Now we will look closely at the first two years of development known as infancy.  
Infants and toddlers, or children beginning to learn to walk, are the subject of this lesson.  
  
  
First, let’s explore the dramatic physical growth that occurs in this time period.  
The average newborn weighs about 7.5 pounds. Most infants range between 6 and 9 pounds at birth. After a few days of moderate weight loss due to the expulsion of waste and getting used to feeding, the infant starts growing rapidly and usually doubles in weight by 4 months.  
The birth weight is tripled by 12 months so a 7 pound baby now weighs approximately 21 pounds.  
Most newborns are 19 to 21 inches in length or on average about 20 inches at birth.  
The typical two year old is 32 to 36 inches in height.  
There is dramatic change in the body proportions during the first two years. A newborn’s head is about 25 percent of its entire length. By adulthood, however, the head is proportionately smaller.  
  
While we may notice changes on the outside of the body, incredible growth is taking place within the brain.  
The brain is 25 percent its adult weight at birth, but by age 2 it has grown to 75 percent of its adult weight.   
Much of this growth takes place in the dendrites or the branch-like extensions coming from the neuron. These are the point of entry for chemical messages that are picked up from the surrounding neurons through the synapse.   
This growth reaches a peak at age 2 and then connections that are not used are pruned away to increase the efficiency of the remaining connections. In this way, experience begins to shape our hard wiring.  
Myelin is a fatty substance that coats and insulates the axon of neurons. It speeds up the rate of transmission of the neural impulse and improves functioning. Myelination, or this insulating process, is also occurring in infancy and continues at a less rapid pace into adolescence.  
Not all parts of the cortex mature at the same rate. The prefrontal cortex located behind the forehead is the last to mature. It is not fully developed for years to come. (We’ll look at how it goes through a second period of growth in adolescence.)  
  
  
  
Motor development refers to movement.  
When we are born, we are equipped with a number of automatic responses to stimuli known as reflexes.   
These include a sucking reflex, the rooting reflex which involves an infant turning the head toward anything that touches the cheek, and a palmar grasp, strongly clasping the hand around anything touching the palm.   
  
  
After a few days or weeks, reflexive actions begin to be replaced with voluntary movements or motor skills. These skills are not mastered in infancy, however. Motor skill development continues throughout childhood.  
Gross motor skills are large movements of the body that require large muscles such as those located in the back, legs, and arms.  
  
  
Fine motor skills are smaller, more precise movements of the hand and fingers. These take longer to acquire as they involve being able to coordinate the hand and eye and being able to manipulate the hands to grab and move small objects.   
  
  
The newborn’s senses are not equally developed at birth.   
Vision is the least developed sense at birth. Newborn vision would be considered ‘legally blind’ if found in an adult. Newborns can only focus on objects between 8 and 16 inches away.  
And they have trouble scanning objects and tracking moving objects visually. Practice and the development of neural connections and myelin will help.  
The ability to focus both eyes on an object, or use binocular vision, begins at around 14 weeks.  
Newborns see contrast but do not distinguish between similar hues until they grow a few months older.  
Hearing, however, is well developed at birth.   
  
Breast milk is considered the ideal diet for newborns. The calories and nutrition provided are perfectly suited for infants.   
There are numerous other advantages of breastfeeding. These include providing immunity and decreasing the risk of infection in the newborn child. And breastfeeding is free.  
Most mothers are able to breastfeed, but should be avoided by mothers with HIV or untreated tuberculosis, mothers who are using illicit drugs, and those who are undergoing radiation or chemotherapy treatments.   
Wet nursing, or the use of wet-nurses (lactating women other than the mother) to feed infants has been a practice found throughout history. Does it exist today? Sometimes breast milk is recommended even if unavailable from the mother. Consider the conditions described above. In these cases, human breast milk is still recommended and is available for use in neonatal care units and other locations where breast milk is needed. Mothers can donate their breast milk for such use. Find out more at prolacta.com.  
  
  
There are two major concerns of malnutrition found in developing countries.  
One is infantile marasmus which is overall starvation causes by a lack of caloric intake.  
Toddlers may suffer from a protein deficiency called kwashiorkor, pictured on the right.  
In the United States, giving children too much milk as toddlers can spoil the appetite for other foods and lead to iron deficiencies seen in early childhood. This is referred to as milk-anemia.  
  
  
Now we explore cognitive development by focusing on language acquisition and changes in the ability to think and reason  
  
Piaget’s stage for infancy is sensorimotor intelligence. Remember that the infant uses senses and motor skills to explore the world.   
  
  
There are six stages of sensorimotor intelligence.   
  
  
During these first two sub stages, the infant if focused primarily on their own body. The first stage is found in the first month of life. This is a time when reflexive action is used to react to the world. The newborn has few mental concepts or schemes outside of sucking, chewing, rooting and other automatic movements.   
If any object is placed near the mouth, the infant may turn and begin to suck on it. The infant may cry or grimace if that object is sour or otherwise brings discomfort.   
  
  
Stage two lasts through the fourth month of development.   
Now the infant is making first adaptations to the environment. A sour object may now be recognized as something to avoid rather than to suck on. A new schema is built through this process of accommodation.  
  
  
Stage Three, repeating actions, lasts from the 4th month through the 8th month of development.  
Now the infant begins to repeat actions to see what effect this might bring. Shaking a rattle, repeating a syllable, or rocking back and forth are examples. The child is increasingly interacting with others in this third and fourth stage.  
  
  
Stage four lasts from 8 to 12 months and is a time of new adaptations and anticipation. The baby begins to look forward to upcoming events such as taking a walk or a bath. This signals being able to consider the future.  
Piaget suggested that object permanence, or the knowledge that an object continues to exist even if it cannot be seen, is acquired at this age. Prior to about 8 months of age, the baby who is shown a toy and then blocking the toy from view will rapidly lose interest. Piaget concluded that the baby thinks it no longer exists. After this age, the baby will remove the barrier and seek the toy that is out of view.  
But infants at much younger ages respond to events that do not seem to be possible. An infant shown a fuzzy red square moving behind a screen and emerging as a yellow circle will look at this event for a long time recognizing that this should not have occurred. A red square that moves behind a screen should still be the same when it reappears.   
  
  
Stage Five is the stage of experimentation. In stages five and six, the child is busy interacting with the world and making discoveries. Most of these discoveries come in the form of trial and error learning.   
The child learns about gravity by letting objects drop. Or the child learns that pulling on the dog’s ear brings about a cry.   
This trial and error learning can be very messy as pots and pans and household items are pulled off the shelves and contents are spread all around!  
  
  
In stage six, the child begins to make the transition to thinking in order to solve problems. This lasts from 18-24 months.  
The child now uses mental combinations rather than solely relying on trial and error to solve problems. This ability requires the child to see something and then imitate it at some later point. This is called deferred imitation.   
Here is an example. A child wants to get out of a room but cannot grasp the door knob. After trying to open the door, the child decides to use a technique they remember having witnessed before and knocks on the door. Aha! This brings someone to open the door.  
  
  
Let’s look at how communication develops in the first two years of life.  
  
  
Can newborns communicate? Of course. But they use cries, facial expressions, and body posture to do so.   
  
  
At 2 to 3 months, the baby begins making intentional vocalizations such as cooing or squealing.   
They laugh and they also learn the pace of speech by taking turns in communication.  
Deaf babies also vocalize at this age.  
  
  
Gesturing is an easy way for babies to communicate. At 5 months, the baby points to objects, shows frustration, and delight by waving the arms. Gesturing is so natural to infants that learning sign language has been seen as an effective way to enhance communication at this age.  
  
  
At around 6 months, the infant begins to babble.   
Babbling is typically a vowel consonant combination repeated over and over like “nananana” or “gagagaga”.  
These are the precursors to language and gradually only those sounds that are used will be retained.  
Deaf babies also babble at this age with gestures that partially indicate a concept or thought.   
  
Our understanding of language seems to come before our ability to articulate. Understanding comes before speaking.   
Have you studied another language? Chances are you were able to understand before you could form communicative sentences in that language.  
  
  
Our first spoken words seem to emerge at around 12 months of age.  
The baby may use holophrasic speech which is a single word to convey an entire thought. “Ju” may mean “I’d like some more juice.” or “Where’s my milk?” The meaning has to be interpreted by the listener and this can be very difficult if you’ve not been around that particular baby.  
Once a label is learned, the baby may underextend or overextend the use of that label. For example, “Mama” may only refer to the child’s mother or “doggie” may be used to describe all of the four legged animals in the zoo.  
These children typically have a vocabulary of about 50 words. English speaking children tend to have many nouns or labels for objects.   
Deaf babies’ vocalizations may disappear by age 2.  
  
  
At 18 months there is a vocabulary growth spurt. Toddlers will use more and more two word sentences that make them easier to understand. Eventually they use more 3 to 5 word sentences in a kind of speech referred to as “telegraphic speech” because it reads much like telegraph-unnecessary words are eliminated. Many people are unfamiliar with telegraphs today, but texting is similar so I call this “text message” speech. Rather than texting, “Hi there." How are you? What’s been going on with you lately?” We text, “Sup!” You get the idea.  
  
  
Have you ever witnessed a person talking with a baby? Their facial expressions and intonation probably changed so that they began a kind of sing song talk known as child-directed speech.  
It goes like this. “Dooooo yooooou like moooommmy’s paretteee beeeeeeds?”  
Why do people do this? It gets attention. Babies respond to this type of speech in which vowel and consonant sounds are exaggerated and pitch goes up. You may have responded too!  
  
  
There are several theories of language development.   
The famous linguist, Noam Chomsky, suggests that our ability to learn language is inborn. We have a neurological construct in our brains known as a language acquisition device. Learning language is simply a matter of being exposed to language.  
Skinner suggested that language is taught through reinforcement. A child is given praise and hugs for uttering a word and this increases the likelihood that this will be repeated.   
  
  
Our final angle for understanding infancy is psychosocial development. Let’s examine emotions and relationships in the first two years of life.  
  
  
Newborns demonstrate a number of emotional states. One of the first is attraction and withdrawal. They respond in order to get closer to people and situations or to move away.   
Social smiling is very engaging and begins at about 2 months of age. The infant returns a smile and a connection seems to have been made. (Infants can imitate facial expressions much earlier, but social smiling is a reaction to someone else.)  
Babies laugh at 3 to 5 months of age and demonstrate fear, anger, and sadness a few months later.  
An interesting study in which a baby’s reactions are noted when a mother pays attention to a doll and ignores the baby suggests that babies can feel jealousy as early as 6 months of age.   
Once infants become more cognizant of those around, stranger wariness and separation anxiety can emerge. Stranger wariness is the discomfort a baby feels when being held or surrounded by strangers. This new look is sometimes hard for them to assimilate. Separation anxiety can be expressed through cries and protests when a caregiver leaves. Not all babies experience these emotions to the same degree. But they are usually interpreted as a sign that an attachment has been formed between the baby and certain caregivers. These usually subside after a few weeks for months.  
  
  
Self-awareness or self-recognition is seen at around 15 months of age. This is the understanding that the image in the mirror is you. The classic test of self-awareness involves putting a dot of rouge on a baby’s nose and seeing how they react when looking in the mirror. A baby who tries to grab the nose in the mirror does not recognize the image as self. But the baby who starts to rub the dot off of their own nose has self-awareness or recognition. (Many animals do not achieve self-awareness. I have a dog that gets very upset with his image in the mirror and starts to bark. I once had a parakeet that was in love with his own image in the mirror!)  
A sense of self leads to the development of social emotions such as guilt or shame and embarrassment. These emotions require the ability to see how others might view one’s own actions.   
  
  
An attachment is the desire to be close to someone else. Early attachments between infants and caregivers have been the subject of a good deal of research. The assumption has been that our early relationships set the stage for subsequent relationships. These relationships can influence later relationships, but they do not dictate the future.  
  
  
The most common type of attachment is a secure attachment.   
This is thought to be developed if the child receives care and affection early in life.  
This leads to a sense of trust and curiosity in early childhood. The child feels confident and explores the world feeling safe and secure.  
Again, the presence of separation anxiety may signal that an attachment has formed.  
  
One type of insecure attachment style is insecure-resistant.   
This style may result from inconsistent care which sends the message that needs can often go unmet.  
The child is clingy and can never receive enough attention to feel okay. The child may fear being alone and worry that the caregiver will leave even when in their presence.  
  
  
The insecure-avoidant style of attachment is one in which the child does not seek comfort or care from others.   
This child is neither curious nor clingy. Rather, such a child may seem to be precociously independent.  
The child is uncomfortable with closeness.  
  
  
This is the least common style of attachment and was described after viewing the interactions between mothers with schizophrenia and their children.   
The disorganized style of attachment doesn’t seem to make sense in a given situation. The mother may have laughed when the child was upset or grown angry when the child was happy.   
The child may cry or be combative with others during play. Or they may freeze or retreat in social situations. The behavior is unpredictable and emotions are inappropriate.  
  
  
Attachment styles show cultural variation. This suggests that cultural expectations find their way in parenting practices and in attachment styles.   
  
  
Children aren’t born with personalities, but they do demonstrate differences in temperament soon after birth.  
Temperament refers to inborn behavioral tendencies.  
These are fairly consistent ways of relating to other people and situations.  
These aren’t shaped by parenting.   
But they may be tendencies that are interpreted by others and later give rise to personality traits we view in ourselves. For example, a baby who is very predictable may be labeled as a “good” baby and this may view may later be internalized into the self-concept.  
  
The New York Longitudinal Study began in the 1950s and was an effort to monitor differences in children and keep track of these differences through the years.  
Qualities of temperament include:  
Activity. How active is the baby?  
Rhythmicity. Does the baby follow a routine of regularity? Do they want to eat and sleep at the same times each day?  
Approach/Withdrawal: How does the baby respond to others?  
Adaptability: Can the baby easily adjust when situations change?  
  
  
Intensity. How intensely does the child laugh or cry or react to situations?   
Mood. What is the child’s mood? Is it consistent or does it fluctuate?  
Persistence and attention span. Does the baby tend to stay on task and focus?  
Distractibility. Is it easy to distract the child from an activity?   
Sensory threshold. Does the baby react strongly to changes in food texture, light, or sound?  
  
  
The dimensions of temperament have been used to derive temperament types.  
The easy or flexible child is adaptable and shows a consistent, pleasant mood.   
The difficult, active, or feisty child reacts intensely to changes in routine or has wide variation in mood.  
The slow to warm up or cautious child withdraws from others and may dislike disruptions in routine.   
Many children are difficult to categorize.   
But knowing a child’s temperament may be useful in dealing effectively with that child. Parenting styles that match temperament work well and are known as a goodness of fit.  
  
  
Erikson’s first psychosocial stage of development is trust versus mistrust.  
The dependent infant has to rely upon others for survival and stimulation. If the baby is given consistent, loving care, a sense of trust develops. If not, the child may feel insecure and worry that needs will go unmet.   
What kinds of situations might undermine the establishment of a sense of trust? Parents who are unaffectionate or resentful about the baby or who are preoccupied with discord in the relationship, who are unavailable or tense may convey this in their interaction with the child.   
An early stressful environment can have an impact on neurological development making the child more sensitive to stress in the future.  
  
Establishing trust requires adequate care, sufficient oral stimulation through sucking, physical contact, and an overall message of care.  
  
  
In the second year of life, children are becoming able to walk and talk and explore.  
Erikson suggests that their primary concern is that of independence, autonomy, or self-rule.   
They need to be allowed to be independent within safe limits.   
Performing a task and seeing the end result can give a child a sense of pride in their accomplishments. This self-evaluation is more effective than having others say “I’m so proud of you.”   
In our next lesson, we’ll focus on early childhood.