

Cardiovascular Disease (CVD)

February 20th, 2019

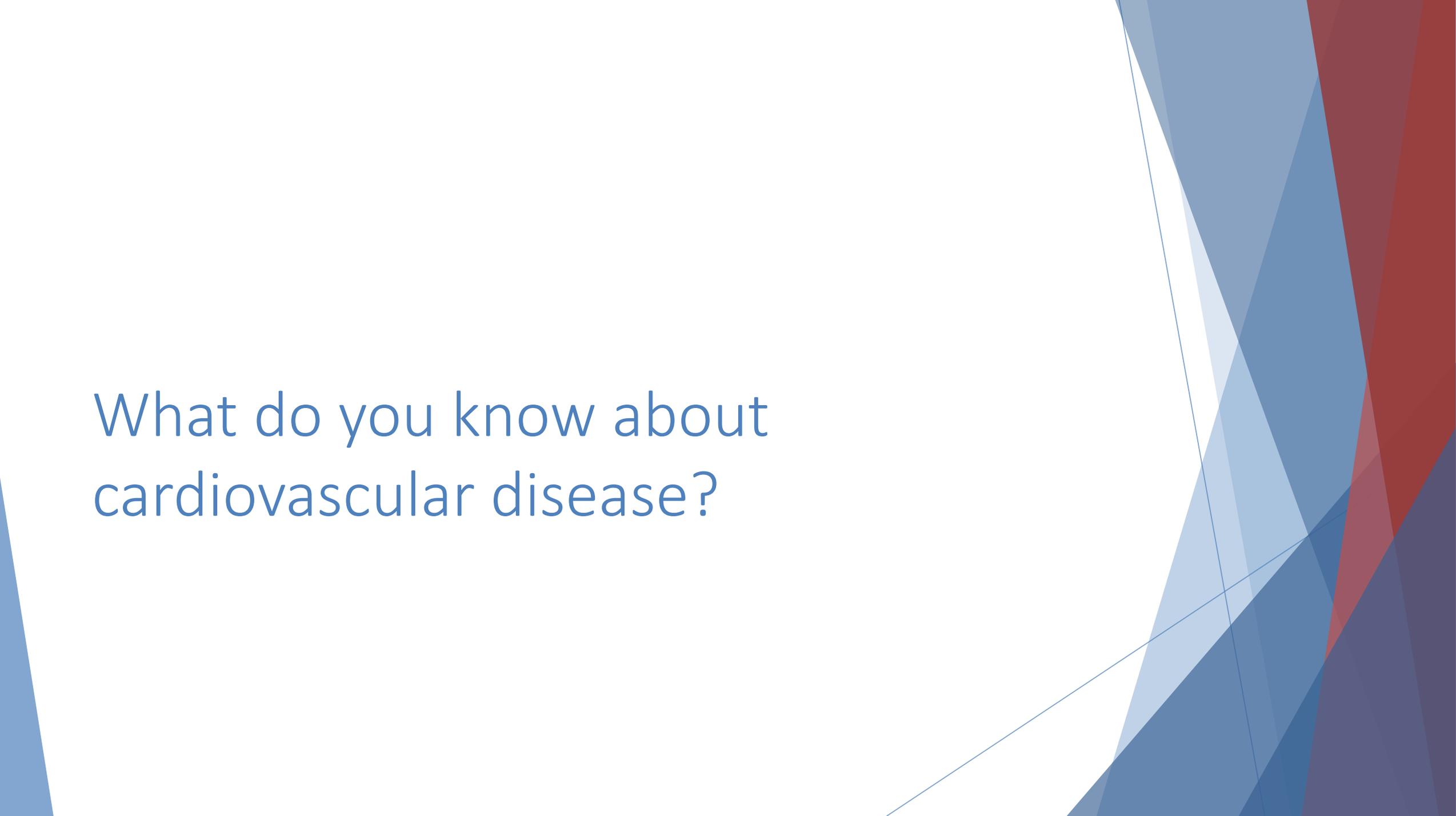
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Objectives

By the end of the presentation the audience should understand:

1. What vital organs contribute to cardiovascular health
2. What risk factors are associated with CVD
3. The signs and symptoms of common CVD
4. How CVD are commonly treated
5. Steps to take to prevent and control CVD

What do you know about
cardiovascular disease?

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Cardiovascular Anatomy

The basics to how your body functions

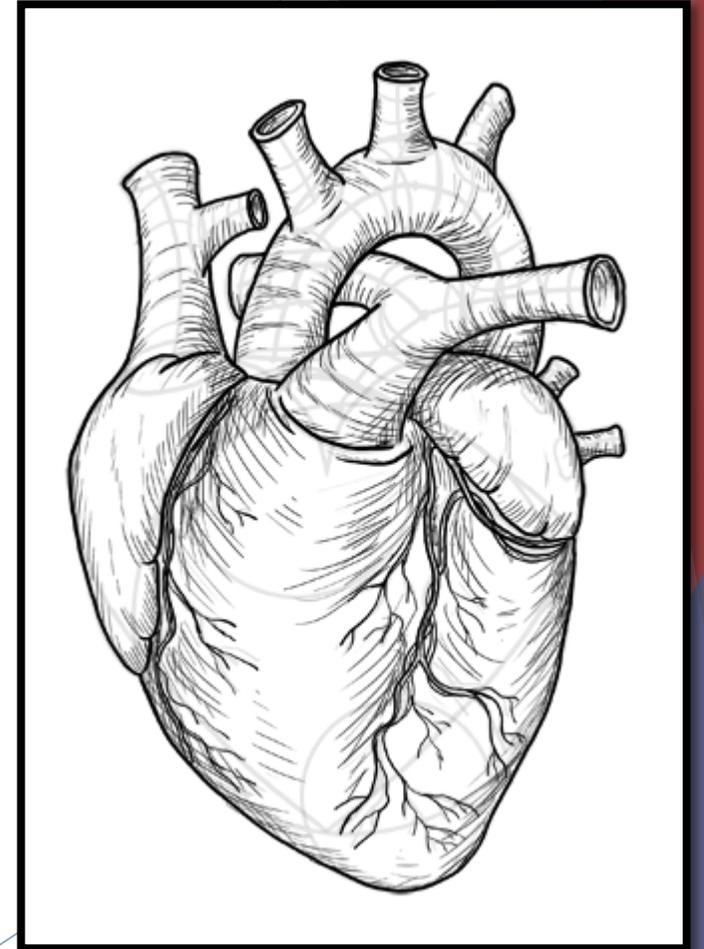
The Heart

Moves blood through the body

Electric signaling inside the heart keeps it pumping

Can adjust rate of pumping to meet demand

Influenced by other organs and signalers



Blood Vessels

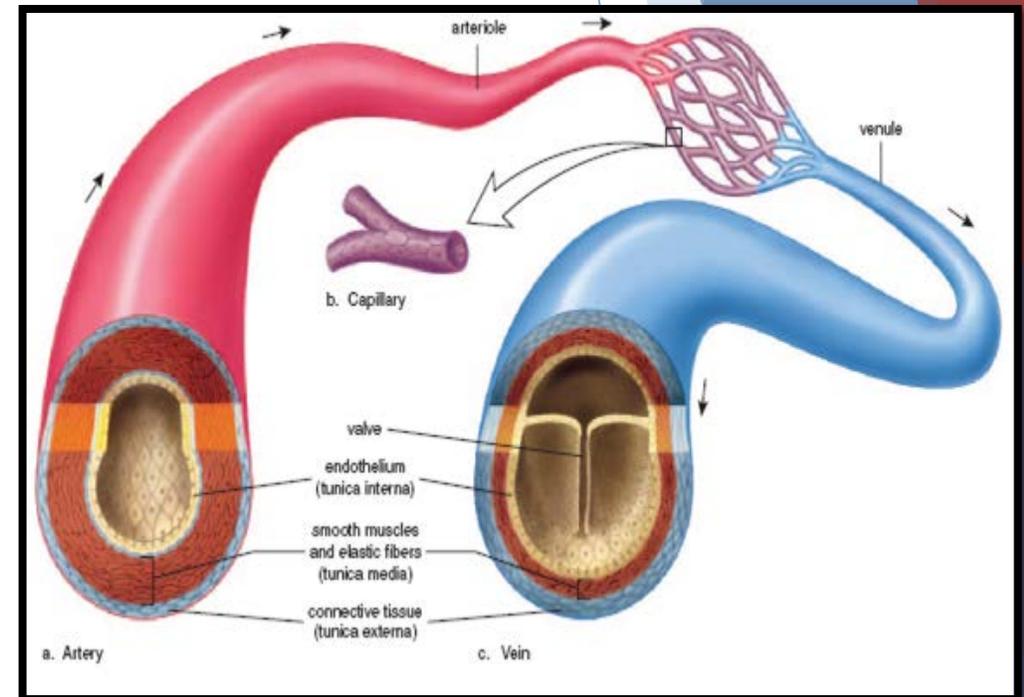
Muscular tubes that carry blood

- ▶ Arteries = blood to body
- ▶ Capillaries = transport nutrients to tissue
- ▶ Veins = blood to heart

Monitors blood pressure

Contract or relax to change pressure

Can be easily damaged and clogged



The Brain

Monitors and controls the entire body

Pressure changes are signaled to the brain

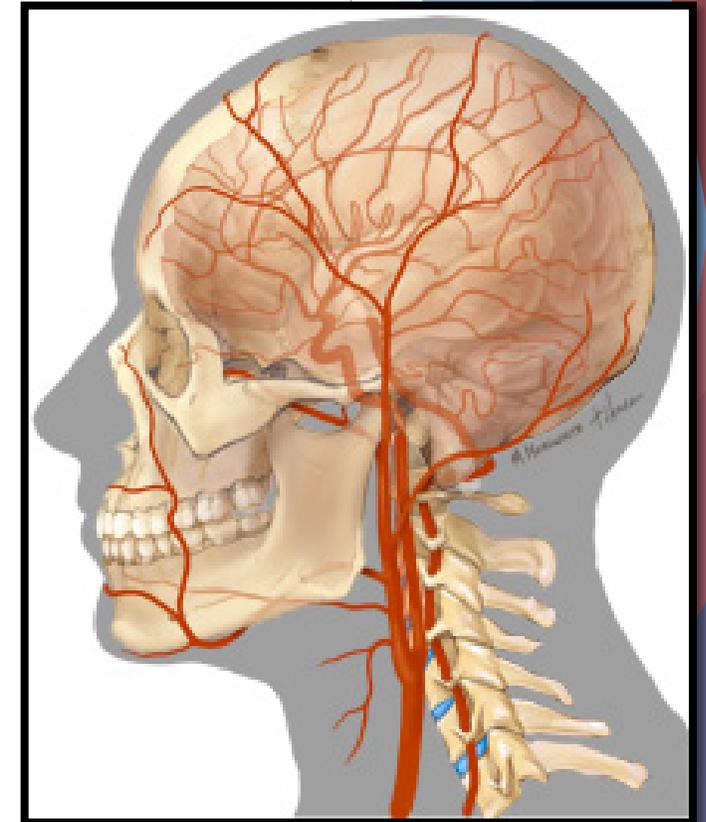
Brain relays a message to the blood vessels

- ▶ Causes constriction or relaxation

Also relays message to the heart

- ▶ Increases rate of pumping
- ▶ Increases strength of pumping

Brain requires strict pressure control



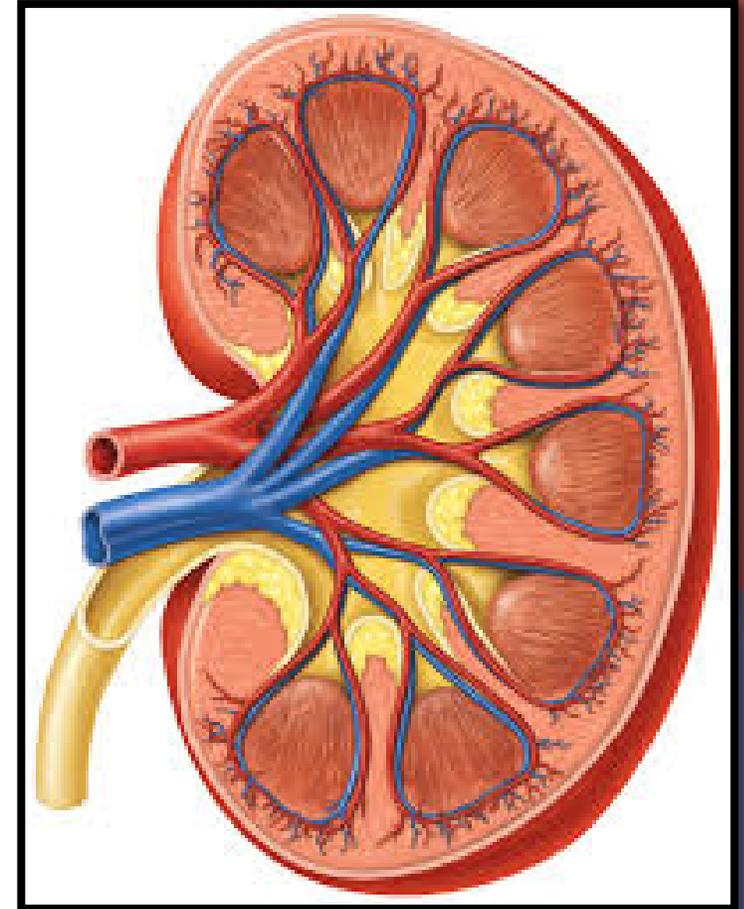
The Kidneys

Filters waste from the blood into urine

Requires adequate pressure to remove waste

Releases signals to increase pressure

- ▶ Blood vessels constrict
- ▶ Kidney filters less sodium and water



Factors Affecting CVD

What's increasing your risk?

Uncontrollable Risk Factors

Gender

- ▶ Overall Men's risk > women's risk
- ▶ Men at higher risk in <45
- ▶ Women at high risk in >65

Ethnicity

- ▶ Black population at greater risk for developing CVD
- ▶ Equal rate of death from CVD across all populations

Family History

- ▶ The closer the relative, the greater risk

Age

- ▶ Body's ability to manage itself diminishes

Post-Menopausal

- ▶ Cholesterol levels begin rise
- ▶ Estrogen may be cardioprotective

Controllable Risk Factors - Diseases

High Blood Sugar (Diabetes)

- ▶ Uncontrolled blood sugar damages blood vessels, increases weight, and increase blood pressure
- ▶ Increases risk of death from CVD 2 to 4 fold

High Cholesterol

- ▶ LDL = “Bad”
- ▶ HDL = “Good”
- ▶ Elevated LDL settles in blood vessels and narrows the path causing pressure to increase
- ▶ Blockages can occur and lead to CVD
- ▶ Begin monitoring in early 20s

Controllable Risk Factors - Diseases

Sleep Apnea

- ▶ 1 in 5 adults are affected by sleep apnea
- ▶ Sleep apnea is related to hypertension, stroke, arrhythmia, and heart failure
- ▶ The exact mechanism is unknown, but related to chronic low levels of oxygen

Depression/Anxiety

- ▶ Patients with CVD are 3 times more likely to develop depression
- ▶ Having depression can worsen risk factors which further increase the risk for CVD

Controllable Risk Factors – Nicotine Use

Tobacco use is the most preventable cause of death in the US

- ▶ Users risk various CVDs, cancers, and damage to almost every organ

Smoking increases risk by various mechanisms

- ▶ Increases triglycerides (Bad cholesterol)
- ▶ Lowers HDL (Good Cholesterol)
- ▶ Increases clot formation
- ▶ Direct damage to blood vessels

Secondhand smoke poses substantial risk for CVD too

E-cigarettes are still being researched, but some risk factors are known



Controllable Risk Factors - Diet

Sodium Intake

- ▶ Sodium intake should be limited to less than 2300mg (1 Teaspoon)
- ▶ Limit frozen foods, canned foods, prepackaged foods, soda, and fast food

Choose Lean Protein

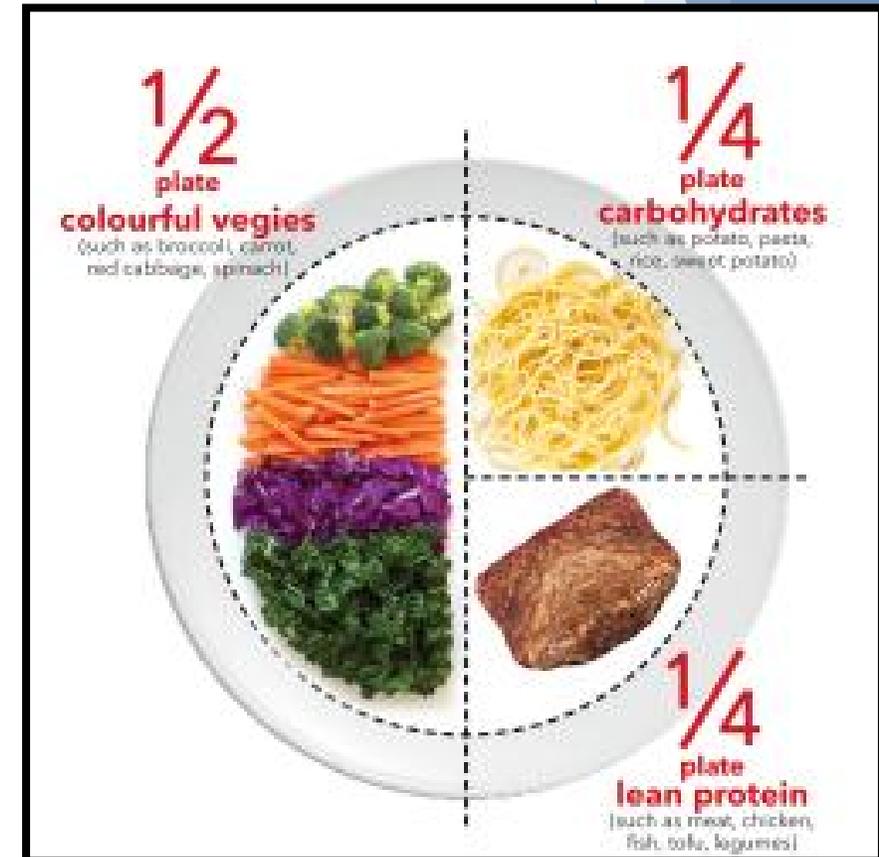
- ▶ Limit intake of meats high in cholesterol
- ▶ Chicken, turkey, fish, and lean pork are healthy options
- ▶ Be mindful of how you prepare them as well

Increase Fiber (Fruit, Vegetables, Whole Grains)

- ▶ Adequate fiber intake helps reduce cholesterol levels

Choose Low-Fat Dairy Options

- ▶ Aid in weight loss and reducing cholesterol levels



Controllable Risk Factors - Exercise

Let's Get Moving

- ▶ Exercise reduces risk associated with weight, chronic diseases, and depression and is linked to better sleep and brain function

Aim for 150 minutes of Aerobic Exercise

- ▶ 30 mins x 5 days per week of moderate aerobic exercise
- ▶ 75 mins twice weekly of vigorous exercise

Add Resistance Workouts 2 times per week

- ▶ Weightlifting or resistance training can reduce risk and improve weight



Managing Barriers to Exercise

Time

- ▶ Reflect/Record a typical week
- ▶ Where can you fit 3 sessions in?

Doing it alone

- ▶ Share health goals with others
- ▶ Invite them to join or find a group that will support you

Motivation/Energy

- ▶ What time works best for you?
- ▶ Use reminders to encourage you
- ▶ Treat as a “To-do” list

Lack of Resources/Equipment

- ▶ Walking, jogging, & calisthenics are free
- ▶ Use body weight exercises
- ▶ Research community resources

Family/Caregiving

- ▶ Incorporate children into exercise routines
- ▶ Alternate babysitting schedules if you're interested in a class

Travel

- ▶ National gym membership / hotel gym
- ▶ Pack resistance bands

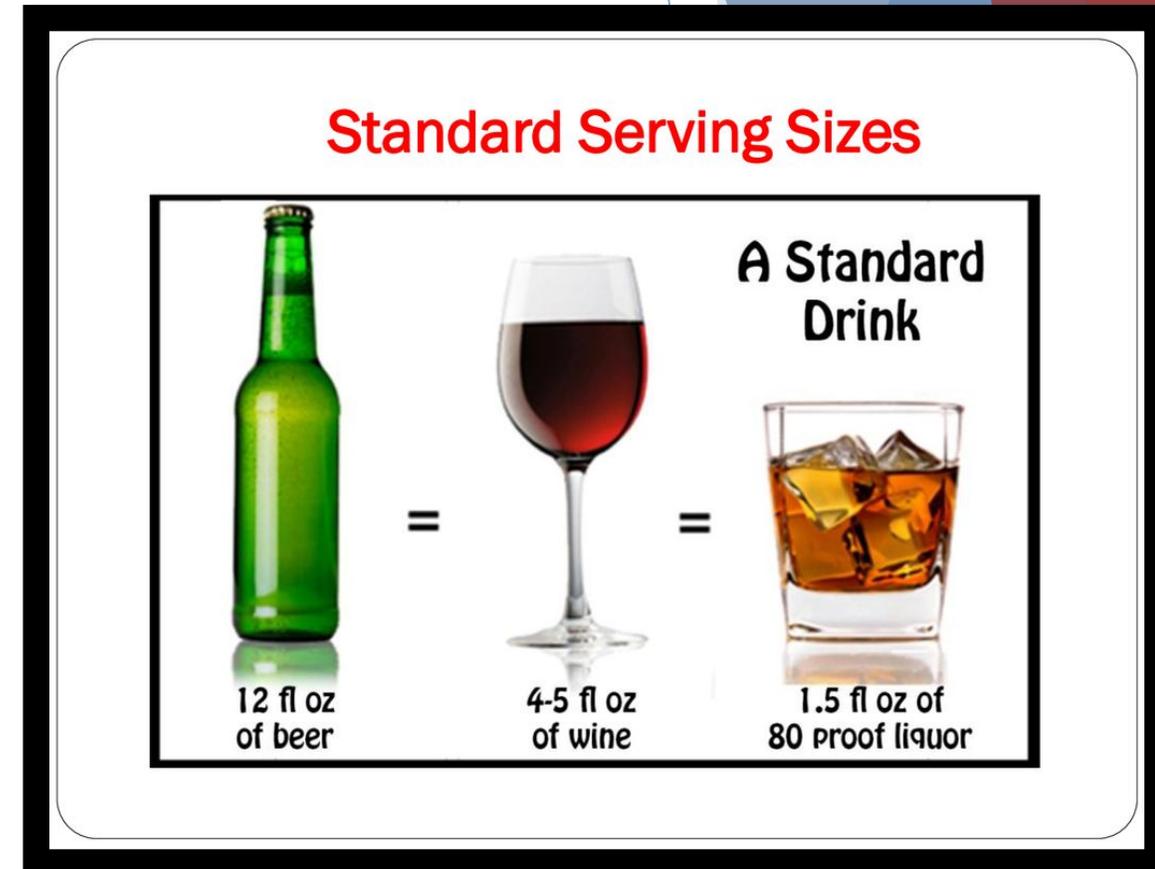
Controllable Risk Factors - Alcohol

Moderation is key

- ▶ Men – 2 servings per day
- ▶ Women – 1 serving per day
- ▶ Exceeding recommendations increase blood pressure and risks for CVD

Drinking for heart health?

- ▶ 4 oz of red wine has demonstrated the most benefit but may be due to other contributing factors



Controllable Risk Factors - Stress

Problems in life are inevitable, but how we handle the pressure of those problems can influence our health

- ▶ Chronic stress → worsened behaviors
- ▶ Worsened behaviors → increased CVD risks

Take time to reflect upon your current stress management

- ▶ Does it improve your stress symptoms?
- ▶ Is it helping your situation?
- ▶ Is it increasing your CVD risk?



Common Cardiovascular Diseases

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Hypertension – High Blood Pressure

Nearly half of the American population has undiagnosed hypertension

▶ Known as the “Silent Killer”

Hypertension is diagnosed by having a healthcare provider evaluate your blood pressure

Staying within blood pressure goals can improve outcomes significantly and prevent progression of diseases

What is considered “high”?

Normal = $<120/<80$

Elevated = $120 - 129/<80$

High = $\geq 130/>80$

Hypertension – Signs and Symptoms

Chronic uncontrolled hypertension leads to changes in vision, cognition, kidney function, and heart function

Only when pressure changes too quickly can the effects be felt immediately

- ▶ Headaches, chest pain, palpitations, sudden vision changes, difficulty breathing, fainting, changes in urine color



Hypertension – White Coat Syndrome

What is White Coat Syndrome?

- ▶ When blood pressure is only elevated in a clinic setting
- ▶ True WCS occurs in 10-15% of the population but up to 40% claim to have WCS
- ▶ Can delay necessary therapy in patients if misdiagnosed

How can you help your healthcare provider?

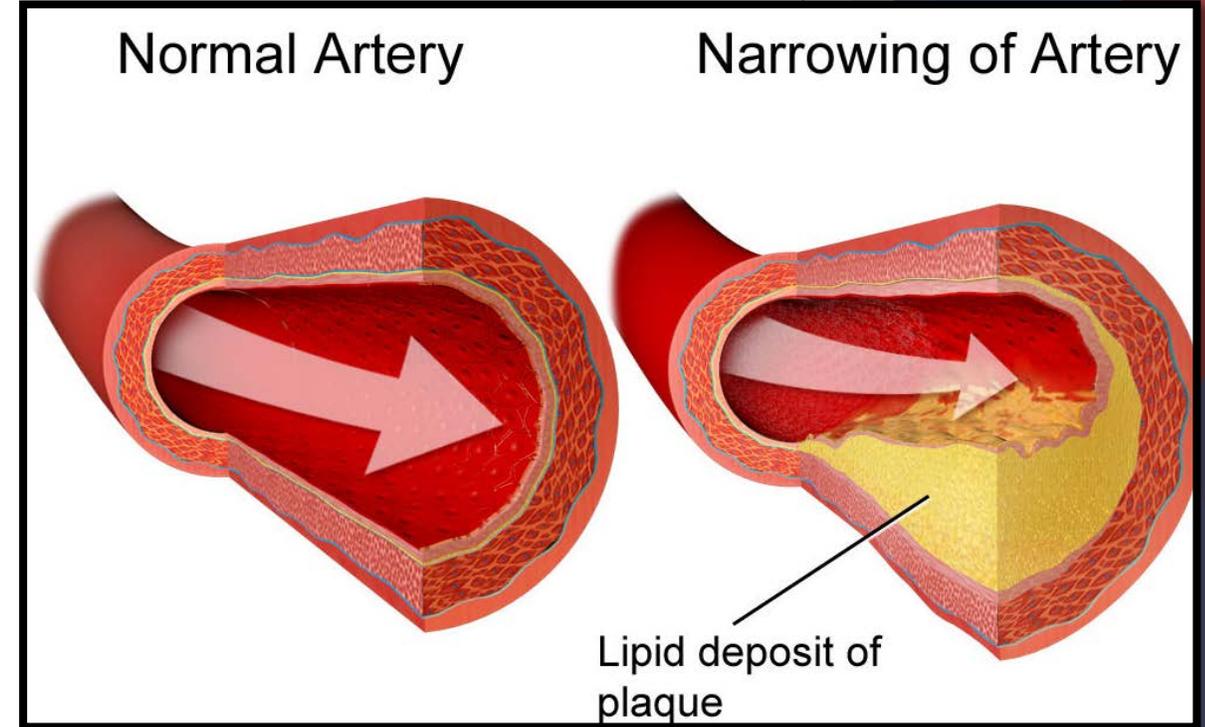
- ▶ Record blood pressures at home consistently
- ▶ Bring blood pressures to each doctor visit



Coronary Artery Disease (CAD) and Peripheral Artery Disease (PAD)

Beginning early in life, risk factors begin to affect our blood vessels

- ▶ As "Bad Cholesterol" settles in blood vessels it becomes trapped in the wall
- ▶ The body recognizes this as abnormal and tries to remove it
- ▶ Unfortunately, it cannot remove LDL properly and causes inflammation in the wall to form "plaques"
- ▶ Plaques grow over time and can eventually impair blood flow



Coronary Artery Disease (CAD) and Peripheral Artery Disease (PAD) – S/S

Coronary Artery Disease

- ▶ Shortness of breath
- ▶ Chest pain (angina)

Peripheral Artery Disease

- ▶ Leg pain
- ▶ Numbness or weakness in the legs
- ▶ Changes in skin (shiny)
- ▶ Poor skin healing

When blood flow is blocked in the arms or legs, it can lead to tissue death and amputations.

When blood is blocked in the brain, strokes can occur

When blood is blocked in the heart, heart attacks occur

Myocardial Infarction – Heart Attack

Every 40 seconds, an American has a heart attack

Sudden onset of pain due to lack of oxygen delivery to the heart

- ▶ Pain described as an “elephant on my chest”
- ▶ Lack of blood flow in heart’s own blood vessels
- ▶ Lack of oxygen causes heart tissues to become damaged and/or die

Heart attacks can increase the risk for developing other CVD

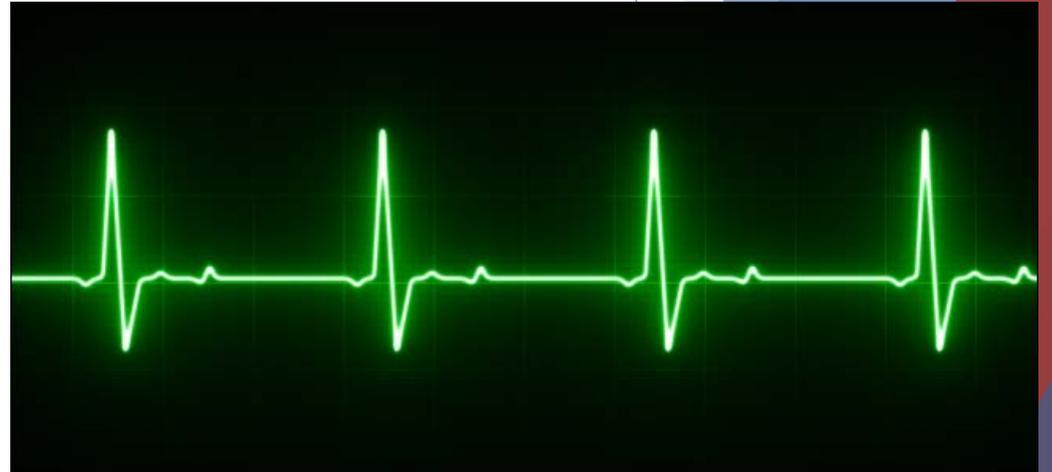
Arrhythmias

Occurs when the heart beats or contracts abnormally

Various forms of arrhythmias

- ▶ Slow heart beat (bradycardia)
- ▶ Fast heart beat (tachycardia)
- ▶ Irregular beating (Atrial fibrillation aka AFib)

Can be caused by damage to the heart (heart attack or CAD) but is mostly caused by changes in the hearts electrical signaling



Arrhythmia Vs Heart Attack – Signs/Symptoms

Arrhythmia

- ▶ Flutters/palpitations
- ▶ Fatigue/weakness
- ▶ Fainting/dizziness
- ▶ Rapid heart beat

Heart Attack

- ▶ Chest pain that radiates to back and arms
- ▶ Shortness of breath
- ▶ Sweating
- ▶ Nausea
- ▶ Lightheadedness

Atrial Fibrillation - AFib

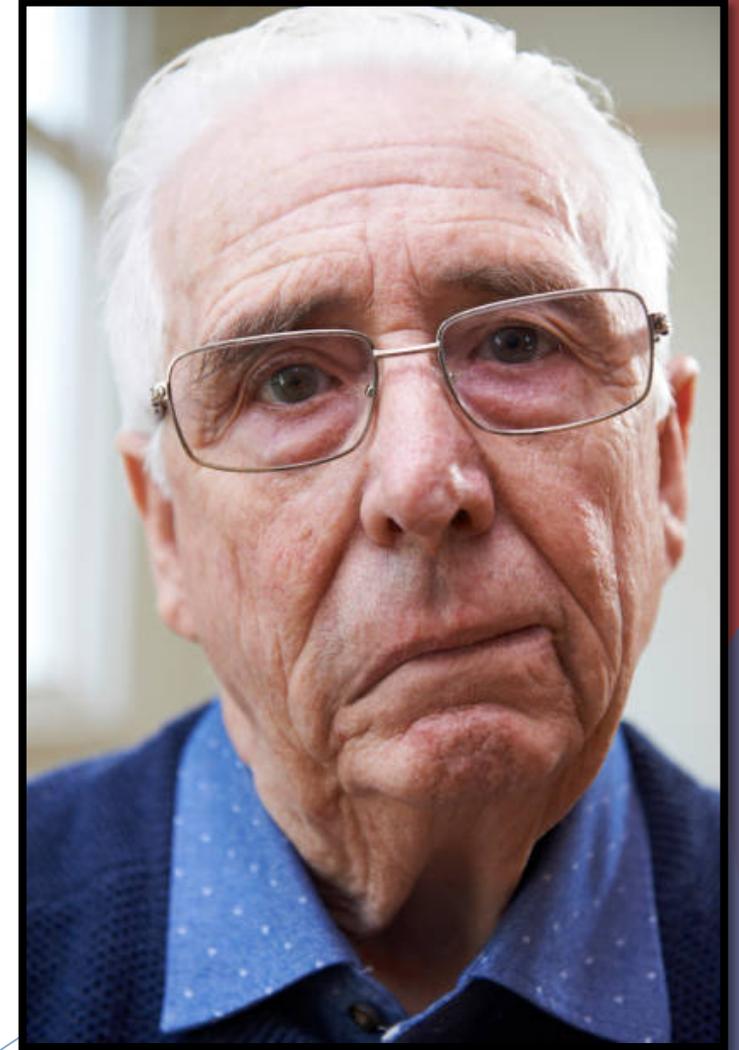
An estimated 2.7 million Americans live with Afib

- ▶ Contributes to 15 – 20% of all stroke cases

Occurs when the top half of the heart does not beat correctly

The irregular beating alters blood flow in the heart

- ▶ Stagnant blood when given time can form a clot
- ▶ Eventually these clots grow and can block blood flow



Heart Failure

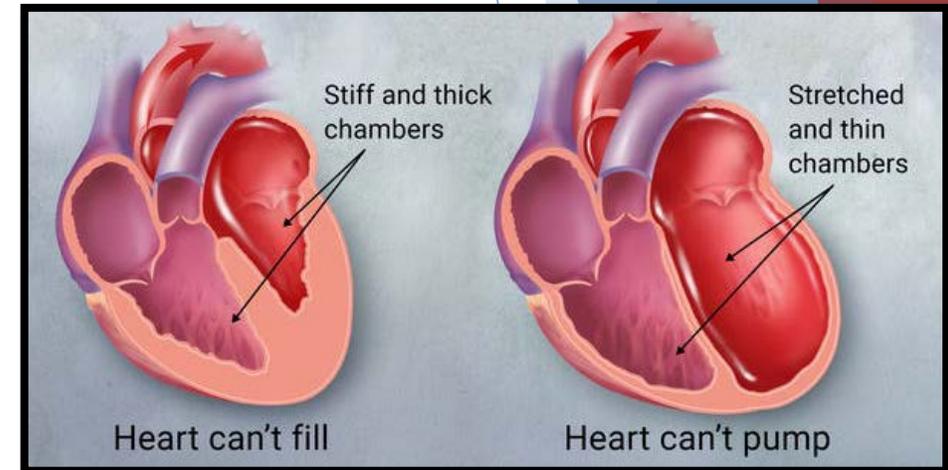
Nearly 1 in 5 Americans will develop heart failure in their lifetime

The heart loses the ability to meet the body's demand and attempts to compensate for this loss by:

- ▶ Enlarging its volume
- ▶ Increasing muscle mass
- ▶ Beating faster

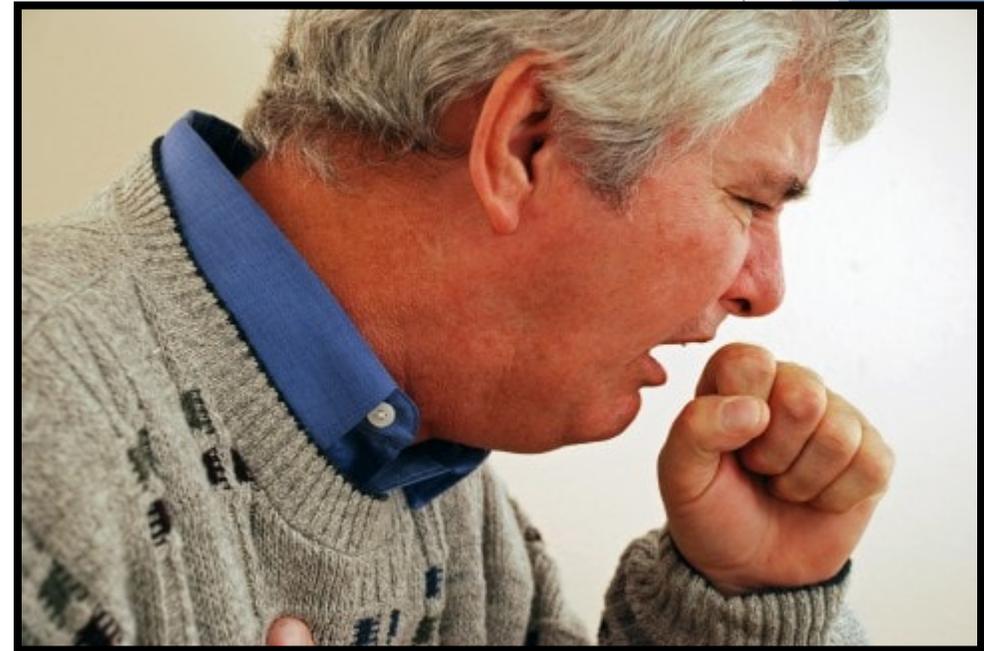
Eventually it cannot keep up with demand and symptoms set in

Risk factors for developing include age, hypertension, coronary artery disease, heart attacks, and atrial fibrillation



Heart Failure – Signs and Symptoms

- ▶ Shortness of breath or difficulty breathing
- ▶ Persistent coughing or wheezing
- ▶ Swelling or fluid accumulation
- ▶ Tired or fatigued
- ▶ Lack of appetite
- ▶ Confusion
- ▶ Increased heart rate



Treatments for CVD

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Drug Class	Common Medications	Use/Benefit	Side Effects
ACE inhibitors	<ul style="list-style-type: none"> Lisinopril Benazepril Ramipril Enalapril 	<ul style="list-style-type: none"> Decreases blood pressure Protects vessels from disease progression Reduce risk of cardiovascular diseases in patients with established risk factors 	<ul style="list-style-type: none"> Cough Dizziness upon standing Elevated potassium
ARBs	<ul style="list-style-type: none"> Losartan Valsartan Irbesartan Olmесartan 	<ul style="list-style-type: none"> See above 	<ul style="list-style-type: none"> Dizziness upon standing Elevated potassium
Statins	<ul style="list-style-type: none"> Atorvastatin Rosuvastatin Pravastatin Simvastatin 	<ul style="list-style-type: none"> Reduces “Bad Cholesterol” Reduces plaque formation 	<ul style="list-style-type: none"> Muscle pain/weakness
Beta-Blockers	<ul style="list-style-type: none"> Metoprolol Bisoprolol Carvedilol Atenolol 	<ul style="list-style-type: none"> Controls heart rate Helps heart beat more efficiently Decreases blood pressure 	<ul style="list-style-type: none"> Fatigue Sexual dysfunction
Calcium Channel Blockers	<ul style="list-style-type: none"> Amlodipine Diltiazem Verapamil 	<ul style="list-style-type: none"> Reduce blood pressure Diltiazem and Verapamil reduce heart rate 	<ul style="list-style-type: none"> Swelling in arms and legs Fatigue

Drug Class	Common Medications	Use/Benefit	Side Effects
Thiazide Diuretics	<ul style="list-style-type: none"> Hydrochlorothiazide Chlorthalidone 	<ul style="list-style-type: none"> Removes excess fluid via kidneys Lowers blood pressure 	<ul style="list-style-type: none"> Increased urination Dehydration Loss of important electrolytes
Loop Diuretics	<ul style="list-style-type: none"> Furosemide Bumetanide 	<ul style="list-style-type: none"> See above 	<ul style="list-style-type: none"> Dizziness upon standing Reduced potassium that often requires supplementation
Vitamin K Antagonist	<ul style="list-style-type: none"> Warfarin 	<ul style="list-style-type: none"> Prevents clots formation Reduces stroke risk 	<ul style="list-style-type: none"> Bleeding Requires frequent checks Requires consistent diet
Direct Oral Anticoagulants	<ul style="list-style-type: none"> Xarelto Eliquis Pradaxa 	<ul style="list-style-type: none"> Prevent clot formation Reduces stroke risk 	<ul style="list-style-type: none"> Bleeding
Antiarrhythmic	<ul style="list-style-type: none"> Tikosyn Sotalol Amiodarone 	<ul style="list-style-type: none"> Regulates heart beat 	<ul style="list-style-type: none"> Frequent monitoring liver and kidney function

Aspirin Therapy

Shown to reduce risk of CVD in patients with risk factors

Can help prevent recurrent events in those who've had an event

Recent evidence shown that taking without the need can increase risk for gastrointestinal bleeding

How to take aspirin

- ▶ 81mg once daily with food

Common side effects

- ▶ Bleeding
- ▶ Upset stomach

What is your plan to reduce CVD?

Recommendations

1. Schedule an annual wellness visit with your PCP
2. Take steps to improve your lifestyle
 - ▶ Diet, Exercise, Stress, Sleep
3. Take medications as prescribed
4. Monitor blood pressure at home
5. Ask for help when needed

Appointments Available at the SWC

- ▶ Health Watch screening
- ▶ Smoking cessation
- ▶ Blood pressure checks
- ▶ Healthy Habits
- ▶ Diabetes and You
- ▶ Medication Therapy Management (MTM)

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