



Native Elder Caregiver Curriculum (NECC)

INTRODUCTION

Welcome.

This is the Native Elder Caregiving Curriculum (NECC). The NECC was developed with an understanding of the historically rich traditions and strengths of American Indian nations. The original versions of the NECC were created with guidance of Native Elders from the Spirit Lake Nation. Updated versions adhere to the valuable advice received and the original intentions of meeting the needs of the Elders. The curriculum is guided by an awareness of the modern context of rural Tribal communities, as well as a mindfulness of the historically rich traditions and strengths of American Indian Nations.

The NECC has been developed to help family caregivers and Tribal community-based caregivers become better prepared to care for the Elders in their communities. The curriculum is versatile in its reach and flexible in its delivery. It can be offered by local health professionals who have experience with providing direct care for older adults. The curriculum is flexible to meet training schedules and can be easily adapted to specific learning needs.

ACKNOWLEDGEMENTS

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SECTION 1: NORMAL AGE RELATED AND EXPECTED CHANGES IN AGING

OBJECTIVES

At the end of the session, participants will be able to:

1. Identify common changes that can occur during the aging process
2. Identify reasons for biologic changes during aging
3. Obtain basic knowledge of disease associated with system changes during the aging process

A quote from Ron Zeilinger's book *Sacred Ground* (1) comes to mind when we think about aging

Life itself is "like a great circle...young ones are born, grow up, become old and die, and soon more young ones are born to take the place of the old ones..."



“THINGS TO THINK ABOUT”

As the material is presented, it is important to keep in mind that the season of aging is a normal developmental process. We all begin aging as soon as we are conceived, and we are all aging at the same rate.

According to long-held traditional values, American Indian people view life as seasons. The season of aging is a normal developmental process. Some people can think about aging in a positive way, while others may have a more negative view of aging and want to avoid it all together. American Indians have the benefit of a strong cultural perspective that honors elders and their wisdom. (2)

“To everything there is a season” and traditionally, Native people viewed life as a circle of seasons. We live within a circle of physical, mental, and emotional, social, and spiritual dimensions.



Growing older, with its accompanying experience and wisdom, has traditionally been respected among Native people. The ‘season’ of being an elder is a most important one along life’s circle. According to Native cultural traditions, the definition of an elder is one who received “gifts from the Creator” along their life’s path, and who then generously “share these gifts with others to help them” According to this definition, the practice of leadership and generosity are considered to be essential in the role of an elder.

Those in the ‘early seasons’ of life depend on the wisdom and help of those who have moved into the ‘later seasons’. As we move through life’s seasons, it might be helpful to think of the important things that can only come by living meaningfully for a long time.

“Knots on the root of the oak tree tell of many storms and how deep the roots have forced their way into the earth” (5)

BIOLOGICAL AND TRADITIONAL PERSPECTIVE OF LIFE

(6 & 7)

To explain the biological components of life, we need to look at what makes up the body. The body is made up of 75 trillion cells in our bodies. The cells are known as building blocks in our body, they are in every part of our body. Each cell grows older over time.

Cells form tissues that are specific to each organ, and the organs make up the system. For example, there are tissues within the heart that are made up of the cells, the heart is an organ that makes up the cardiac system. The systems work together to keep us growing and going throughout our lives, while the aging process is quietly and normally taking place in each system.

We are more than a biological system made up of cells, tissues, and theories. Humans are complex beings, with interactions going on all the time with the physical, social, spiritual, and emotional aspects that make us unique. This holistic view is a traditional Native perspective on life and aging.

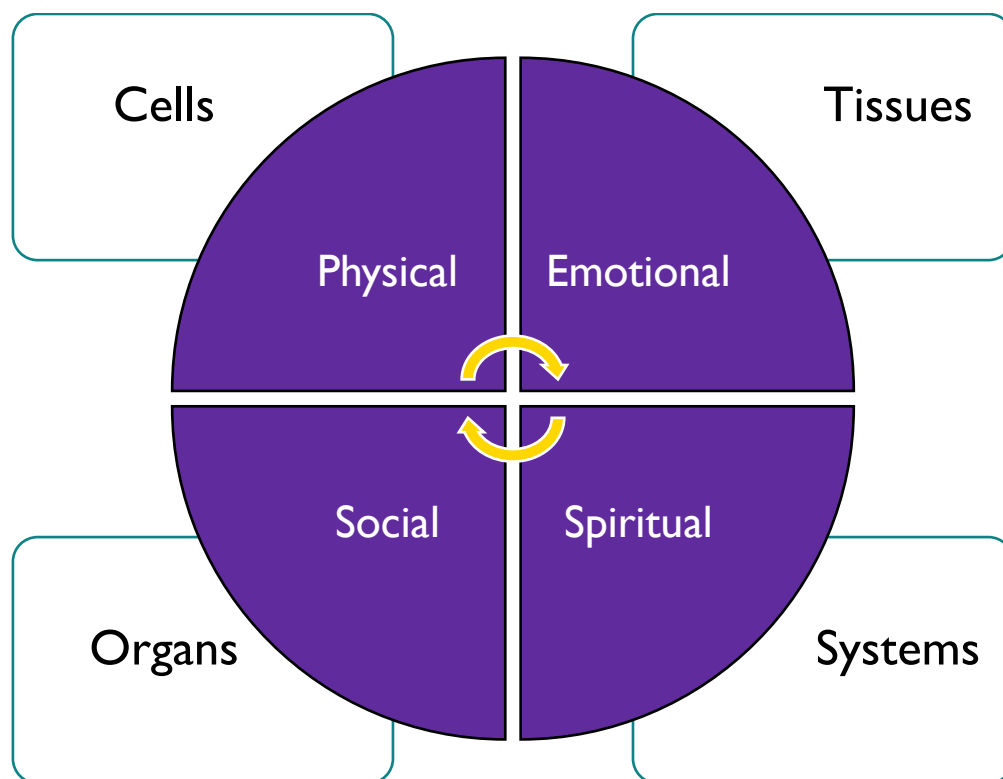


Figure 2: Combined Biologic and Traditional Perspective of the dimensions of life for a human being (Burd, 2009)

THEORIES OF AGING (6 & 9)

There many theories used to explain aging, the two main categories of modern theories are:

1. Biological or Programmed Theory
2. Damage Theory or “Wear and Tear” Theory

The biological or programmed theory proposes that aging is a result of pre-programmed biological changes that happen to a human over a lifetime. The changes are expected and happen on a schedule that is pre-determined by our genes. The rate and timing of aging changes in our cells. How long we live depends on how long our cells last and how well the cells can repair themselves. Those with longer lifespans have cells that are better at repairing damage.

The damage or “wear and tear” theory proposes that aging happens over a period of time and depends on ‘environmental assaults’ that are made on the person. Our cells go through a lot of ‘wear and tear’ over the course of a lifetime. As damage occurs throughout the cells, tissues, organs, and systems, the body wears out. Different body systems age at different rates among individuals, and even in the same person.

Aging is unique to each person. There are intrinsic factors and extrinsic factors that play a role in how we age. Intrinsic factors are our genetic make-up. It occurs naturally and is affected by the degenerative changes that occur and the body’s inability to repair the damage that occurs from the degenerative changes, such as what occurs with the Biological Aging Theory. Extrinsic factors on the other hand, are things in a person’s environment, such as exposure to the sun, poor nutrition, or drug and alcohol abuse. Extrinsic factors can be controlled or prevented, such as what occurs with the Wear and Tear Theory. Both intrinsic and extrinsic factors play a role in how each person ages.

In reality, aging probably takes place through a number of very complex interactions and mechanisms that are all going on at the same time, both inside of us and outside of us. The purpose of this section will not be to dig too deeply into the research of the aging process but look at the “normal” age-related and expected changes in aging.

NATIVE AMERICAN HEALTH STATISTICS (10, 11 & 12)

As we begin to look at the changes in aging, we want to review some of the health statistics for Native Americans. According to the CDC in 2017, some of the leading causes of death among Native Americans were heart disease, cancer, diabetes, liver disease, respiratory diseases, and stroke. In men 45 and older, heart disease was the number one cause of death, and cancer was the second. In women of the same age, cancer was the leading cause of death with heart disease being the second leading cause of death.

The National Resource Center on Native American Aging's (NRCNAA) survey, *Identifying our Needs: A Survey of Elders VII*, was conducted from 2017-2020. According to their findings, the top five chronic conditions facing Native Americans 55 years of age and older are High Blood Pressure; Arthritis; Diabetes; Cataracts; and Depression.

- ❖ High Blood Pressure – 57.5%
- ❖ Arthritis – 45.3%
- ❖ Diabetes – 35.3%
- ❖ Cataracts – 20%
- ❖ Depression – 14.1%
- ❖ In addition, 41.1% of Native Elders report having experienced one or more falls in the past year.



EXPECTED PHYSICAL CHANGES IN AGING

There are expected physical changes that occur in each of us as we age. A few expected changes related to the aging process in the body systems that will be discussed are endocrine; cardiovascular; respiratory; nervous; gastrointestinal (GI); genitourinary (GU); musculoskeletal; the integumentary (Skin) system and the sensory system. The reproductive system and sleep disturbances will be briefly discussed.

Pain is one of changes that occurs and is experienced at differing degrees for each person. Even though pain is not a system, we will discuss it first in this segment.

PAIN (6 & 7)

It is important to address the need for safety and pain relief among elderly people. Really “listening” to the Elders as they talk about their pain symptoms can help caregivers identify some of the chronic conditions that an Elder may be experiencing. Specific symptoms can be related to different conditions, but sometimes symptoms can be very general and may relate to several health conditions. Caregivers are probably the best “listeners” for symptoms and observers of change in an elder.

“Symptoms” are not the same as “diseases”. Symptoms are the way the body “talks to us” about how a person is feeling; caregivers need to “*stop, look, and listen*”. Symptoms may not be very specific, which can make it difficult to figure out the underlying cause.

Although pain is not a system disorder that changes with aging, pain is a syndrome that changes with aging. Pain is a message to the body that something is not right; pain can be a warning that needs to be paid attention to. Many times, we will hear Elders tell us to “do something to fix this”; meaning take care of the pain! Pain is subjective, each person handles pain differently and has a different tolerance to pain, basically, pain is what the person says it is. Pain can impact the Elder in different ways. In the physical aspect, pain causes discomfort and it hurts; Spiritually, the Elder may have “why me” feelings or “where is God”; and socially the Elder may feel that their family or friends don’t understand their pain. Pain can impact an Elder’s

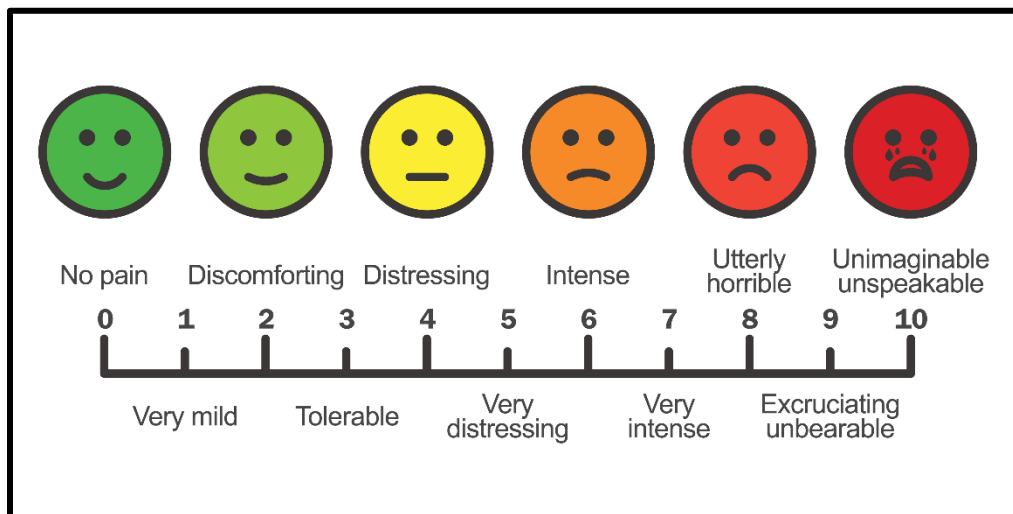
emotional health. It can cause the Elder to feel depressed, tired, scared and sad.

Some things to assess about pain:

- ❖ what kind of pain is it?
- ❖ is it sharp, dull, or aching?
- ❖ does the pain feel deep, or superficial?
- ❖ is the pain all over or just in one spot?
- ❖ does the pain come and go?
- ❖ does the pain prevent the Elder from doing normal activities?
- ❖ is the pain different from any other pain they have had?

There are pain scales that can be used to help the Elder determine how bad the pain is. Most pain scales rate pain from 0 – meaning No Pain to 10 – meaning Worst Pain Possible. By understanding the Elder's pain level and what type of pain it is, it can help determine if there is a problem in a certain area and what can be done to help alleviate the pain.

PAIN ASSESSMENT/PAIN SCALE



ENDOCRINE SYSTEM (6 & 7)

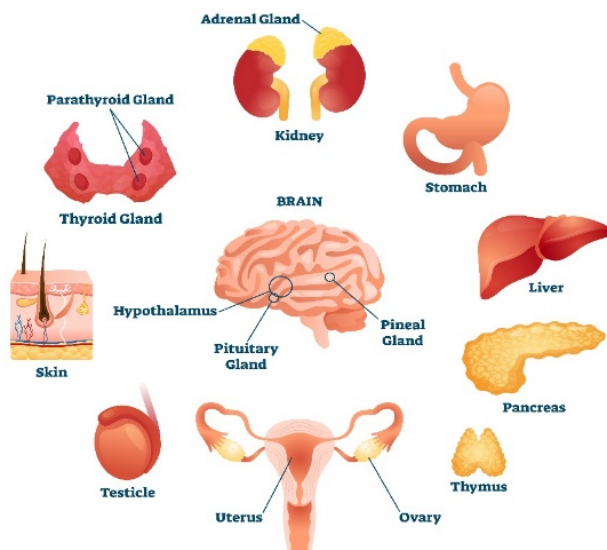
The first system to be discussed is the endocrine system. The endocrine system is one of the more complicated system in the body. This system works with multiple body organs and affects many systems.

The endocrine system starts with the hypothalamus, which is an endocrine organ. The hypothalamus is known as the “master switchboard” which controls the endocrine system. The hypothalamus is approximately the size of a pea and is located in the midbrain.

The endocrine system is responsible for sending out hormones that regulate and control the body. Hormones control and regulate functions such as reproduction, growth & development, and hormones help keep our bodies in a health state known as homeostasis.

The hypothalamus sends signals to the Pituitary gland to secrete hormones. The pituitary gland is known as the master gland, it is also approximately the size of a pea and is located close to the hypothalamus. The pituitary gland helps regulate other glands. The two main glands we are most familiar with in aging are the thyroid and adrenal glands. Even though the Endocrine System, itself, is not affected much from aging, the other systems it helps control are significantly affected by the aging process.

ENDOCRINE SYSTEM

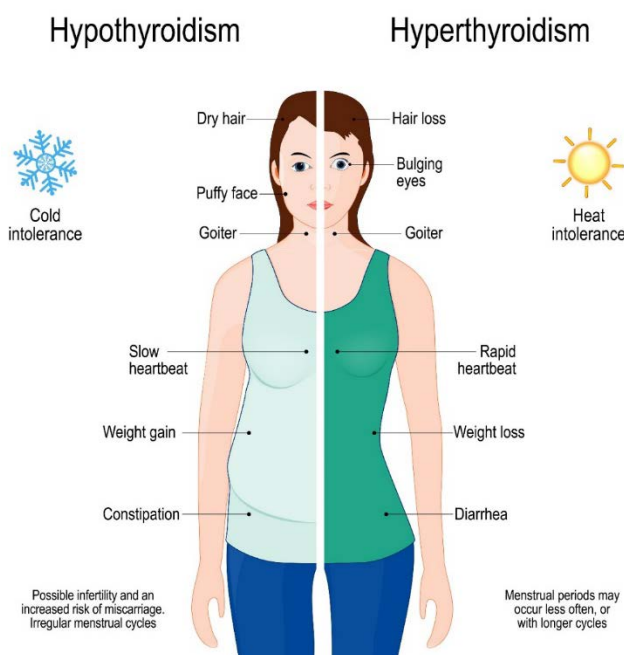


DISORDERS AFFECTING THE ENDOCRINE SYSTEM (6 & 7)

Thyroid

The thyroid is one of the glands of the endocrine system that is affected by the aging process. It has an influence on the metabolic rate in the body. The hormone that is mostly involved with the thyroid gland is the thyroid stimulating hormone or TSH. As the pituitary gland tries to get more TSH into the system, the TSH rises. So, in lab tests to determine if someone has hypothyroidism, the TSH will be elevated. There are two types of conditions associated with disorders of the thyroid gland. Hypothyroidism and Hyperthyroidism. This illustration shows the difference of the symptoms between the two.

Disorder of the thyroid gland



Hypothyroidism

Hypothyroidism is more common than hyperthyroidism and is usually more common in women, one of the reasons could be because of the reproductive hormones that women have. Often the symptoms of hypothyroidism are seen in younger people, those symptoms can be fatigue, weakness, depression and dry skin. As women age and go through menopause, those symptoms are similar to menopause symptoms, which sometimes prevents an Elder woman from seeking treatment for hypothyroidism. The treatment

for hypothyroidism is thyroid replacement, such as a medication called Levothyroxine. It is a very effective and inexpensive medication.

Hyperthyroidism

Hyperthyroidism is not very common, only 5% of the population have Hyperthyroidism. Since it is not very common, it is not discussed in detail. Hyperthyroidism is when there is too much synthesis and secretion of the thyroid hormone. In an elderly person, the symptoms that are most common are rapid heart rate and apathetic mood changes.

Diabetes

According to the CDC, Native Americans are twice as likely to develop diabetes than any other race or ethnicity. The organ that is mostly responsible for diabetes is the pancreas. The pancreas is located behind the stomach and has two functions. The first function of the pancreas is that it makes enzymes that help digest protein, fats, and carbohydrates. The pancreas also produces the hormone that makes insulin.

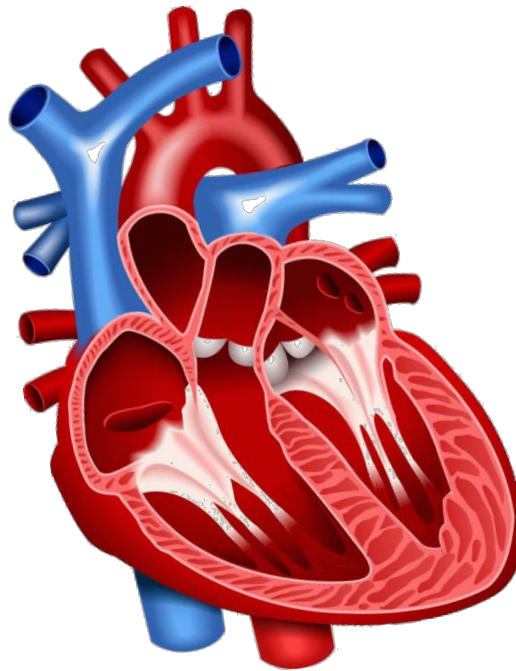
So, when it was mentioned earlier about how cells are the building blocks of the body, it exemplifies how important the cells are in the pancreas. It was also mentioned earlier how the endocrine system controls much of the body's function, this is a good example. In the pancreas, there are specific cells that are responsible for making, storing, and releasing insulin. Insulin plays a major role in controlling sugar in the body. The cells that are responsible for making insulin are known as Beta-cells. These cells are found in the heart as well as in the pancreas. Insulin's main function is to control the amount of sugar in the body. If the sugar levels are not controlled, diabetes may result.

There are two different types of diabetes, Type 1 and Type 2. With Type 1, there is no insulin that is released from the Beta-cells in the Pancreas, so the person with Type 1 diabetes needs to take an insulin injection to control their blood glucose. In Type 2 insulin is still released from the Beta-cells, however, there may be an insufficient amount of Beta-cells to release insulin or the Beta-cells are insulin resistant. Diabetes is discussed further in another section.

CARDIOVASCULAR SYSTEM (6 & 7)

The cardiovascular system is made up of the heart, valves, and vessels. With aging, all of those can be affected. The heart has 4 chambers, the right and left atriums and ventricles. There are valves that control blood flow between the atriums and the ventricles.

The heart's valves thicken and get stiffer, which is a normal part of aging. These changes in the valves result in a decrease of the amount of blood that goes in and out of the heart. When the valves are affecting the amount of blood coming in and out of the heart, the heart has to work harder to get the blood to flow, this results in hypertension.

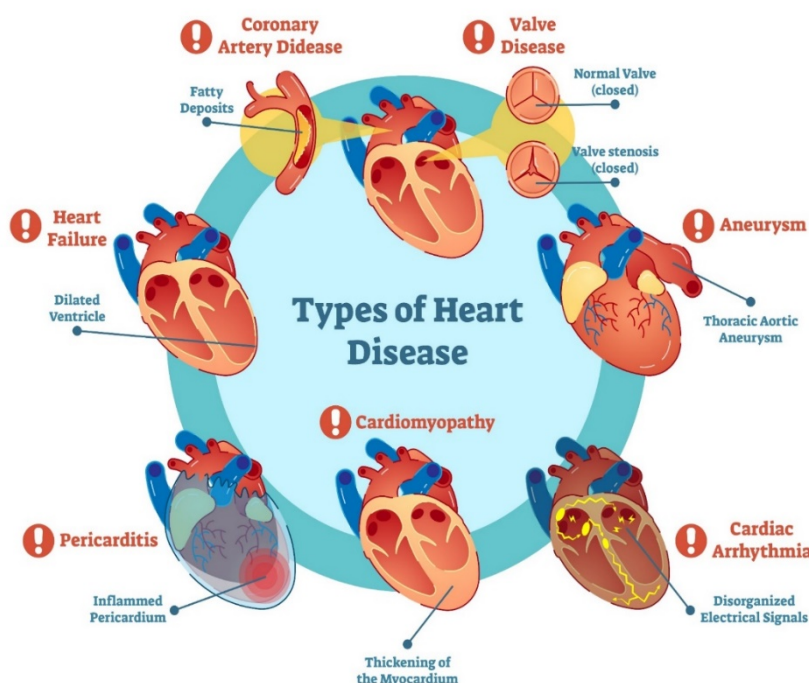


DISORDERS AFFECTING THE CARDIOVASCULAR SYSTEM

There are three main disorders that affect the cardiovascular system, coronary heart disease, heart failure, and heart attack. It is interesting that none of these diseases are specifically related to aging; but because they occur so often in the elderly, it is assumed they occur because of aging.

Coronary Artery Disease

The most expected change as a result of aging are the changes in the heart valves, which was mentioned earlier. There are other extrinsic factors that play a part in coronary heart disease, such as smoking, diet, and lack of exercise. Coronary heart disease is caused when there is a build-up of plaque in the arteries. The hardening of the arteries makes it hard for the blood to flow. The coronary arteries bring blood, oxygen, and nutrients to the heart.



Heart Failure

Heart failure is the end result of other disorders, such as coronary heart disease, hypertension, or diabetes. Heart failure is exactly what it says it is, parts of the heart start to fail, the heart will enlarge as it tries to keep up with the demands of the body, and eventually it will fail.

Heart Attack

A heart attack or myocardial infarction (MI) is when there is not enough oxygen going to parts of the heart, those parts of the heart will eventually die. The heart cannot function unless all 4 chambers are working together. If one of the chambers stops working the heart will fail to pump the blood.

There is pain that can be associated with an MI. The typical type of pain is a tightness, pressure, or squeezing in the chest area.

Another major disorder of the cardiovascular system are cerebrovascular disorders. They used to be called cerebrovascular accidents or CVAs. There are two main categories: transient ischemic attacks or TIAs and strokes.

Transient Ischemic Attacks

TIAs are little strokes that can occur in the brain, they can last about 1 – 5 minutes and often go unnoticed.

Strokes

Strokes are broken down into 3 kinds.

An ischemic stroke is the most common and it is caused by arterial disease. A blood clot occludes the vessel which prevents blood flow along that vessel. A severe headache can warn the person before the stroke occurs, along with weakness and tingling on one side.

The two other types of strokes are hemorrhagic strokes, classified as either subarachnoid or subdural. They are both caused by damage to the vessels, the difference between the two is where the bleeding occurs in the brain. Age is a risk factor for TIAs and strokes. American Indians and Alaskan Natives populations at the highest risk for having strokes.

To treat a stroke, it depends on what kind of stroke it is. It is very important for the person who feels they are having a stroke to get to a hospital right away. An MRI of the head can determine what type of stroke it is. If it is an ischemic stroke, medicine can be given, however, it needs to be given within the first 3 hours of the stroke. The medication is called Recombinant Tissue Plasminogen Activator or rtPA – this is a very potent anticoagulant that can dissolve the clot and allow blood flow to the brain.

With a hemorrhagic stroke, rtPA or anticoagulants would not be used, because the cause of these types of strokes is bleeding in spaces of the brain, either in the subarachnoid space or the subdural space. Using an anticoagulant would cause more bleeding in the brain. Unfortunately, there

are not many treatment options for a hemorrhagic stroke, and the outcome is poor.

PERIPHERAL VASCULAR SYSTEM (6 & 7) (Part of the Cardiovascular System)

Peripheral Vascular Disease

There is confusion between the term's peripheral artery disease and peripheral vascular disease. Peripheral artery disease is specific to conditions that affect only arteries, primarily the arteries in the legs. Peripheral vascular disease encompasses a number of circulatory diseases that includes arteries, veins, and even the lymphatic vessels. (13)

The peripheral vascular system is considered part of the cardiovascular system because it involves the veins and arteries. The normal part of aging associated with peripheral vascular disease or PVD is that the veins or arteries lose their elasticity and narrow.

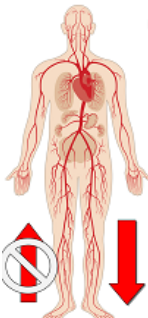
Arterial

Venous

vs.

Skin of lower extremity (color, temperature)

Arterial system



Cool to touch

- Thin, dry/scaly skin
- Hairless
- Thick toenails

“Dr. EP”

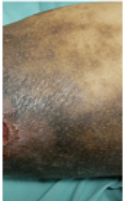
Dangle legs = Rubor

Elevate legs = Pale

Image Credit: Olga Bobot/shutterstock.com

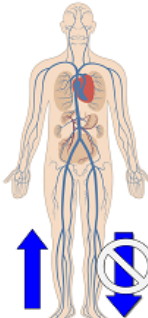
Warm to touch

- Thick, tough skin
- Brownish color



Credit: Casa mayafana/shutterstock.com

Venous system



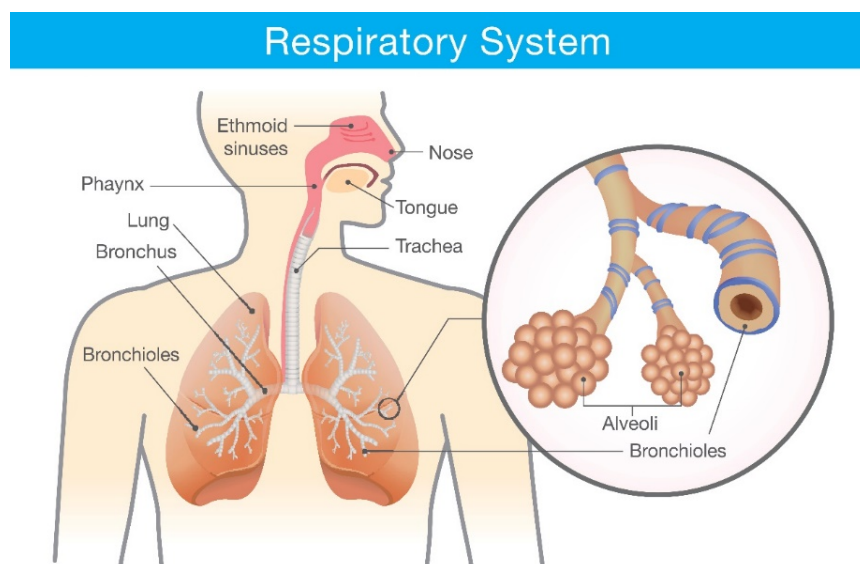
When the veins or arteries are occluded, it affects blood flow. An occluded artery will prevent blood to get to the lower limbs, this can cause loss of feeling or tingling in the limbs, color changes, the limbs will be pale. An occluded vein will prevent blood and fluid to get back into the circulation, this can also cause color changes also, the limbs will be a reddish/brown. An occluded vein can also cause swelling. Both types of occlusions can be

painful and cause sores in the toes, ankles, and legs. PVD can be a result of coronary heart disease and/or diabetes.

RESPIRATORY SYSTEM (7)

The respiratory system starts with the nose and ends with the lungs. In older men, their noses tend to elongate and droop which can affect airflow and cause respiratory issues later. There can be stiffening of the cartilage of the trachea and larynx due to calcification. There is a change in the pitch of voice, women's voices will become deeper, and men's voices will become higher.

The most noted age-related change with the respiratory system is the lowered efficiency of the lungs to exchange oxygen with carbon dioxide in the alveoli, which are tiny air sacs that allow oxygen to get into the blood. There is a loss of elastic recoil which allows the lungs to expand and contract. The loss of recoil can cause the elder to not be able to cough up secretions, this can lead to respiratory infections. It can also lead to the chest wall becoming stiff, sometimes it looks like the person has a 'barrel chest'.



Respiratory problems are common among the elderly; most of the respiratory problems are almost always associated with exposure to environmental toxins, such as cigarette smoke, asbestos, mining, for

example. A good point to remember is that breathlessness in speech is not a normal part of aging.

DISORDERS OF THE RESPIRATORY SYSTEM

Chronic Obstructive Pulmonary Disease

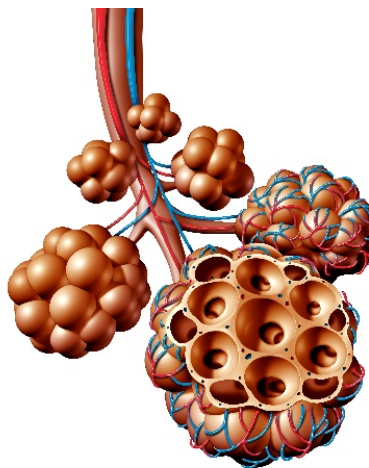
Chronic obstructive pulmonary disease or COPD includes emphysema and chronic bronchitis. Smoking or exposure to smoke, is responsible for 80 to 90% of COPD cases. Environmental factors can also cause COPD, such as asbestos, mining, farming chemicals, dust, and other things from the environment that are inhaled.

Emphysema

Emphysema causes damage to the alveoli. When the alveoli is damaged, it doesn't allow the exchange of oxygen and carbon dioxide, so air gets trapped. Chronic bronchitis is another disorder that falls under the COPD category. Chronic bronchitis is caused by irritation of the lungs. There is inflammation and thickening of mucous membranes.

Asthma, Pneumonia & Influenza

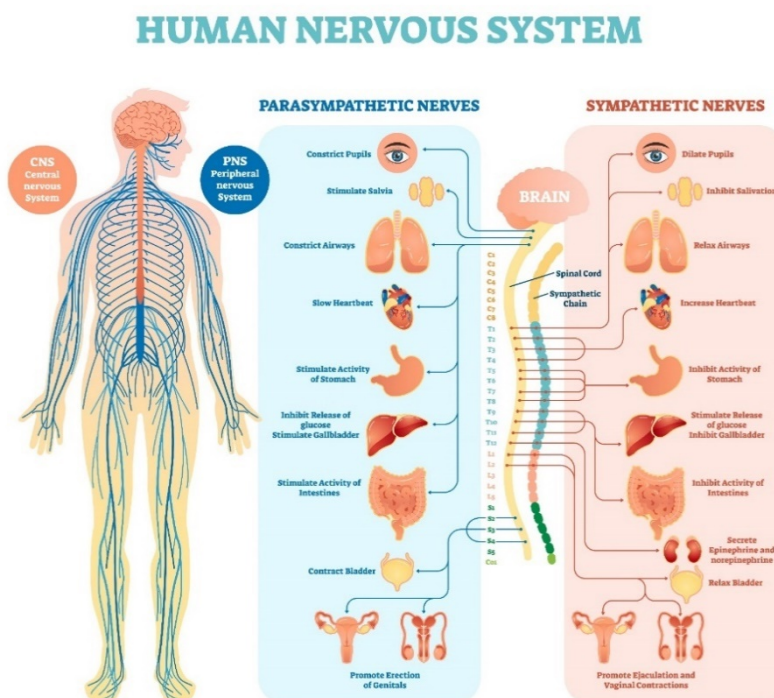
Asthma is not considered a COPD disease, it is an inflammatory disease usually caused by an allergen, or viral or bacterial infections. Other common respiratory illnesses are pneumonia and influenza.



NERVOUS SYSTEM (6 & 7)

The nervous system is made up of two parts: the central nervous system (CNS) and the peripheral nervous system (PNS). The two parts work together to send out information to the body. The CNS is the brain and the spinal cord and the PNS are the nerves that come from the brain and the spinal cord.

The brain will send out information to the nerves in the PNS. There are trillions of nerve cells in the nervous system. An example of how the nervous system works is if someone touches something hot, the pain impulse goes to the brain, the brain tells us that we touched something hot, the brain sends an impulse to the hand to move the hand. This happens in milliseconds.



As we age, there is a decrease in the number of nerve cells, this often results in a slower response time in older people. Slower response times can lead to increased safety concerns. In the example of touching something hot, if there is a decrease in the number of nerve cells then the response time is less, resulting in a potential burn. A slower response time can also cause safety concerns for the Elder when driving.

DISORDERS RELATED TO THE CENTRAL NERVOUS SYSTEM (7)

Disorders of the central nervous system are now classified as neurodegenerative disorders. The word 'dementia' has been replaced in the literature with the phrase neurodegenerative disorders. Neurodegenerative disorders are seen in the elderly more than any other age group. Two of the most debilitating disorders are Alzheimer's disease and Parkinson's disorder.

Alzheimer's Disease

Alzheimer's disease is the most common type of dementia or neurodegenerative disorder. There are multiple system disorders that can cause neurodegenerative disorders; however, most causes are irreversible. This disease will be discussed further in another module.

Parkinson's Disorder

Parkinson's is a neuromuscular disorder which affects both the CNS and mobility. Neurodegenerative disorders are progressive and are considered terminal illnesses.

Age Associated Memory Impairment

It is important to remember that memory impairment is not a normal part of aging; however, some researchers feel that age associated memory impairment is. An example of the difference between Alzheimer's and Age Associated Memory Impairment (AAMI) can be shopping with a grocery list. With Alzheimer's, someone makes out a shopping list for you, when you get to the store you can't remember the shopping list, or you can't figure out what the shopping list says. With AAMI, when you go grocery shopping, you might forget certain items you went for, so you make out the shopping list and pick up the items from the list.

Mental Illness

Mental illness could be considered a central nervous system disorder because the neurotransmitters or chemicals that can cause depression, anxiety, and psychosis are located in the brain. The main chemicals for depression are serotonin and dopamine; those two chemicals are responsible for mood. Dopamine is also responsible for movement, which explains why with Parkinson's there are changes with mood and movement.

DISORDERS AFFECTING THE PERIPHERAL NERVOUS SYSTEM (7)

Peripheral Neuropathy

The second part of the nervous system is the peripheral nervous system or PNS. The major disorder that affects the PNS is peripheral neuropathy. Peripheral neuropathy affects the nerves in the extremities, mostly the lower limbs. It can cause weakness, numbness, and pain. The main cause of peripheral neuropathy is diabetes. When there is a continual excess of sugar in the blood, it can damage the nerves. The damage to the nerves will eventually over time interfere with the nerves ability to send signals to the rest of the body. We talked earlier about peripheral vascular disease, which can also cause pain. The main difference between the two is that peripheral neuropathy affects the nerves and PVD affects the arteries and veins. With PVD there is the possibility of having open sores.



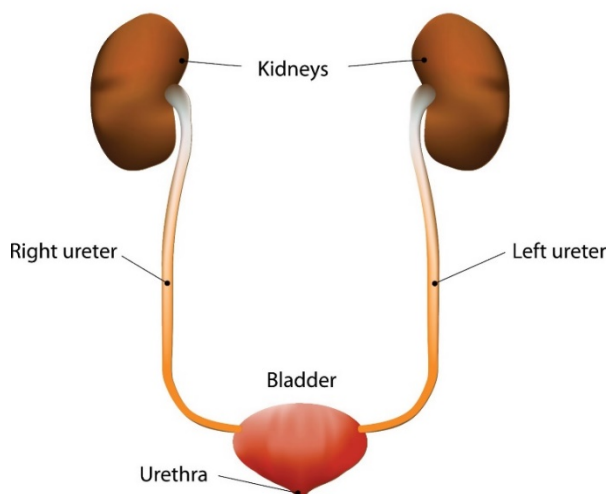
GENITOURINARY (GU) SYSTEM (6 & 7)

The genitourinary or GU system is made up of the kidneys, bladder, ureters, and urethra. The kidneys are located in the middle of the back and are very important to survival. Their main function is to filter out waste and toxins from our bodies. They also release hormones that help regulate blood pressure and control the number of red blood cells produced. The kidneys also concentrate urine and help remove medications from the body.

The kidneys have quite a few functions that are affected with age. The size of the kidneys decreases, which causes a decrease in function. If the kidneys are not working well, medications can build up in the body, which can result in overdosing.

Another part of the genitourinary system is the bladder. With aging comes the need to urinate more frequently, feeling the need to urinate more often, and having to get up more at night. These are all normal symptoms, but they can be made worse due to an enlarged prostate in men or urinary tract infections. The ureters role is to carry urine away from the kidneys to the bladder and the urethra carries urine from the bladder to the outside.

HUMAN URINARY SYSTEM



DISORDERS AFFECTING THE GU SYSTEM (6 & 7)

There are two main disorders of the GU system: urinary incontinence and urinary tract infections.

Urinary Incontinence

There are four different types of urinary incontinence.

1. Urge incontinence or overactive bladder is where the person feels the urge to have to urinate no matter the amount of urine in the bladder.

2. Stress incontinence is the most common type, it is where there is incontinence that occurs if the person sneezes or laughs. This type of incontinence is more common in women and can be related to the number of children they have had because vaginal births can stretch and possible damage the pelvic floor and muscles.
3. Overflow incontinence is when the body makes more urine than the bladder can handle, this can cause frequent urinating in small amounts and constant dribbling.
4. Functional incontinence is where the person just cannot get to the bathroom on time. Urinary incontinence is NOT a normal part of aging.

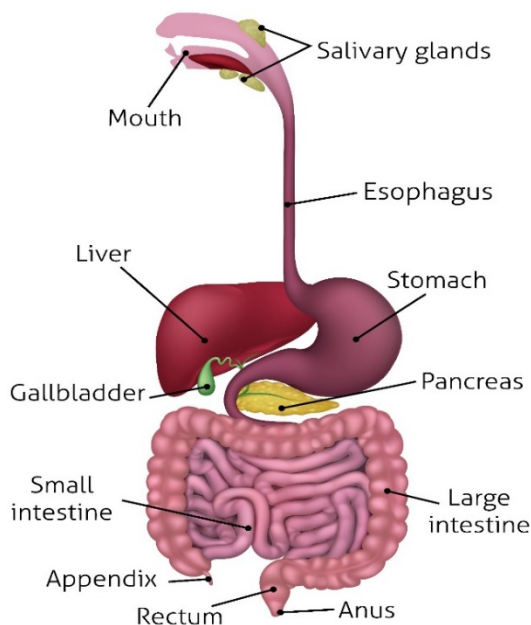
Urinary Tract Infections

The other disorder that occurs in the GU system are urinary tract infections or UTIs. UTIs are more common in women than men. The most common bacteria causing UTIs is E.coli, which comes from feces. It gets introduced into the urethra if women do not wipe from front to back. UTIs in men are less common, usually the result of an enlarged prostate which prevents proper emptying of the bladder. If there is blood when a man urinates, it could be a sign of bladder cancer. The main cause of bladder cancer in men is smoking. Bladder infections can be common in an elderly person, because of the decrease in the number of nerve endings in the bladder, an elderly person doesn't always feel the burning or itching that comes with a bladder infection. One of the first signs of bladder infection in an elderly person can be a change in behavior. If a person has a catheter, a catheter acquired urinary tract infection or CAUTI is common. It is not wise to have a urinary catheter in place for an extended period of time if it can be helped. A UTI is one of the leading causes of death in a frail elderly person.

GASTROINTESTINAL SYSTEM (TRACK) (6 & 7)

The gastrointestinal (GI) system or track starts at the mouth and ends at the anus. Digestion begins with eating and drinking. Aging causes a loss of tooth enamel which can result in loss of teeth or more cavities. The sense of smell is diminished as a person ages, which can result in a loss of taste, impacting their appetite. It takes longer for the stomach to empty due to decreased motility in the GI track. The decreased motility also causes an increase in constipation. There are also certain medications that can affect constipation.

Another organ, besides the stomach, that is in the GI track is the liver. With the aging process, the liver is not as able to break down byproducts of medications and alcohol, due to decreased amount of blood flow. This can result in a buildup of medications in the body. Lastly, there is an increase in the amount of gall stone production as a result of aging.



DISORDERS OF THE GI TRACK (7)

Gastro Esophageal Reflux Disorder

One of the more common disorders of the GI track is Gastro Esophageal Reflux Disorder otherwise known as GERD which occurs in the esophagus. As a person ages, the contractions of the esophagus increase, however the contractions are disordered and less effective which can cause a reflux of gastric juices.

Inflammatory Bowel Disease

Inflammatory bowel disease occurs in the small intestine. The small intestine is approximately 20 feet long, it twists and turns in the abdominal cavity. The two common diseases that fall under the category of inflammatory bowel disease, ulcerative colitis and Crohn's disease. They are considered an autoimmune disorder in which the body attacks themselves. These two

diseases can be very disruptive to an Elder. Both diseases can cause cramping and diarrhea, which can prohibit the Elder from leaving their home.

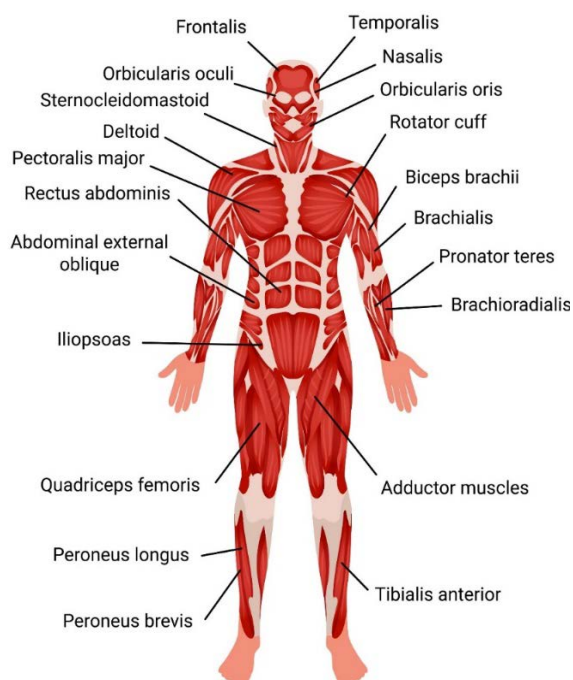
Liver Function

The liver is one of the most important organs in the GI track. It has many functions. It produces bile which helps with digestion by breaking down fats. The liver is also the primary site for metabolism of most of the toxic substances we take in. It metabolizes medications and alcohol. In aging the liver reduces in size which results in decreased blood flow which ultimately affects the liver's ability to metabolize medications. A person cannot live without a liver, but they can live with part of one, the liver is the only organ that can regenerate itself.

MUSCULOSKELETAL SYSTEM (6 & 7)

The musculoskeletal system is made up of muscles, bones, joint, tendons and ligaments. There are many unavoidable changes in the musculoskeletal system due to aging. There is a decrease in muscle bulk and muscle strength as well as a decrease in lean body mass. Muscle mass can continue to build until the age of 50, by age 90, our muscle mass has decreased by 30-40%.

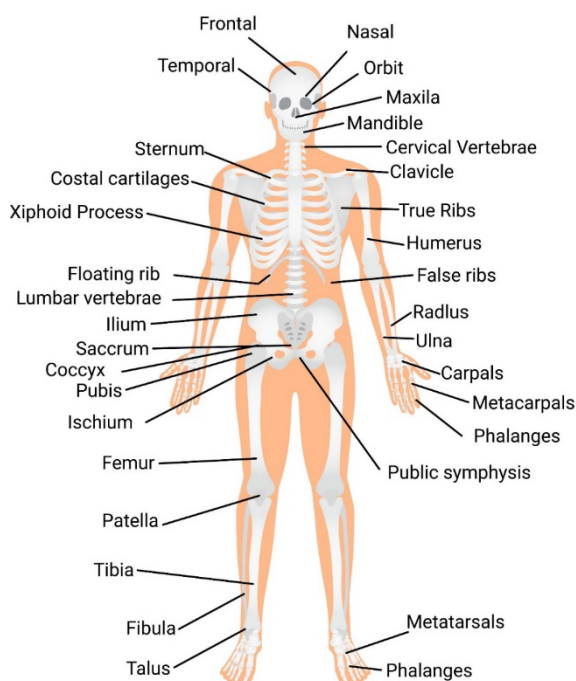
MUSCULAR SYSTEM



Skeletal System

With aging, there is a loss of bone tissue which can result in decreased strength of bones. There is a decrease amount of minerals that is deposited in the bones which makes them brittle. Often providers will check an Elder's bone mineral density (BMD). BMD will decrease as a person ages. A decreased BMD is 4 times more common in women than men, it is thought to be associated with hormonal changes in women. If the BMD is decreased in men, it is thought to be due to prolonged steroid use, especially with body builders who use steroids.

SKELETAL SYSTEM



Joints, Tendons, & Ligaments

Joints, tendons, and ligaments are also affected by aging. Elders will experience a decrease in their range of motion, strength and flexibility. The cartilage in joints becomes drier and thinner which makes the joint more rigid. If the cartilage becomes more fragile and is no longer between the joint, bone rubs on bone causing pain.

The cartilage may decrease in between the joints, but it continues to grow in a person's nose and ears, especially in men. So, men's noses and ears tend to get longer. As a result of aging, the spine may compress and there can be a loss of height up to 3 inches. If the Elder feels they are getting shorter,

they really are! Another effect of aging is a person's shoulder width decreases while their chest width and pelvis width increases.

Feet

Another body part affected in the musculoskeletal system are the feet. There are many common foot problems that occur during aging. The Elder may experience corns, calluses, bunions, hammertoe, fungal infections, and plantar fasciitis, which is heel pain. The skin on the foot becomes drier, toenails become brittle and thick, there may be a fungal infection in the toenail. Toenails can become difficult to cut because they crumble and are too thick. There can be degenerative joint disease in the feet with can decrease an Elder's range of motion.

DISORDERS AFFECTING MOBILITY (7)

Osteoporosis

Osteoporosis is one of the main disorders that affect mobility. The bones weaken and break easily. It is more common in women because of the loss of estrogen as the woman ages. We have already discussed Parkinson's disease, which is considered a neuromuscular disease, it is mentioned here as a reminder that the neurotransmitter dopamine affects mobility. In Parkinson's there is a loss of dopamine, which results in mood changes and affects the mobility of the Elder.

Arthritis

As mentioned earlier, in the Needs Assessment conducted in 2017-2019 by the National Resource Center of Native American Aging, over 45% of Native Americans over the age of 55 have arthritis. There are two types of arthritis: Osteoarthritis and Rheumatoid arthritis. Osteoarthritis is the most common type of arthritis. It is an inflammatory process that involves cartilage, ligaments, and bones. The joints that are most affected are the knees, hips, hands, and spines. With osteoarthritis the Elder will be stiffer in the morning or when they wake up, and the stiffness often goes away throughout the day. Rheumatoid arthritis is an inflammatory process also, but it is an autoimmune disorder. The pain and stiffness they experience lasts more than 30 minutes after the Elder wakes up. Rheumatoid arthritis can be more acute in older adults.

Falls

The NRCNAA's Needs Assessment conducted in 2017-2019 found that over 40% of Native American Elders experience falls. Falls are a major safety issue for the elderly. Falls are one of the leading causes of morbidity and mortality. The consequences of falls are hip fractures and traumatic brain injury (TBI). Falls are responsible for 95% of hip fractures. Hip fractures are the 2nd leading cause of hospitalizations among the elderly. Hip surgery can be a long and difficult surgery to recover from. Traumatic Brain Injury or (TBI)s can occur if the Elder falls and hits their head. It is often missed and misdiagnosed. Most times, an Elder that experiences a TBI will have a poor outcome.

Causes and consequences of falls:

Causes:

- ❖ Osteoporosis
- ❖ Visual acuity
- ❖ Cognitive impairment
- ❖ Postural hypotension
- ❖ Postural hypotension
- ❖ Cardiac arrhythmias
- ❖ Uncontrolled diabetes
- ❖ Depression
- ❖ Weakness
- ❖ Medications

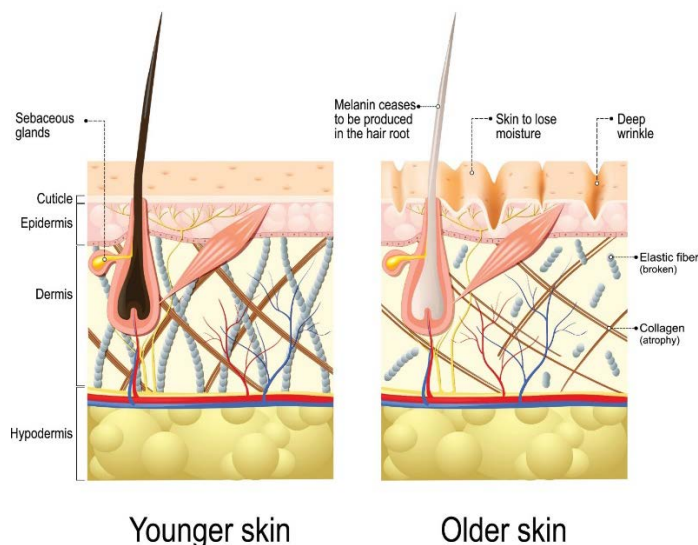
Consequences:

- ❖ Hip fractures
 - 95% caused by falls
 - 2nd leading cause of hospitalizations
 - Increased morbidity/mortality
 - Difficult recovery
- ❖ Traumatic Brain Injury (TBI)
 - Often misdiagnosed
 - Poor outcomes

INTEGUMENTARY (SKIN) SYSTEM (6 & 7)

The skin is the largest organ of the body and is the major defense against infections. The first change we tend to see in the skin as a result of aging is wrinkles. Aging skin has less elasticity causing the skin to become thinner and dryer. The Elder may be more sensitive to ultraviolet light, meaning they may experience sunburns more easily and often. Blood vessels in the skin decrease as a result of aging. This decrease can cause an increase in infections, if there is a cut or wound in the skin or surrounding tissue, there is delayed wound healing. There is also a loss of sense of touch. An Elder may experience the loss of sense and pressure and have difficulty responding to heat and cold meaning their body is less able to regulate body temperature. The temperature of an elderly person is lower than a younger

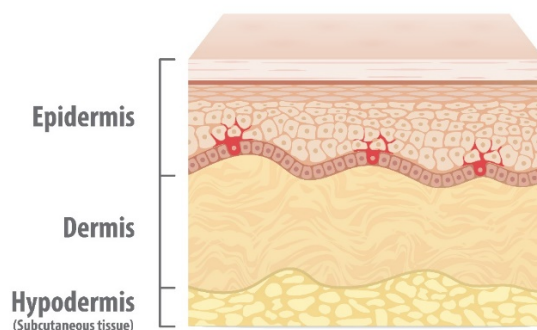
person. It is not uncommon for the Elder's body temperature to be 97° or lower.



Layers of the Integumentary System

There are 3 layers of skin, the epidermis, dermis, and hypodermis. The epidermis is the top layer. Skin cells in the top layer are able to renew themselves every 30 days. The middle layer is called the dermis it contains the elastin fibers that thicken and fragment which results in loose skin. The Elderly are more prone to skin tears. The last layer is the hypodermis, this is where the subcutaneous fat is located.

LAYERS & CELL STRUCTURE OF SKIN



DISORDERS OF THE INTEGUMENTARY (SKIN) (6 & 7)

Because the skin is our first line of defense, it is important to prevent injury to the skin. Skin tears occur very easily as the Elder's skin becomes thinner and looser, the tear usually occurs in the first and second layer of skin.

Pressure Ulcers/Sores

A more serious disorder in the integumentary system is the development of pressure ulcers or pressure sores. Pressure ulcers used to be called bedsores or decubiti ulcers; however, they do not call them that anymore. A pressure sore can develop from prolonged sitting or lying in one place without changing positions or the use of a pressure relieving mattress. Many times an 'egg-crate' mattress is applied to the bed or chair but it is important to realized that an egg crate mattress is for comfort only, it does not relieve pressure. Obesity and urinary or bowel incontinence are also risk factors for developing pressure sores. If a pressure sore does develop, it is staged.

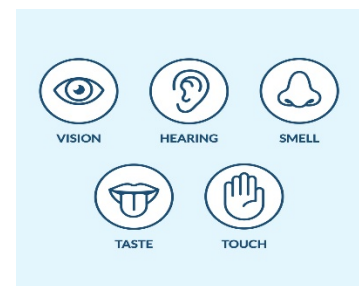
Stages

Most providers will use the 4-stage method. Stage 1 is when there may be redness of the area and it does not blanch. Blanching is when you press on the area and it does not go back to its original color. Stage 2 is where there is partial-thickness loss of the skin and the dermis is exposed. Stage 3 is full-thickness skin loss. Stage 4 is the one of the worst stages, and the hardest to heal. A stage 4 pressure ulcer is full-thickness skin and tissue loss, and it may be possible to see bone. An Unstageable pressure ulcer is past the 4th stage and has exposed bone. When the pressure ulcer is healing, it does not heal to a lesser stage. For example, a Stage 3 pressure ulcer does not heal to a Stage 2 pressure ulcer, it is be considered a Stage 3 healing.

SENSORY SYSTEM (6)

The sensory system is made up of the 5 main senses:

- ❖ vision
- ❖ hearing
- ❖ smell
- ❖ taste
- ❖ touch.



The sense of smell commonly decreases after the age of 60. This can be dangerous if an Elder is unable to smell a gas leak or smoke. If the sense of smell is lost, the sense of taste is affected. There are over 9,000 taste buds on the human tongue at around age 60–70, the amount of taste buds declines. The sense of touch is associated with the nervous system, if there is nerve damage, the sense of touch can be decreased. An elderly person may not be able to tell that they have placed their hands on a hot surface until the hand starts to burn.

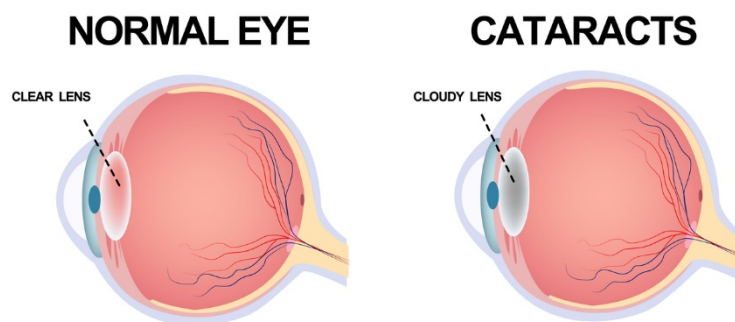
DISORDERS OF THE SENSORY SYSTEM (6)

Disorders of the sensory system revolve mostly around the eyes and ears. In the eye there are four major disorders:

- ❖ Cataracts
- ❖ Glaucoma
- ❖ Diabetic Retinopathy
- ❖ Macular Degeneration

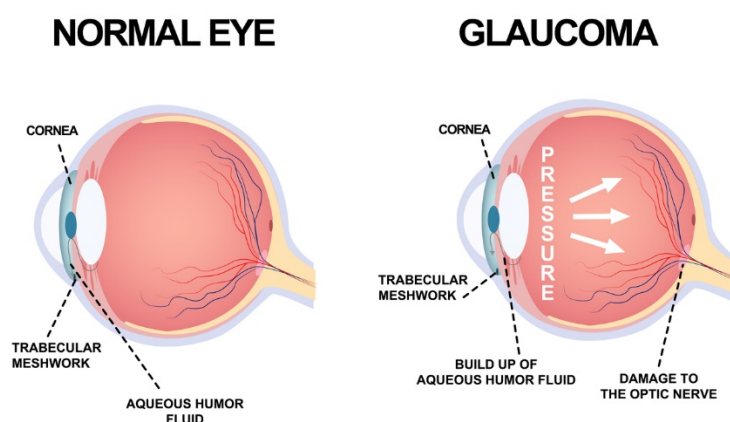
Cataracts

Cataracts are caused by the build-up of crystalline proteins that make up the lens. The lens becomes cloudy and the eye may appear white. The person's vision becomes blurry. Surgery is possible in which the lens is removed.



Glaucoma

Damage to the optic nerve is caused when the intraocular pressure in the back of the eye increases. The increase in pressure leads to vision loss. There are two types of glaucoma: open-angle and closed-angle. Open-angle glaucoma is the most common. Intraocular pressure increases and it prevents flow of the fluid (aqueous humor), the fluid builds up and causes the intraocular pressure. The Elder is able to see things in the center of their vision, but not peripherally. There are eye drops that can help reduce the pressure and improve eyesight.



Diabetic Retinopathy

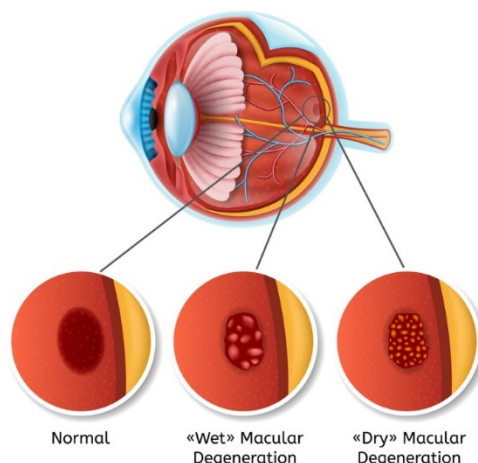
Diabetic Retinopathy is a microvascular disease of the eye. It is caused by damage to the blood vessels in the tissues in the back of the eye. It can occur in both Type 1 and 2 diabetes. Controlling diabetes can help prevent Diabetic Retinopathy. After a person is diagnosed with diabetes, they should have an eye examination. Laser therapy can repair the microaneurysms that occur.

Macular Degeneration

Age-Related Macular Degeneration (ARMD) is one of the most common causes of blindness in the elderly. It is a degenerative disorder of the macula, which is in the back of the eye. The macula is probably the most important part of the eye; it contains the main focusing point of the eye. Drusen (similar to cholesterol) builds up on the retina of the eye. More buildup of Drusen causes central vision loss. There are two types: wet and dry. The wet type occurs more suddenly while the dry type is more common and progresses slower. Laser surgery can treat the wet type, there currently

is no treatment for the dry type. Both types of Macular Degeneration will cause central blindness, the Elder can still see out of their peripheral vision.

Macular Degeneration



Presbycusis

Hearing loss is common in older adults. About 40% of those over age 63 and 64% of those over age 80 will have difficulty hearing. Gradual hearing loss is known as Presbycusis. Hearing aids and assistive hearing devices can be helpful for hearing loss.

REPRODUCTIVE SYSTEM (6 & 7)

There are reproductive changes in women and men associated with aging. Women go through menopause around 50 years of age, with it a decrease in the amount of estrogen production. The decrease in estrogen puts the elderly women at risk for osteoporosis and coronary artery disease. The decrease in estrogen can also cause vaginal dryness and an increased risk for osteoporosis and coronary artery disease.

Men will experience a decrease in reproductive function as they age. There may be a decrease in sperm motility; however, an elderly male can still impregnate a female of childbearing age. Older men may also experience erectile dysfunction. An enlarged prostate, known as benign prostatic hypertrophy or BPH, which occurs in the male as they age can cause difficulty urinating.

SLEEP PATTERNS (6 & 7)

As we age, our sleep patterns change. An elderly person may sleep less in shorter blocks of time or it may take them longer to fall asleep. They also may wake up earlier. Restless Leg Syndrome (RLS) can affect the Elder's ability to sleep. Aging adults may feel like they are not getting enough sleep because of their sometimes-erratic sleep patterns. A provider may ask the Elder to keep a sleep diary, which may show that the Elder is getting plenty of sleep, just not all at one time like they used to when they were younger.



INTERVENTIONS FOR SLEEP ALTERATIONS

There are a number of interventions that can be helpful when trying to improve sleep. Sleep apnea is the condition when a person stops breathing during sleep. Weight loss can help diminish with sleep apnea; however, and interestingly, sleep apnea can also cause obesity because of the slower metabolism that occurs when the sleep pattern is interrupted. The use of a CPAP machine can be used to provide air to the person which helps them breath. Changing sleeping positions, avoiding alcohol and quitting smoking can help with sleep. Adjusting the environment such as lighting or noise, may also be helpful. Lastly, medications, such as Melatonin can be used.

To end this session, think about a couple things:



Tłáħča Hušté - Lame Deer

Lame Deer stated "with us the circle stands for the togetherness of people who sit with one another around a fire...all the families in the village were in turn circles within a larger circle, part of the larger hoop of the nation." (1)

Let us also remember:



ASK YOUR ELDERS AND THEY WILL TELL YOU...

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SECTION 2: HEALTH DISPARITIES

OBJECTIVES

At the end of the section, participants will:

1. Better understand health disparities
2. Identify common diseases that elderly American Indian people experience more often than the general population
3. Identify community strategies that can help to reduce rates of chronic disease in American Indian populations

“THINGS TO THINK ABOUT”

Health disparities are a severe health reality in Indian Country. Tribal responses to this reality need to approach health disparities from a position of strength, drawing from the culture and traditions of each Tribe.

“Historically, American Indian and Alaska Native communities have had limited access to quality healthcare. One outcome of treaties between American Indian and Alaska Native communities and the federal government is that all federally recognized tribes have a right to healthcare services. The Indian Health Service (IHS) was created to meet this federal commitment”.
(1)

“Although there are 574 federally recognized tribes to date, there are many more tribes still seeking federal recognition. Therefore, some American Indians and Alaska Natives are not eligible for IHS services. To further compound challenges, IHS services are primarily focused in rural areas although 78 percent of American Indians and Alaska Natives now live in cities and urban areas. Disparities in health are a major issue in American Indian and Alaska Native communities and stronger advocacy is still required to address these pressing needs”. (1)

HEALTH DISPARITIES

Health disparities as defined by the Centers for Disease Control and Prevention are: *“preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by socially disadvantaged populations.* (2) Emlet (2016) defines health disparities as “Variations in health that negatively affect group of people who have systematically experienced greater social or economic obstacles to health, historically linked to discrimination or exclusion”. (4)

The definition of health equity is “every person has the opportunity to attain his or her full health potential” and no one is “disadvantaged from achieving this potential because of social position or other socially determined circumstances”. (2)

Healthy People is a report put out by the Federal Government every 10 years. Healthy People uses “data-driven national objectives to improve health and well-being over the next decade”. (5) Using information from the 2015 National Healthcare Disparities Report, Healthy People 2030 states that “white patients receive better quality of care than 36.7% of Hispanic patients, 41.1% of black patients, 32.4% of American Indian/Alaska Native patients, and 20.3% of Asian and Pacific Islander patients”. (5)

It is recognized that differences in health among different groups are rooted not only in “biology”, but in the “social determinants of health”. These “social determinants” include influences such as: socioeconomic status, access to health care, the physical environment and social environment we live in, as well as literacy/education levels and legislative structures. (3)

A major indicator of health disparity can be seen in statistics related to life expectancy of populations in the U.S. The average life expectancy for American Indian people varies by region, but overall, it is lower than that of the general population.

The Indian Health Service (2009-2011) reported that American Indians and Alaska Natives have a life expectancy that is “5.5 years less than the U.S. all races population (73.0 years to 78.5 years, respectively”. (6) However, in some regions of the country, life expectancy could be impacted quite a bit harder by the social determinants of health.

Examples of Disparities in Chronic Diseases among Native Elders

For some diseases, there appear to be lower rates by region. Compared to the U.S. general population, elderly Native people are more likely to experience certain health conditions. The following information is also found in Section 1: Normal Age Related and Expected Changes in Aging: (7, 8 & 9)

According to the CDC in 2017, some of the leading causes of death among Native Americans were heart disease, cancer, diabetes, liver disease, respiratory diseases, and stroke. In men 45 and older, heart disease was the number one cause of death, and cancer was the second. In women of the same age, cancer was the leading cause of death with heart disease being the second leading cause of death.



The National Resource Center on Native American Aging's (NRCNAA) survey, Identifying our Needs: A Survey of Elders VII, was conducted from 2017-2020. According to their findings, the top five chronic conditions facing Native Americans 55 years of age and older are High Blood Pressure; Arthritis; Diabetes; Cataracts; and Depression.

- ❖ *High Blood Pressure – 57.5%*
- ❖ *Arthritis – 45.3%*
- ❖ *Diabetes – 35.3%*
- ❖ *Cataracts – 20%*
- ❖ *Depression – 14.1%*

- ❖ *In addition, 41.1% of Native Elders report having experienced one or more falls in the past year.*

Causes of Health Disparities

Several causes can be identified that contribute to health disparities, most of which are closely linked to the social determinants of health. A report from U.S. Health and Human Services identifies the following as some causes: (10)

- ❖ Lack of insurance
- ❖ Significant differences in the composition of healthcare workers
- ❖ Reduced access to health resources and services

Other reported causes identified are: (3)

- ❖ Racism/Discrimination
- ❖ Historical Grief
- ❖ Lower socioeconomic resources
- ❖ Distance from services/transportation issues
- ❖ Housing issues
- ❖ Social or environmental stressors

Response to Health Disparities (3)

In order to prevent health disparities, it is necessary to be aware of their roots in social, historical, cultural, economic and environmental issues which impact health care and health status. Promoting quality care of Native Elders will require addressing the health disparities, as well as promoting health and prevention strategies.

Some of the health disparities could be reduced through focused community-based programming. For example, there is more “evidence-based” information that is effective for preventing and controlling hypertension (which can lead to stroke) and diabetes (which can lead to amputation, blindness, kidney failure). Taking an “empowered path” could lead to a plan to get this information directly into the hands and homes of Elders and their caregivers.

It may be helpful for Tribal community members to look to the resilience of Tribal Nations to approach health disparities from an “empowered” perspective, rather than from a “fatalistic” perspective. It may be helpful to

think about combating health disparities in terms of the “glass is half-full” versus the “glass is half-empty” analogy. The “half-empty” glass or “fatalistic” view might be stated something like this: *“Well, according to the high disease rates, it just seems that more American Indian people just get sick... that’s just the way it is.”* In contrast, drawing from the unique strengths of Tribal culture and values, the “glass is half-full” proposes a perspective of empowerment that might be verbalized like this: *“Well, there is a lot of scientific knowledge out there to prevent many of the chronic diseases that we see hurting the people in our communities. It is possible to reduce the risk for these illnesses by reducing the risk factors we now know about. Maybe together we can do something to reduce these diseases in our communities, and especially for our children in the future.”*

Tribal communities can be encouraged at a “grass roots” level to make a collective choice to follow an “empowered path” to address health disparities, although it will take time. As some Native Elders have been heard to say, “it has taken a couple of generations to develop these problems, it may take a couple of generations to remedy them”. Health disparities *can* be reduced for future generations, and the time to decide to be rid of them in future generations is now.



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SECTION 3: LIVING WITH CHRONIC CONDITIONS

In this section we will discuss some of the common chronic conditions Native Elders experience.

OBJECTIVES

1. Identify the most common chronic diseases experienced by American Indian Elders.
2. Learn about common chronic health conditions that many elderly live with on a day-to-day basis.
3. Learn to focus on the “care” of the person with the chronic health condition, when a “cure” is not possible.
4. Discuss treatment and interventions available for chronic health conditions.

“THINGS TO THINK ABOUT”

The National Resource Center on Native American Aging (NRCNAA) survey of Elders, *Identifying our Needs: A Survey of Elders VII* (2017-2020) found the following top five chronic conditions facing Native Americans 55 years of age: (1)

- ❖ High Blood Pressure – 57.5%
- ❖ Arthritis – 45.3%
- ❖ Diabetes – 35.3%
- ❖ Cataracts – 20%
- ❖ Depression – 14.1%
- ❖ In addition, 41.1% of Native Elders report having experienced one or more falls in the past year.

In the “Normal Age Related and Expected Changes in the Elderly” section of the NECC, we review body systems changes and diseases associated with those changes. This section will focus on more detail for several of the chronic diseases or conditions mentioned above.

The main goal for individuals of living with chronic conditions is to be able to perform functional abilities of daily living vs. curing the condition. Chronic conditions tend to be lifelong, with no cure; however, many times there are treatment options available. Another goal is to receive appropriate treatments to maintain quality of life.

HEART DISEASE

Hypertension

Hypertension (high blood pressure) is one of the most important preventable contributors to cardiovascular disease and death. It is asymptomatic and is often called the “silent killer”.

Hypertension is one of the more prevalent disorders among the elderly and is one of the most common diagnosis seen in primary care. It contributes to 45% of deaths due to heart disease and 51% of deaths due to stroke. (2)

Blood pressure (BP) is defined as normal, elevated or stages one or two. Hypertension is diagnosed if either the systolic or diastolic numbers are above the normal range. The systolic number is the top number and diastolic is the bottom number. The systolic number measures the amount of pressure in the arteries when the heart beats, and the diastolic measures the pressure in the arteries between heart beats, when the heart is at rest. Both the systolic and diastolic can rise with age. (2)

- ❖ Normal BP
 - Systolic below 120
 - Diastolic below 80
- ❖ Elevated BP
 - Systolic between 120 - 129
 - Diastolic below 80
- ❖ Stage One
 - Systolic between 130-139 or
 - Diastolic between 80-89
- ❖ Stage Two
 - Systolic greater than or equal to 140 or
 - Diastolic greater than or equal to 90



Types of Hypertension

Primary hypertension is the most common type of high BP. It does not have a known cause; however, it is thought to be from genetics or environmental factors.

Secondary hypertension is caused by other factors such as renal disease or sleep apnea. Often a person's BP raises because they are in their providers office, this is known as 'white coat hypertension. To accurately diagnosis hypertension there must be an average of 2 more readings that outside the normal values on 2 or more occasions. (2)

There is another type of BP that is measured in the elderly. It is not a hypertension, but a HYPOTENSION. Orthostatic or postural hypotension is a drop in BP when there is a position change, such as going from a lying to sitting or sitting to standing. Either there is a decrease in the systolic number by 20 points or a decrease in the diastolic number by 10 (or both). This type of hypotension can cause dizziness, lightheadedness, fainting, or falls. (2)

Changes in the Cardiovascular System

Changes in the cardiovascular system is what causes high blood pressure. The increase in cardiac output causes an increase in the amount of blood volume pumped through the heart. Cardiac output is the "amount of blood the heart pumps through the circulatory system in a minute. The amount of blood put out by the left ventricle of the heart in one contraction is called the stroke volume. The stroke volume and the heart rate determine the cardiac output. A normal adult has a cardiac output of approximately 5 quarts of blood per minute". (3)

There is also an increase in peripheral resistance. Peripheral resistance occurs in aging as the valves thicken and become more rigid. The changes in the valves results in a decrease in the amount of blood going in and out of the heart. When the valves are affecting the amount of blood coming in and out of the heart, the heart must work harder to get the blood to flow, this results in hypertension. (2)

Contributing Factors

Contributing Factors for hypertension include:

- ❖ Aging – major factor
- ❖ Obesity
- ❖ Stress
- ❖ Diabetes
- ❖ Lifestyle factors
 - Smoking

Management of Hypertension

There are non-pharmacological interventions, such as lifestyle modifications and pharmacological interventions to manage high BP. Sadly, patients find it easier to choose the pharmacological interventions vs. modifying their lifestyle. (2)

Treatment for the different types of hypertension include:

- ❖ Normal BP
 - Yearly evaluation
- ❖ Elevated BP
 - Goal of treatment is a BP less than 130/80
 - Start with non-pharmacological interventions
 - Reevaluate in 3 – 6 months
- ❖ Stage 1
 - Goal of treatment is a BP less than 130/80
 - Begin with non-pharmacological interventions along with an antihypertensive medication
 - Reevaluate in one month
- ❖ Stage 2
 - Goal of treatment is a BP less than 130/80
 - Begin with non-pharmacological interventions along with two antihypertensive medications from different classes
 - Reevaluate in one month

Living with Hypertension

It is recommended if the Elder is newly diagnosed with any type of hypertension (elevated, Stage 1 or Stage 2), non-pharmacological interventions should be started. Non-pharmacological interventions include making lifestyle modifications. Lifestyle modifications can be difficult, it is almost impossible to make them all at once. For a better chance of success, have the Elder start with just one or two changes. Additional modifications can then be implemented. Changing the diet and stopping smoking are probably the two most important, and usually the hardest to change. Support is needed from caregivers and providers as modifications are made.

(2)



Lifestyle modifications include:

- ❖ Diet - Low or reduced salt intake
- ❖ Stop smoking
- ❖ Exercise
- ❖ Weight loss
- ❖ Control blood sugar
- ❖ Limit alcohol intake
- ❖ Reduce stress

If antihypertensive medications should be started, below is the list of common categories of medications, with an example of a medication under each category. (5)

Common blood pressure medications include:

- ❖ Thiazides
 - Hydrochlorothiazide (HCTZ)
- ❖ Calcium Channel Blockers
 - Amlodipine
- ❖ Angiotensin Converting Enzyme Inhibitors (ACEIs)
 - Lisinpril
- ❖ ARB (Angiotensin Receptor Blockers)
 - Losartan
- ❖ Beta Blockers
 - Metoprolol

Thiazides are recommended by the Joint National Committee on High Blood Pressure (JNC 7) as the initial medication when Stage 1 has been met. It can be used alone or with other medications. (5)

Calcium channel blockers are effective in elderly patients. They bind to the calcium channel in the vascular smooth muscle, which results in vasodilation, ultimately decreasing blood pressure. (5)

ACE inhibitors are the drug of choice for those who have hypertension, chronic kidney disease and have protein in their urine. Their mechanism of action is relaxing veins and arteries to help lower blood pressure. They inhibit the body from making angiotensin II, which narrows blood vessels. An ACE inhibitor is not recommended for someone with kidney disease. (5)

ARBs are used if the patient cannot tolerate ACE inhibitor. They have similar mechanisms as an ACE inhibitor, so the two medications cannot be taken together, because they would compete against each other. (5)

Beta blockers mechanism of action is they mainly slow the heart down by blocking hormones such as adrenaline. They are generally not known as 1st line anti-hypertension agents. They are often prescribed if the elderly person has heart failure or diabetes, or they have had a Myocardial Infarction (MI). This category of medications should be used with caution if the person has asthma or severe Chronic Obstructive Pulmonary Disease (COPD). One thing to keep in mind is that if the Elder is taking an eye drop for glaucoma, such as Betaxolol or Timolol; they can also reduce blood pressure since these are in the Beta blocker category. (5)

Heart Failure

Heart Failure is caused when there is damage to the myocardial structure and/or functional changes of the heart. Heart failure occurs in 20% of those 40 years and older. There is a 5-year mortality rate of 50%. Heart failure is the 4th most common discharge diagnosis from the hospital for those over the age of 65, hospital readmissions within 30 days after discharge increase the mortality rate. In the general population, heart failure is more common in men, yet in long-term care (LTC) settings, heart failure is more common in women. This is probably because women tend to have a longer life expectancy and make up most of the residents in a LTC facility. African Americans have the highest rate of heart failure, and it is felt that it is believed to be related to diet. (2)

Risk Factors

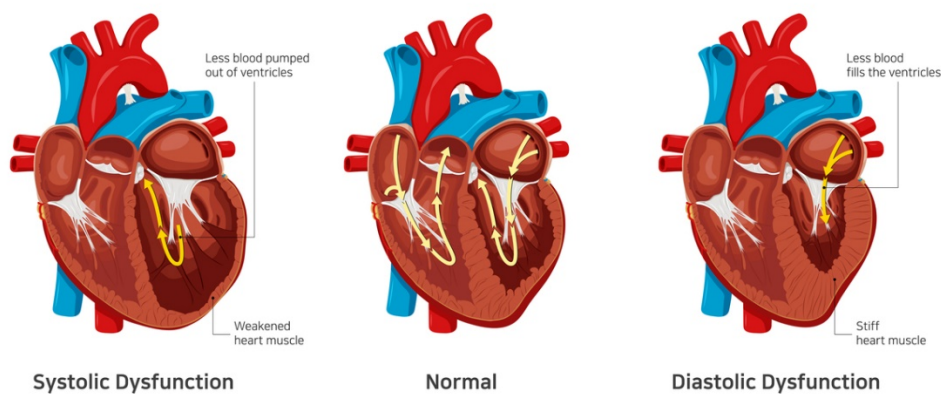
There are non-modifiable and modifiable risk factors. Non-modifiable risk factors are things that cannot be changed, such as gender, race, and age. Modifiable risk factors are things that can be controlled. Examples of modifiable risk factors are things like tobacco use, systolic BP greater than 140 mm Hg, blood glucose greater than 125 mg/dL, elevated cholesterol, obesity and lack of exercise. (2)

Types of Heart Failure

The heart constantly delivers oxygen-rich blood to the brain and extremities as well as transporting oxygen-poor blood from the brain and extremities to the lungs where it gets oxygen. From the body, blood flows into the right atrium through the tricuspid valve into the right ventricle. From the right ventricle blood flows through the pulmonary valve into the pulmonary artery into the lungs. In the lungs it picks up oxygen, goes into the left atrium through the mitral valve into the left ventricle through the aortic valve into the aorta and out to the body. (7)

HEART FAILURE

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There are two types of heart failure, left sided and right sides. The left ventricle works the hardest of all the chambers, so it is larger. In left sided heart failure, the heart fails to pump blood into the body. If the heart fails to pump blood, then it starts to back up into the lungs which is what causes the shortness of breath, fatigue, and abnormal lung sounds from the fluid in the lungs. Right sided heart failure is a result of left sided heart failure. As the fluid builds up in the lungs, it backs up into the right side of the heart, which in turn causes fluid buildup in the extremities. In essence, heart failure is the reverse of how the blood flows in the body. (7)

Signs and Symptoms (6)

There are several sign and symptoms of heart failure. They include:

- ❖ Shortness of breath upon exertion, and even at rest
- ❖ Chest pain/pressure and palpations
- ❖ Tachycardia (fast heart rate)
- ❖ Fatigue and weakness
- ❖ Nocturia (frequent nighttime urination and oliguria (absence of urine)
- ❖ Anorexia, weight loss, and nausea
- ❖ Distention of neck veins
- ❖ Weak, rapid, and thread pulse
- ❖ Rales and wheezing in the lungs

Diagnosing

Diagnosing heart failure is done by reviewing symptoms a person is experiencing. However, there are also blood tests that are performed, such as electrolytes (sodium and potassium are the main ones), renal and liver function tests, chest x-rays and arterial blood gases. (6)

Living with Heart Failure

Treatment includes non-pharmacological and pharmacological options. These can include non-pharmacological options mostly manage a person's symptoms. Such as oxygen for shortness of breath, reducing salt intake in the diet, and limiting the amount of fluid intake. An Elder who has heart failure should be instructed to monitor their weight daily or at least weekly. The Elder should exercise as appropriate. (6)

Pharmacological treatments can be complicated. Some of the same medications used for managing hypertension are also used for managing heart failure. These medications can be added:

- ❖ Diuretics
 - Furosemide (Lasix)
- ❖ Vasodilators
 - Enalapril (Vasotec)
- ❖ Anticoagulants
 - Aspirin low dose
 - Warfarin (Coumadin)
 - Lovenox
- ❖ Digoxin
 - Lanoxin

Diuretics can reduce the retention of fluid and edema the Elder may experience even though the fluid retention and edema is most commonly noticed in the extremities; the edema is occurring throughout the body. Edema around the abdomen and internal organs that is not visible can affect appetite because it may cause a feeling of fullness. Certain diuretics are called potassium depleting diuretics which means that they may remove potassium from the body. In that instance, potassium supplements might be added. Diuretics should also be taken in the morning vs. in the evening to prevent the Elder from having to get up in the middle of the night to urinate. (2 & 4)

Vasodilators mechanism of action is to dilate the vessels. They affect the walls of the muscles in arteries and veins, which prevent the walls from

narrowing. The result is more blood to the heart. Vasodilators are recommended as first line therapy if the Elder has an acute heart failure event. (6)

Anticoagulants help decrease the risk of thrombosis (blood clots). Low dose Aspirin (81 mg) can be used as an anticoagulant and can be purchased over the counter. Warfarin (Coumadin) and Lovenox are blood thinners that are prescribed by the provider. Coumadin is dosed according to blood tests to determine clotting time. Coumadin is oral and Lovenox is injectable. Whatever form of anticoagulant the Elder uses, it is important to watch for excess bleeding, such as nose bleeds that last for an extended period of time or bleeding from the gums when brushing their teeth. (4 & 6)

Digoxin helps lower the heart rate. If an Elder is taking Digoxin, it is important to keep track of their heart rate, so it does not get too low. Also watch for side effects that the Elder is getting too much medication. Side effects such as nausea, vomiting, seeing a yellow halo when looking at lights should be reported to the provider. (4 & 6)

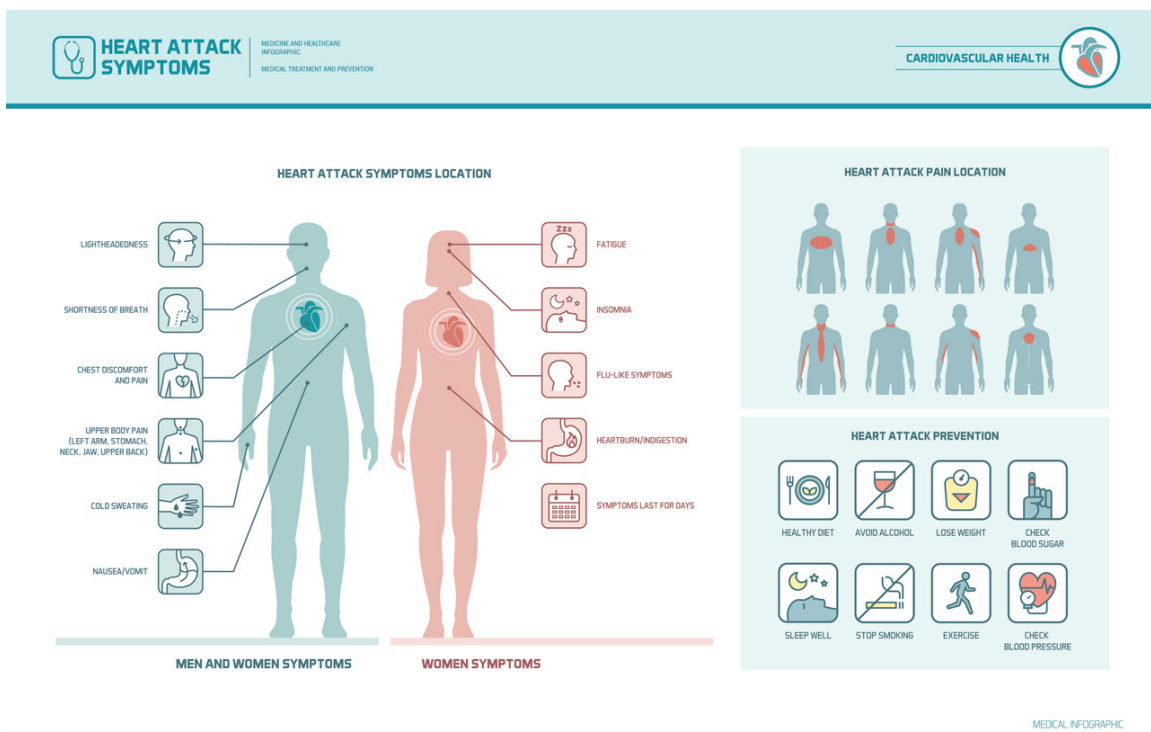
Myocardial Infarction (Heart Attack)

A myocardial infarction (MI) or heart attack, occurs when there is imbalance of oxygen consumption and demand. The heart demands oxygen to function, if not enough oxygen is delivered, the result is an MI. The failure of oxygen to be delivered to the heart is usually because of coronary artery disease. Hypertension and hardening of the arteries can also be a cause.

Symptoms of a Heart Attack

Crushing chest pain that lasts longer than 20 minutes is the most common symptom of a heart attack, other classic symptoms are nausea, vomiting, and sweating. However, in older adults these symptoms are less likely to occur. Symptoms in older adults are usually more atypical, such as throat, shoulder, arm, jaw or abdominal pain. Shortness of breath is the second most common symptom of a heart attack in both the younger and older population.

For adults over 85, syncope (temporary loss of consciousness due to drop in blood pressure), acute confusion or stroke may be the only sign of a heart attack.



Diagnosing a Heart Attack

Diagnosing a heart attack starts with a chest x-ray and an EKG. The EKG indicates what type of rhythm the heart is in. Blood work is performed which includes electrolytes (potassium and sodium), a complete blood count (CBC) and cardiac enzymes to determine what kind of damage was done to the heart muscle. One of the enzymes, creatine kinase (CK) is an enzyme found in cardiac cells. The enzyme is released into the blood stream 6 – 8 hours after the onset of pain. In the elderly population, the CK level may be significantly lower than normal. This can lead to misdiagnosis of a heart attack.

Living with a Heart Attack

As with other types of heart disease discussed; there are non-pharmacological and pharmacological treatments for a heart attack.

Non-pharmacological interventions include:

- ❖ Diet
- ❖ Stop smoking
- ❖ Stress reduction
- ❖ Incorporate exercise as appropriate

Pharmacological treatments are similar to the medications used for hypertension and heart failure.

- ❖ Anticoagulants
 - Aspirin low dose
 - Warfarin (Coumadin)
- ❖ Angiotensin Converting Enzyme Inhibitors (ACEIs)
 - Lisinpril
- ❖ ARB (Angiotensin Receptor Blockers)
 - Losartan
- ❖ Beta Blockers
 - Metoprolol
- ❖ Statin
 - Atorvastatin

An additional medication that is added to the regimen is the use of a cholesterol lowering agent, commonly referred to as statins. Statins are effective at lowering cholesterol and protecting against heart attacks and strokes. There are some things to consider prior to taking a statin. A statin can be hard on the liver, so the provider most likely will get a baseline blood test to check liver enzymes and monitor the enzymes routinely. One of the more common side effects of a statin is muscle pain, usually in the form of soreness, tiredness, or weakness. The muscle pain can be mild to severe. There can be life-threatening muscle damage called rhabdomyolysis (rab-doe-my-OL-ih-sis), the possibility of this occurring is rare. If this occurs, the statin is stopped to stop the muscle damage. Cholesterol is made during the night or when a person is sleeping; thus, the best time to take a statin is at night. (2 & 8)

DIABETES

Diabetes is a chronic condition that originates in the pancreas. The pancreas is responsible for producing two hormones: insulin and glucagon. The cells that produce insulin are known as beta cells. The beta cells are located in the islets of Langerhans (the person who discovered it).

Insulin is a hormone that helps regulate blood sugar levels. If there is not enough insulin in the body, the cells can no longer take up the glucose from the blood, resulting in higher levels of sugar in the blood. (10)

Diabetes is a chronic state of hyperglycemia and has two types:

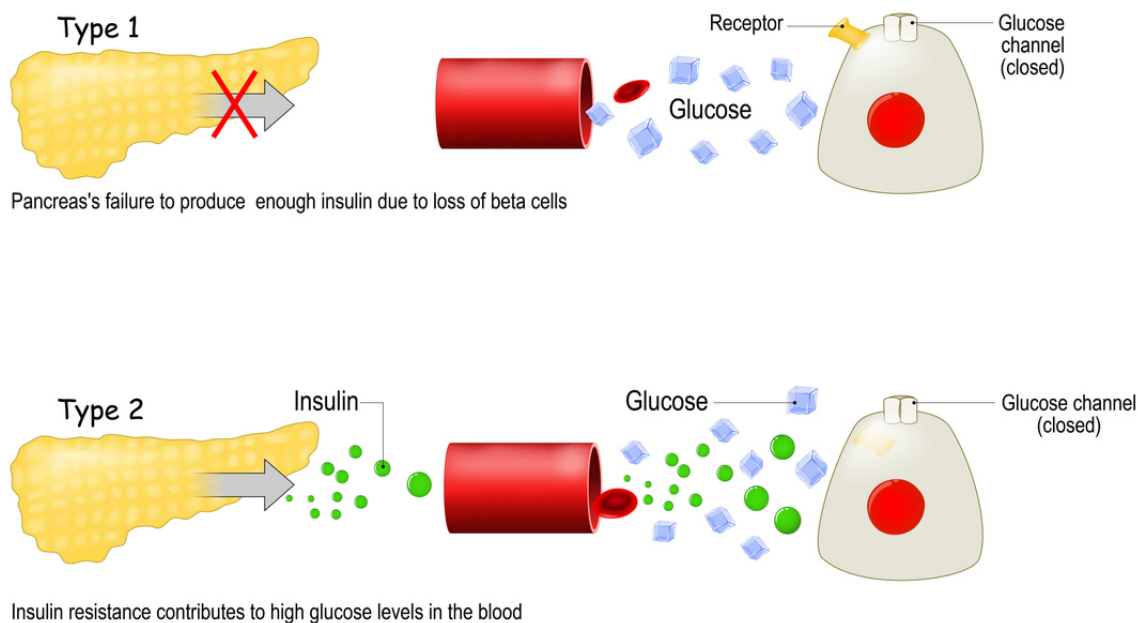
- ❖ Type 1 was formerly known as *juvenile diabetes* or *insulin dependent diabetes*
- ❖ Type 2 was known as *adult-onset diabetes* or *non-insulin diabetes*.

Type 1 diabetes is commonly seen more often in children and is characterized by low or absent levels of insulin. An exact cause for Type 1 diabetes is not known, it is thought to be associated with environmental, autoimmune, and viral toxins. (2)

Type 1 diabetes occurs when the body's immune system attacks the beta cells that produce insulin. After a while, the beta cells get worn out and stop working, which in turn stops production of insulin. A person cannot live without insulin. (10)

Type 2 diabetes occurs more often in adulthood and is thought to be the result of insulin resistance and insulin deficiency. Contributing factors for acquiring Type 2 diabetes are family history, hyperlipidemia (high cholesterol), gestational diabetes, obesity, smoking, and high blood pressure. In Type 2 diabetes, the pancreas still makes insulin, however, the body becomes resistant to insulin. Over time, the beta cells become damaged and may stop working all together. (10)

Diabetes mellitus



Native Americans and Alaska Natives have the highest prevalence of Type 2 diabetes. (2)

Diagnosing Diabetes

The classic symptoms of diabetes are known as the “3 P’s”: polyuria (excessive urination), polyphagia (excessive eating) and polydipsia (excessive thirst).

In an elderly person, the 3 P’s are sometimes missed because the symptoms can be associated with other diseases. This can lead to delayed diagnoses and treatment. (2)



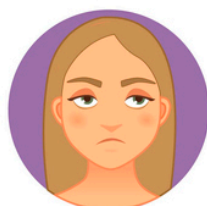
DIABETES SYMPTOMS



ALWAYS THIRSTY



WEIGHT LOSS



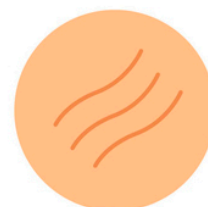
FATIGUE



SLEEP DISORDERS

NUMBNESS
OF THE LIMBS

BLURRED VISION

FREQUENT
URINATION

DRY SKIN



VAGINAL INFECTIONS



ALWAYS HUNGRY

WOUNDS
DO NOT HEALNAUSEA
VOMITING

Determining if the person has Type 1 or Type 2 diabetes is based on age of onset of disease if there are ketones in the urine (ketonuria) and a person's BMI (body mass index). Blood tests are a more of a definite indicator. (2)

The American Diabetes Association lists three types of blood tests: A1C, Fasting Plasma Glucose (FPG), and Oral Glucose Tolerance Test (OGTT).

The A1C measures the average blood sugar for the past 2–3 months. One advantage to this test is that the Elder does not have to fast before the test. Diabetes is diagnosed if the A1C is greater than or equal to 6.5%. (9)

Result	A1C
Normal	Less than 5.7%
Prediabetes	5.7% to 6.4%
Diabetes	6.5% or higher

Fasting Plasma Glucose (FPG) checks the amount of sugar in the blood after fasting. Fasting means not eating or drinking (except water) anything 6-8 hours before the test, so the FPG is usually conducted in the morning. Diabetes is diagnosed if the result is 126 mg/dL or higher. (9)

Result	Fasting Plasma Glucose
Normal	Less than 100 mg/dL
Prediabetes	100 mg/dL to 125 mg/dL
Diabetes	126 mg/dL or higher

The Oral Glucose Tolerance Test (OGTT) checks blood sugar levels before and two hours after drinking a sweet drink. Diagnosis is made if the blood sugar after 2 hours is greater than or equal to 200 mg/dL. (9)

Result	Oral Glucose Tolerance Test
Normal	Less than 140 mg/dL
Prediabetes	140 mg/dL to 199 mg/dL
Diabetes	200 mg/dL or higher

Living with Diabetes

Prediabetes is when blood sugar levels are higher than normal, but not at the point high enough to be considered diabetes. Most people who are diagnosed with diabetes have had prediabetes. (9)

The goal of treatment for Type 2 diabetes is to get the Elders blood glucose under control. The use of non-pharmacological interventions is preferred, diet and exercise to help with weight management is recommended as a starting point for a new diagnosis and if the blood glucose is not too high.

The discovery of new hormones has resulted in the development in new classes of medications to treat diabetes. Oral agents and injectables are used for medication management. Oral agents are used in Type 2 diabetes to help the beta cells produce insulin. If the beta cells are no longer functioning, oral agents are ineffective, then injectable agents are used. (2)

Oral hypoglycemic agents include: (11)

- ❖ Metformin
- ❖ Sulfonylureas
 - DiaBeta
 - Glipizide
- ❖ Glinides
 - Repaglinide
- ❖ Thiazolidinediones
 - Rosiglitazone (Avandia)
 - Pioglitazone (Actos)
- ❖ DPP-4 inhibitors
 - Sitagliptin (Januvia)
 - Saaglipitin (Onglyza)
 - Linagliptin (Tradjenta)
- ❖ SGLT2 inhibitors
 - Canagliflozin (Invokana)
 - Empagliflozin (Jardiance)

“Metformin is usually the first medication prescribed for type 2 diabetes. It works by lowering the glucose production in the liver and improves the body’s sensitivity to insulin. This will make the body use insulin more effectively. Some side effects are nausea, abdominal pain, bloating and diarrhea”. (11)

“Sulfonylureas help the body secrete more insulin. There are possible side effects of low blood sugar and weight gain”. (11)

“Glinides stimulate the pancreas to secrete more insulin. They act faster than sulfonylureas. These also have possible side effects of low blood sugar and weight gain”. (11)

Thiazolidinediones make the body’s tissues more sensitive to insulin. Possible side effects are risk of heart failure, risk of bladder cancer (Actos), risk of bone fractures, high cholesterol (Avandia), and weight gain” (11)

“DPP-4 inhibitors help reduce blood sugar but have a modest effect. Possible side effects could be risk of pancreatitis and joint pain”. (11)

"SGLT2 inhibitors affect the blood-filtering functions in the kidney by inhibiting the return of glucose to the blood stream. This results in glucose being excreted in the urine. These drugs may reduce the risk of heart attack and stroke in those who have a high risk for those conditions. Potential side effects could be risk of amputation and risk of bone fractures with Canagliflozin, risk of gangrene, vaginal yeast infections, low blood pressure, and high cholesterol". (11)

Injectable medications include: (11)

- ❖ GLP-1 receptor agonists
 - Byetta
 - Liraglutide (Saxenda or Victoza)
- ❖ Insulin

GLP-1 receptor agonists are injectable but are used for type 2 diabetes.

"GLP-1 receptor agonists slow digestion and help lower blood sugar levels. They are often associated with weight loss and may also reduce the risk of heart attack and stroke". (11)

Types of Insulin

Main types of insulin preparations				
Type	Onset	Peak	Duration	Comments
Rapid-acting insulin analogue	5-15 min	30-60 min	2-5 hr	Can be injected at the start of a meal
Short-acting (soluble/regular insulin)	30 min	1-3 hr	4-8 hr	Usually injected 15-30 minutes before a meal. Clear solution
Intermediate or long-acting insulin (isophane or zinc insulin)	1-2 hr (NPH, Lente) 2-3 hr (Ultralente)	4-8 hr 4-8 hr	8-12 hr (NPH) 8-24 hr (Ultralente)	Used to control glucose levels between meals. May be combined with short-acting insulin
Long-acting insulin analogue	30-60 min	No peak	16-24 hr	Usually taken once daily

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Hypoglycemia and Hyperglycemia

Education for the Elders on managing diabetes depends on the type of diabetes. Overall, however, the Elders need to be educated on how to check

their blood sugars and how to tell the difference between hypo and hyperglycemia.

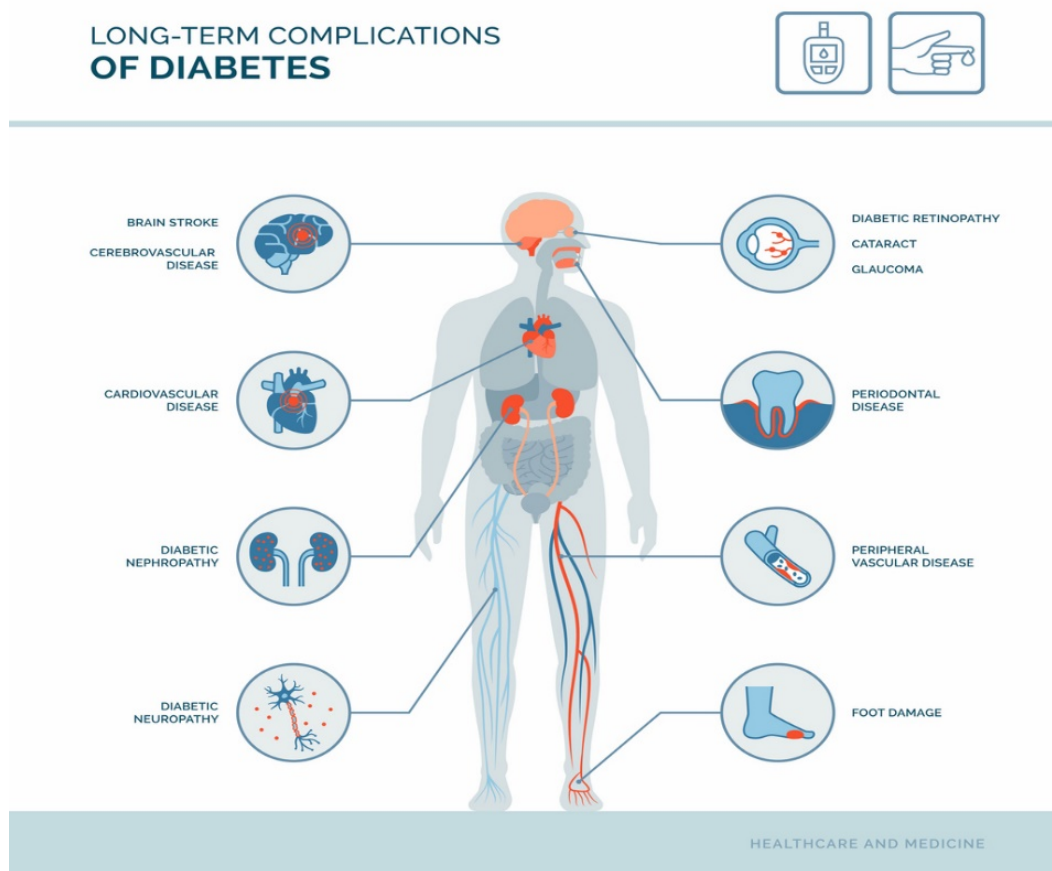
The symptoms, causes and treatments of hypoglycemia and hyperglycemia are discussed in provided attachment.

Morbidity includes conditions such as blindness, amputations from peripheral vascular disease, end stage renal disease, and heart disease. Deaths associated with diabetes are from heart disease, strokes, and end stage renal disease. (2).

Complications of Diabetes

Diabetes is costly and has a high morbidity and mortality rate. In 2017, it was estimated that the cost of treating diabetes is \$327 billion.

Morbidity includes conditions such as blindness, amputations from peripheral vascular disease, end stage renal disease, and heart disease. Deaths associated with diabetes are from heart disease, strokes, and end stage renal disease. (2).



Diabetes is costly and has a high morbidity and mortality rate. In 2017, it was estimated that the cost of treating diabetes is \$327 billion.

RESPIRATORY DISEASES

The two main respiratory diseases discussed in this section are asthma and Chronic Obstructive Pulmonary Disease (COPD). Asthma is defined as a chronic inflammatory disorder of the airways. It is not included in the COPD category.

ASTHMA

In asthma, “the airways become hyperresponsive that leads to recurrent episodes of wheezing, breathlessness, tightness in the chest, and coughing”.

(2) Asthma attacks are more common at night or early in the morning and are more common in the African American population. (2)

Contributing factors to asthma are exposure to allergens and occupational irritants, family history, smoking, exposure to high levels of pollution, and respiratory infections. (2)

Diagnosing Asthma

There are no blood tests to diagnosis asthma, the main diagnostic tool is having the Elder perform pulmonary function tests (PFT). Pulmonary function testing examines the amount of forced expiratory volume in 1 second (FEV1) and forced vital capacity (FVC). To perform these tests, the Elder would breathe out as much air as possible in 1 second (FEV1) and breath in as much as they can. (2)

Once the numbers are obtained, they introduce a bronchodilator and have the Elder conduct the test again. If there is an improvement of 12%, it indicates that there is a reversible airway obstruction. The importance of this type of PFT is that it differentiates asthma from COPD. This type of testing is particularly useful in an older adult that has a prior smoking history. (2)

Living with Asthma

There are four components of management of asthma: (2)

1. Assessment and monitoring
2. Education of Elder and their family/support system

3. Control of comorbid conditions and environmental factors
4. Pharmacotherapy

1. Assessment and monitoring

Asthma is a chronic condition requires lifetime assessment and monitoring. It is recommended that the Elder been followed by the provider every 1–6 months depending on the severity of the disease. (2)

2. Education

The Elder should be encouraged to have an 'asthma action plan' that is updated whenever there are changes in the treatment plan. The action plan should include what medication they are taking, how much and how often. The Elder should also be shown how to use a 'peak flowmeter'. To use a peak flowmeter, the elder blows into the mouthpiece, there is a dial that moves up into a certain colored zone. The green zone indicates that breathing is good, no treatment is needed. The yellow zone warns the Elder that they may need to use their inhaler. The red zone is a danger zone, and immediate treatment of the use of the inhaler is needed. (There are forms that are available on the Asthma and Allergy Foundation of America <https://www.aafa.org/asthma-treatment-action-plan/>). (12)



3. Controlling comorbid conditions and environmental factors

This involves the Elder controlling any of the comorbid conditions that could affect asthma such as heart disease or frequent respiratory

infections. Environmental factors to control are allergens, smoking (1st or 2nd hand), and avoiding pollution or being outside on very humid days. (2)

4. Pharmacotherapy

- ❖ Albuterol inhaler
- ❖ Fluticasone (steroid based)

The most common type of medication used for asthma is an albuterol inhaler. An albuterol inhaler is often referred to as the 'rescue inhaler'. For an Elder who has a diagnosis of asthma, the inhaler should be carried with them at all times. It can be used as often as necessary to get the symptoms under control or until help can be obtained. (2)

There is a 'step' chart that helps providers determine what other types of medications can be added. The step chart takes into consideration the severity of the disease and what medications to add. Fluticasone is a low dose steroid that is often added. (2)

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

The American Lung Association defines COPD as "a chronic disease that is often preventable and treatable". (13) The airways in the lungs become inflamed and thickened which decreases the amount of air flow going in and out of the lungs. This results in less oxygen coming into the tissues and it makes it harder to get rid of the carbon dioxide. Air gets trapped in the alveoli and causes shortness of breath and a barrel chest as the chest wall expands. Women tend to be more susceptible to COPD because their lungs are smaller, and estrogen may also play a role. (13)

Signs and symptoms are similar to those of asthma with shortness of breath, wheezing, and fatigue. The Elder may notice that there is blueness of the lips or fingernail beds. This blueness is called cyanosis. (13)

Diagnosing COPD

To diagnosis COPD, the same PFTs are performed to differentiate asthma from COPD. Another diagnostic measure that is performed is a blood test called arterial blood gases (ABGs). ABGs measure the amount of oxygen, carbon dioxide and the pH of the blood, it indicates how well the lungs are able to move oxygen into the blood and how well the lungs can move the carbon dioxide from the blood. A chest x-ray is also performed to examine any damage to the lungs. (13)

Living with COPD (13)

A variety of medications are used to treat COPD, yet there is no one 'best' medicine. Medications that are used are to treat the symptoms. The use of oxygen is a treatment option; however, it is important to remember that more oxygen is not always better. The drive to breathe is triggered by carbon dioxide, if there is more carbon dioxide trapped in the lungs, the use of too much oxygen can trap more carbon dioxide.

Besides various medication management, removing environmental exposures that trigger the disease is what is recommended:

- ❖ Protect your lungs
 - COPD weakens the lungs; it is recommended to learn how to reduce exposure to things that would make the COPD worse.
- ❖ Nutrition
 - Choose complex carbohydrates, such as whole-grain bread and pasta, fresh fruits and vegetables. Limit the amount of foods that are high in sugar. Limit the amount of salt intake, and drink plenty of water to keep the mucus thin.
- ❖ Physical activity
 - Moderate exercise can help with the body's use of oxygen by getting the blood flowing. Exercise can increase the Elder's energy level. Anxiety is common with COPD, exercise can help with anxiety, stress and depression. Exercise can also help the Elder sleep better. Stretching, aerobic and resistance exercises are what is recommended.
- ❖ Coping with emotions
 - It is not uncommon for an Elder who is diagnosed with COPD to also have anxiety and depression. The anxiety is from constantly worrying about whether they are going to get enough breath. Depression can occur because of the loss of ability to do what they used to do.
- ❖ Planning for the future
 - COPD often goes hand in hand with heart failure. The main goal with COPD and heart failure is to maintain current level of function. Although, there is a high mortality rate with COPD. Palliative care can be helpful to keep the Elder comfortable. Thinking about an

advanced directive and end of life care wishes can be a difficult discussion to have with an Elder.

NERVOUS SYSTEM

Disorders of the nervous system fall into the mental health and neurodegenerative disorders. The mental health disorder that was identified by the NRCNAA survey, 14.1% of Elders have difficulty with depression. Neurodegenerative disorders will not be discussed in this section. A separate section will be devoted to those disorders.

DEPRESSION (14)

Depression is a serious mood disorder and is a common problem of the elderly, yet it is not a normal part of aging. There are neurotransmitters in the brain that send messages from one neuron in the brain to another. The neurotransmitters most affected with mood and depression are serotonin, dopamine, and norepinephrine.

Depression can be caused by situational events or a chemical imbalance in the brain. There are four different types of depression that an Elder could experience:

1. Major depressive disorder – includes symptoms that last at least two weeks and interferes with performing daily tasks.
2. Persistent depressive disorder – a depressed mood that lasts longer than two years, the Elder may still be able to perform daily tasks
3. Substance/medication-induced depressive disorder – depression that is a result of the use of substances such as alcohol or pain medication.
4. Depressive disorder due to a medical condition – depression that is related to an illness such as heart disease or diabetes.

Signs and Symptoms

The signs and symptoms for the older adult are different than younger adults. Sadness may not be the main symptom, instead the Elder may have more of a feeling of numbness or lack of interest in activities they previously enjoyed.

Depression can be displayed differently depending on cultures. In some cultures, an elderly person with depression may have more physical symptoms, such as aches, pains, headaches or digestive problems.

Diagnosing Depression

If the Elder has several of the following signs that last for more than two weeks, a depression screening and appointment with a provider is suggested:

- ❖ Persistent sad, anxious, or "empty" mood
- ❖ Feelings of hopelessness, guilt, worthlessness, or helplessness
- ❖ Irritability, restlessness, or having trouble sitting still
- ❖ Loss of interest in once pleasurable activities, including sex
- ❖ Decreased energy or fatigue
- ❖ Moving or talking more slowly
- ❖ Difficulty concentrating, remembering, or making decisions
- ❖ Difficulty sleeping, waking up too early in the morning, or oversleeping
- ❖ Eating more or less than usual, usually with unplanned weight gain or loss
- ❖ Thoughts of death or suicide, or suicide attempts (14)

There are a variety of depression screening tools to determine if an elder has symptoms of depression. Examples of screening tools are the (Patient Health Questionnaire) PHQ-2 or PHQ-9 and the Geriatric Depression Scale.

Living with Depression

Depression, no matter how severe, can be treated. One of the hardest things to overcome with depression, or any type of mental illness, is the social stigma attached to the disease. Some elderly may feel they are 'weak' if they have symptoms of depression and many times will not seek the help they need. Depression needs to be viewed like any other disease. A person with depression cannot just 'get over it', we would not tell someone with diabetes to 'get over it.'

Treatment Options for Depression

The first step is to recognize that the Elder may have depression symptoms. Identify that the Elder might feel that they have lost interest in their usual activities. The Elder may find it difficult to talk about their feelings or recognize that they have had changes in sleep, appetite, or a decrease in energy level.

1. Psychotherapy is a non-pharmacological treatment. Psychotherapy may be the only treatment the Elder may need. If a medication is needed, because it takes sometimes 4 – 6 weeks for the medication to reach its full effect, psychotherapy may be prescribed. Psychotherapy

can be done with a psychologist, licensed clinical social worker, psychiatrist, or other types of mental care professionals. The Elder may be able to see a mental health provider at a behavioral health clinic. (14)

2. There are a wide variety of antidepressant medications on the market. Deciding which medication to use depends on which neurotransmitter needs to be affected. (15)

- ❖ Selective serotonin reuptake inhibitors
 - Fluoxetine (Prozac)
 - Sertraline (Zoloft)
- ❖ Selective norepinephrine reuptake inhibitors
 - Venlafaxine (Effexor)
 - Duloxetine (Cymbalta)
- ❖ Bupropion
 - Wellbutrin

The three listed are better tolerated antidepressants for the elderly because they are better tolerated. (15) One interesting thing about Wellbutrin is that it was found that those who were taking it for depression stopped smoking, so it was re-released as Zyban as an agent for stopping smoking.

3. Electroconvulsive therapy is one of the most effective forms of treatment for major depression that does not respond to antidepressants. ECT is performed under a controlled setting where anesthesia is provided. Once the person is under the anesthetic, the psychiatrist delivers an electrical impulse to the brain which sends all the neurotransmitters out into the synapses of the brain for the brain to use to help with mood.

CONCLUSION

In conclusion, the goal of living with chronic conditions is to have the Elder maintain their current level of functioning. As with all medications used for the elderly, it is important to start low and go slow.

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SECTION 4: HEALTH PROMOTION & HEALTHY HABITS

OBJECTIVES

At the end of the session, participants will:

1. Know the meaning of health promotion
2. Recognize healthy habits
3. Identify simple ways to incorporate health promotion and healthy habits into everyday living for elderly and caregivers

“THINGS TO THINK ABOUT”

Aging Statistics for the General Population

By 2034, the United States (U.S.) will reach a new milestone. It will be the first time in U.S. history that the number of older adults will outnumber the children. People 65 and older are expected to number 77 million, while the number of children 18 and under will be at 76.5 million. (1)

There are 10,000 baby boomers turning 65 every single day. That trend is expected to continue until 2030. There are seven baby boomers turning 65 every second! (2) Starting in 2030, all baby boomers will be 65 years old. At that point, older Americans will make up 21 percent of the U.S. population. By 2060, it is projected that nearly one in four Americans will be 65 years and older. Those that will be 85 and older will triple. (1)

Aging Statistics for the American Indian and Alaska Native Population:

In 2017, the non-Hispanic American Indian and Alaska Native population 65 years of age and older was 272,250. That number is expected to grow to more than 648,000 by 2060. According to the U.S. Census Bureau, in 2017, American Indian and Alaska Natives made up 0.5% of the older population, and it is projected that by 2060, the number will be 0.7%. The number of American Indians and Alaska Natives that were 65 and older in 2017 was 568,611. The number of American Indians and Alaska Natives that were over 100 years of age and older was 437 (116 men and 321 women. (3)

HEALTH PROMOTION

In 1998, the World Health Organization (WHO) defined health promotion as “the process of enabling people to increase control over, and to improve their health” (4). This definition is still used by the WHO. When talking about “health promotion”, the goal is “how to get and stay healthier”. This is different from “treating diseases”. When a focus is maintained on staying healthy, there is a direct link to preventing disease (5).

The prevention of disability through health promotion while people are “young elders” cannot be emphasized enough. Chronic health conditions among elders are very common. Approximately 80% of older adults have at least one chronic disease, and 50% of older adults have two or more chronic health conditions. Heart disease, respiratory problems, cancer, diabetes, and stroke are the most common types of chronic conditions. These conditions can impact the elderly’s ability to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs). ADLs involve bathing, dressing, and grooming. Examples of IADLs are managing medications and shopping. (6)

However, in spite of these statistics, it is possible for a person to live with chronic conditions while becoming older and still retain “functional abilities”. Practicing health promotion activities can prevent disabilities and help to maintain functional abilities for longer periods of time throughout the lifespan. While chronic diseases are the most serious of health problems and the costliest, they are also the *most preventable!* (5)

Even a modest investment in health promotion activities can help to counteract chronic disease. American Indian /Alaska Native people are very resourceful, having adapted through thousands of years of change. Native Elders are traditionally respected and remain committed to future generations. *“Elders can share knowledge about how to understand, solve, and prevent problems...Elders speak strongly about cultural values and rules on how to conduct oneself within the family and community...Through elders, wisdom becomes a living oral knowledge applied to current contexts.”* (5)

Elders who practice health promotion can teach future generations about health. Being “older” does not mean “being sick”. Being an Elder means enjoying friends and family, guiding, and caring for grandchildren and enriching the community with wisdom.

Balance as a Primary Health Goal

As we know, human beings are “not only their biology”. Human beings are holistic beings and are healthiest when all human dimensions are in balance, physically, emotionally, spiritually, and socially. To practice health promotion means to pursue balance in these dimensions. As the various dimensions of life and health are challenged, changed, and sometimes even impaired, we continue to pursue balance. This may mean that a deeper spiritual life and stronger social connections with family and friends will be pursued to help to balance the physical changes that may occur naturally in the aging season.

The health promotion model that has been developed by Marlo and Ron Free for their home District of Wakpala (used with permission). The “Free Model” integrates the Medicine Wheel dimensions of physical, emotional, spiritual and social health with depictions of traditional health promoting activities. In the Marlo & Ron Free health promotion model, the moccasins represent the tradition of walking and running, the meal being cooked over the fire represents the preparation by families of healthy traditional foods, and the bow and quiver represent the tradition of hunting which required a substantial amount of physical activity to provide food for all members of the Tribe. Most importantly in the model is the depiction of the adult teaching the young child how to use bow and arrow. This represents the strong traditions of family connections, the importance of teachings being transmitted from the older generation to the younger, and the preparation of the future generation to learn how to provide for the people. (5)



Health promotion practices for Native Elders can pay off in the maintenance of health. Health is promoted when a balance is maintained physically, emotionally, spiritually, and socially. It is *possible* to focus on changing things that can be changed. From “western thought” there is a theory called “self-efficacy”. This theory can be helpful when thinking about practicing health promotion. Self-efficacy means having a belief that the practice of specific behaviors will lead to specific outcomes. (5)

The idea of self-efficacy could be linked to the traditional Lakota value of “*wowicala*” which means “belief”. Wowicala means to truly believe in something, not just “hope” something. (8) With a belief (*wowicala*) in self-efficacy, people can strive to make an investment in health promotion practices, *knowing* that this effort has the potential to:

- ❖ maximize IADL and ADL function
- ❖ minimize the need for nursing home care
- ❖ maximize the chances of staying in the home setting with family
- ❖ make it possible for elders to keep their valued roles as teachers, advisors, and wisdom keepers within their families and communities.

The remainder of this section will focus on healthy habits to promote health.

HEALTHY HABITS

Oral Health

Dietary healthy habits start with oral health. To be adequately nourished assumes that a person has the ability to eat nourishing foods. If an Elder has problems with their mouth and/or teeth, healthy nutrition is a much more difficult goal to reach. Some Elders do not receive preventive dental care because of various reasons, such as other health condition and disabilities, lack of access to services, financial resources, or because they do not feel it will benefit them. Native Elders will most often use dental services because they are suffering from a dental problem. (5)

The NRCNAA's survey of thousands of Native Elders; *Identifying our Needs: A Survey of Elders VII* (2017-2019) identified two areas of dental needs:

- 1) 26% of Elders need teeth to be filled or replaced; examples are fillings, crowns, and bridges, and

2) 24% need work on dentures

Another 'good medicine' habit that can be preventive oral health care. Regular preventative oral health care can have a positive impact on an Elder's nutrition and overall health. (14)

Diet/Nutrition

Health promotion and practicing healthy habits have enormous benefits for elders and proper nutrition is strongly linked to good health. Nutrition is actually 'fuel' for all the work done by all of the systems of the body. According to the CDC, the prevalence of obesity in adults 60 and over is 43.8%. Obesity can put the elderly at risk for many chronic diseases, such as heart disease, Type 2 diabetes, certain cancers, and stroke. (9)



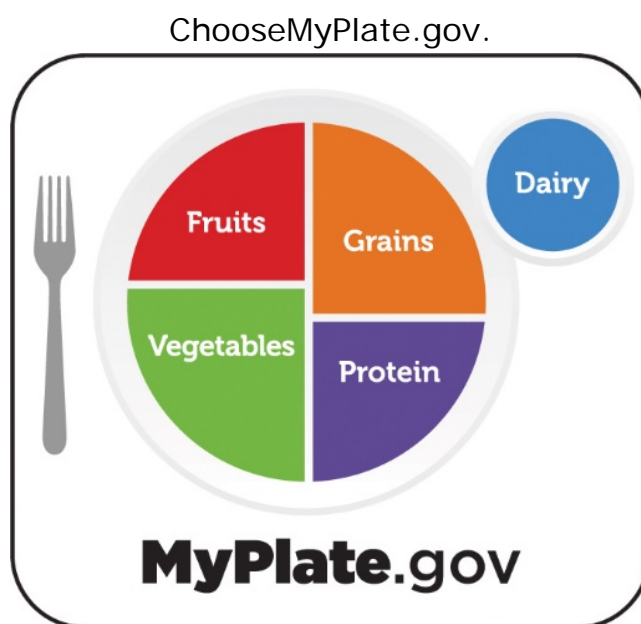
Historically, many of the natural foods enjoyed by Americans were introduced by Native Americans. Many of the traditional ways of eating have been replaced by processed foods. Processed foods can contribute to diabetes, and diabetes is a risk factor for heart disease. (7) Fifty-years ago, heart disease

was virtually unheard of in the Native American communities, now heart disease is becoming more prevalent among the Native American population.

Native American Elders face many of the same challenges that affects non-Native elders. Some of the main challenges are the high cost of health foods and the time/ability to prepare them. Another challenge that the Native American elderly face is the accessibility to healthier food choices. Programs are being developed to help tackle some of the nutritional issues. One program sponsored by the NHLBI (National Heart, Lung, and Blood Institute) is the THRIVE (Tribal Health and Resilience in Vulnerable Environments) project. THRIVE is encouraging convenience stores in Oklahoma, where the Chickasaw and Choctaw Nations of Oklahoma purchase many of their

groceries, to stock more fresh fruits and vegetables. The NHLBI has also published a cookbook that features heart healthy American Indian recipes.
(10)

Healthy nutrition also can positively impact blood pressure, blood sugar (glucose), and cholesterol levels. General nutrition requirements start with identifying the needs of each individual elder. Many valuable nutrition and dietary guidelines for healthier eating are easily available on any number of websites. However, for a very simple but informative discussion of practical food preparation and healthy eating tips, the USDA “MyPlate” is a good visual representation of a balanced approach to preparing meals and eating healthy.



Remember it takes time to change a person’s diet, but the benefits are possibly lifesaving. The MyPlate diagram provides an entire meal planning guide for elders and caregivers that is easy to follow. Visually, it is possible to see at a glance, all the food groups and the portions of each that make up a healthier meal.

Other USDA MyPlate materials are also very “user-friendly” and visually appealing. The materials make healthier food choices and meal planning

easier. The MyPlate materials are available to be printed directly from the internet.

The “Choose MyPlate 10 Tips to a Great Plate” includes ten tips to a “great plate”. (11)

“Tips to a Great Plate”

1. Balance Calories
2. Enjoy your food but eat less
3. Avoid oversized portions
4. Foods to eat more often
5. Make half your plate fruits and vegetables
6. Switch to fat-free or low-fat (1%) milk
7. Make half your grains whole grains
8. Foods to eat less often
9. Compare sodium in foods
10. Drink water instead of sugary drinks

A Word on Special Dietary Instructions for Specific Health Conditions

For elders who have certain chronic conditions like diabetes, hypertension (high blood pressure), hypercholesterolemia (high cholesterol) and obesity, it is beneficial to visit with a nutritionist or dietician regarding any special dietary guidelines. Many IHS clinics have dietician resources and some of the Special Diabetes Programs for Indians (SDPI) programs have their own dietician or nutrition educator.

Fluids/Hydration

Most older adults do not drink enough plain water throughout the day. Dehydration is a frequent problem in the elderly population. Aging changes, functional ability, and the decreased thirst sensations contribute to dehydration problems. The required amount of water intake does not change with age. It is recommended for the elderly to drink six to eight glasses of water a day. (12)

Smoking Cessation

The health effects that result when a person quits smoking are so beneficial, that it has been said that if a person could only make one change for all around better health, quitting smoking would be the best possible change.

Smoking has systemic effects in the body. That is, the smoke does not affect only the lungs, but the thousands of chemicals in the smoke get absorbed into the blood stream and affect the entire body. The blood vessels “take a beating” when a person is smoking. This contributes to high blood pressure, loss of circulation, heart disease, and additional complications for people with diabetes. Smoking also causes emphysema and other chronic lung disease, as well as cancer. If a person can stop smoking, their overall health will become better. (5)

Smoking is extremely addictive and is very difficult to quit smoking. There are medications that can help a person quit smoking and many websites provide plans to quit smoking.

Smokefree.gov (13) gives these suggestions:

- ❖ Choose a day in the next week or two to quit to prepare yourself
- ❖ Set yourself up for success, pick a date that is not going to be stressful
- ❖ Tell your family and friends that you are deciding to quit so they can be supportive

The National Cancer Institute (14) provides the following suggestions to stop smoking:

- ❖ Counseling
 - Those who have a short counseling session are most likely to quit
- ❖ Medication
 - Nicotine replacement such as nicotine gum or patches
- ❖ Smoking reduction
 - Smoking less is not as helpful as quitting all together; however, it still may be a benefit

Within weeks to months, even within 20 minutes, as soon as a person quits smoking there are notable health benefits. (15)

- ❖ 20 minutes after quitting
 - Heart rate drops to normal
- ❖ 12 – 24 hours after quitting
 - Carbon monoxide level in the blood drops to normal
 - Risk of heart attack is significantly reduced

- ❖ 2 weeks – 3 months after quitting
 - Heart attack risk begins to drop
 - Lung function begins to improve
- ❖ 1 – 9 months after quitting
 - Coughing and shortness of breath decreases
- ❖ 1 year after quitting
 - Added risk of coronary heart disease is half of that of a smoker
- ❖ 5 – 15 years after quitting
 - Risk of strokes are reduced to that of a smoker
 - Risk of getting cancer of the mouth, throat, or esophagus is half that of a smoker
- ❖ 10 years after quitting
 - Risk of dying from lung cancer is about half that of a smoker
 - Risk of getting bladder cancer is half that of a smoker
 - Risk of getting cervical cancer or cancer of the larynx, kidney, or pancreas decreases
- ❖ 15 years after quitting
 - Risk of coronary heart disease is the same as that of a nonsmoker

Outside of use in ceremonies, it is difficult to find good reason for smoking. Second-hand smoke can be hard on the health of others in home or work settings and is especially hard on children's young lungs. Children and grandchildren often suffer increased rates of respiratory illnesses, such as asthma, when they are exposed to secondhand smoke, and they are also be more likely to become smokers themselves. Most people who do not smoke by age 25 will not become smokers. It is very beneficial to youth to not be exposed to second-hand smoke, and to have role models in their families who do not smoke. (5)



Sleep

Most older adults need between seven and eight hours of sleep every night. Sleeping will help cleanse the brain and body of toxins. Sleep also helps develop as well as sustain memory. (16) But older adults seem to sleep less in shorter blocks of time; they take longer to fall asleep; they wake up more frequently during the night; and they wake up earlier in the morning. (5) Using a sleep diary to track how much sleep an elderly person gets is helpful to determine if sleep deprivation is occurring.

Managing Stress is Good Medicine

Stress is a part of normal living, but too much stress can become unhealthy for a person and too much stress can cause 'dis-tress'. From a holistic perspective, stress is a normal human response to all kinds of stressors that come from all kinds of situations or triggers. Stress can be imposed by disease, disability, challenging family situations, loss, grief, spiritual struggle, fear, or financial difficulties. Basically, anything that we have to deal with in life can become a stressor. (5)

Our bodies have a "stress response" to whatever is perceived as stressful. The parasympathetic and sympathetic nervous system is how our body responds to stressful situations. The sympathetic nervous system is responsible for the "fight or flight" reactions of our bodies. An example of this is, if a person is running away from a mountain lion who is trying to make dinner out of him, the body reacts very strongly with a whole array of changes throughout the body systems. We can run and breathe faster, we have more strength in our muscles to fight the lion, and our hearts pump fast so we will have enough oxygen in the emergency. The goal is to survive the stressor! The parasympathetic nervous system takes over after the stressful situation and restores the body to a calm state and prevents the body from overworking. (17)

However, if a person loses a family member, or has no money, or has no help in a very demanding caregiving situation, the body reacts in the same way to the emotional stress as it does to the mountain lion. The same stress-responses happen throughout the body when our emotions are under "attack". Our bodies were not made to live with continual high emotional stress.

Long-term Stress

Whatever causes stress, whether the root is physical, emotional, social, or spiritual, the body reacts to survive what it perceives to be a threat. When our bodies react for too long a time, and there is no relief from the stress, a person can lose their “balance” and the bodies homeostasis is affected. A person who is under constant stress without relief can become physically sick, emotionally disturbed, depressed, or unable to perform their role in the family or at work.

Every person will react differently to various life events or situations. What is stressful to one person may not be at all stressful to another. It is important to recognize when stress levels are reaching the point of dis-stress, and to have some coping strategies ready to de-fuse the stress. We might not be able to control what causes an Elder’s stress, but it is possible to help them develop and practice coping skills that work for them.

The American Heart Association has a very helpful resource webpage that recommends helpful tips for coping with stress. Caregivers can help Elders practice the 3 “easy ones” listed below: (5)

❖ ***Positive Self-Talk***

For example, telling ourselves positive messages when things go wrong like: “things will work out”; “we all make mistakes”; “I can deal with this for now”

❖ ***Emergency Stress Stoppers***

For example, counting to 10 before reacting emotionally; driving in the slower lane on the highway; going for a walk; saying “I’m sorry”; taking 3 deep breaths; dealing with a bigger problem by breaking it down into smaller parts

❖ ***Enjoyment of Little Things***

For example, finding one thing you like to do each day that only takes 15 minutes; talking to a friend over coffee or a meal; listening to music you like or watching a favorite movie

Stress is a common part of being a human being, it is impossible to live without stress impacting our lives. “Our job” is to figure out how best to react to stress, so we can maintain our balance and stay as healthy as possible. Because of the very unique kinds of demands upon caregivers that

last for very long periods of time, stress can often become a serious problem.

Exercise

It has been shown that elderly people who exercise can reduce pain caused from arthritis; help maintain weight; help with blood glucose control; and help decrease falls. (18) Besides the known benefits that exercise is good for the heart; exercise is also good for the brain! It has been shown that older adults who exercise have brains that look and behave more like a younger person's brain. Exercise is one of the only ways that can generate healthy new brain cells. (19)

An excerpt from the journal "Scientific American. How Exercise Affects Your Brain states:

"Exercise affects the brain in many ways. It increases heart rate, which pumps more oxygen to the brain. It aids the release of hormones which provide an excellent environment for the growth of brain cells. Exercise also promotes brain plasticity by stimulating growth of new connections between cells in many important cortical areas of the brain. Research from UCLA even demonstrated that [exercise increased growth factors](#) in the brain which makes it easier for the brain to grow new neuronal connections." (20)

There are many benefits to regular physical activity. The Centers for Disease Control and Prevention (CDC) Guidelines for Physical Activity recommend:

1. at least 150 minutes of moderate exercise (such as brisk walking) in a week's time
2. muscle-strengthening exercises at least 2 times a week.
3. approximately a half hour of exercise each day

The Summary of the 2008 Physical Activity Guidelines for Americans states:

1. "some exercise is better than none"
2. "additional benefits of exercise occur as the amount of physical activity increases"
3. "regular physical activity reduces the risk of many adverse health outcomes"
4. "health benefits of physical activity happen in all age groups, and even for people with disabilities". (21)

In terms of disease prevention, regular physical activity can lower the risk of:

- ❖ earlier death
- ❖ coronary heart disease
- ❖ stroke
- ❖ high blood pressure
- ❖ Type 2 diabetes
- ❖ breast and colon cancer
- ❖ falls
- ❖ depression



Although a gym or health club is nice to have, many people do not have easy access to such a resource. However, extra physical activity can be worked into many of daily activities. Before starting an exercise program, it is recommended to discuss the exercise program with a provider. Any activity that requires ongoing movement for a period of time can help meet exercise goals. It is not even necessary to maintain exercise for long periods at one time. Start by building up the activity little by little over time and keep at it.

Many opportunities for exercise do not take any expensive equipment at all, for example: gardening, walking, riding a bike, swimming, pow-wow dancing, or playing with grandchildren at a local playground. Some Tribes may have a pool at their casino hotels which they set aside for a few hours each week for their elders to swim. Some Elders talk about how they practice pow-wow dancing with their grandchildren at home when listening to powwow music on the local Indian radio station. Some communities may have a SDPI that has a fitness center and a fitness trainer.

Many Tribal communities have walking trails that provide a smooth, safe surface for walkers of all ages. The only “equipment” that walking requires is a pair of comfortable, well-fitting, supportive shoes. Walking works very well

for improving health. Invite a friend to walk with, start or join a walking club. It is important to stay hydrated and if the Elder is being treated for diabetes, they may want to bring along a source of “sugar” (hard candy, glucotabs) in case their blood glucose level runs a little too low (hypoglycemia) during exercise.

In many communities, the SDPI have fitness experts are available who can be asked to offer a fitness program for elders, or a “train the trainer” workshop for caregivers. (5)

Falls and Exercise

Exercise can help to maintain and improve overall health and certain kinds of exercise can be targeted to assist elders to prevent falling. Falls prevention is very important to an Elder’s health and their ability to continue living at home. According to the Centers for Disease Control and Prevention, “falls are the leading cause of injury-related deaths among persons 65 and older”. (22)

Falls can lead to a spiral of negative consequences including broken bones, severe pain, surgical procedures, hospitalizations, rehabilitation therapies, and nursing home placement. Many times falls result from a combination of risk factors. A fall may be much more likely to cause a broken bone if osteoporosis is present, which is a common diagnosis especially among older women. Broken hip injuries are not only common but are also associated with a 18%-33% risk of death in the year after the fracture. In addition, once an Elder has a fall, a pattern often emerges which also includes a fear of falling again. (5)



To help an Elder, look for fall prevention programs such as 'Stepping On' . Stepping On covers a wide range of issues, including falls and fall risk factors. It also includes "strength and balance exercises, home hazards, safe footwear, vision and falls, safety in public places, community mobility, coping after a fall, and understanding how to initiate a medication review".

Preventing Falls among Elders

Knowing specific risk factors that an Elder may have for falls is the first step in preventing falls. Many risk factors can be modified through:

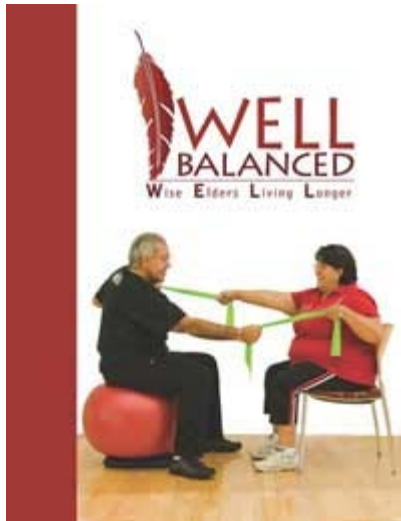
- ❖ balance
- ❖ strengthening exercises
- ❖ training in the use of adaptive equipment
- ❖ home safety assessments

Caregivers can help to make important environmental modifications based on a home safety assessment. A home safety checklist is included in this curriculum.

A caregiver can also visit with an Elder's health care provider about how to address additional risk factors for falls, for example, ask for additional training for an Elder who is not sure of how to use a cane safely or make sure a walker is fitted to the correct height. A caregiver can also contact the Tribal Housing Department to ask for installation of adaptive devices such as shower grab bars or to ask for repairs, such as new railings on stairways. (5)

Fall Prevention Exercises

While a number of fall-prevention exercise programs are undergoing evaluation across the U.S., most programs may be difficult to use in Indian Country, as they are designed to be implemented by teams of licensed health professionals including Occupational and Physical Therapists. However, many rural regions in Indian Country are designated as "health provider shortage areas" (HPSAs). (5) Physical therapists and occupational therapists tend to be scarce in rural Tribal Nations. It may be necessary to offer alternative fall prevention programs that do not require a Physical Therapist or Occupational Therapist to implement them. One alternative is the NRCNAA's "train the trainer" falls prevention program, **Wise Elders Living Longer** (WELL-Balanced) program.



The *WELL-Balanced* curriculum can be accessed through NRCNAA at no cost. The program is a user-friendly health promotion resource for helping elders with strengthening, flexibility and balance exercises. The “Well-Balanced Program” is designed to help elders:

1. prevent falls
2. manage diabetes, arthritis, and hypertension
3. engage in social activity
4. increase their level of exercise
5. develop strategies for independent living

The training can be offered in rural Tribal communities, using a “train the trainer” approach. The WELL-Balanced curriculum allows local “coaches” to be trained to follow a prescribed outline of fall-prevention activities, which then can be offered by the “coaches” in a structured program in local Tribal settings. A Home-Safety Checklist can be used to assess an elder’s living space at home, to identify changes in the home environment to prevent falls.

Elders and caregivers can learn the exercises and practice them safely at home. Then, Elders can be empowered to take a few minutes each day to use the stretching, balance, and posture exercises they have been practicing. These exercises can lead to a decreased risk for falls, as well as “counting” towards meeting 30 minutes of the recommended 150 minutes of weekly physical activity for adults.

SECTION 4: REFERENCES

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ADDITIONAL WEBSITES

1. Tips to a Great Plate website:
https://dc.statelibrary.sc.gov/bitstream/handle/10827/21198/DHEC_Choose_MyPlate_2016-04.pdf?sequence=1&isAllowed=y
2. The NHLBI has also published a cookbook that features heart healthy American Indian recipes:
<https://www.nhlbi.nih.gov/health/educational/healthdisp/pdf/recipes/Recipes-Native-American.pdf>