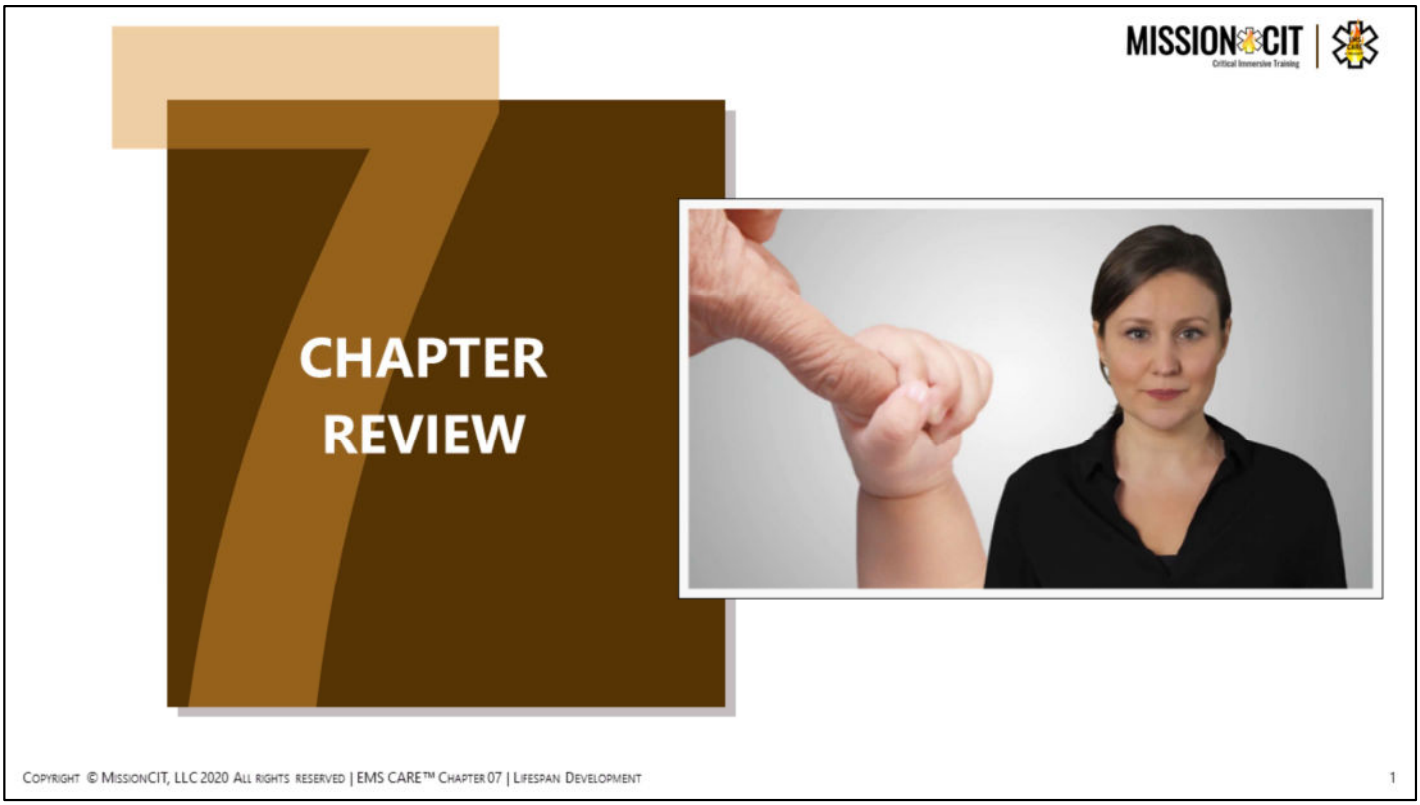
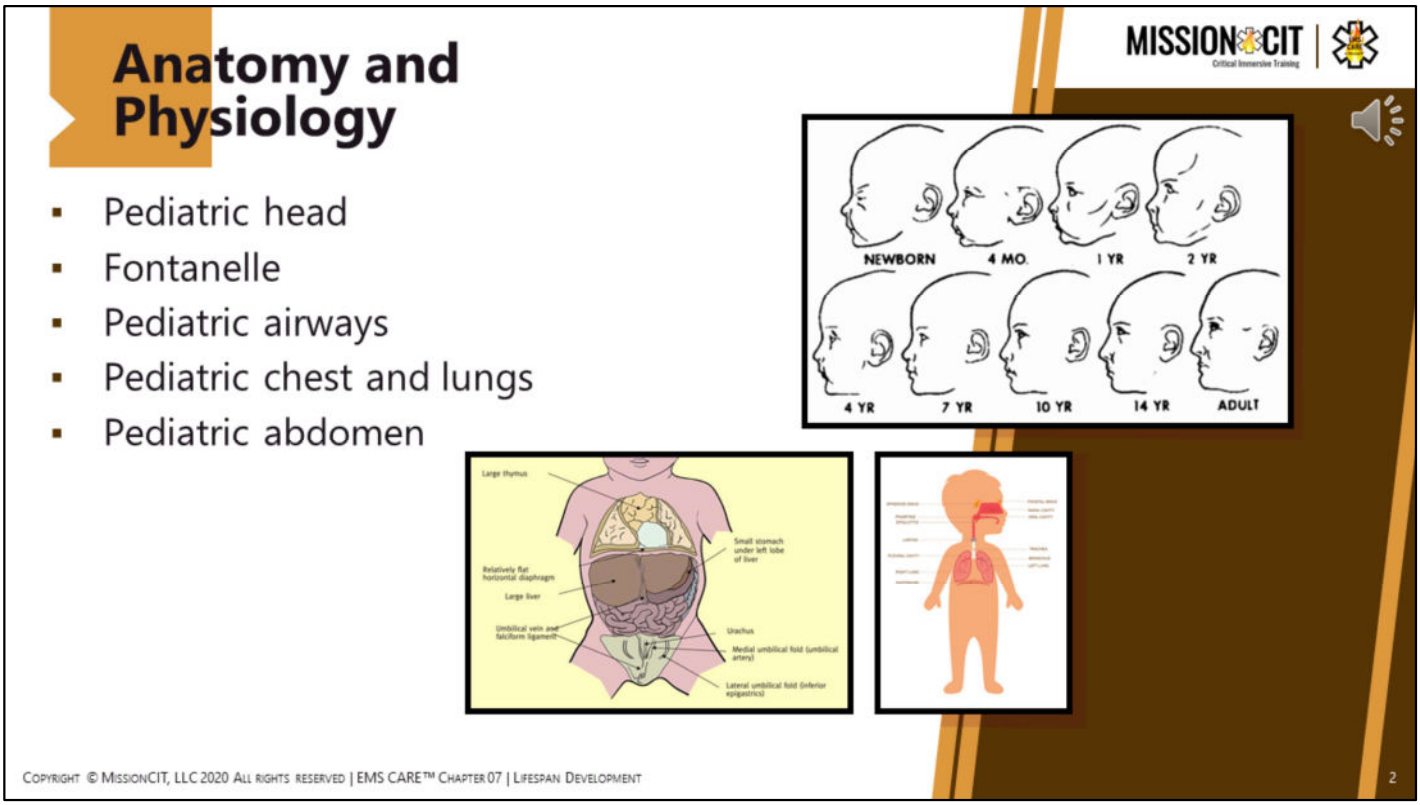


Thank you, Justin!

Welcome to the review for Lifespan Development, where we will quickly recap all that we have learned so far in this chapter.

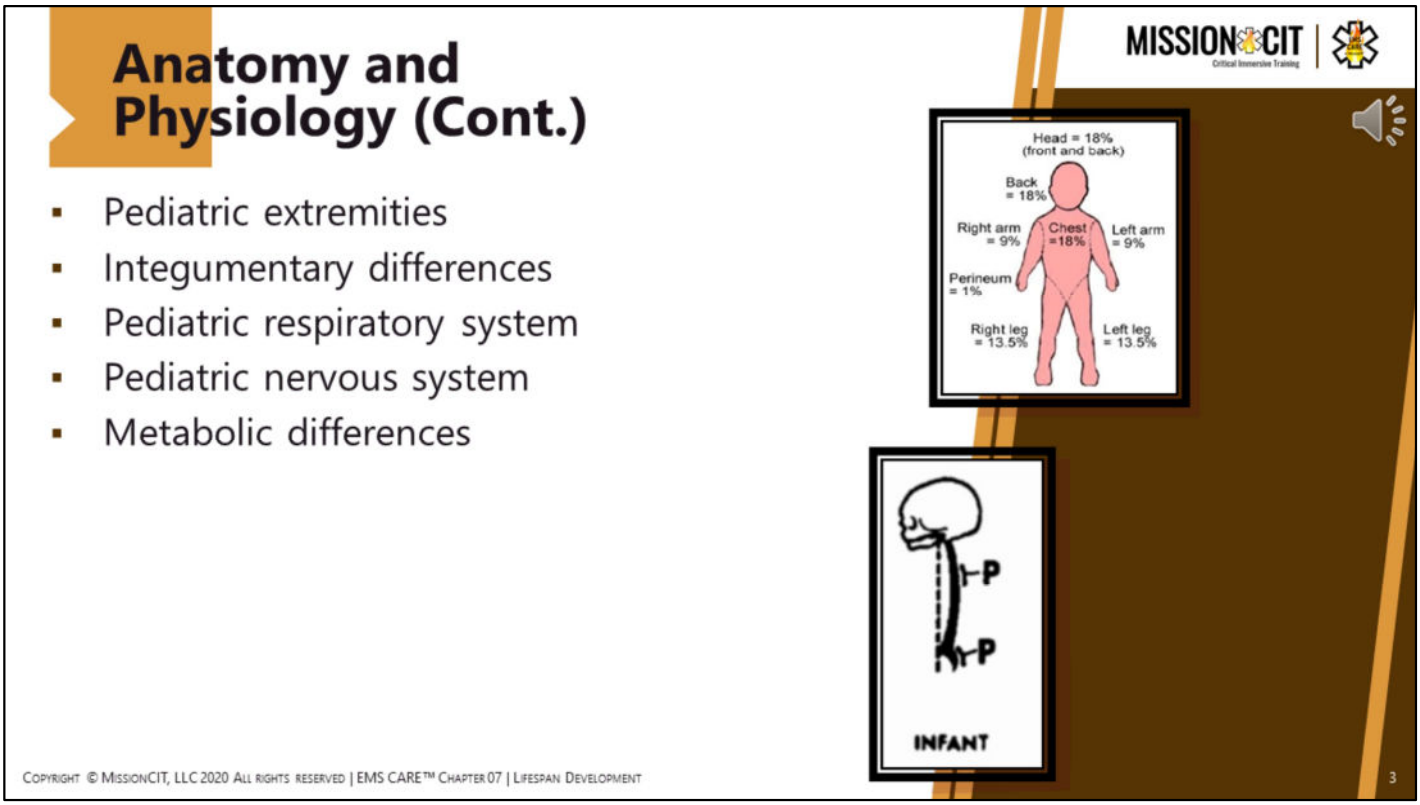
Remember, a 15 question quiz for which you need to score 75% or better follows this lesson.

Good Studying.



In the first lesson, we discussed the anatomy and physiology of children and infants. Here is a list of possible ailments for the different parts we discussed:

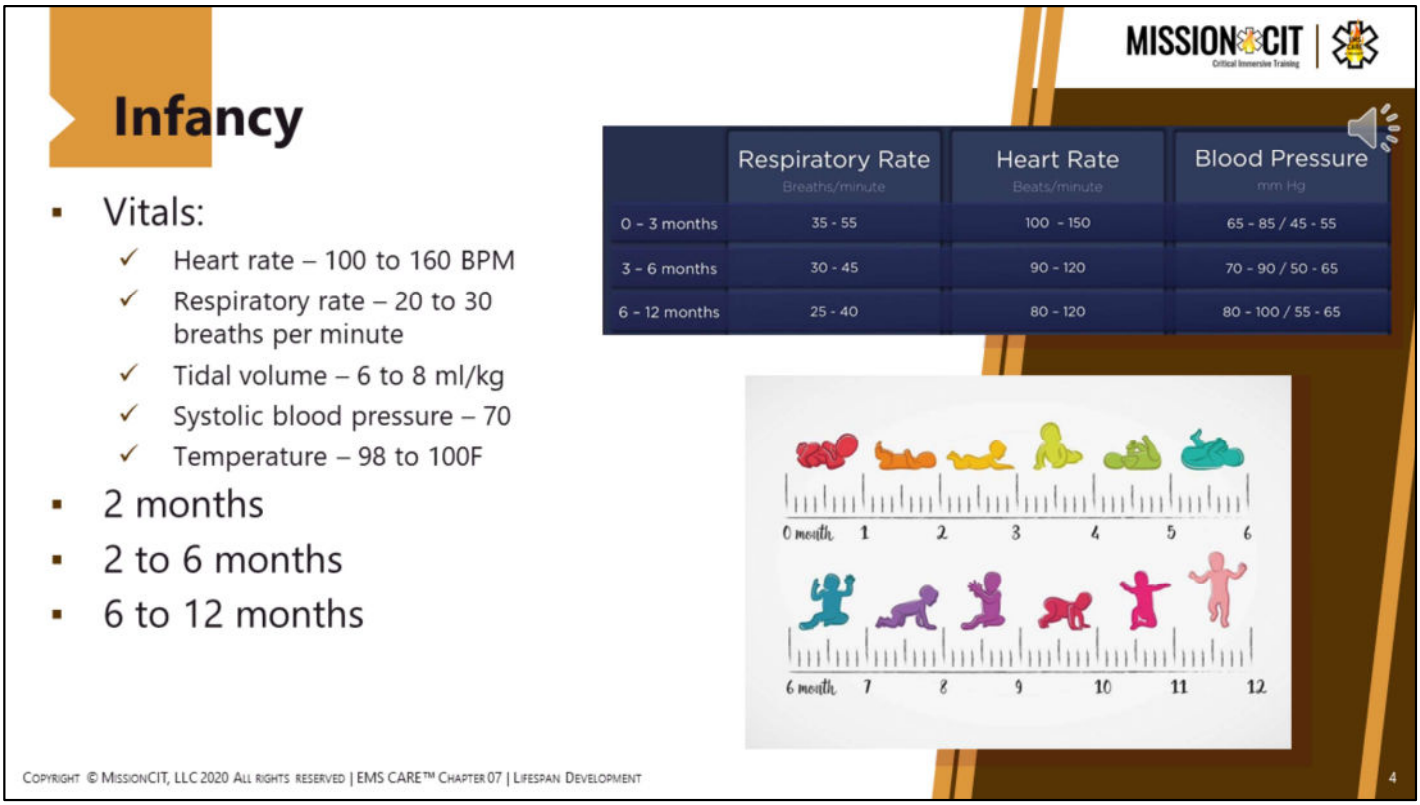
- Pediatric head: Due to these differences in the size, shape, and flexibility of the head, there is an increased chance of head injury and blunt head trauma in children. Also, babies tend to lose excess heat through their heads because of their large size when compared to the rest of the body. The third implication is that securing the airway may be a bit difficult.
- Fontanelle: A fontanelle, or a soft spot, is the space between the bones of an infant's skull. A sunken fontanelle may indicate dehydration and a bulging fontanelle can be a sign of ICP.
- Pediatric airways: The pediatric airway is much smaller in diameter and shorter in length, and this can have implications for airway management. Also, a child's tongue tends to be much larger on the oropharynx side than an adult's. The next difference is that the larynx in young children is more anterior than adults, while the epiglottis is longer, narrower, and maybe even floppier than adults.
- Pediatric lungs and chest: You're likely to see diaphragmatic breathing in children since a child's bones are not fully calcified and their ribs tend to be more horizontal.
- Pediatric abdomen: The abdominal viscera in children are not protected by bone. Also, the bladder is located outside the pelvic area, thereby increasing the chances of injuries. Vomiting and abdominal pain are the most common emergencies.



- Pediatric extremities: At around two years, the lengths of all the extremities are equal. The long bones go through many developmental stages, so the bones are less firm, and more prone to trauma. While examining look at the upper and lower extremities carefully to identify inappropriate alignment, protuberances, deformities, malformations, and integument abnormalities.
- Integumentary differences: Due to smaller corneocytes and a thinner stratum, children have higher TEWL and hence increased skin hydration. Since pediatric skin is more permeable, there is an increased chance to develop xerosis, which increases the possibility of irritation and enhances the chances of allergic contact dermatitis. Other possibilities include extensive transcutaneous fluid loss, infections, and secondary lesions.
- Pediatric respiratory system: Children have a longer tongue than adults, and this increases the possibility of airway occlusion, as there's less room for swelling. The trachea is also much more pliable as hyperextension or hyperflexion of the neck can lead to occlusion of the airway too. The large epiglottis makes intubation difficult while the larynx is at the level of the first and second vertebrae, as opposed to the fourth or fifth cervical vertebrae of adults. The bronchi in young children have less angle as well.
- Pediatric nervous system: The head is large and heavy when compared to the child's body. And this is supported on a neck that has weak muscles and ligaments. All these mean that there is a high chance of head and neck injuries. Younger children have a higher chance of injury and instability because the craniocervical junction is more vulnerable. The high

cerebral blood requirement of the pediatric brain increases the risk of hypoxia.

- Metabolic differences: Children have higher levels of CYP enzymes, which means children have an increased ability to metabolize. The higher metabolism rate means children are more likely to absorb drugs, so the effects of toxins and medications tend to be more profound. Also, children are likely to require more nutrition than adults to meet the high metabolic rate.



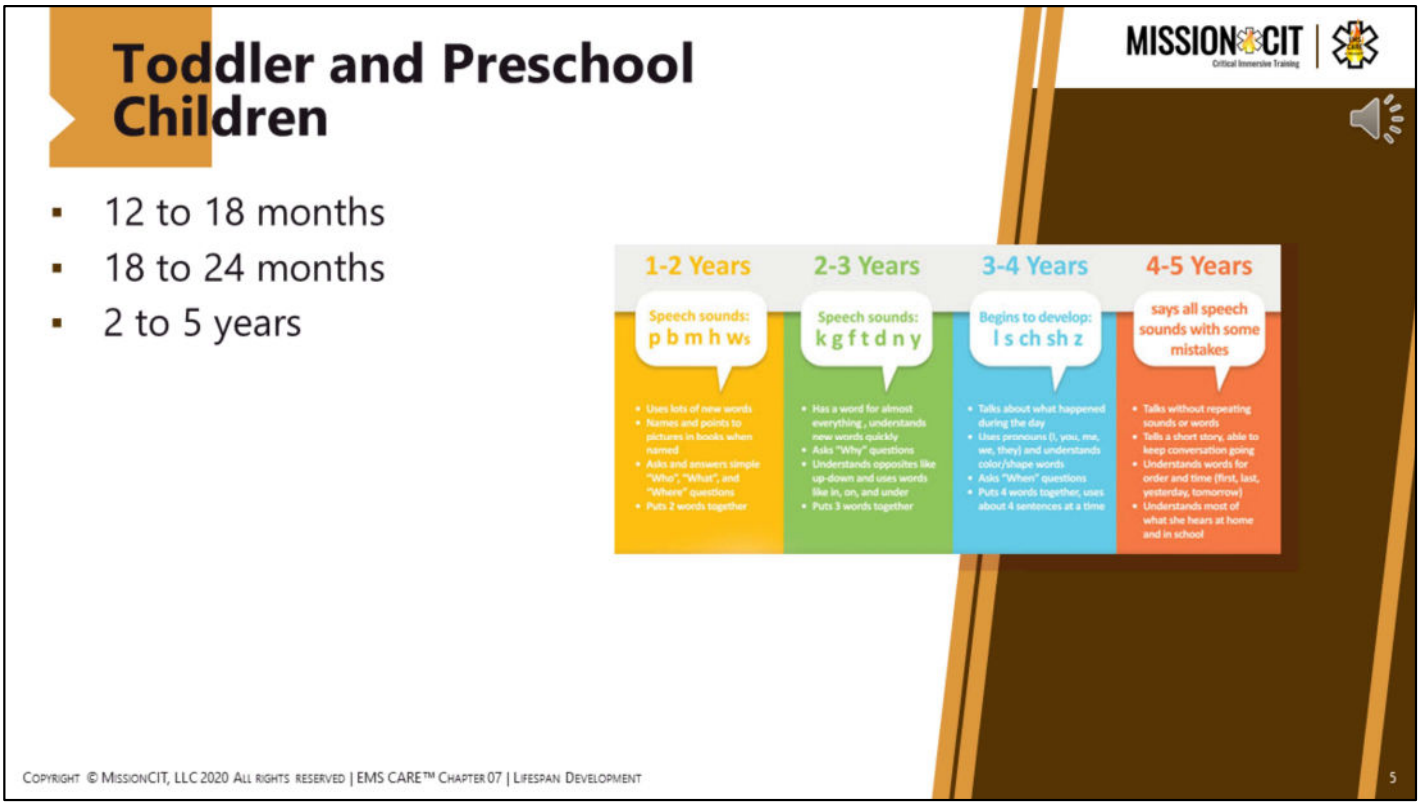
In the second lesson, we talked about how humans evolve from their birth. We started off by discussing the vital signs of infants.

- Heart rate – 100 to 160 BPM
- Respiratory rate – 20 to 30 breaths per minute
- Tidal volume – 6 to 8 ml/kg
- Systolic blood pressure – 70
- Temperature – 98 to 100F

Here is a list of possibilities you might encounter while handling babies at various stages of infancy:

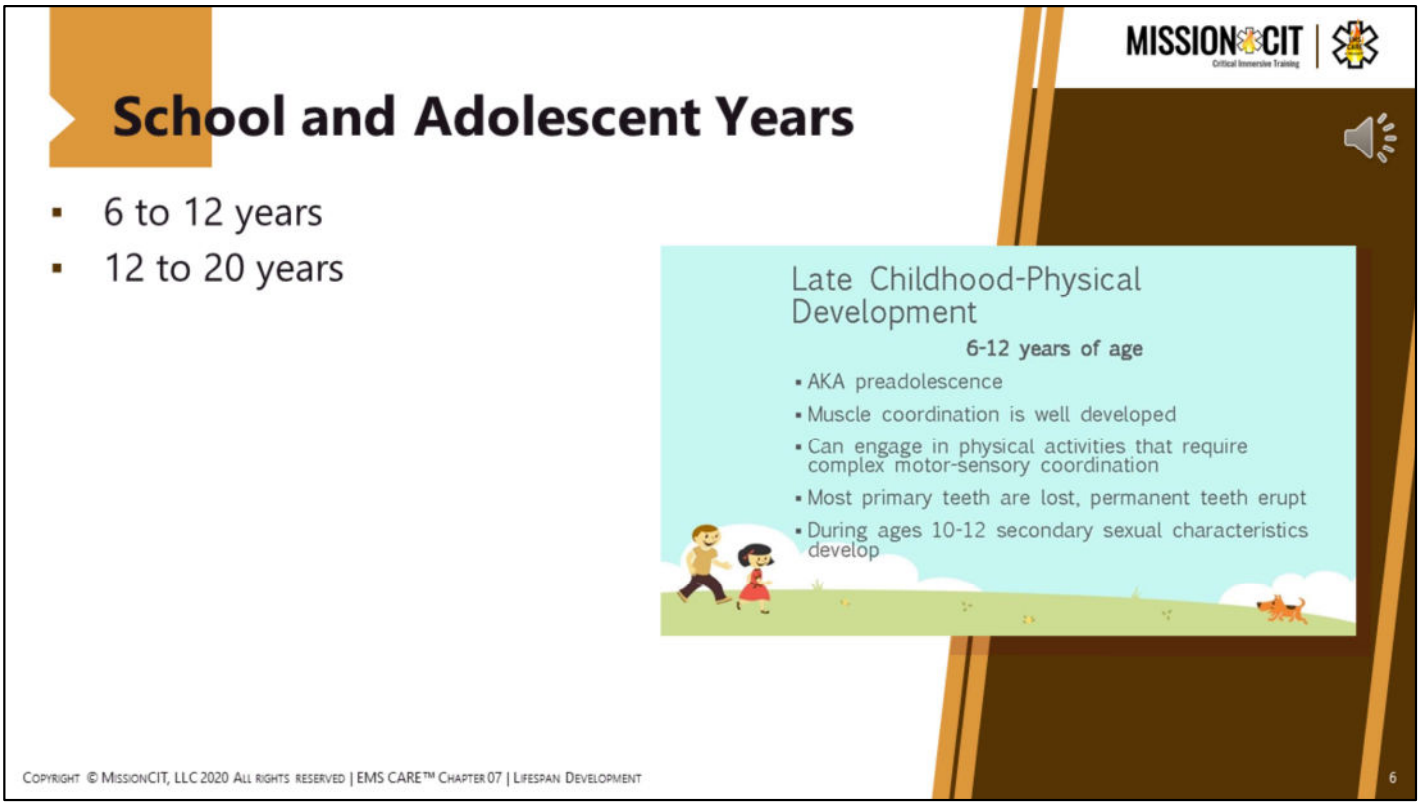
- 2 months: If a child is having breathing difficulties, check for obstruction in the airway, do CPR if you have to, check for CAB and arrange for emergency transportation.
- 2 to 6 months: Persistent crying is a sign of serious illness. Try calming the baby, if nothing works, be ready to transport. If the baby is not making eye contact, it could indicate delayed development or a depressed mental status.
- 6 to 12 months: Babies can put small objects in their mouth, which can eventually lead to choking. So, check if the baby's airways are clear. There is also a possibility for poisoning, given the baby's tendency to explore everything with their mouths.

Finally, remember that babies know you're a stranger and may cry a lot when they see you. Throughout the entire time of treatment, keep the child and the parent together as much as you can.



Moving on, we mentioned the next stage of development, which is the toddler and preschool years and the different possible situations you might encouter.

- 12 to 18 months: Persistent crying is still a sign of serious illness. Increased mobility exposes them to more dangers and possibly poisons. Watch out for is choking, as they can put objects in their mouth and even swallow them. There is a high chance of food aspiration since children don't have the molars to grind food before swallowing.
- 18 to 24 months: Persistent crying is a symptom of serious illness even though the child can communicate better. There is a possibility for falls and exposure to poisons and other sharp objects.
- 2 to 5 years: The presence of choking remains high as younger children tend to put things in their mouths. While treating them, address their irrational fears. Any developmental difficulties are identified by this age, so talk to the parents, and document everything.



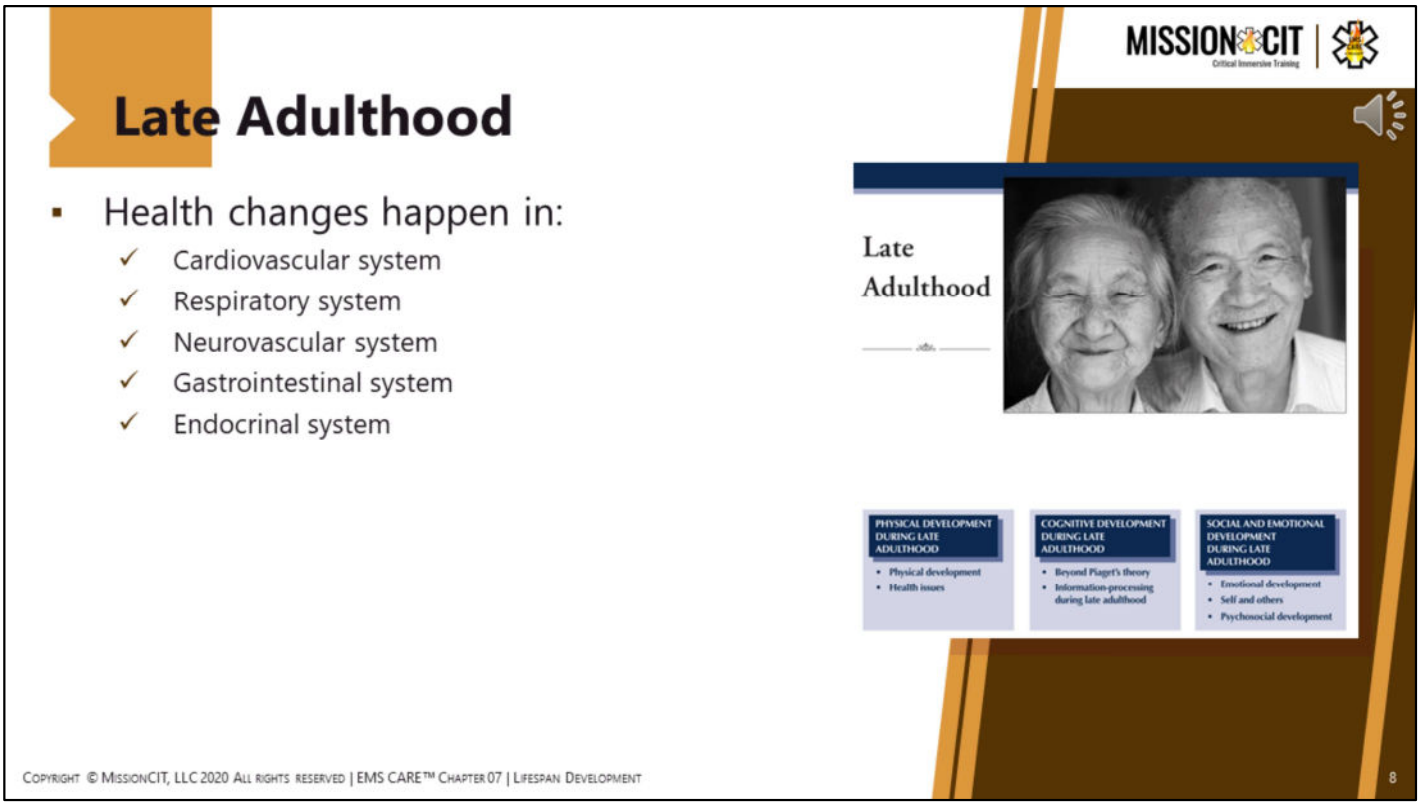
In the next lesson, we spoke about the critical years in an adolescent's life that are marked by puberty and the outcome of emotional and psychological changes.

- 6 to 12 years: Due to peer pressure and the urge to be popular, they tend to do anything that can be possibly dangerous too. Children, in particular, children with disabilities tend to feel conscious and may require additional emotional support. Respect the child's privacy and make sure you check a child in private. Cover the child right after the examination.
- 12 to 20 years: This is the period when the child transforms into an adult. They can understand and prepare themselves well. Respect their modesty while doing a physical examination. Be open to the possibilities of drug abuse, pregnancy, sexual acts, and self-endangerment due to peer pressure and low confidence levels.



In lesson 5, we talked about the early and middle adulthood periods and what they entail for patients.

- Early adulthood is when an individual is in excellent health as the peak conditioning period will be between 19 to 26 years of age. In this age, accidents are the leading cause of death. Since many important events happen during this time, adults experience maximum stress.
- Middle adulthood: This period is characterized by good body functions though health starts deteriorating in the second half. There will be vision changes, and the efficiency of hearing can go down. Cardiovascular health issues, lifestyle diseases like diabetes and obesity, and cancer are some major health complications faced during middle adulthood.

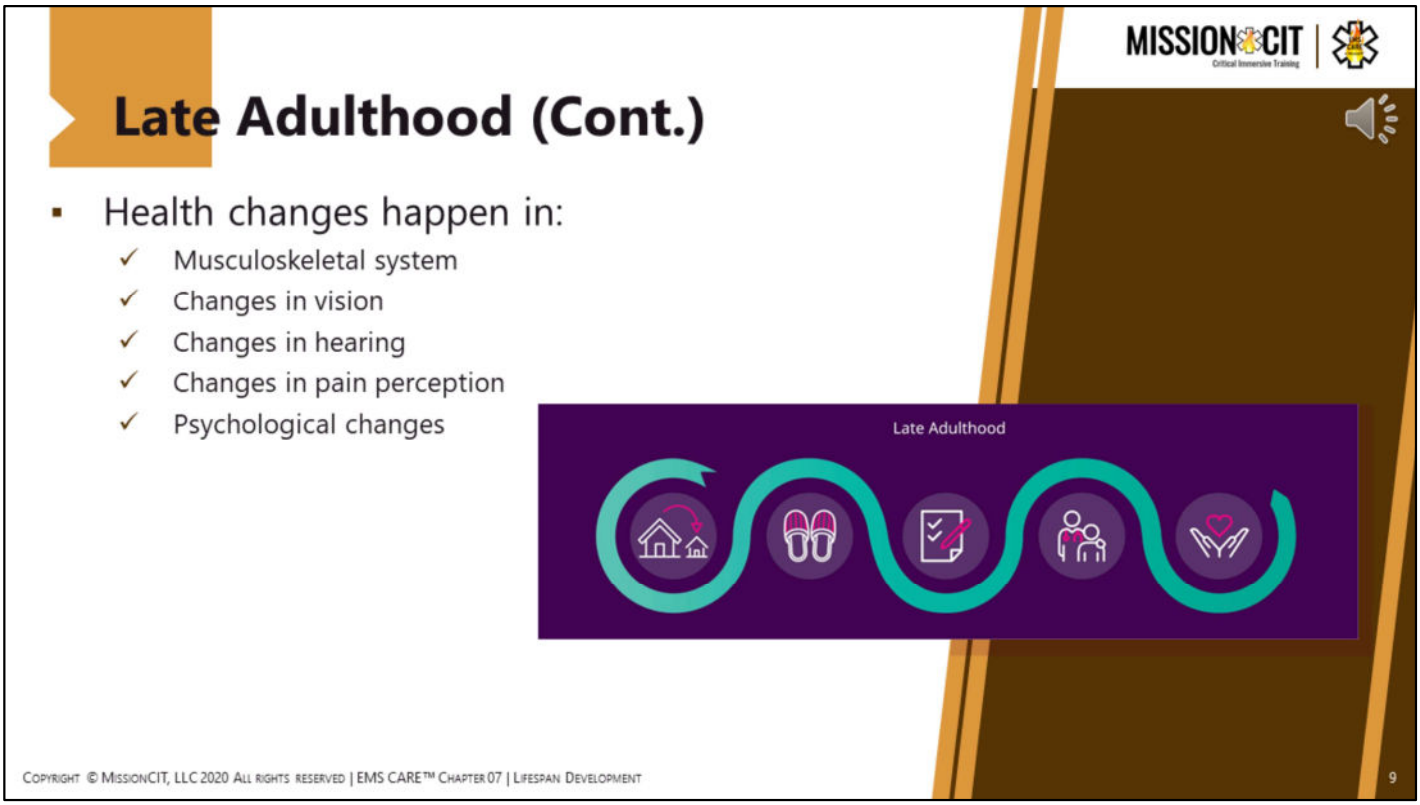


The last topic in this chapter was the late adulthood phase which is 61 years and older. Many physiological changes happen during this period and health can deteriorate rapidly. The heart rate, respiratory rate, and blood pressure depend on the patient's physical health and status.

Let's discuss briefly the possible health changes during this phase:

- Cardiovascular system: The cardiovascular system consists of the heart, blood, and blood vessels. Age affects each of these.
- Respiratory system: Many changes happen to the respiratory system as people age. So the amount of oxygen that mixes with the blood reduces. Likewise, less carbon dioxide will be removed from the blood.
- Neurovascular system: Many neurovascular changes happen as part of the aging process. Some of them are: Aortic or arterial stiffness, autonomic dysregulation, neurovascular uncoupling, and damages to the blood-brain barrier.
- Gastrointestinal system: Loss of teeth, decrease in saliva, loosening of muscle tone, decrease in hydrochloric acid levels in the stomach, constipation, fecal incontinence, and shrinking of the liver are some changes that impact the way food is digested by the body.
- Genitourinary system: Due to prominent changes in the genitourinary system, urinary tract infections are common, dehydration and hypovolemic shock are also possible, prostatic carcinoma is likely in males, and this is characterized by sudden moderate to high

fever, chills, changes in bowel or bladder function, and melena. If a patient is suffering from any of these symptoms, stabilize, and arrange for transportation.



- Endocrinal system: The endocrinal system will see changes such as a decrease in the metabolism of thyroxine, pancreatic beta-cell secretion, reduction in the level of hormones secreted by the hypothalamus and pituitary gland, increase in the secretion of antidiuretic hormone and atrial natriuretic hormones, and an increase in the epinephrine levels.
- Musculoskeletal system: There are many prominent changes in the musculoskeletal system due to a lack of physical activity.
- Changes in vision: Some possible changes are decreased visual acuity, inability to differentiate colors, decreased night vision, decreased tear production, development of cataracts. There is a high possibility of diseases like glaucoma, macular degeneration, and retinal detachment.
- Changes in hearing: The most prominent hearing-related conditions are presbycusis, disability to hear high-frequency sounds, inner ear problems, loss of balance are some issues that come with aging.
- Changes in pain perception: In elderly patients, the barriers to pain perception are substantial. People who are more than 65 years of age tend to experience chronic pain.
- Psychological changes: Loss of partners and friends, living alone in communities, pain, and inability to perform actions, financial burdens, and fear of death are some reasons for

psychological changes.

With this, we come to the end of the chapter review. You should now proceed to take the quiz.