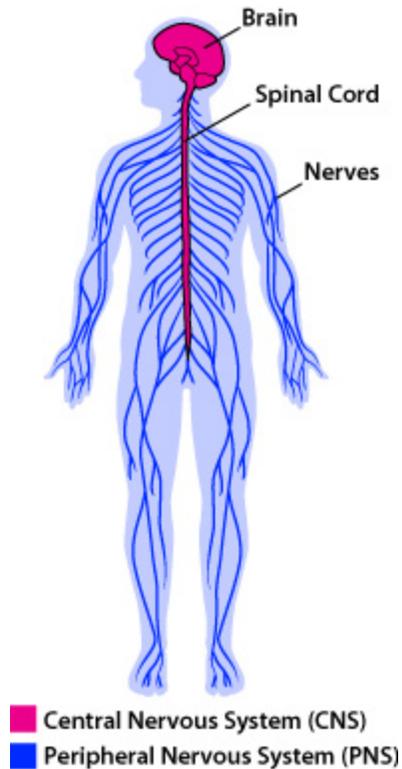


COMMON DISORDERS OF THE NERVOUS SYSTEM



The **nervous system is the control and message center of the body.** It controls and coordinates all body functions. The nervous system also senses and interprets information from outside the body. For example, *if you touch an object that is hot with your fingers, the nerve cells in your fingers send a message to your brain saying it is hot and your brain will send a message to your hand and fingers to pull away from the hot object.*

The nervous system has two main parts, **the Central Nervous System, CNS,** that consist of the Brain and Spinal Cord. **The Peripheral Nervous System, PNS,** deals with the outer parts of the body via the nerves that branch out and extend throughout the body.

Common Disorders

Dementia refers to changes in the brain that alter and impair the ability to think and remember. **Alzheimer's disease** is an example of a dementia and about 1 in 12 Americans (aged 50 and older) has some level of Alzheimer's disease. An estimated **5.8** million Americans, age 65 and older, are living with Alzheimer's Dementia.

Alzheimer's Dementia is most commonly caused by genetics (family traits), lifestyle and environmental factors that affect the brain cells over time. It is important to note that Alzheimer's is NOT a normal part of aging. Initial stage begins with forgetfulness and mild confusion. Over time, recent memories start going away and the client may repeat the same question over and over, each time forgetting that you already answered the question. They will not even remember that they already asked you the question.

Symptoms of Alzheimer's depend on the stage of the disease:

Early Symptoms include:

COMMON DISORDERS OF THE NERVOUS SYSTEM

Early symptoms include:

- Memory loss
- Misplacing items
- Forgetting the names of places and objects.
- Repeating themselves regularly, such as asking the same question several times.
- Becoming less flexible and more hesitant to try new things.

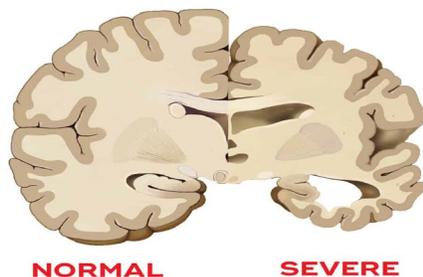
Middle-stage symptoms:

- Increasing confusion and disorientation
- Obsessive, repetitive, or impulsive behavior
- Delusions (believing things that are untrue)
- Problems with speech or language (**aphasia**)
- Disturbed sleep
- Changes in mood, such as frequent mood swings, depression and feeling increasingly anxious, frustrated or agitated
- Difficulty in performing spatial task, such as judging distances
- Agnosia, inability to interpret sensations and hence to recognize things.

Late changes:

- Difficulty in changing position or moving around without assistance
- Considerable weight loss or weight gain
- Gradual loss of speech
- Significant problems with short- and long-term memory

Progression of Alzheimer's Disease in the brain



COMMON DISORDERS OF THE NERVOUS SYSTEM

Progressive Dementia's

Dementia is caused by damage to or loss of nerve cells and their connections in the brain. Depending on the area of the brain, dementia can affect people differently and cause different symptoms.

- **Alzheimer's disease** is the most common cause of dementia and as we stated earlier, one of the causes of Alzheimer's is a mutation of genes that can be passed down from parent to child. One of those genes is apolipoprotein E4. Alzheimer's disease patients have plaques and tangles in their brains. Plaques are clumps of a protein called beta-amyloid, and tangles are fibrous tangles made up of tau protein. It is thought that these clumps damage healthy neurons and the fibers connecting them.
- **Vascular dementia.** This is the second most common type of dementia and is caused by damage to the vessels that supply blood to your brain. Interruption to the blood flow to the brain can cause strokes or other damage. The most common symptoms include problems with problem solving, slowed thinking, difficulty with focus and organization.
- **Lewy body dementia.** Lewy bodies are abnormal balloon like clumps of protein that have been found in the brains of people with Lewy body dementia, Alzheimer's, and Parkinson's disease. Common signs and symptoms include acting out one's dreams in sleep, seeing things that are not there, and problems with focus and attention. Other signs can include uncoordinated or slow movement, tremors, and rigidity.
- **Frontotemporal dementia.** These dementias are characterized by a breakdown of nerve cells and their connections in the frontal (front) and temporal (side) lobes of the brain. These areas are associated with personality, behavior, and language. Symptoms affect behavior, personality, thinking, judgement, language, and movement.

COMMON DISORDERS OF THE NERVOUS SYSTEM

- **Mixed dementia.** Autopsies in some of the brains of people 80 yrs. and older have also shown that they had a combination of dementias, such as Alzheimer's, Vascular and Lewy body. Studies are ongoing to determine how mixed dementias affects symptoms and treatments.

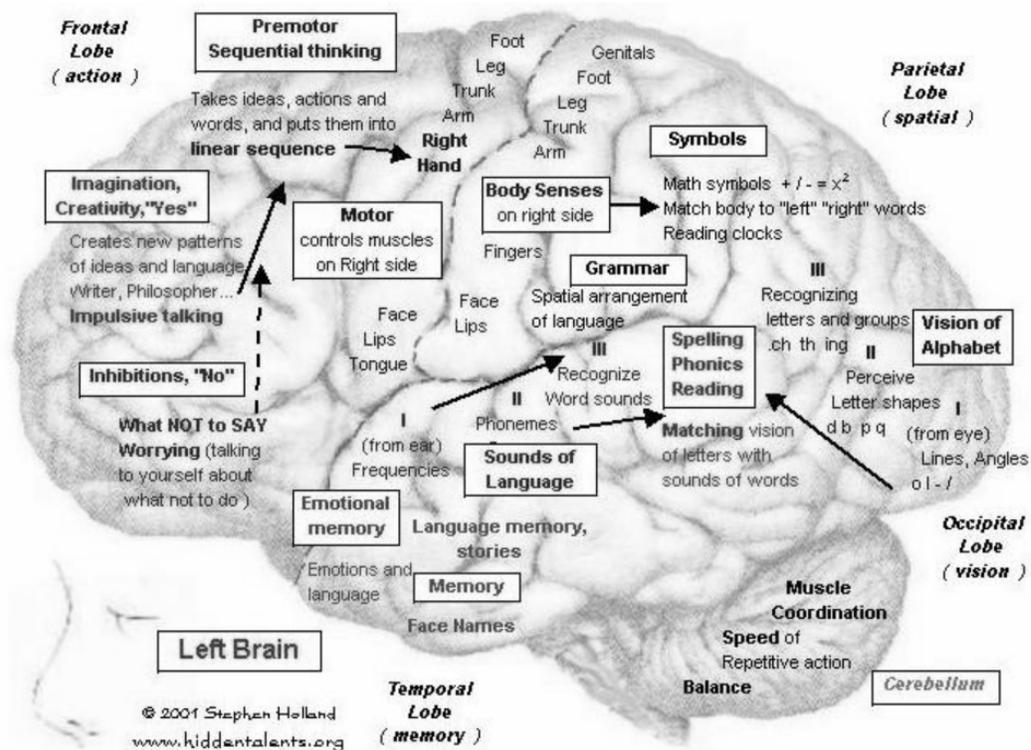
Other Disorders Linked to Dementia

- **Huntington's disease.** Caused by a genetic mutation that causes certain nerve cells in your brain and spinal cord to waste away. This usually occurs around the age of 30 yrs. old to 40 yrs. old but can occur at any time of life. Symptoms can include dropping things, memory loss, personality changes, difficulty talking and swallowing. Later stages can escalate to difficulty walking, talking, breathing, weight loss and seizures.
- **Traumatic brain injury (TBI).** This condition is most often caused by repetitive head trauma such as with boxers, football players or soldiers. It can also be caused by injuries such as motor vehicle accidents, falls, or blows to the head.
Depending on the area of the brain that is injured, dementia signs and symptoms can include depression, explosiveness, memory loss and impaired speech. TBI's can also cause parkinsonism.
- **Creutzfeldt-Jakob disease (CJD).** This is a rare and FATAL condition that usually occurs after the age of 60 yrs. old. There are no known risk factors but can be inherited. It can also be caused by exposure to a diseased brain or nervous system, like from a cornea transplant from an infected person. Also there is a variant of CJD that was also known as "mad cow disease" but this is very rare. This disease is always fatal and progresses very quickly. People with CJD eventually lose the ability to recognize people and care for themselves and may eventually slip into a coma.

COMMON DISORDERS OF THE NERVOUS SYSTEM

The AMAZING Brain

The Brain weighs approx. 3 lbs., is 73% water, makes up approx. 2% of the body's total weight but uses 20% of its total energy and oxygen intake. No one knows for sure, but the latest estimate is that our brains contain 86 BILLION brain cells. A piece of brain tissue, the size of a grain of sand, contains 100,000 neurons and 1 billion synapses, all communicating with each other. As little as 5 min. without oxygen can cause some brain cells to die, leading to severe brain damage. Brain information travels up to 268 miles per hour. The average brain generates 48.6 thoughts per min. which adds up to 70,000 thoughts per day!



THIS is WHY it is so important to have an some understanding how ANYTHING that interferes with our Clients Brains can affect their daily lives.

COMMON DISORDERS OF THE NERVOUS SYSTEM

OTHER CENTRAL NERVOUS SYSTEM DISORDERS

Cerebrovascular Accident (CVA) or Stroke

A stroke occurs when there is an interruption in the blood to a part of the brain. This can occur by 1). An occlusion that “blocks” blood flow to an area of the brain and 2). A “bleed” when a blood vessel leaks or ruptures. A CVA can cause sudden weakness, paralysis, difficulty speaking and swallowing, depending on the area of the brain. If the CVA is on the Rt side of the brain, it will affect the left side of the body (below the neck) or if it is on the Lt side of the brain, it will affect the right side of the body (below the neck).

Multiple sclerosis

In Multiple sclerosis, the myelin sheath that covers the nerves, spinal cord and white matter of the brain breaks down over time. Without the myelin sheath, the nerves cannot conduct impulses to and from the brain in a normal way. The causes of MS are unknown, but it is considered an “auto-immune” disease in which the body’s immune system attacks its own tissues.

Symptoms often affect movement, such as:

- Numbness or weakness in one or more limbs that typically occurs on one side of your body at a time, or your legs and trunk
- Electric-shock sensation that occur with certain neck movement, especially bending the neck forward
- Tremor, lack of coordination or unsteady gait

Vision Problems including:

- Partial or complete loss of vision, usually one eye at a time, often with pain during eye movement
- Prolonged double vision
- Blurry vision

COMMON DISORDERS OF THE NERVOUS SYSTEM

Other symptoms:

- Slurred speech
- Fatigue
- Dizziness
- Tingling or pain in parts of your body
- Problems with sexual, bowel and bladder function

Most people have periods of relapsing (not having any signs or symptoms) - remitting (having active progression of symptoms) for days, weeks or years.

Epilepsy

Epilepsy has no identifiable cause in about half of the people with the condition. In the other half, the condition may be traced to factors including:

- Genetic, may run in families
- Head trauma, motor vehicle accidents, head injuries.
- Brain conditions such as strokes or tumors
- Infections such as meningitis, AIDS, and viral infections of the brain
- Prenatal injuries (before birth) that can be from poor nutrition, an infection or something causing decreased oxygen to the baby
- Development disorders such as autism
- Excessive alcohol intake and substance abuse

One very important LIFE-THREATENING complication of epilepsy (not common) is called **STATUS EPILEPTICUS**. This is a continuous seizure that last more than 5 minutes or frequent seizures without regaining full consciousness in between them. This is WHY, you are always told to call 911 for any seizure lasting longer than 3 minutes.

COMMON DISORDERS OF THE NERVOUS SYSTEM

Cerebral Palsy (CP)

CP is a group of disorders that affect movement and muscle tone or posture. It is caused by damage that occurs in the brain as it develops, most of the time, before birth.

In general, it causes impaired movement associated with abnormal reflexes, floppiness, or rigidity of the limbs (may have contractures) and trunk, abnormal posture, involuntary movements, unsteady walking, difficulty swallowing, eye muscle imbalance (may be cross eyed), some people can walk, some cannot walk. Some may show near normal intellectual abilities but other may have intellectual disabilities. Epilepsy, blindness, or deafness also might be present.

Symptoms include:

- Muscles being too stiff or too “floppy.”
- Stiff muscles and exaggerated reflexes (spasticity)
- Stiff muscles with normal reflexes (rigidity)
- Lack of balance and muscle coordination (ataxia)
- Tremors or involuntary movements
- Slow, squirming movements or contortions
- Delays in reaching motor skill milestones such as crawling.
- Favoring one side of the body, such as reaching with one hand
- Difficulty walking
- Excessive drooling or problems with swallowing
- Difficulty with sucking (like with a baby bottle) or eating.
- Delays in speech development or difficulty talking.
- Learning difficulties
- Difficulty with fine motor skills, such as buttoning clothes or picking up eating utensils.
- Seizures
- Urinary incontinence
- Difficulty hearing or seeing

COMMON DISORDERS OF THE NERVOUS SYSTEM

CARE FOR YOUR PATIENTS WITH CENTRAL NERVOUS SYSTEM CONDITIONS

- **ALWAYS** remember to have **patience**. Sometimes it takes longer for a client who has a disorder of their brain to “process” a thought.
- Look at them at eye level. Kneel to look at them at their level!
- Speak slowly and clearly and again, give them time to process what you are saying
- Separate the person from the behavior. Just like having the flu, you may not have any control over coughing, they may not have control over the behavior, or it may take them longer to process thoughts and directions.
- Meet the client where they are at the time. If they think they are a little child, do not try to orient them to being an adult.
- Minimize environmental clutter and distractions
- Keep the environment safe, remove rugs that may be trip hazards, put objects close (within reach) and on unaffected side (if they have one sided paralysis)
- Keep questions simple
- Keep instructions and directions simple
- Speak in a normal voice at normal loudness
- Allow the client time to process the information, as well as form a response to questions or commands
- **Be patient.....**
- **Be patient.....**
- **Be patient.....**
- Think about how you would feel if *YOU* were the client (patient)

Remember.....the Brain is a marvelous and complex organ that affects every single function of our body. When there is a disorder that affects the brain, it can be very hard for a person to deal with. The most important thing we can do as care providers is to remember that we should **ALWAYS treat our clients the way we would want to be treated.**