

Ok, let's continue with Part B of this lesson, Neurological Challenges and Disabilities. We first discuss developmental and intellectual challenges. We spend some time on Autism and then touch upon age related dementia and Alzheimer's.

So, according to the CDC, Developmental disabilities are a group of conditions due to an impairment in physical, learning, language, or behavioral areas. About one in six children in the U.S. have one or more developmental disabilities or other developmental delays.

There are four main types of developmental disorders:

nervous system, sensory related, metabolic and degenerative disorders. Many different subsets of disabilities nest under these four main groups.

We will discuss only the nervous system related disabilities in this lesson. Note that Cerebral Palsy discussed in the prior lesson is considered a developmental disability by the CDC.

Intellectual Disability

- Results in the inability to learn and socially adapt at a normal developmental rate
- Slight impairment
- Slow to understand or limited vocabulary
- Behave immaturely compared to peers
- If severe, may have inability to care for themselves, communicate, understand, or respond



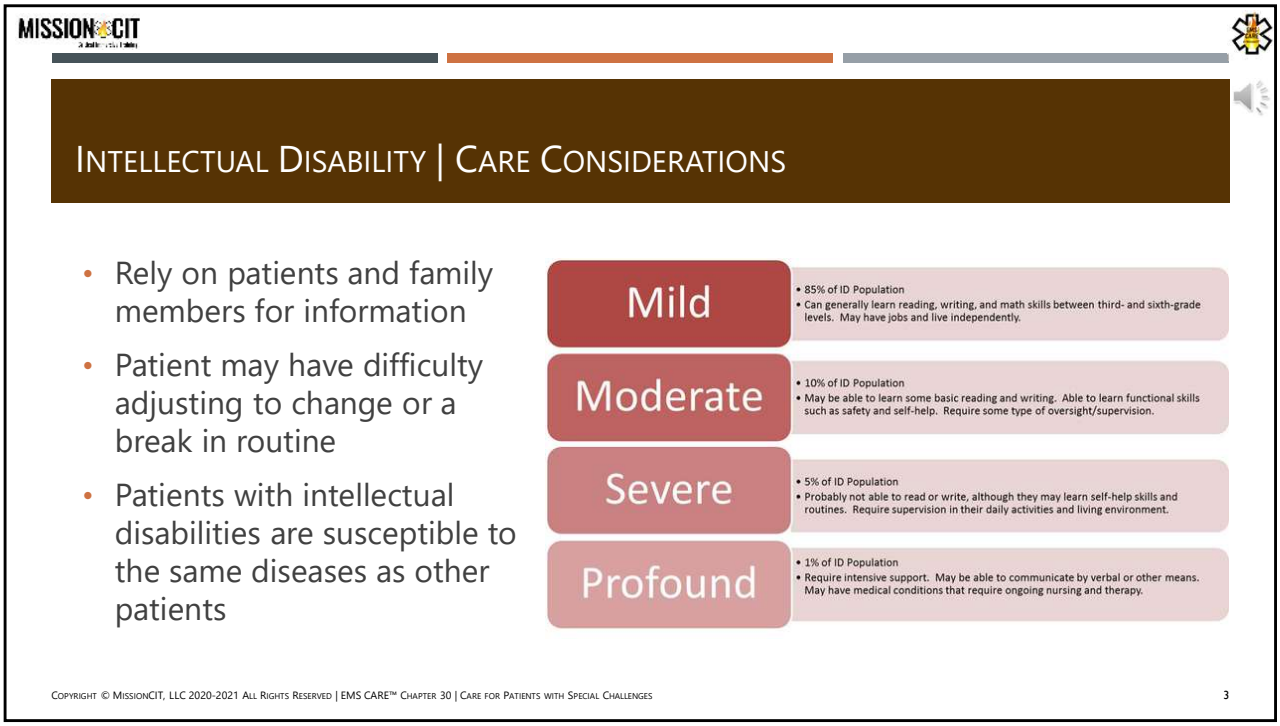
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Intellectual disability is a term used when there are limits to a person's ability to learn at an expected level and function in daily life. The main symptom is difficulty thinking and understanding. Life skills that can be impacted include certain conceptual, social, and practical skills.

Levels of intellectual disability vary greatly in children. These Children might have a hard time letting others know their wants and needs, and taking care of themselves.

It could cause a child to learn and develop more slowly

than other children of the same age. It could take longer for such a child to learn to speak, walk, dress, or eat without help, and they could have trouble learning in school.



A patient with slight intellectual impairment may appear slow to understand, have a limited vocabulary or May behave immaturely compared to their peers.

They often have difficulty adjusting to change or a break in routine.

However, if severely intellectually disabled, a patient may not have the ability to care for themselves, communicate, understand, or respond to their surroundings. You likely will have to rely on family members or caregivers for information.

There are no specific medical risks for these patients versus the wider population.

Age Related Neurological Challenges

- Dementia
- Alzheimer's
- Stroke
- Epilepsy
- Parkinson's Disease



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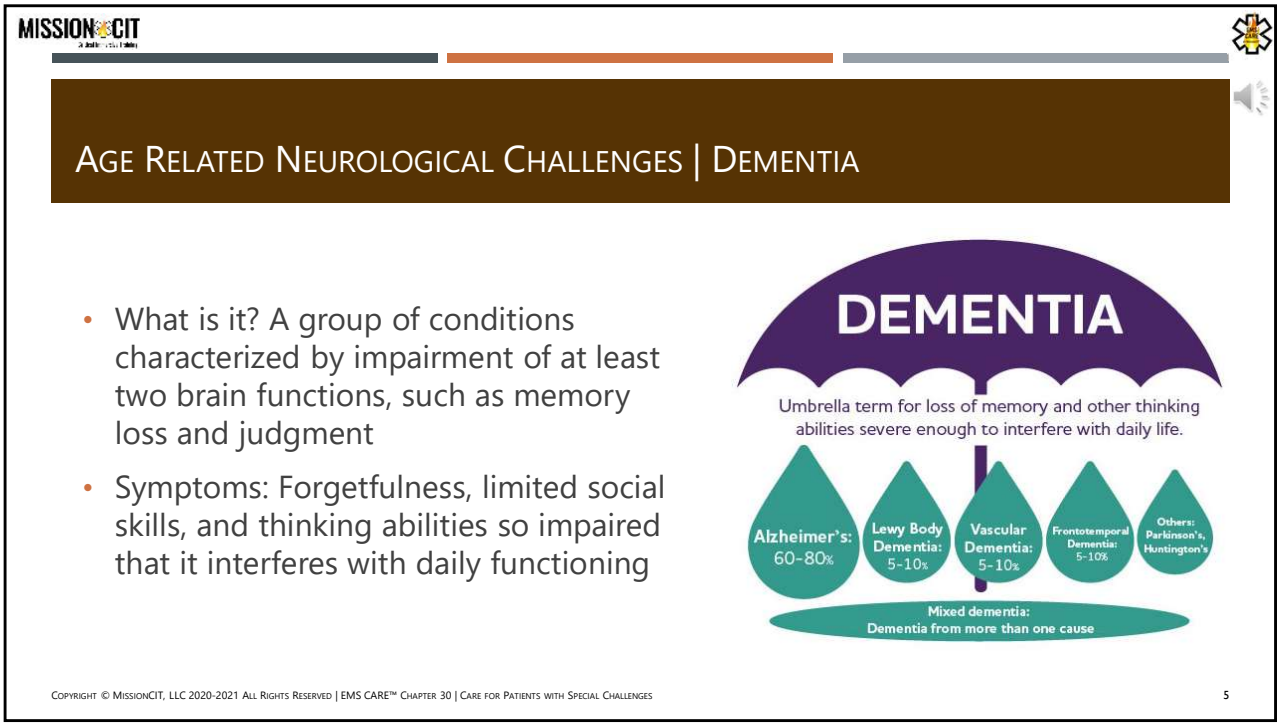
So, no satisfactory classification of aging exists. However, the World Health Organization offers this terminology for the aging process as follows:

- Aging persons are considered 51 to 60 years old.
- The Elderly are defined as 61 to 75 years of age.
- Aged persons fall into a range of 76 to 90 years old.
- Very old persons have reached 91 to 100 years, and finally
- Long-lived persons are 100 years and over.

Note that Biological age does not always correspond to chronological age. Premature aging may lead to an onset

of neurologic disorders anytime at any age, but is most prevalent for those past 50 years of age.

We will briefly touch upon each of these age-related neurological conditions.



According to the Mayo Clinic, Dementia is not a specific disease. Rather, dementia is a group of conditions characterized by impairment of at least two brain functions, such as memory loss and judgment.

Symptoms include forgetfulness, limited social skills, and thinking abilities so impaired that it interferes with daily functioning.

Medications and therapies may help manage symptoms. Some causes are reversible.

For dementia patients, the EMT should be aware of

Cognitive issues, Behavioral problems, mood symptoms, psychological problems and muscular disorders along with memory loss.

Please read more about the details of these issues in the following text.

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Cognitive issues including mental decline, confusion in the evening hours, disorientation, inability to speak or understand language, making things up, mental confusion, or inability to recognize common things

Behavioral problems including irritability, personality changes, restlessness, lack of restraint, or wandering and getting lost

Mood symptoms including anxiety, loneliness, mood swings, or nervousness

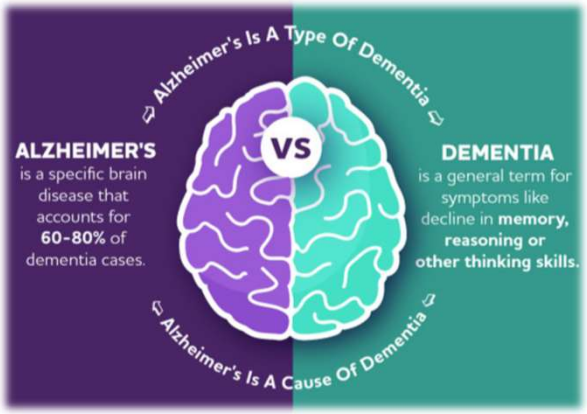
Psychological problems including depression, hallucination, or paranoia

Muscular disorders including the inability to combine muscle movements or unsteady walking

Also common are memory loss, falling, jumbled speech, or sleep disorder

Age Related Neurological Challenges | Alzheimer's

- What is it? An irreversible, progressive brain disorder that slowly destroys memory and thinking skills and, eventually, the ability to carry out the simplest tasks
- Symptoms: Memory loss and confusion



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According to the NIH, Alzheimer's disease is an irreversible, progressive brain disorder that slowly destroys memory and thinking skills and, eventually, the ability to carry out the simplest tasks. In most people with the disease, that is those with the late-onset type, symptoms may first appear in their mid-60s.

For Alzheimer's patients, the EMT should be aware of similar issues as to those of dementia patients, but often they are more severe or pronounced.

Please read more about the details of these issues in the

following text.

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Cognitive issues including mental decline, difficulty thinking and understanding, confusion in the evening hours, delusion, disorientation, forgetfulness, making things up, mental confusion, difficulty concentrating, inability to create new memories, inability to do simple math, or inability to recognize common things

Behavioral problems including aggression, agitation, difficulty with self care, irritability, meaningless repetition of own words, personality changes, restlessness, lack of restraint, or wandering and getting lost.

Mood symptoms including anger, apathy, general discontent, loneliness, or mood swings.

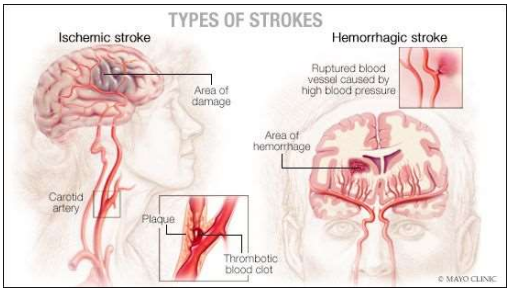
Psychological problems including depression, hallucination, or paranoia.

Muscular disorders including inability to combine muscle movements or unsteady walking.

Also common are the inability to combine muscle movements, jumbled speech, or loss of appetite.

Age Related Neurological Challenges | Ischemic Stroke

- Stroke refers to the death or injury of brain tissue as a result of a lack of oxygen
- This can be caused by an arterial blockage or from bleeding from a ruptured blood vessel
- Ischemic Stroke is a Loss of blood flow to the brain
- Risk of Stroke doubles every 10 years after age 55
- Refer to EMS Care Chapter 21



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According to the NIH, 87% of strokes, are classified as ischemic strokes caused by a loss of blood flow to the brain. Aging is the highest risk factor for a stroke. The risk doubles every 10 years after age 55.

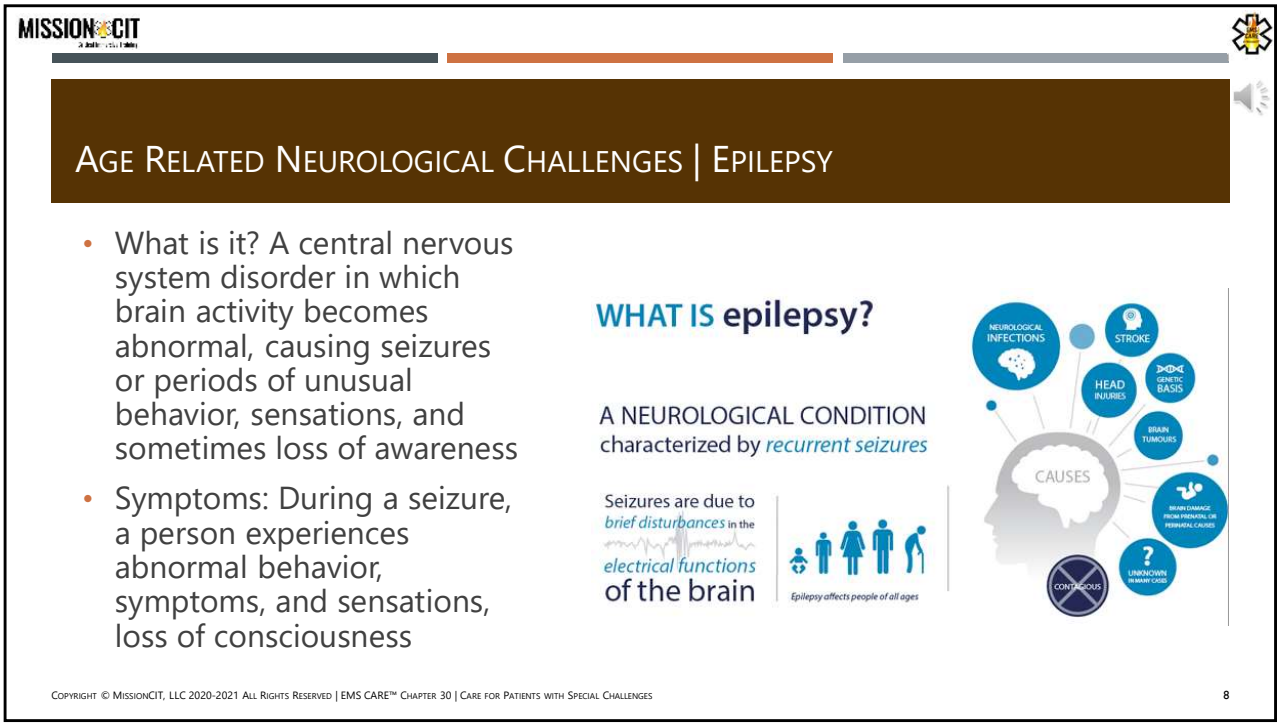
The EMT should follow primary assessment and local stroke protocol. For a conscious patient, consider a secondary assessment using the Cincinnati Pre-hospital stroke scale.

Patient care prior to and during transport may include monitoring and maintaining the airway as well as

administration of high concentration oxygen.

Remember that treatment at the hospital for ischemic stroke patients focuses on restoring blood flow to the brain.

If you would like more information about strokes, please refer to EMS Care Chapter 21, Lesson 5; which is also Topic 4, Lesson 5 on Day 1, of the EMT Recertification course.



Epilepsy is a central nervous system disorder in which brain activity becomes abnormal, causing seizures or periods of unusual behavior, sensations, and sometimes loss of awareness. Epilepsy may also occur because of a genetic disorder or an acquired brain injury, such as a trauma or stroke.

According to the NIH, Epilepsy is the third most common neurological disorder affecting older adults after stroke and dementia. And the incidence of epilepsy is increasing rapidly in this population. The symptoms of seizures in the elderly may be different from those in

younger populations. The diagnosis is difficult, probably because of nonspecific characteristics, short-term symptoms, and absence of witnesses.

Stroke is also one of the major causes of status epilepticus.

During a seizure, a person experiences abnormal behavior and sensations, sometimes including loss of consciousness. There are few symptoms between seizures.

The EMT should be aware of the following for elderly Epilepsy patients.

Whole body issues including fainting or fatigue.

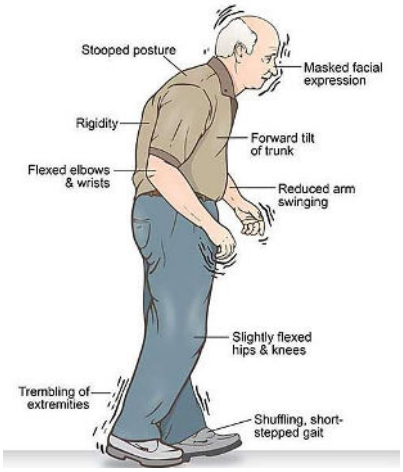
Muscular conditions may involve rhythmic muscle contractions or muscle spasms.

Sensory related problems may consist of aura, or pins and needles.

Also common with these patients are seizures, amnesia, anxiety, depression, headache, sleepiness, staring spells, or temporary paralysis after a seizure.

Age Related Neurological Challenges | Parkinson's Disease

- What is it? A progressive nervous system disorder that affects movement. Results from nerve cell damage in the brain causing dopamine levels to drop
- Symptoms: Parkinson's often starts with a tremor in one hand. Other symptoms are slow movement, stiffness, and loss of balance



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Parkinson's disease is a progressive nervous system disorder that affects movement. Warning signs start gradually, sometimes beginning with a barely noticeable tremor in just one hand. Tremors are common, but the disorder also frequently causes stiffness, loss of balance or slowing of movement. Symptoms arise from Nerve cell damage in the brain causing dopamine levels to drop.

For Parkinson’s patients, The EMT should be aware of the more severe issues such as amnesia, confusion, difficulty walking, and poor coordination.

Please read more about the details of problems affecting Parkinson's patients in the following text.

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Whole body issues include tremors that can occur at rest, in the hands, limbs, or can be postural, jaw stiffness or reduced facial expression

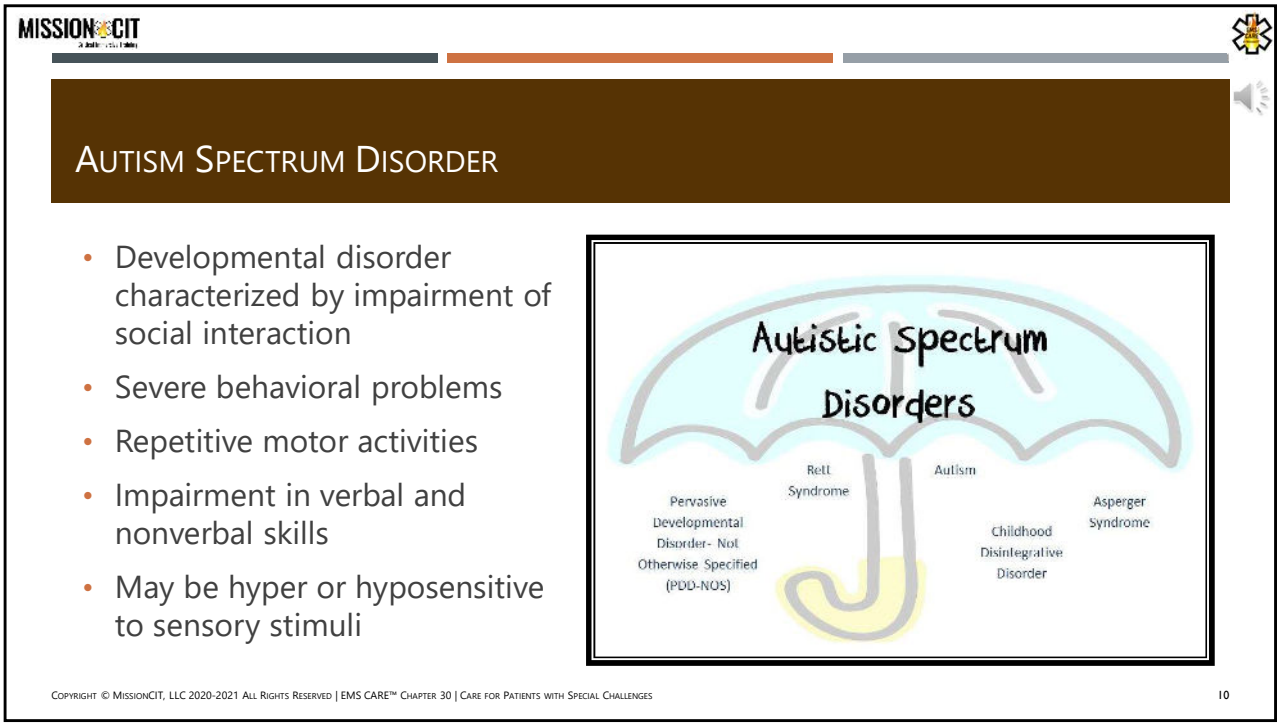
Muscular conditions may include stiff muscles, difficulty standing, difficulty walking, difficulty with bodily movements, involuntary movements, muscle rigidity, problems with coordination, rhythmic muscle contractions, slow bodily movement, or slow shuffling gait.

Cognitive challenges may include amnesia, confusion in the evening hours, dementia, or difficulty thinking and understanding

Speech related problems may include difficulty speaking, soft speech, or voice box spasm.

Also common with these patients are distorted sense of smell or loss of smell, blank stare, constipation, depression, difficulty swallowing, drooling, falling, fear of falling, loss in contrast sensitivity, neck tightness, small handwriting, trembling, unintentional writhing, or

weight loss.

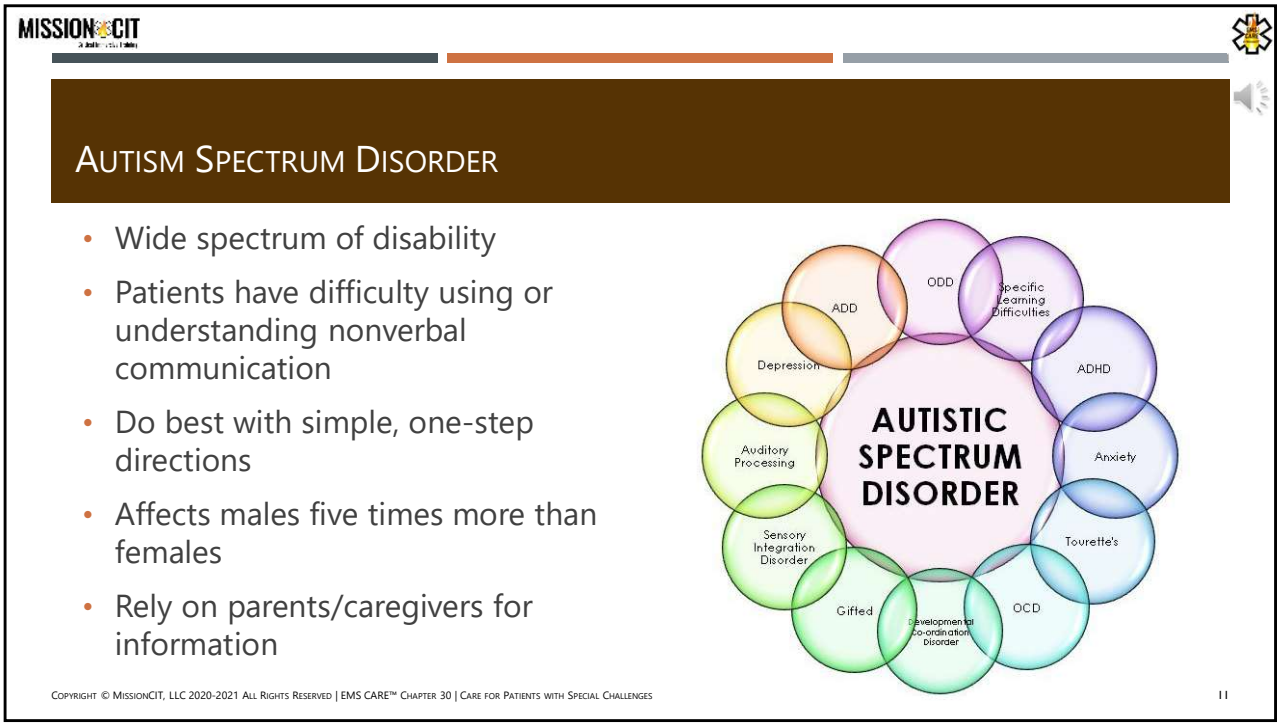


Autism spectrum disorder is a condition related to brain development that impacts how a person perceives and socializes with others, causing problems in social interaction and communication. The disorder also includes limited and repetitive patterns of behavior. The term "spectrum" refers to the wide range of symptoms and severity.

Autism is often characterized by an impairment of social interactions. Symptoms may include,

- Severe behavioral problems,
- Repetitive motor activities.

- Showing pain in unusual ways, such as humming, singing, and removing clothing.
- Impairment in verbal and nonverbal skills, and
- The patient may be hyper or hyposensitive to sensory stimuli.

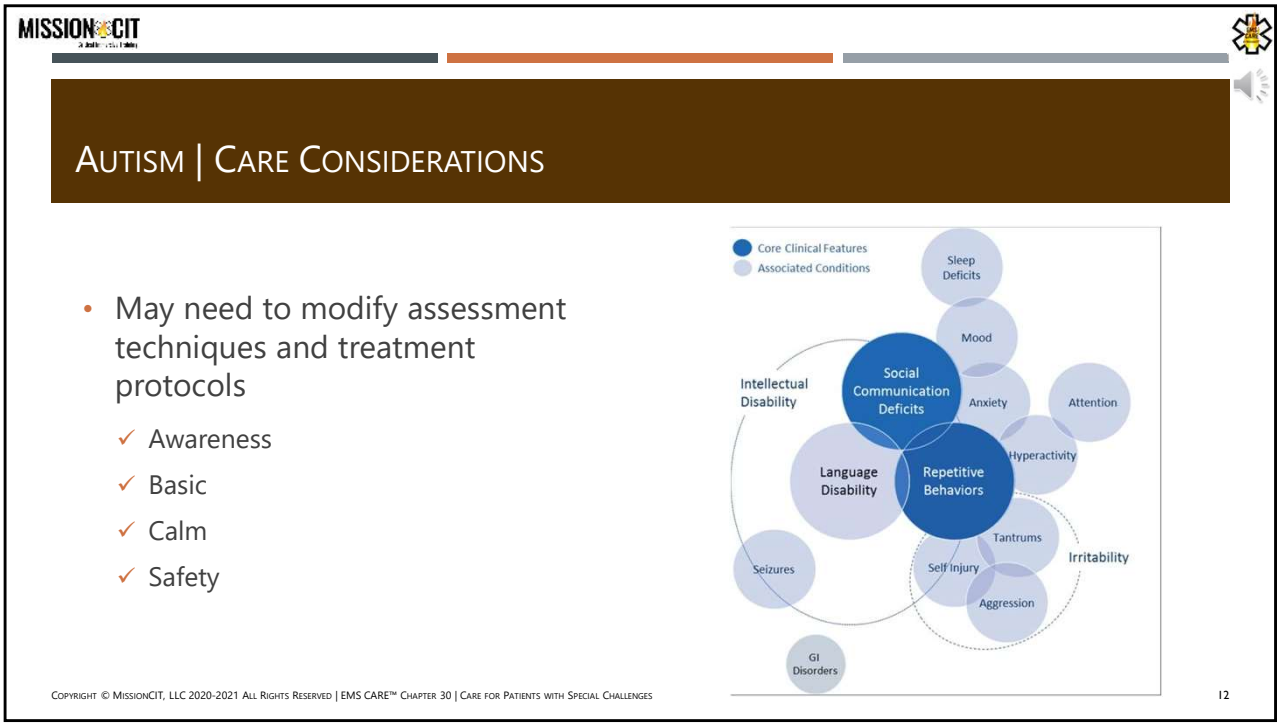


So Autism Spectrum disorder presents a wide range of disabilities. First, Patients have difficulty using or understanding nonverbal means of communicating. Those may include frequently having difficulty making eye-to-eye contact. Also, these patients do best with simple, one-step directions. Many Tend to have trouble answering open-ended questions, and are Often speaking in robotic or monotone speech patterns, and Repeating phrases over and over again, or Not speaking at all.

Additionally, Autism affects males five times greater than

females. It Is Typically diagnosed by 3 years of age. Note that it Is likely that some older adults with autism have never been diagnosed nor received any assistance.

Remember that the EMT may have to rely upon parents or caregivers for critical information regarding the patient.

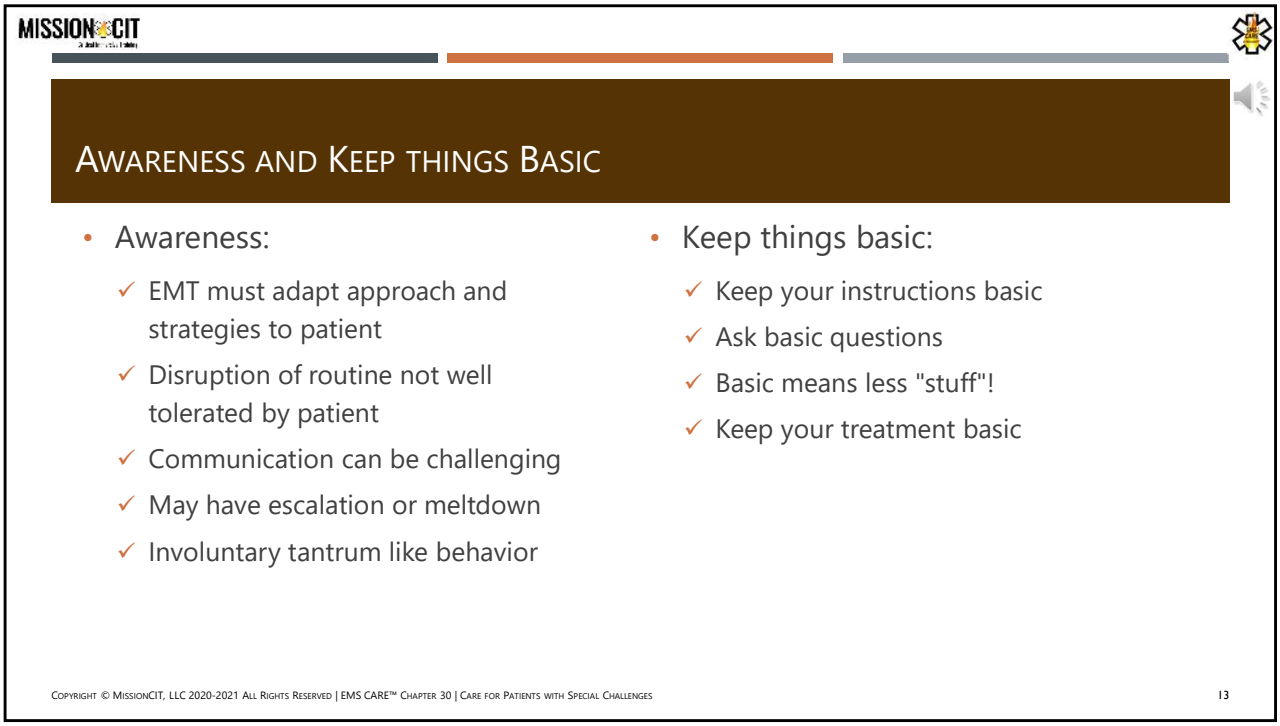


Patients with an autism spectrum disorder will not behave or react in the same manner as most other persons. They are best cared for by avoiding sensory, emotional, or cognitive overstimulation.

The patient with autism may not offer typical complaints, may have very high pain thresholds, and may choose to engage in a pleasurable activity rather than deal with an obvious injury or medical condition, despite the discomfort.

Therefore, the EMT must adapt their approach and strategies to the patient in four areas: 1. Awareness, 2.

Keep communications basic, 3. Stay calm and display calmness, and finally 4. Pay close attention to patient safety.

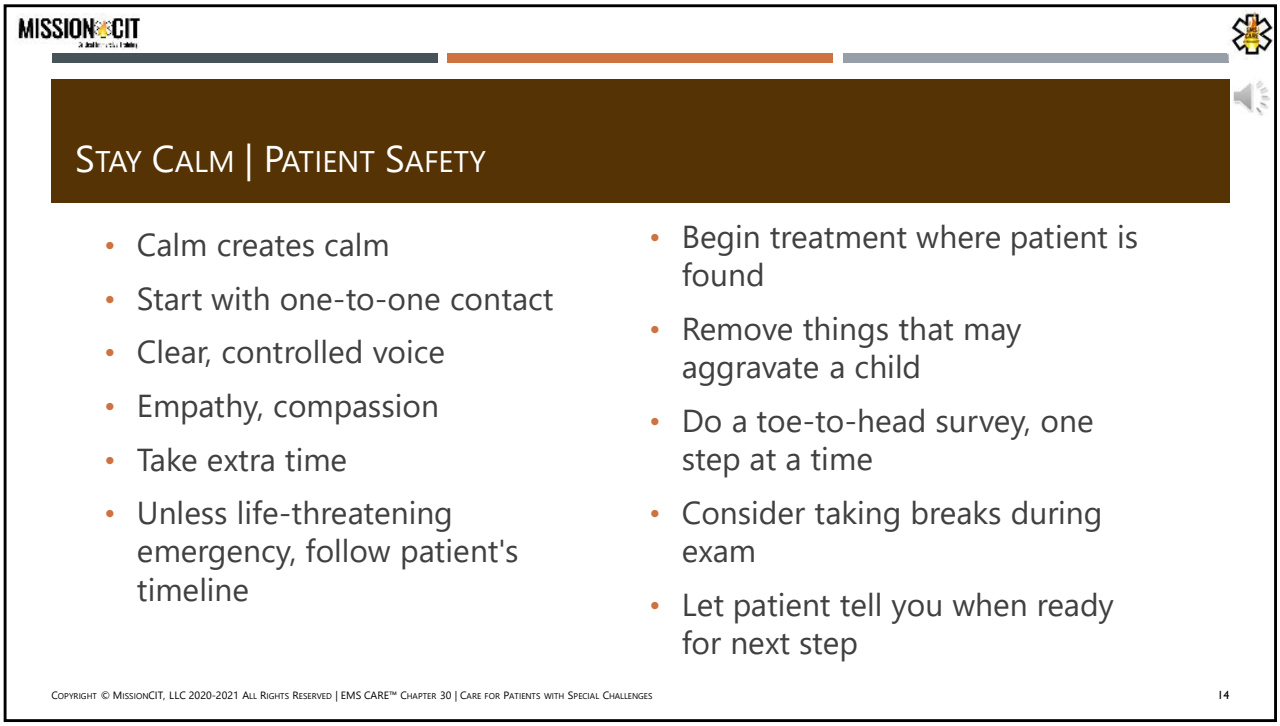


So with Autistic patients, the EMT should demonstrate awareness by

- Adapting their approach and strategies.
- Noting that the disruption of the patient's routine is not well tolerated.
- Understanding that Communication can be challenging.
- Expecting the patient to escalate poor behavior or have a meltdown, and
- Be prepared for an involuntary tantrum like behavior.

Therefore, keep things as basic as possible, including

questions, instructions and when possible, the treatment.



So with Autistic patients, the EMT should stay calm and display calmness as suggested here.

- Remember that Calm creates calm.
- Start with one-to-one contact.
- Maintain a Clear, controlled voice.
- Be Empathetic and compassionate.
- Take extra time, and finally.
- Unless there is a life-threatening emergency, follow the patient's timeline.

Then for the sake of patient safety,

- Begin treatment where the patient is found.
- Remember to remove things that may aggravate a child.
- Do a toe-to-head survey, one step at a time.
- Consider taking breaks during the exam, and be sure to
- Let the patient tell you when ready for the next step.

Now, this is the end of Part B of this lesson. I will return shortly with Part C to discuss Sensory Disabilities.

Good Studying.