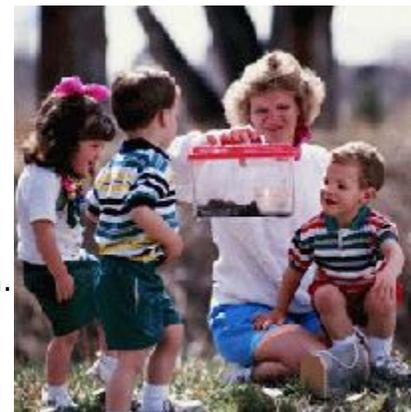


Sociocultural Theory

Lev Vygotsky's sociocultural theory considers the effect of culture when looking at child development and child behavior. This theory suggests that social interactions need to be understood as a part of the cultural setting and not separately to understand the contribution of social interaction to cognitive development and thinking. Vygotsky's theory places a greater role of language, social interaction, and society in child development than Piaget's cognitive development theory. Whereas Piaget emphasized children being active, constructive beings independently, Vygotsky supports that guided participation as an interactive process by adults is vital for cognitive development. Vygotsky maintains that caregivers and parents' scaffold (use language to guide thinking) children's learning. If tasks are too difficult for a child, Vygotsky maintains that the adult intervene by asking questions or giving hints that assist the child in completing the task or solving the problem. These periods of indirect guidance are called "zone of proximal development." Vygotsky maintains that indirect guidance, when a child is within the zone of proximal development, promotes powerful learning. From the sociocultural perspective, knowledge construction can be enhanced by use of rich language and provided for peer interactions.

Bioecological Systems Theory

The bioecological systems theory focuses on the interactions and influences of the outside environment on the child's development. This theory differs from other major theories in that it emphasizes the influence of the outer world (community, school, and political systems). Urie Bronfenbrenner suggests that all settings need to be considered when explaining child development. This theory is typically graphically represented as circles within circles (like target rings) each ring depicting a different interactive system. The inside circle represents the child. The first layer outside the child's circle is the microsystem which suggests the most influence on the child's development. The microsystem consists of the family, school, childcare providers, peers, and all experiences and influences that have a direct effect on the child's immediate environment.



The second layer is the mesosystem which depicts the interactions and linkages of the interconnections of the microsystem (i.e., parents are affected by childcare providers and

childcare providers are affected by parents). The third layer is the exosystem which depicts additional ecological systems that affect child development more indirectly. The exosystem consists of such systems as legal services, social services, neighbors, extended family, and workplace. Even though that don't actually "touch" the child's life, they indirectly affect the child's experiences. The last layer in the bioecological system is the macrosystem. This level contains laws, customs, and values of a particular society or cultural system. Even though these institutions don't directly affect the individual child, they can have a strong influence on the child. The chronosystem reflects the dimension of time regarding the child's environment and is illustrated with a line that cuts across the entire circle which emphasizes the effect of time across the entire system. This system can be external factors such as a death of a parent or internal factors such as the aging of a child and the changes that occur over time. This theory has been viewed as culturally sensitive in that it focuses on all the influences (social, political, and economic contexts) in which development occurs. From this perspective, positive child development occurs when all influences, both direct and indirect, are considered. Refer to Activity #3 for a diagram of the bioecological systems theory.

Infant Toddler Development Training **Module 1, Lesson 2**

Knowledge of Developmental Theories Influence on Interactions with Children

Each theory provides beneficial information in understanding why children behave, grow, and learn as they do. Parents and caregivers should determine their own theory about how children learn and develop. Theories can assist in making decisions about the care of young children and provide guidance to parents and caregivers. Having a clear idea of one's own beliefs can lead to consistent parenting and caregiving. The parents or caregivers' decisions about dealing with specific situations will depend on their own personal theory about child development. Decisions will be made consistently and specifically, and useful strategies can be used depending on one's own theoretical perspectives. A working knowledge of how children develop and learn helps to provide children with the conditions in which to lead happy fulfilled lives.



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Activity #1

Review the linked material associated with the six major theories of child development: Some sources are in the Resource Bank while others are available as online links.

- Behaviorist Theory
- Erikson's Stages of Development
- Cognitive Development Theory
- Piaget's Cognitive Development Theory
- Social Development Theory
- Bronfenbrenner's Ecological Systems Theory

After reviewing the above resources, reflect on which theory of child development is most representative of your own beliefs about children. Think about why you have chosen the

theory you have. Did you choose the theory based on your own upbringing, your own personal experiences, or educational experiences?

Consider how your own personal belief system of child development can influence how you interact with children.

Activity #2

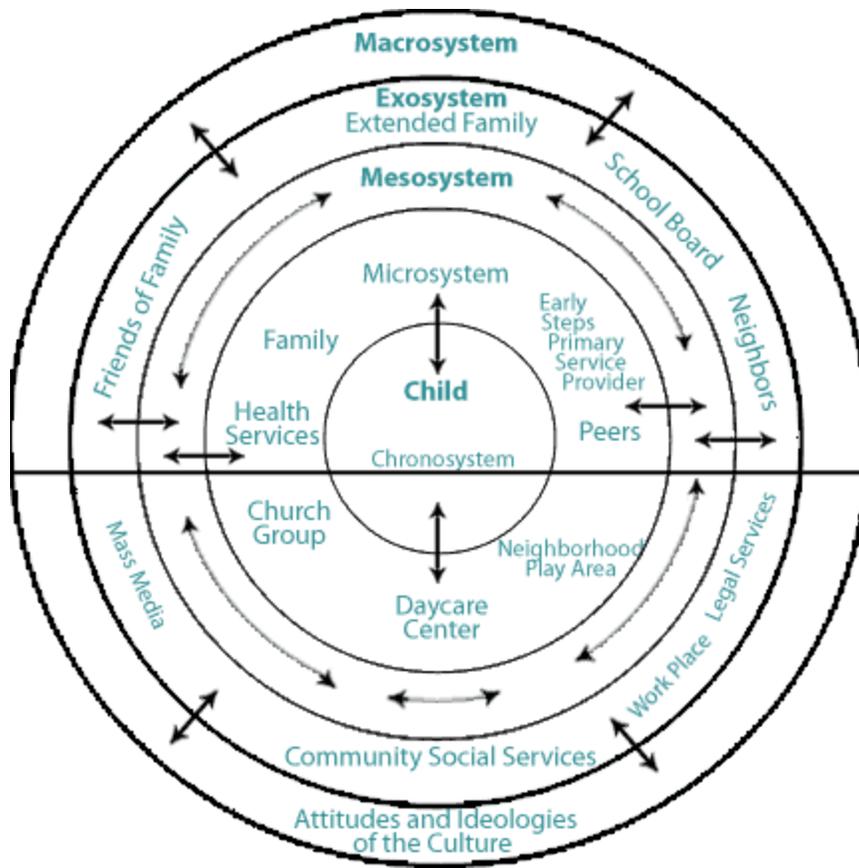
A mother describes her child as being extremely shy, withdrawn, and isolates herself from her peers. The child goes out of her way to avoid other children and does not speak to any other child.

Write out some specific strategies you would discuss with the parent to solve this problem from a psychoanalytical theorist viewpoint? How would you promote attachment and autonomy once a sense of trust is acquired?

Activity #3

Poverty is a very debilitating condition for children and families in this country. Poverty can cause delays in cognitive development and language in young children and can influence their socialization and emotional well-being, not to mention physical growth and health. According to the 2000 census, 18.8 percent of children under the age of five living in Florida are living in poverty. Children born in poverty are at a higher risk of death from infections and parasitic diseases, drowning or accidents (Puckett & Black, 2001). Children in poverty are also more likely to be premature and exhibit low weight for their height which can affect brain growth and development. Families can face many stressors because of poverty.

Using the diagram of the bioecological system below, develop one strategy per layer to help a child/family living in poverty.



Adapted from: Kopp, C. B., & Krakow, J. B. Child Development in Social Context.

Lesson 2 Highlights

This lesson provided a basic overview of six of the more common theories on child development. It is important for the ITDS to be knowledgeable of the various theories on child development. One's own personal theory about child development can assist in making consistent decisions when the need arises. Planning for implementation of services needs to be consistent to provide a conducive environment for the child and his/her family.

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Websites

- Jean Piaget Biography
- Jean Piaget's Theory of Cognitive Development

Infant Toddler Development Training

Module 1, Lesson 3

Introduction

In previous lessons, we have identified typical child development and theories that describe child development. This lesson will focus on the many factors that can affect a child's development. Some factors can affect a child's development prior to birth, during birth, and/or after birth and can consist of biological, environmental, and/or cultural influences. This lesson will provide an overview of the various factors that can affect child development.

Learning Objectives

Upon completion of this lesson, you will be able to:

- Explain the concept "nature vs nurture"
- Identify and explain three factors that may lead to atypical development
- Identify factors that affect attachment/emotional security of a child
- Describe various prenatal environmental influences that affect child development (teratogens, maternal factors, prenatal health care)
- Describe how environment and culture can influence child development
- Discuss the effect of child abuse/neglect on child development
- Explain how heredity affects early physical growth (genetic disorders, etc.)
- Identify biological factors that affect the overall developing child
- Discuss the importance of good nutrition and its effect on child development
- Identify birth complications/trauma that effect child development (e.g., oxygen deprivation, preterm/low-birth weight, post term infants)
- Discuss how parental and caregiver influence/interaction can affect the developmental outcome of a child.

Resources

The following resources are necessary for the completion of this lesson. Learners may wish to access and print a hard copy of the resources prior to beginning the lesson and for future reference. Some resource documents can be found in the Resource Bank. Others are available online.

Census Data:

Health Care Disparities

- [NIDA Survey](#)

Key Words

Definitions of key words are found in the glossary.

- Amniocentesis
- Teratogen

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Nature versus Nurture

The age-old debate of nature versus nurture to describe differences in child development still exists today. The underlying question of this debate is whether genetic factors (nature) or environmental factors (nurture) are more important in determining child development. Nature refers to biological or hereditary information that affects child development and learning.

Nurture refers to the day-to-day interactions children encounter in their environment. In the previous lesson we discussed the dominant theories of child development, some of which were based on the premise of the influence of nature, while others were based on the influence of nurturing. The stance a theory takes on nature versus nurture is directly linked to its explanation of individual differences in child development. Some theorists emphasize heredity and characteristics remaining stable through the years and if environment is considered at all, it is thought that early experiences establish future patterns of behavior. Other theories stress that change is possible if new experiences are supported. Ultimately, if parents or other caregivers believe that development is largely due to nature, they would not be providing children with activities to stimulate change. If parents or caregivers believe in the importance of early experiences, they would provide stimulating activities at an early age.

If parents or caregivers believe that environment has a large influence throughout a child's life, then they would make sure children would have high quality experiences past their primary years into adulthood. Overall, the debate over nature versus nurture has created various ways to view child development. Following below are various nature and nurture influences on child development.



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Factors that May Lead to Atypical Child Development

Previously we discussed typical child development and the vast differences that can exist. Some newborns have developmental differences caused by unfavorable conditions before, during, or after birth due to genetic and/or environmental influences. Factors that may lead to atypical child development are addressed below.

Teratogens

Sometimes atypical child development can be the result of teratogens' harmful agents in the environment. There are many teratogens in the environment such as the sedative drug thalidomide, which was found to have drastic effects in that it produced gross malformations of the embryo's developing arms and legs. Exposure to Agent Orange and other chemical weapons have resulted in developmental delays for young children. Smoking, alcohol, and/or drug use during pregnancy has also been linked to developmental problems at birth.

Drug abuse during pregnancy will have a significant effect on the developing fetus. Maternal use of cocaine, heroin, and similar drugs during pregnancy has been associated with miscarriages, premature birth, physical malformations, breathing difficulties, and higher risk of death at birth. Babies born addicted to cocaine and heroin suffer through withdrawals at the onset of life. It is also important to mention that paternal risk factors, such as the

father's drug use may also damage chromosomes and cause malformations in the fetus. Cocaine ingested by the father adheres to the sperm cell and is present at the time of fertilization and can cause problems for the development of the fetus.

Maternal smoking has also been linked to miscarriage, premature birth, and low birth weight. Research suggests that the effect of smoking can be long-term in that children of smoking mothers during infancy are less responsive, more sluggish, and fussier (Chavkin, 1995; Diaz, 1997) and in later years, less competent readers and exhibit social adjustment problems (Fergusson, Horwood, & Lynskey, 1993).

Maternal alcohol consumption during pregnancy can lead to impairments in the newborn's nervous system, mental retardation, hyperactivity, and deficiencies in physical development. Adolescents exposed prenatally to alcohol are more apt to exhibit learning and socialization problems (Colburn, 1996).

Go to the NIDA Survey which reports interesting data. According to Mathias (1995), "more than 5 percent of the 4 million women who gave birth in 1992 used illegal drugs while they were pregnant." Even though this study is somewhat dated, it contains extensive research data on drug use and pregnancy and provides relevant yet startling information. The National Institute on Drug Abuse (NIDA) sponsored survey on drug use during pregnancy also found 20.4 percent of pregnant women smoked and 18.8 percent drank alcohol at some point during their pregnancy. Note the table that illustrates pregnant women's usage of various drugs based on race. African American women ranked highest in use of illicit drugs during pregnancy (11.3%) compared to white women (4.4%) and Hispanic women (4.5%). Use of alcohol and cigarettes were found to be highest by white women (23 % and 24.4 %, respectively) compared to African American women (15.8 % and 19.8 %, respectively) and Hispanic women (8.7 % and 5.8 % respectively).

Over the counter or prescription drugs can also pose a threat to prenatal development. Such drugs as aspirin, tetracycline, and Valium have been known to cause complications and health problems. The drug diethylstilbestrol (DES), a drug early on prescribed to prevent miscarriage showed onset of difficulties on the offspring at puberty. Daughters were noted to have a higher rate of cervical cancer, vaginal abnormalities and are more likely to miscarry (Nevin, 1988). Male offspring were also found to be more likely to have genital abnormalities (Wilcox, Baird, & Weinberg, 1995).

Additional teratogens from those mentioned above include exposure to radiation (x-rays), exposure to mercury and lead compounds (via car exhaust, paint, and other industrial materials), and maternal diseases (e. g., rubella, AIDS, and toxoplasmosis--parasite infection caused by exposure to cat feces or undercooked meat). Children and pregnant women are the most vulnerable to mercury and lead poisoning. Pregnant women and children can incur damage to the nervous system, brain, and reproductive system by inhaling mercury vapors or through consumption of contaminated fish or birds.

Other Maternal Factors

In addition to avoiding the above-mentioned teratogens, there are numerous ways in which expectant mothers can promote the development of their unborn child. Prenatal health care is important to seek as soon as pregnancy is suspected. Prevention or detection of possible problems early on is important in enhancing the healthy development of the fetus. Regular prenatal checkups are crucial for prospective mothers. During prenatal visits, prospective mothers are advised about good nutrition, the importance of taking vitamin supplements, and are examined for possible concerns. It is important that prospective mothers engage in good nutrition and maintain regular exercise and tend to their emotional well-being. The mother's age can also have an influence on fetal development. Some teenage mothers may face a higher rate of birth problems due to factors other than age such as lack of prenatal

care, and poor nutrition, stress, and health problems correlated with low socio-economic backgrounds. Women who are waiting until their thirties or forties to have children face a greater risk of infertility, miscarriage, and babies born with chromosomal abnormalities.

Rh factor incompatibility can also be a cause of serious problems for a mother's second baby and subsequent babies. When the mother's Rh factor is negative and the father's Rh factor is positive, the baby may inherit the father's Rh factor. Due to the Rh factor incompatibility, the mother forms antibodies against the fetus and reacts to the baby's blood as if there were a foreign substance present and "attacks" the baby's blood. This "attack" destroys the baby's red blood cells affecting the baby's ability to carry oxygen in his/her blood which can result in the death of the fetus. Typically, this does not happen with the first baby due to the length of time it takes for antibodies to form. However, with subsequent pregnancies, the mother's antibodies can attack the blood cells of the fetus by way of the placenta. Rh factor or Rh incompatibility can cause congenital anomalies (e.g., hearing loss and/or stillbirth). There are currently two types of treatment for Rh incompatibility. They are the use of the serum, RhoGAM for the mother and blood transfusions of the fetus in the uterus if necessary.

Child abuse/Neglect

According to Beck (1999), child abuse can occur in the following ways:

- Physical abuse - abuse that results in pain, cuts, welts, bruises, burns, broken bones, and other physical injuries
- Sexual abuse - exposure to sexual comments, fondling, intercourse, and other types of exploitation
- Physical neglect - conditions where children's basic needs of food, clothing, shelter, or supervision are not met.
- Psychological abuse - actions that humiliate or terrorize children that results in damaging their emotional, social, or cognitive functioning. (p. 399).

Child abuse can result in diminished self-esteem, social skills, and self-regulatory behaviors. According to Cicchetti and Toth (1998), maltreated children show difficulties in peer interaction and encounter learning problems, in addition to exhibiting severe depression and delinquency. Overall, child abuse can impede social/emotional well-being, attachment/bonding, cognitive/psychological development, and adaptive skills.

Heredity

Genetic disorders inhibit child development. Some of the disorders can be detected prior to birth through amniocentesis (obtaining a sampling of amniotic fluid) and chronic villus biopsy (obtaining a sampling of the outer membrane tissue of the amniotic sac). Some genetic disorders can be identified in newborns with laboratory blood samples. Some developmental problems can be traced to genes and chromosomes, such as Down syndrome, spina bifida, vision impairment, hearing loss, cystic fibrosis, Tay-Sachs disease, and Fragile X syndrome. Some of these hereditary problems can lead to mental retardation, chronic health problems, or physical malformations. Certain heredity factors greatly affect early physical, motor, speech/language, sensory perception, and cognitive development.

Nutrition

Poor nutrition can affect fetal development as well as child development. Prenatally, the fetus depends totally on the mother to receive nutrition through the placenta. If a mother is malnourished it is likely the baby will be born malnourished, or worse, be born prematurely, suffer from low birth weight, or die soon after birth (Susser & Stein, 1994). Upon birth, malnourished infants' immune system development is suppressed resulting in frequent respiratory illnesses (Chandra, 1991). Many are irritable and unresponsive to stimulation around them.

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Effect of Birth Complications/Trauma

Numerous things can go wrong during the labor and delivery. Trauma can be due to oxygen deprivation, preterm birth (prematurity), low-birth weight, and post-term birth.

Oxygen Deprivation

Oxygen deprivation, or anoxia, prior to or during the birth process can be a result of premature separation of the placenta or the cord being wrapped around the babies' neck causing inadequate oxygen supply. Deprivation of oxygen can result in a child having cerebral palsy - a term used for a variety of problems resulting from brain damage before, during, or just after birth. Newborns sometimes fail to start breathing immediately after being born. Risk of brain damage can result from delayed breathing of more than 3 minutes at birth. The effect of oxygen deprivation generally causes physical disabilities that tend to be permanent, as well as blindness, hearing impairments, intellectual and motor delays throughout early life. If oxygen deprivation were severe, problems will persist beyond early childhood.

Low Birth Weight

Birth weight is a good predictor of infant survival and healthy development. For a full-term pregnancy (40 weeks), a healthy average weight is between 5 pounds 11 ½ ounces and 8 pounds 5 ¾ ounces. Infants may have low birth weight because of prematurity and/or intrauterine growth retardation due to genetic makeup or an unfavorable uterine environment. Low birth weight infants face health complications: immature lungs and breathing, mild/severe cognition problems, cerebral palsy, delayed speech, and sensory impairments (visual and auditory). Infants weighing less than 2 ½ pounds at birth experience more extreme long-term difficulties that are sometimes not overcome. Infants weighing less than 2 ½ pounds need intensive neonatal care for survival and typically require lengthy stays in the hospital.

Preterm Birth (Prematurity)



Preterm infants are born several weeks before completing 37 weeks of gestation, regardless of birth weight. Approximately 10% of women deliver prior to 38 weeks' gestation with 2% delivering prior to 32 weeks. Various factors are associated with premature birth: teen pregnancies, poor prenatal care, drug abuse, and maternal trauma. Preterm infants commonly have respiratory problems due to underdeveloped lungs. Brain hemorrhaging is also a complication of preterm birth along with immature immune systems. Deficits in motor coordination, inattentiveness, over activeness, and frequent illnesses are some of the difficulties that continue into the primary years (McCormick, Gortmaker, & Sobol, 1990).

Preterm babies are sometimes irritable, unresponsive, and suck poorly. Because of these problems, some parents become less sensitive and responsive in caring for them. Preterm babies are less often cuddled, touched, and talked to, especially those who are very ill at birth. According to Patteson and Barnard (1990), to receive a response from a baby who is passive, mothers will be overly intrusive via interfering pokes and verbal commands.

Post-Term Birth

Post-term babies are infants that are born after 42 weeks. Approximately 5% of women deliver after 42 weeks. One concern of post-term babies is due to the placenta no longer functioning properly or the sharp drop in the amount of amniotic fluid. With the decrease of amniotic fluid, the infant's movements in the uterus will squeeze the umbilical cord. In addition, the fetus has grown larger during the extra weeks in the uterus which may cause the baby to have trouble moving through the birth canal. Increased risk for oxygen deprivation and head injuries occurs in post-term births.

Parental/Caregiver Influence and Interaction

According to Trawick-Smith (2003), "families of different cultures adopt unique methods for playing with, carrying, feeding, comforting, educating, and socializing their children" (p. 449). Interactions between children and their parents and/or caregivers differ across cultures. Some cultures respond to consoling infants by feeding them or quickly attending to their needs whereas other cultures believe in not responding so quickly, socializing them to become more independent at an early age. Interactions between parent and child are largely influenced by cultural beliefs, values and personal experiences of one's own family and family beliefs. According to Sanchez (1997), low-income Mexican American parents favor dependence and attachment in their child rearing stressing reliance on family and friends. Levine (1996) concludes that parents in poor communities generally emphasize self-sufficiency helping their children become independent at an early age as evidence in early weaning, walking, and toilet training.

Additionally, Trawick-Smith (2003), states that "due to difference in child-rearing beliefs, parents adopt different ways of interacting with their children. Interactions vary across cultural groups in four major ways: communication, responses to crying, teaching, and carrying and holding" (p. 455). See table below for summary.

Parental Interactions	Universals	Variations
Communicating	All parents communicate in some way with their children.	Parents of some cultures use much verbal communication with their children. Others more often communicate through gestures, facial expressions, and physical touch.
Responses to crying	All parents respond in some way to children's crying.	Parents of some cultural groups show distress when their children cry and respond quickly. Others are less concerned by cries and take longer to react. Some use cuddling and feeding as a response; others use a pacifier or physical stimulation.
Teaching	All parents are concerned about the education of their children.	Parents of some cultures believe that teaching is an important part of the parental role. In other cultures, parents believe teachers in school should assume this responsibility.
Carrying and holding	All parents hold and carry their young children.	Some children are bound in slings or cradleboards for much of the day. Others are held in a parent's or grandparent's arms. Some children are held infrequently and move about freely in the home or neighborhood.

Trawick-Smith, J. (2003). Early childhood development: A multicultural perspective. Columbus, OH: Prentice Hall. Table 18 -1 "Cultural universals and variations in parent-child interactions" p. 455.

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Activity #1

Read Chapter 1 in DEC Recommended Practices in Early Intervention/Early Childhood Special Education by Sandall, McLean, Smith (Eds.) (2000).

The following sections should be read with care:

- Our Values and Beliefs
 - Respect for all children and families
 - High quality, comprehensive, coordinated, and family-centered services and supports
 - Rights of all children to participate actively and meaningfully within their families and communities
- Recommended Practices for All Children
- Age Grouping

NOTE: The Division for Early Childhood (DEC) of the Council for Exceptional Children (CEC) is a national, nonprofit organization of individuals who work with or on behalf of children with special needs and their families. The Recommended Practices (updated terminology for Best Practices) which appear in the text you are reading for the ITDS modules are based on a current synthesis of scientific and experiential knowledge. DEC is a major professional organization from which the ITDS can draw valuable information in the practice of early intervention. As stated in the module Protocols, this book is required reading for ITDS candidates. Information on how to obtain a copy can be found in the Protocols.

Activity #2

1. Go to the census data to learn some interesting facts about children and families in your home state.
2. Click on the link for Florida.
3. Click on the various choices in the window under "VIEW MORE DATA FOR FLORIDA" Key facts, profile, income/poverty, disability status, etc.
4. Look at the various statistics on our Florida children.
5. Go to the health care disparities information.
6. Navigate this website by reading the introduction to health disparities and clicking on "frequently asked questions" and "health disparity primer - all 5 chapters". Don't let this scare you...the chapters are short!

Keeping in mind the statistics you viewed and the information you read, if you were given the chance to make three wishes come true for the children and their families in the state of Florida, what would your three wishes be? If those wishes came true, how would it affect Florida families? What are some local resources you could use to help promote a better situation for one of the families you have worked with?

Activity #3

In this lesson, the focus was mainly on environmental, genetic, and maternal factors that can affect child development. However, there has been a variety of recent research on

paternal factors that may affect prenatal child development. Research the internet and identify three behaviors of a father that are believed to influence prenatal development.

Among other internet resources you may find to be of interest, check out Dads and Birth Defects for this activity.

Activity #4

Reflect on two young children you currently serve or have knowledge of—similar ages but different cultures if possible. What physical skills have you noticed emerging over the past few weeks? Have their likes and dislikes changed recently? How have their vocalizations changed? How has their interest in their surroundings changed? Do you notice any differences in the ways their mothers and fathers interact with them? Do you notice any cultural or even generational differences that might make the parents' interactions different from those of the caregiver? How much influence do you see child rearing practices and culture having on the child's development?

Lesson 3 Highlights

This lesson focused on the various factors that can influence a child's development. Some factors can be prevented, others not. It is important for the ITDS to be knowledgeable of the various factors and how those factors can interfere with typical child development. This lesson focused on prenatal, perinatal, and postnatal conditions and parental influences that can influence a child's maturation and learning abilities.

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Wilcox, J., Baird, D. D., & Weinberg, C. R. (1995). Fertility in men exposed to prenatally to diethylstilbestrol. *New England Journal of Medicine*, 332, 1411-1416.

Websites

- Kids Count main website for Activity #2
- Key facts for Florida Kids Count for Activity #2
- Summary Profile for Florida Kids Count for Activity #2
- Income and Poverty for Florida Kids Count for Activity #2

Infant Toddler Development Training Module 1, Lesson 4

Introduction

Previous lessons concentrated on typical child development and factors affecting such. This lesson will focus on identifying various developmental disabilities and disorders that are prevalent from birth to three years of age, addressing their causes and symptoms.

Learning Objectives

Upon completion of this lesson, you will be able to:

- Identify the most prevalent developmental disabilities and disorders that occur from birth to three years of age
- Identify the causes of the most prevalent developmental disabilities and disorders (e.g., sensory impairments, chronic illness, genetic syndromes, and cognitive delays).
- Describe the symptoms of the most prevalent developmental disabilities and disorders (e.g., sensory impairments, chronic illness, genetic syndromes, and cognitive delays).
- Identify developmental signals that indicate a possible developmental delay or problem from birth to three years of age
- Identify three aspects of early development that can make it difficult to pinpoint a possible developmental delay/disability



Resources

The following resources are necessary for the completion of this lesson. Learners may wish to access and print a hard copy of the resources prior to beginning the lesson and for future reference. Some resource documents can be found in the Resource Bank. Others are available online.

- [March of Dimes](#)

Key Words

Definitions of key words are found in the glossary.

- Folic Acid
- Decibel level (dB)

Infant Toddler Development Training

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Some of the more prevalent developmental disabilities and disorders with children birth to three are listed below under specific categories. This is by no means an all-inclusive list of developmental disabilities and disorders that may be seen in a childbirth to three years of age but should be used as a guide for various disorders prevalent today.

Prevalent Developmental Disabilities and Disorders

- Chromosomal Abnormalities
 - Down syndrome
 - Fragile X syndrome
- Neuromotor Impairments
 - Traumatic brain injury
 - Cerebral palsy
 - Seizure disorders
 - Spina bifida
- Degenerative Diseases
 - Muscular dystrophy
- Orthopedic and Musculoskeletal Disorders
 - Scoliosis
 - Juvenile Rheumatoid arthritis
- Sensory Impairments
 - Visual impairments
 - Hearing Impairments
- Major health impairments
 - Congenital heart defects
 - Sickle cell disease
 - Asthma
 - Cystic fibrosis
- Infectious diseases
 - AIDS/HIV
 - Meningitis
 - Encephalitis
 - Hepatitis B
- Fetal Alcohol Syndrome
- Autism

Causes of Prevalent Developmental Disabilities and Disorders

Below are brief summaries of some of the known causes of prevalent developmental disabilities and disorders. As with many disorders, some causes are still unknown.

Chromosomal Abnormalities

Down syndrome, sometimes called trisomy 21, is one example of a condition caused by chromosomal abnormalities. Children with Down syndrome receive three number 21 chromosomes instead of two. In addition to other concerns, children with Down syndrome are at high risk for vision and/or hearing impairments that will further affect their development. Down syndrome occurs in about 1 in 600 to 800 live births. Incidence of Down syndrome increases with the age of the mother, 1 incidence per 100 live births for women 40 years of age or older.

Fragile X Syndrome is another example of a condition caused by chromosomal abnormalities. Fragile X results from a brittle or separated X chromosome. The incidence of Fragile X Syndrome is 1 in 1,500 males and 1 in 2,500 females.

Neuromotor Impairments

Neuromotor impairments are a result of inadequate functioning of nerve cells or neurons which transmit information from the brain to other parts of the body. When there is some sort of injury, dysfunction, or disease in one or more of the elements of the nervous system, some neuromotor impairments can occur such as traumatic brain injuries, cerebral palsy, seizure disorders, and spina bifida.

Traumatic brain injuries (TBI) can affect a child's physical, cognitive, language, and/or emotional development. Traumatic brain injuries can be a result of child abuse such as Shaken Baby Syndrome and occur accidentally. According to Bagamato and Feldman (1989) one of the most frequent causes of TBI is accidental falls. Car accidents and outdoor accidents (playing) are also common causes of TBI.



Cerebral palsy is a disorder of muscle control or coordination resulting from malfunctioning of or damage to the brain prior to, during, or within the first years of life (Blackmon, 1990). Cerebral palsy affects a child's motoric abilities, communication, cognition, and adaptive behavior skills. There are several causes associated with cerebral palsy prior to birth (prenatal), during birth (perinatal) or after birth (postnatally). Prenatal causes include infections such as rubella and toxoplasmosis, genetic diseases such as microcephaly, and risk factors such as placental insufficiency and toxemia of pregnancy. Perinatal causes of cerebral palsy include lack of oxygen supply during the birth process, and high concentrations of bilirubin in the blood. Postnatal causes of cerebral palsy have been identified such as meningitis and encephalitis, strokes, or anoxia (lack of oxygen) possibly due to near drowning for example (Nelson & Ellenberg, 1986). All these causes result in the child with cerebral palsy also being at high risk for vision and/or hearing impairments. The incidence of cerebral palsy is most often reported as 1.5 to 2 per 1,000 live births. The incidence of cerebral palsy is said to be higher among infants with low birth weight.

Common neuromotor disorders also include seizure disorders. The term epilepsy is generally used to describe chronic seizure disorders. Depending on the type of seizures, characteristics of seizures can be described as an involuntary disruption in the central nervous system that comes on suddenly and can sometimes cause an altered state of consciousness, motor activity, sensory phenomena, or inappropriate behavior that lasts a limited, but varied amount of time (Berkow, 1992; Holmes, 1992). Seizures can be caused by various means: drug overdose, infections, high temperature, and chemical imbalances. Seizures that occur over a long-term are a disorder. Seizures can occur for unknown reasons, called idiopathic which can result from a brain insult or more metabolic abnormalities (Berkow). Seizures that have an underlying cause, called symptomatic usually involves brain abnormalities, such as tumors, aneurysms, or abnormalities in the blood

system or brain structure which may occur during fetal development or even later. On many occasions, seizures occur more frequently in individuals who have disabilities such as cerebral palsy, TBI, and mental retardation. Seizure disorders occur in 0.5 percent of the general population.

Spina bifida is a spinal cord defect that often results in paralysis and sensory loss and is one of the most serious neurodevelopmental disorders. Spina bifida occurs when the vertebral column has a defective closure. Several environmental causes have been suggested as possible causes of spina bifida: lack of folic acid and other vitamins and maternal illnesses and medication use (Morbidity and Mortality Weekly Report, 1992; Sandford, Kissling, & Joubert, 1992; Rosa, 1991). The incidence of spina bifida is about 1 in every 1,000 live births making it one of the most common developmental defects of the nervous system. Introduction of folic acid can reduce the incidence of spina bifida by 50%.

Infant Toddler Development Training

Module 1, Lesson 4

Causes of Prevalent Developmental Disabilities and Disorders (continued)

Degenerative Diseases

Muscular dystrophy is a disease that is genetically based and characterized by progressive muscle and skeletal weakness and degeneration (Sher, 1990). Some forms of muscular dystrophy are sex-linked (defective gene carried by mothers and passed on to sons) or autosomal-dominantly linked (defective gene carried by mother or father transmitted to son or daughter) or autosomal-recessively linked (defective gene carried by both the mother and father and transmitted to son or daughter) (Heller, Alberto, Forney, & Schwartzman, 1996). The most common as well as most severe of the muscular dystrophies is Duchenne Muscular Dystrophy (DMD) which manifests prior to age 6. Incidence of DMD is about 1 per 5,000 male live births.

Orthopedic and Musculoskeletal Disorders

Scoliosis is a sideways curvature of the spine. Scoliosis can either be nonstructural or structural curvatures. Nonstructural curvatures are generally due to secondary causes that are not permanent such as children who have legs that are different lengths or who have a herniated disk, both of which when corrected will correct the curvature of the spine. Structural curvatures of the spine are permanent. Causes range from unknown to genetic. Congenital causes are present at birth and tend to result in vertebrae that are malformed. Other causes of scoliosis result from central nervous system and muscular diseases such as cerebral palsy and muscular dystrophy. Additional causes may include trauma, malnutrition, bone diseases, and tumors.

Juvenile rheumatoid arthritis is joint inflammation that is chronic in which onset is prior to age 16. Specific causes of juvenile rheumatoid arthritis are unknown; however, several causes have been proposed. One thought is that the body's antibodies attack normal cells and cause an autoimmune response. Another hypothesis is the presence of a microorganism infection causing inflammation in the joints. It is also thought that individuals with juvenile rheumatoid arthritis are genetically predisposed to the disease (Scholz & Albert, 1993)

Sensory Impairments

Children experience the world primarily through their vision and hearing. Deficits in either or both senses result in a barrier to effectively experiencing the world. When these barriers are addressed through early intervention appropriately (e.g., amplification, sign language,

guided experiences, lenses) it is possible for the child with a hearing or vision impairment who has no other disability to develop at a rate like typically developing peers.

Visual Impairments	Causes
Keratoconus diseases and disorders of the cornea	
Glaucoma	abnormal increase in intraocular pressure
Color blindness	chromosomal abnormalities
Strabismus	eye muscle movement impairment results in incorrect eye alignment
Nearsightedness	lens/cornea curvature deficits
Cataracts	congenital infections or syndromes
Detached retinas	trauma
Cortical blindness	closed head injuries, drowning, or meningitis all resulting in brain damage

(Heller, Alberto, Forney, & Schwartzman, 1996)

Hearing impairment is any loss of hearing that affects a child's ability to access communication in their environment. Even mild and unilateral hearing loss will decrease a child's access to incidental language and communication opportunities. Severity of hearing loss is reported in decibel (dB) levels that refer to the loudness of a sound required for an individual to detect sounds of different frequencies (pitches). Mild hearing loss refers to a person who must have sound at least 26-40 dB loud before they can perceive that sound is present. A moderate degree of hearing loss occurs in a range of 41-55 dB, moderate-severe is 56-70 dB, severe is 71-90 dB, and profoundly deaf is defined as an inability to perceive sound, even when it is louder than 90 dB across the pitch range.

Hearing impairment is caused when physiological structures are damaged, deformed, or blocked. An ear canal plugged with ear wax or fluid or infection behind the eardrum will prevent a barrier to sound as it is conducted from the outer ear to the inner ear. Thus, problems in the outer or middle ear cause conductive hearing losses. The cochlea within the inner ear is the sensory organ of hearing. When the hair cells that activate to the presence of sound in the inner ear are missing, damaged or deformed, the electrical signal that represents the sound cannot be transferred to the brain. Hearing loss due to problems with the hair cells in the inner ear is called a sensorineural hearing loss. Individuals can have problems in the hair cells of the cochlea and have ear infections. Therefore, both sensorineural hearing loss and conductive hearing loss are present. In this situation the person will be said to have a mixed hearing loss. Hearing loss can also be progressive, requiring children with identified sensorineural hearing loss to have their hearing ability monitored every 3-6 months until school age. Finally, if the electrical signals generated in the cochlea to represent sound are not able to be processed or cannot be processed effectively in the auditory cortex of the brain this is a central hearing loss, and more recently is called auditory dyssynchrony.

The incidence of permanent hearing loss in infants is 3/1000. Ear infections causing fluctuating conductive hearing loss are very common in infants and toddlers resulting in approximately 90% of children under the age of 3 having had at least one episode of ear infection, or otitis media.

Hearing Impairment	Causes
Disorders of the outer ear (Conductive loss)	Absence or closure of external ear canal Genetic inner ear abnormality Impacted ear canal (ear wax) Tumors Foreign bodies Swimmer's ear (infection of the skin of the external ear canal)
Disorders of the middle ear (Conductive loss)	Bacterial/viral infection Obstructed Eustachian tube Middle ear infection (otitis media) Head trauma

Disorders of the inner ear and auditory nerve (Sensorineural loss)	Congenital infections (Usher's syndrome) Trauma Loud noises Meningitis Damage to cochlea or auditory nerve
Disorders of the outer, middle, and inner ear (Mixed hearing loss)	(All of the above causes can be considered for a mixed hearing loss)
Disorders of the central auditory system (Central hearing loss)	Auditory dyssynchrony Brain tumors Acquired brain damage Vascular changes in the brain
Adapted from: (Heller, Alberto, Forney, & Schwartzman, 1996)	

Infant Toddler Development Training Module 1, Lesson 4

Causes of Prevalent Developmental Disabilities and Disorders (continued)

Major Health Impairments

Congenital heart defects refer to defects in the structure of the heart or heart blood vessels (e.g., defective heart valve, hole in heart chamber). Congenital heart defects occur during the development of the fetus. Typically, the cause of the heart defect is unknown but can be genetic in nature. Children with Down syndrome or Turner syndrome sometimes have congenital heart defects. Other causes of congenital heart defects are associated with maternal infections, medications (i.e., anticonvulsant agents, or maternal diseases such as diabetes). Approximately 8 out of 1,000 individuals have heart defects.



Sickle cell anemia or disease is a genetic disorder where some red blood cells are shaped like sickles (instead of disk-shaped) and have a shortened life span resulting in anemia. The sickle cell trait is inherited from one parent; sickle cell anemia is transmitted from both parents. Sickle cell anemia is the result of abnormal hemoglobin (hemoglobin S).

Cystic fibrosis is a disorder that produces abnormal mucus which causes progressive lung damage and affects the absorption of fat and protein in the body (Blackman, 1990). Cystic fibrosis is the most common inherited chronic disease among white children, 1 in every 2,000 live births. In blacks, cystic fibrosis occurs in about 1 in every 20,000 live births and in Asians, 1 in every 100,000 live births.

Infectious diseases

Acquired immune deficiency syndrome (AIDS) refers to a damaged immune system that functions ineffectively and is a result of the human immunodeficiency virus (HIV). Most children under the age of 3 will get AIDS from the mother who has HIV either transmitted during pregnancy, at the time of birth, or from breast feeding. Children can also contract AIDS through contaminated blood in transfusions or child abuse that is sexual in nature (Caldwell & Rogers, 1991).

Meningitis is an infection of the meninges (covering) that surrounds the brain and spinal cord (Blackman, 1990). Meningitis can be caused by a bacterial (seriously threatening) or viral (less threatening) infection. Newborn children can acquire meningitis during the birth process encountering organisms from the mother's intestinal tract and/or vagina. For

children two months to three years of age, meningitis can be caused by one of three organisms: meningococcus, pneumococcus, or haemophilus influenzae. The incidence of meningitis in full term infants is 0.13 per 1,000 live births, increasing to 2.24 for preterm infants. Meningitis is the second highest cause of hearing loss in young children.

Encephalitis occurs when the brain is inflamed and is generally caused by a virus or infection such as measles or mumps. Such viruses can be spread from person to person or from mosquitoes or ticks and or rabies. Incidence of encephalitis is hard to determine due to diagnostic difficulties that lead to incidences being unreported.

Hepatitis B is an inflammation of the liver and is caused by the Hepatitis B virus. Even though there are several types of hepatitis, Hepatitis B is the most prevalent in children with disabilities. Children who have hemophilia, are in accidents or who undergo surgical procedures and require blood are at high risk. According to Bauer and Shea (1986), special education teachers are at high risk of contracting Hepatitis B

Cytomegalovirus (CMV) is a member of the herpes virus family and usually causes no problems for healthy individuals. However, about 7 to 10% of unborn children of women who get CMV for the first time or have a reactivation of infection during pregnancy will have symptoms at birth or will develop disabilities including hearing loss, mental retardation, small head size, and delays in development. Infants can be infected with CMV during or soon after delivery. Infection can occur as the infant progresses through the birth canal of an infected mother, consumes breast milk from a mother who has the virus, or receives a blood transfusion contaminated with CMV.

Fetal Alcohol Syndrome (FAS)

A spectrum of developmental and physical effects on the fetus has been associated with maternal ingestion of alcohol during pregnancy. Fetal Alcohol Syndrome (FAS) incidence rates for FAS range from 3 to 6 cases per 1,000 live births. FAS is one of the most prevalent known causes of mental retardation and the most preventable.

Autism

Autism is a pervasive developmental disorder characterized by impairments in at least one of the following areas: social relatedness, communication, and play skills with onset prior to age three. Autism is more prevalent in males. There is no known unique cause of autism. Autism is thought to be caused by brain dysfunction during gestation although most children with autism do not have a brain injury detectable by medical assessments. There are some medical indications that heredity can be a factor in autism. Also, exposure to viruses such as rubella and cytomegalovirus, infections such as meningitis, and exposure to toxins and pollutants have also been thought to cause autism. The identification of children with autism has drastically increased over the past few years. In 1998, Florida recorded a 573% increase as reported in the Miami Herald in October, 1999.

**Infant Toddler Development Training
Module 1, Lesson 4**

Characteristics of Prevalent Developmental Disabilities and Disorders

Disability/Disorder	Characteristics
Down Syndrome	Congenital heart defect Hypotonia Slanted eyes Protruding tongue Extra fold at inner corners of eyes Short broad hands with single palmar crease small stature Hearing Impairment Vision Impairment Cognitive Delays Language delays
Fragile X Syndrome	Large head Prominent ears Prominent forehead Cognitive delays Language delays

Traumatic brain injury	Dizziness Headaches Irritability Fatigue Memory Deficits Blurred Vision Similar to cerebral palsy characteristics
Cerebral palsy	Increased muscle tone Spasticity Low muscle tone (hypotonia) Uncoordinated muscle movement Wide gait walking Cognitive deficits (40% of hemiplegia) Slurred speech Hearing, speech, and language impairments (30%) Seizure disorder (50%)
Seizure disorders	Loss of consciousness Irregular breathing Drooling Staring Involuntary repetitive jerking Spasms Repetitive blinking or licking of lips
Spina bifida	Malformation of spinal column Paralysis Sensory loss below area of damage Bowel/bladder problems Hydrocephalus Malformation of the Arnold Chiari
Muscular dystrophy	Muscle weakness Difficulty in walking thin lips, inverted-V-shaped upper lip Facial weakness Abnormal gait (hip-waddling) Enlarged calves
Scoliosis	Extreme back pain Inability to sit straight Distorted rib cage Poor posture
Juvenile Rheumatoid arthritis	Stiffness Joint pain when moving Joint movement limitations Fever
Visual impairments	Reduced visual acuity Problems to optic nerve Loss of central vision Cortical visual impairment Fluctuating vision Loss of color vision Roving eye movements Seeing bright flashes of light or floaters Blurred vision Night blindness Progressive loss of peripheral vision Severe pain, redness Sensitivity to light Clouding of the lens of the eye Eye enlargement, twitching of eye muscles Frequent changes of glasses/contacts
Hearing Impairments	Lack of expected response to sound Lack of turning toward sounds Turns one ear toward sound Delayed speech and language development Progressive loss of hearing Hearing loss secondary to fever up to 105° Hearing loss secondary to ear infection Abrupt hearing loss Ringing in the ears Dizziness
Congenital heart defects	Breathing irregularities Fatigue Heart murmurs Heartbeat irregularities Growth abnormalities Clubbed fingers and/or toes
Sickle cell anemia/disease	Appear pale Fatigue Weakness Enlarged Heart Jaundiced Severe pain/swelling in hands and feet Pain Prominent forehead, high cheekbones, long thick legs, and arms (Bleck & Nagel, 1982)
Cystic fibrosis	Abnormal amounts of mucus Abnormal protein secretions Coughing Poor digestion Obstructed airways High salt content in sweat
AIDS/HIV	Fatigue Recurrent pneumonia Ear infections Failure to thrive Weight loss Chronic diarrhea Dry cough Thrush Tendency to bruise easily Chronic infections
Meningitis	Bulging soft spot in infants Fever Stiff neck Poor feeding Seizures Headaches Vomiting Irritability
Encephalitis	Headaches Fever Altered Consciousness Seizures Partial Paralysis Coma
Hepatitis B	Jaundice Decreased appetite Fatigue Nausea
Cytomegalovirus (CMV)	Hearing loss Mental retardation small head size Fever and sore throat Swollen glands
Fetal Alcohol Syndrome	Prenatal/postnatal growth retardation Craniofacial malformations Abnormal sleep patterns Low birth weights (80%) Severe feeding problems (70%) Ventricular septal defect Hypotonia Fine-motor incoordination and clumsiness Visual complications Physical features: widely spaced eyes with short eye slits, short, upturned noses, thin upper lips, & microcephaly
Autism	Language development delay Lack of socialization Poor eye contact Irritability and/or stiffening when held Arching back away from caretaker to avoid physical contact as an infant Limp when picked up as an infant (failure to anticipate being picked up) Self-injurious behaviors Perseverative behavior Lack of facial expressiveness in infancy

Adapted from: (Heller, Alberto, Forney, & Schwartzman, 1996)

Infant Toddler Development Training

Module 1, Lesson 4

Signals of Possible Developmental Delays

As Infant Toddler Developmental Specialists (ITDS), it is important to be vigilantly observant of developmental milestones and to express or show concern when significant differences in reaching developmental milestones are observed. Allen and Marotz (1999) identify the following developmental alerts at significant ages when a health care provider or early childhood specialist should be consulted.

- If by the end of 1 month of age the infant does not:
 - Startle to loud noises
 - Suck or swallow easily
 - Make eye contact with caregiver
 - Cease crying when held
- If by the end of 4 months of age the infant does not:
 - Socially smile
 - Track moving objects
 - Turn head toward sounds heard
 - Reach out
 - Raise head while on stomach
- If by the end of 8 months of age the infant does not:
 - Explore hands
 - Look for hidden objects
 - Pick up objects using pincer grip
 - Sit unaided
 - Appear interested in new or unusual sounds
- If by the end of 12 months of age the infant does not:
 - Independently pull to a standing position
 - Crawl
 - Repeat simple sounds
 - Have an interest in looking at pictures
 - Respond "yes" or "no" to simple questions
 - Show understanding of new words
 - Attempt to feed self
- If by the end of 24 months, the child does not:
 - Identify familiar objects
 - Enjoy listening to someone read to them
 - Walk with little tumbles or falls
- If by the end of 36 months, the child does not:
 - Begin the process of toilet training
 - Show signs of empathy and caring
 - Generally, undress themselves
 - Speak with 75% intelligibility

Difficulty Identifying Possible Developmental Delays

It is not always easy to identify a possible developmental disorder or delay. Some problems are easily identified, particularly if the problem is evident as a physical characteristic (e.g., Down syndrome). Many other developmental delays are not as obvious or easily recognized. The signs of a possible delay may not be obvious making it hard to determine if the child is exhibiting a developmental delay. According to Allen and Marotz (1999), difficulty in identifying possible delays, entail the following:

- Certain areas may appear to be delayed yet the child continues to develop typically in other areas

- Variations in children's achievements exist as well as uneven maturation and constantly changing conditions in the child's environment.
- Parenting patterns differ significantly across cultures as well as perception of developmental milestones.
- Delays may not be immediately noticed (e.g., vision/hearing loss).
- Health problems that can affect children's performance are sometimes intermittent (e.g., ear infections)

At any time, the parent or caregiver feels or perceives a child is experiencing a developmental problem, help should be sought. It is possible that the child would benefit from a developmental screening to determine potential delays or problems. Sometimes just consulting and discussing concerns with an ITDS can ease the parents or caregivers mind or validate the need for some type of early intervention.

Infant Toddler Development Training Module 1, Lesson 4

Activity #1

This lesson addressed various developmental disorders and disabilities that can be present in children from birth to age 3. Reflect on the various types of disorders and disabilities you have seen in the children for whom you have provided services or have knowledge of in case you are not currently working in the field. In your experiences or personal knowledge, which of the developmental disorders and disabilities addressed in this lesson are the most prevalent? Of the disorders/disabilities you have found to be most prevalent, were they more genetic in nature or have other causes? In your experiences as an ITDS or based on your personal knowledge, do you see a trend or increase in some of these disorders/disabilities? If so, what do you feel is the reason for the trend/increase?

Activity #2

Reflect on the following scenario:

Sarah is a twelve-month-old who has just begun to crawl. She is beginning to pull herself up to stand but has not taken steps independently. When she sees something, she wants she shows you by pointing and grunting. She has not begun to feed herself nor does she hold her own cup/bottle. When smiled at, she does not return the smile. She has begun to babble but has not begun to make simple sounds.

According to the information presented above, identify some warning signs of possible developmental delays. In what areas does Sarah exhibit appropriate developmental milestones based on her age? Did you have any problems determining possible delays? If so, why?

Activity #3

As an ITDS, have you had an occasion or two where the parent or caregiver asked for your opinion concerning their child's development? Did you have difficulty addressing their concerns or did you feel comfortable in sharing your knowledge of child development? What are some possible reasons, other than those items addressed in the lesson above, for difficulties in identifying possible delays in child development? A good resource to assist families in understanding specific disabilities is [March of Dimes](#).

Lesson 4 Highlights

This lesson addressed prevalent disabilities and disorders that can affect a child's development. Causes and symptoms were presented for each disability and/or disorder. Developmental warning signs were identified for various age levels to assist in determining when a possible problem exists. In addition, several factors were addressed that complicate the determination of a delay or developmental deviation.

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Websites

- [March of Dimes](#)

Infant Toddler Development Training

Module 1, Lesson 5

Introduction

In previous lessons, typical child development milestones were addressed. Prevalent developmental disorders and disabilities that occur from birth to 3 years of age have also been discussed. This lesson will identify the affect certain developmental disorders and disabilities have on child development and on the family structure. Adaptations available for children with developmental delays and disorders and the effect on child development will also be presented.

Learning Objectives

Upon completion of this lesson, you will be able to:

- Explain the effect the most prevalent developmental disabilities and disorders have on child development (e.g., sensory impairments, chronic illness, genetic syndromes, and cognitive delays)
- Explain the effect the most prevalent developmental disabilities and disorders have on the child's family
- Explain how abnormal development in one area may or may not interfere with the development and mastery of skills in other areas
- Explain how individuals with the same impairment can be affected differently
- Explain the effect multiple disabilities can have on child development (i.e., cerebral palsy/hearing impairment/low vision)
- Identify adaptations that are available for children with developmental delays/disorders (e.g., nutritional assistive devices, surveillance devices, respiratory technology assistance) and the possible (positive) effect on child development

Resources

The following resources are necessary for the completion of this lesson. Learners may wish to access and print a hard copy of the resources prior to beginning the lesson and for future reference. Some resource documents can be found in the Resource Bank. Others are available online.

- [Views from our Shoes](#)

Key Words

Definitions of key words are found in the glossary.

- Nutritional assistive devices
- Surveillance devices

Infant Toddler Development Training

Module 1, Lesson 5

Even though the previous lesson in this module addressed the causes and symptoms developmental delays and disorders have on child development, it is important to review some of the major effects. A brief listing of the effect which various impairments have on child development is listed below.

Effect of Sensory Impairments on Child Development

- Deficits in identifying the source of a sound
- Difficulty in listening in a noisy environment
- Language delays

- Speech delays
- Lack of coordination
- Decreased muscle tone leading to delays in gross motor skills
- Delayed fine motor skills
- Delays in self-feeding
- Delayed social interaction and development of play

Effect of Chronic Illness on Child Development

- Delayed growth
- Lack of stamina
- Loss of strength
- Malnutrition
- Respiratory problems
- Socialization concerns
- Diminished immune system

Effect of Genetic Syndromes on Child Development

- Language delays
- Maturation delays
- Cognitive deficiencies
- Infertility

Effect of Cognitive Delays on Child Development

- Decreased learning abilities
- Problems in working memory
- Distractibility
- Poor judgment
- Deficiencies in processing information
- Inflexibility
- Inability of brain to control muscle function

Effect of Motor Deficits on Child Development

- Difficulty in muscle control and coordination
- Lack of bladder and bowel control
- Loss of sense of balance
- Digression of motor skills
- Loss of equilibrium
- Disordered interpretation of tactile stimulation (tactile defensiveness)

(Batshaw, 1997; Heller, Alberto, Forney, & Schwartzman, 1996)

Infant Toddler Development Training Module 1, Lesson 5

Effect of Developmental Disabilities and Disorders on the Family

This module has generally focused on the effect of developmental disabilities and disorders on child development. Equally important is the effect developmental disabilities and disorders have on the family structure. How the family copes with the daily stress and needs of its family members can influence the outcome of the child (Miller, 1994; Saddler, Hillman, & Benjamins, 1993; Snowdown, Cameron, & Dunham, 1994). Positive, negative, and neutral effects generally depend on the nature of the family. According to Turnbull and Turnbull (1997), successful families have a reasonable balance of affection, financial independence, care, recreation, and education and consistently show the value of caring, affection, and unconditional love while raising children. It is important for the Infant Toddler Developmental Specialist (ITDS) to recognize the family's strengths and empower the family to meet the needs of the child and family. Being respectful of cultural differences and religious beliefs is also equally important. One of the first situations that a family encounters

is when the family first learns that their child has a developmental delay, disorder, or disability. Coping with this news introduces a whole new dimension to the family structure. Not only is the family faced with the situation of readjusting expectations, but there are also other factors now present: family members' and friends' need and social isolation issues, time, and physical demands, and financial, transportation, and medical issues.

Family issues

Needs of family members often go unnoticed or unfulfilled due to the heavy demand of meeting basic needs of the child with the disability in the household. Providing quality time for all family members, even though important, is sometimes impossible. Family members may also experience bouts of depression. Families can be under tremendous stress as well as the physical strain they encounter in making appointments and providing quality childcare. Depression can also be a result of strain between spouses over disagreements over childcare or treatment options and/or the overall responsibility of caring for a child with special needs.



As the parents react and respond to the news their child has a developmental delay, disorder, or disability, extended family members and/or friends may be experiencing issues. Grandparents may not understand the "diagnosis" or may even place blame on one of the parents. Friends of the family may feel awkward or uncomfortable in the presence of the child or lack words for consolation and thereby stay away. Babysitters may also be hard to find possibly due to the need for a more skilled professional sitter. All these situations can lead to isolation for the family. Even if family members want to maintain their social life, time and specialized needs of the child may prohibit that from happening.

It is quite understandable how the needs of siblings may become overlooked; especially at the onset of discovering a child has a special need. It is important to note that overall, children have mixed feelings about their siblings with disabilities (Knott, Lewis, & Williams, 1995). Some children may feel guilty that they are able-bodied, and their sibling isn't, some may worry that they may contract the disability, and others may feel less loved or cared for due to the time and care required for the child with the disability. It is important that the parents understand the importance of balancing their efforts so as not to overlook the needs of the unaffected siblings. Many siblings experience positive rewards from living with a brother or sister with a disability and become more nurturing, understanding, and caring individuals.

Time/physical demands

The demands placed on a family of a child with special needs can be overwhelming. The physical demands as well as time demands placed on families can exhaust a family's well-being. Physical demands may entail lifting and positioning a child with motor deficits and/or providing daily living skills, just to name a few situations. The necessity of scheduling therapies, medical interventions and services can place time restraints on the family structure. The physical and time demands can interfere with parents' jobs which can lead to added stress on the family system. Finding appropriate and quality childcare can also be taxing on the family and may result in one caregiver staying home to provide the necessary childcare.

Financial issues

Financial issues can have a tremendous effect on families. Sometimes, just life-saving medical intervention can exhaust a family's finances. Medical services as well as transportation and home renovation needs may also influence a family's financial resources not to mention the issues already addressed above. Much medical technology assistance can be very expensive, depending on the type of equipment needed and the severity of the

disability. Therefore, financial issues need to be addressed. As an ITDS, you might be the resource person the family turns to for advice on financing and securing technological assistance. Resources for the family to assist in providing such technology may be crucial for the child's well-being and life.

Transportation is another concern for families of children with disabilities. Many times, alternative or modified transportation is needed (i.e., wheelchair modified vans). As an ITDS, it is important to have knowledge about available resources for the parents/caregivers that may need information concerning public transportation alternatives and transportation modifications. Due to transportation concerns, it may also be necessary to adjust therapy schedules and medical services accordingly to accommodate the transportation needs of the family/caregiver.

Home renovation is a need for some families to accommodate wheelchairs, bathing/toileting needs, etc. Such renovations can be extremely expensive and may overwhelm families.

Infant Toddler Development Training

Module 1, Lesson 5

Effect of Multiple Disabilities on Child Development

Many times, children exhibit multiple disabilities (i.e., mental retardation/vision impairment/congenital heart defect). Children with multiple disabilities have unique needs due to the combined effect of several impairments that present unique challenges. The combination of the characteristics of the multiple impairments causes each individual child to have a unique response to different situations. Different influences, both environmental and psychological, will cause an individual child to react and respond differently to a specific situation. Differences due to personal stamina, cognitive abilities, and self-esteem can create different outcomes for children with the same multiple disabilities (Heller, Alberto, Forney, & Schwartzman, 1996). Therefore, it is important for the ITDS to consider each child's specific needs when considering and planning interventions. It is important that an atmosphere which is positive, and nurturing be created where independence and success is promoted.

Adaptations effect on child development

Due to advanced medical technology and technology in general, children with developmental disabilities need to have access to adaptations that can enhance daily functioning and living. Some children will be dependent on the assistive devices for all their life; some will be dependent just temporarily. The good news is that these assistive devices are available for young children and can improve their growth and development and increase their independence.

Nutritional assistive devices

Knowing how important good nutrition is for proper growth and health of a child, it is crucial for children with chronic illnesses and developmental disorders to have access to good nutrition. Several nutritional assistive devices are available for providing proper nutrition to children who have feeding problems such as feeding tubes (temporary, permanent, or long-term). Temporary feeding tubes (nasogastric tube or NG tube) can be inserted into one nostril and passed into the stomach or intestine. Permanent or long-term feeding tubes can be inserted directly into the stomach (gastrostomy tube) or intestine (oral gastric (OG) tube or a nasojejunal (NJ) tube). Once the feeding tubes are in place, nutritional formulas and or blenderized foods can be consumed by the child. (Levy & O'Rourke, 1997).



Surveillance devices

Surveillance devices provide early warnings of potential problems for children who have heart or lung disorders. Two common types of surveillance devices are oximeters (measures oxygen saturation) and cardiorespiratory monitors (records heart and respiratory rate) (Poets & Southall, 1994; Silvestri, Weese-Mayer, & Kenny, 1994). Both devices can be used in the home environment and offer some sense of security by providing an early warning system of equipment malfunctions or breathing/respiratory emergencies.

Respiratory technology assistance

For children with chronic respiratory failure, normal oxygen levels in the blood are necessary to promote growth and development and prevent lung injury. Respiratory technology assistance is necessary for children who cannot maintain adequate gas exchange (intake of oxygen, output of carbon dioxide). The respiratory pump provides the action to adequately exchange the necessary gases (oxygen and carbon dioxide). Tracheostomies are another form of providing respiratory assistance. The tracheostomy tube (inserted in the trachea) provides an open airway passage where a ventilator or similar device provides a mixture of air and oxygen. Due to its direct access, blockages and secretions can be removed and/or suctioned (Duncan, Howell, deLorimier, et al., 1992).

Infant Toddler Development Training Module 1, Lesson 5

Activity #1

Read Views from our Shoes

There you will find two entries of siblings talking about their experiences of having a sibling with special needs. Reflect on how having a sibling with special needs can bring about different emotions and concerns. Notice how different the two excerpts are, paying close attention to the age and gender of the two authors and the exceptionality of the sibling. Think about how these emotions and concerns may change as the child without special needs matures.

Activity #2

An online forum is provided on the siblings of autism website. There, children of various ages express their feelings, ask questions, and respond to other writers about their experiences as siblings of children with special needs. It is interesting to read the thoughts and responses. A recent entry and response in the forum are paraphrased below.

Forum Entry:

Hi:

My name is Carey, and I am seven. I love my little brother very much. He is 2 ½ years old and his name is Dixon. We have played together a lot this summer and had fun. When Dixon leaves to go to his playgroup with our mom, I feel lonely. I am the only one in the family who can really understand him. My Mom gets really stressed with him sometimes, I can tell.

I like Dixon because he is silly and funny. He likes Thomas the tank engine trains and really likes to line things up. Sometimes he is really aggravating like yesterday when he let my balloon go into the air because he wanted to see it float away. I was sad and mad about it. But now I really don't care. Even though Dixon has Autism, I am glad he is my brother.

Carey

Response to Entry:

After reading the Forum entry, reflect on the following questions. How do you suppose Carey's experiences growing up have been different having a sibling with autism? What effect do you see on her future goals and concerns compared to other peers her age? How might Carey's life have been different had her brother not had autism? Do you see this impact as positive or negative? How might Carey's attitudes change as she gets older?

As a follow-up to this activity and as time allows, you may want to go to the website to read entries in the forum and respond to some that are of interest.

Activity #3

In this lesson, we addressed medical assistive devices that are important to many children to sustain life and promote development. There are numerous other assistive devices, not related medically, which can have a great effect on children with special needs such as communication devices, hearing aids, visual assistive devices, etc. Conduct an internet search to locate various types of assistive devices that can assist children with the following tasks: hearing, vision, pre-writing, communicating, eating, and mobility. Notice the low-tech items (inexpensive) versus high tech items (expensive). Reflect on some of these items and the importance of children's use in gaining independence and achieving success in everyday situations. You might want to develop a resource file on some of these items for future use with your families. Two interesting websites to search are

- Ablenet
- Assistive Technologies>

Activity #4

Read Chapter 6, Recommended Practices in Technology Applications in *DEC Recommended Practices in Early Intervention/Early Childhood Special Education* by Sandall, McLean, Smith (Eds.) (2000). Pay close attention to pages 59-61. Look at the following two sections to evaluate whether they match your belief and the practice in your work setting:

- Families and professionals collaborate in planning and implementing the use of assistive technology.
- Families and professionals use technology to access information and support.

Based on your reading, list 3 ideas of how families are involved with assistive technology according to Recommended Practices.

Lesson 5 Highlights

This last lesson addressed the effect developmental delays, disorders, and disabilities have on the child, the family, and others. Multiple disabilities may have different effects on children who have the same types of multiple disabilities due to the individual child's

situation. Several types of assistive devices were discussed that can sustain and/or enhance a child's life.

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Websites

- Woodbine House
- Assistive Technologies
- AbleNet

Infant Toddler Development Training Module 1, Lesson 1

Congratulations!

You have completed Module 1. You may want to review the Module before taking the [Module 1 Final Assessment on TRAIN](#). **Please contact your local Early Steps TRAIN to enroll you in these modules through the TRAIN learning management system**

Module 1 Resources

- [America's Children 2001: Appendix A: Detailed Tables](#)
- [Intellectual Development](#)
- [Language Development](#)
- [Normal Human Development](#)
- [Bronfenbrenner's Ecological Systems Theory](#)
- [Cognitive Development Theory](#)
- [Erikson's Stages of Development](#)
- [Piaget's Cognitive Development Theory](#)
- [Social Development Theory](#)
- [Views from our Shoes](#)