

Sanford Center for Screening



SANFORD[®]
HEALTH

Sanford Center for Screening

Did You Know

Even with no other symptoms, people with risk factors for heart disease such as hypertension, diabetes, and obesity, should be evaluated.



One in Five
Americans has high
blood pressure



One in Two
Americans have
elevated cholesterol

The Best Care for Patients

The heart care team at Sanford Health supports prevention and minimally invasive treatment for the patient. Sanford's team of cardiologists and surgeons are available at any time. They work with the emergency room staff, family medicine providers, and other specialists to deliver the best results.

The Sanford Center for Screening is part of our large network of providers who care for patients.



Screening and Education Services

Heart screening provides people with resources and wellness information to improve their health. Our goal is to help develop an active and healthy community through screening services, education, and prevention. Your provider may order more tests after reviewing the results of your screening.

Heart Screen

The heart screen is a group of tests that evaluates your risk of heart disease. The heart screen may include:

- CT Calcium Score
- EKG
- Total Cholesterol
- Blood Pressure
- Body Mass Index (BMI)

Vascular Screen

The vascular screen is a group of ultrasound tests that evaluate the blood vessels in the neck, legs, and abdomen. The vascular screen includes:

- Carotid Artery Ultrasound
- Ankle Brachial Index
- Abdominal Aortic Aneurysm Ultrasound

For more information, or to schedule an appointment in South Dakota, Minnesota, or Iowa call (605) 312-2150.

For more information or to schedule an appointment in Fargo, North Dakota call (701) 417-4295.



The Heart screen

The Heart screen is a group of tests that evaluates your risk of heart disease.

Body Mass Index (BMI)

Compares your height and weight to a healthy weight.

Blood Pressure

Measures the pressure of the blood against the wall of your arteries. Elevated blood pressure increases the risk of heart disease and stroke.

Electrocardiogram (EKG)

Records electrical impulses as they travel through the heart. Patterns in heartbeats and rhythms may suggest a number of heart conditions.

Framingham Score

Estimates risk of having heart problems within the next 10 years.

Heart Calcium Score

Looks at the amount of plaque in the coronary arteries (blood vessels). The higher the score on your calcium test, the more plaque you have in the arteries of your heart. This increases your chance of having a heart attack.

Lipid Panel

Total cholesterol (non-fasting) measures:

- Total Cholesterol (TC)
- High Density Lipoprotein (HDL) - good cholesterol
- TC/HDL Ratio

Results that are outside of the normal range increases the risk of heart disease and stroke.

Other Preventative Screening

Screenings are one of the most important things you can do for your health. It is important to ask your provider when to have these screenings.

General Screenings for Women

- Bone Density Screen
- Mammogram
- Pap Test
- Pelvic Exam
- Colorectal Cancer Screen

General Screenings for Men

- General Physical Exam
- Prostate-Specific Antigen (PSA)
- Colorectal Cancer Screen

Coronary Artery Disease

What Is Coronary Artery Disease?

Coronary Artery Disease (CAD) is a narrowing of the small blood vessels that supply blood and oxygen to the heart.

What Happens When Narrowing Occurs?

When your coronary arteries are narrowed or blocked, oxygen-rich blood cannot reach your heart muscle. This can cause chest pain (angina) or a heart attack. A heart attack occurs when blood flow to an area of your heart muscle is completely blocked.

CAD can weaken the heart muscle leading to heart failure and an irregular heart beat.

Health Risk Factors

Body Mass Index

Body Mass Index (BMI) is determined from a person's weight and height. For most people, BMI is a guide to how much body fat they have.

BMI does not factor in a person's:

- Percent body fat
- Activity level
- Muscle mass

BMI may **underestimate** body fat in older persons and others who may have lost muscle mass. But, the BMI may **overestimate** body fat in athletes or others who have a muscular build.

Waist Management

Just above your navel is your natural waist. The distance around your natural waist is your waist circumference. Your waist circumference goal should be 40 inches or less in men and 35 inches or less in women.

Waist-to-Hip Ratio

Where fat is stored can be a risk for heart disease, stroke, and diabetes. Measure your hips at the widest part of your buttocks. Divide your waist measurement by your hip measurement.

Females	Males	Body Shape	Estimated Health Risk
0.80 or below	0.95 or below	Pear	Low
0.81 to 0.85	0.96 to 1.0	Avocado	Moderate
0.85+	1.0+	Apple	High

Blood Pressure

Blood pressure measures the force blood puts on blood vessel walls as it travels through the body. It is two numbers (for example, 120/80). The systolic (top) number shows the pressure in the heart and arteries when the heart contracts. The diastolic (bottom) number shows the pressure in the heart and arteries during the resting or filling stage of the heartbeat.

Blood pressure readings that are elevated can lead to heart attack and other forms of heart disease.

Tips to Control Blood Pressure

- Reach and maintain a healthy weight
- Use salt in moderation
- Eat foods low in fat, high in fiber, and low in dietary saturated fats
- Get regular exercise
- Avoid alcohol
- Limit caffeine
- Take medicine if prescribed
- Stop using tobacco

Risk Factors

- Family history of high blood pressure
- Gender – men are more likely to have high blood pressure; but women's chance of having high blood pressure increases after menopause
- Age – over 55 years of age
- Ethnicity – African Americans, Hispanics, and Asians are more likely to have high blood pressure
- Excess weight – a BMI of more than 25 or a Waist/Hip Ratio of more than 0.80 for women; or 0.95 for men
- Salt or sodium sensitivity
- Use of alcohol
- Use of oral contraceptives
- Inactive lifestyle
- Stress

Electrocardiogram (EKG)

An electrocardiogram – also called an EKG or ECG – is a recording of the electrical impulses of your heart. This short recording of the heart's electrical activity can show if the heart is beating normally. If the heart is found to have an irregular rhythm, more tests may be needed.

Framingham Score

Framingham Heart Study researchers have developed a score sheet that can help predict when a person may have angina (chest pain), a heart attack, or die from heart disease.

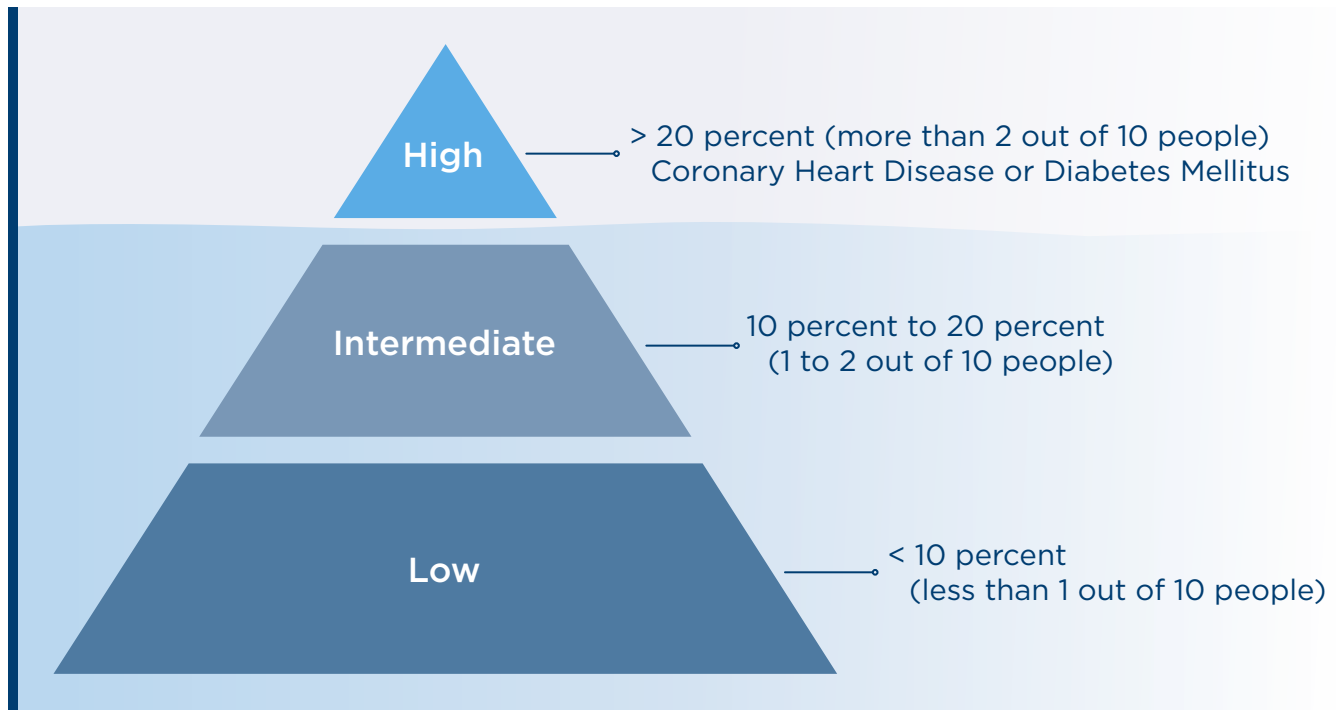
The score is determined by reviewing your risk factors and personal health history that can lead to heart disease such as:

- High blood pressure
- Cholesterol
- Tobacco use
- Age and gender

The test gives you one number that estimates your risk of having heart disease within the next 10 years.

Risk Prediction

The Coronary Heart Disease Prevention Iceberg



Heart Calcium Scoring

Plaque is a build up of fat on the inside of the walls of your arteries. The heart calcium score looks at the amount of plaque in the coronary arteries. The higher the score on the calcium test the more plaque you have in the arteries of your heart. This increases your chances of having a heart attack or Coronary Artery Disease (CAD).

Why Is the Scan Done?

The scan helps detect early heart disease.

Who Should Have the Screening?

A doctor may recommend this test if you have risk factors for CAD but no clinical symptoms. It is often suggested for anyone 40 years of age or older or those with other risk factors.

Risks From the Screening

There is a slight risk from being exposed to any radiation, including the low levels used for a CT scan.

For some people the **first sign** of underlying cardiovascular disease is sudden cardiac death.



Cholesterol Facts

Cholesterol is a soft, waxy fat (lipid) found in the blood and body cells.

Cholesterol is needed to build cell walls, transmit nerve impulses, and produce hormones. The liver makes all the cholesterol the body needs. We also get cholesterol through our diet.

Most people eat far too much cholesterol per day. Health experts recommend less than 300 mg/day and less than 200 mg/day if you already have high blood cholesterol.

High cholesterol levels increase the chance for plaque buildup in artery walls. This is called atherosclerosis (ath e-ro skle-ro sis).

Your body needs cholesterol to function. Too much or too little of different types of cholesterol can cause serious problems such as heart attacks. Below are the different lab tests for cholesterol.

Types of Cholesterol

Total Cholesterol

Total Cholesterol (TC) is made up of both good and bad cholesterol. It measures the amount of cholesterol in the blood at a given time.

High-Density Lipoprotein (HDL)

High-Density Lipoprotein (HDL) is good cholesterol. It protects against plaque buildup. You can increase your HDL by doing aerobic exercise regularly and not using tobacco.

TC/HDL Ratio

This is the balance between the total cholesterol and the HDL.

Low-Density Lipoproteins (LDL)

Low-Density Lipoproteins (LDL) is bad cholesterol that can build up as plaque in artery walls. Eating less saturated fats and trans-fats can reduce LDL levels.

Triglycerides

Triglycerides are another form of fats found in the blood. They move LDL to the arteries where it creates plaque build-up. Triglycerides come from:

- Excess sugar
- Simple carbohydrates
- Excess alcohol intake
- Excess weight
- Poorly controlled bloodsugar levels

Total Cholesterol (Non-Fasting)

The Total Cholesterol non-fasting screen measures your Total Cholesterol, HDL (good) Cholesterol and TC/HDL Ratio. Results outside the normal range increase your risk of heart disease and stroke.

	Recommended	Moderate Risk	High Risk
Total Cholesterol	199 or less	200 to 239	240 or greater
HDL (Good Cholesterol)	60 or greater	59 to 40	less than 40
TC/HDL Ratio	4.5 or less	4.6 to 5.9	6 or greater
LDL (Bad Cholesterol)	100 or less	130 to 159	160 or greater
Triglycerides	150 or less	150 to 199	200 or greater

General Tips to Reduce Cholesterol

- Trim fat from meat and remove skin from poultry.
- Replace highly saturated fats with polyunsaturated fats.
- Eat more seafood that is high in omega-3 fatty acids such as sardines, salmon, and mackerel.
- Increase your exercise to help improve HDL cholesterol.
- Try to eat five or more servings of fruits and vegetables each day.
- Drink skim milk instead of whole milk.
- Increase your intake of soluble fiber.
- Maintain a healthy weight. Extra weight is linked to higher levels of bad cholesterol (LDL).
- Give up tobacco. It depresses levels of good cholesterol (HDL).
- Relieve stress. Stress causes your body to increase the amount of fats in the bloodstream, which can cause plaque to build up faster.

Carotid Artery

Carotid artery disease is a serious health problem. Arteries are smooth and clean on the inside walls. Over time plaque can build up on these walls. This can cause a stroke.

An ultrasound is often done to check blood flow in the carotid arteries

Vascular Screen

The vascular screen is a series of ultrasound tests that evaluate the blood vessels in the neck, legs, and abdomen. A probe is placed over the blood vessels. Sound waves are used to create a picture of your blood vessels.

Who Should Have the Screening?

This screening is for people who are over the age of 40 and have a personal or family history of cardiac disease, heart attack, or stroke.

Risks From the Screening

There are no known risks with having vascular screening.

Carotid Artery Ultrasound

Checks for narrowing or blockage in the main arteries of your neck. It determines your risk for a stroke.

Abdominal Aortic Aneurysm Ultrasound

Checks for an enlargement or a bulge in the wall of your abdominal aortic artery. This bulge is called an aneurysm. Abdominal aortic aneurysms are hereditary and may be fatal.

Ankle-Brachial Index

Checks the blood flow in your legs. Poor blood flow could mean you have a higher risk for heart disease.

Abdominal Aortic Aneurysm (AAA)

An aortic aneurysm is the weakening and enlargement of the aortic wall. If left untreated, this can lead to rupture and death. Plaque build-up (atherosclerosis) in the aortic artery can lead to a weakening of the wall. The damaged area of the artery can be stretched or ballooned from the pressure of blood flow inside the artery, leading to an aneurysm.

Risk Factors for Aneurysms, Which Increase With Age

- Tobacco use
- Atherosclerosis
- High blood pressure
- Diabetes
- High cholesterol
- Overweight or obesity
- Gender: men are up to 10 times more likely than women to develop an aneurysm
- Age: occurs more often in people 60 to 80
- Family history: immediate relative, such as a mother or brother, who had an aneurysm
- Inflammation or infection of the artery wall
- Certain diseases, such as Marfan syndrome, can weaken the wall of the aorta

Peripheral Artery Disease (PAD)

PAD is a disease of blood vessels outside the heart and brain. PAD most commonly affects the legs, but can affect other areas including the arms, stomach, or kidneys.

How is PAD Diagnosed?

The ankle-brachial index (ABI) is one way to test for PAD. It uses a doppler probe and blood pressure cuff to check the circulation in your leg arteries. The blood pressures of both your arms and your ankles are taken and the ankle/brachial index is determined.

Risk Factors for Developing PAD Include:

- Tobacco use
- Diabetes
- Family history of heart disease
- Overweight or obesity
- High blood pressure
- High cholesterol
- Age (over 50 years)
- Inactive lifestyle

Symptoms of PAD Include:

- Claudication (dull pain in the buttocks, thighs, calves, or feet following exercise or walking)
- Numbness or tingling in the leg, foot, or toes
- Changes in skin color (such as paleness or a bluish color) in the leg, foot, or toes
- Not able to feel a pulse

Heart Disease

Your Risk of Heart Disease

Factors that you can control:

- Tobacco use
- Weight
- Blood Pressure
- Cholesterol
- Diabetes

Factors beyond your control:

- Age
- Gender
- Family History
- Ethnic Background
- Hormonal changes in women

Take steps to reduce your risk of heart disease.

- Quit using tobacco
- Stay physically active
- Reach and maintain a healthy weight
- Eat a heart healthy, low-fat diet
- Check blood pressure and cholesterol regularly

Heart Attack Symptoms

Men and women often have different symptoms of a heart attack. It is important to recognize and understand which symptoms men and women are likely to have so you can act quickly.

Men	Women
Tightening, pressure, squeezing, aching sensation in the chest or arms	Discomfort or pain in the upper body or chest such as pressure, squeezing, or tightness lasting more than a few minutes
Discomfort in the neck or upper back, particularly between the shoulder blades	Pain that moves in the shoulders, neck, arms, jaws, teeth or back and spreads around
A sharp, burning or cramping pain in chest or arms	Pain in the mid-chest, shoulders, elbows, upper abdomen or fingers
Aching, weakness or numbness that begins in or spreads to the neck, jaw, throat, shoulder, or back of the arms	Unusual tiredness
Severe fatigue	Lightheadedness
Anxiety	Sweating
Paleness	Shortness of breath
Cold sweats	Nausea
Difficulty breathing	Loss of appetite
Nausea	Chronic heartburn before heart attack occurs
Vomiting	
Feeling of fullness	
Feeling of indigestion (heartburn)	

Diabetes and Your Heart

People with diabetes are more likely to have a heart attack or stroke if they are not correctly managing their diabetes.

High blood glucose levels can damage vital organs such as your kidneys and your eyes over time. If you have diabetes, taking your medication correctly and maintaining healthy blood sugar levels can help reduce your risk of heart disease.

Controlling Your Blood Sugar

- Eat your meals on a regular schedule
 - Do **not** skip meals
- Watch portion sizes
- Use less salt, fat, and sugar
- Eat the same amount of food each day
- Eat high fiber foods

Heart Healthy Shopping

Before Shopping

- Be sure to eat so you are not hungry.
- Plan a week's worth of well-balanced meals.
- Make a grocery list when planning meals for the week.
- Consider grocery shopping on-line to limit impulse buying.

At the Store

- Read labels.
- Select a variety of brightly colored fruits and vegetables, fresh and frozen are best. Look for fruits and vegetables that are in season.
- Buy lite or low-fat dairy products, salad dressings, and condiments.
- Look at bread labels for whole grain or whole wheat flour as the first ingredient. Check for fiber content (3 plus grams per slice is best).
- Avoid baked goods with partially hydrogenated oils.
- Choose lean cuts of meat. Look for the words loin or round in the name.
- Look for reduced-fat, low sodium cold cuts at the deli.
- Choose frozen entrees with less than 800 mg of sodium per serving.
- Buy spices and salt-free spice blends instead of salt for cooking and flavor.

Heart Healthy Eating

Eating healthy is an important part of living a healthy life. This means choosing the right foods as well as choosing the right amount of each food. Food choices play a role in preventing Coronary Artery Disease (CAD) and heart attacks along with promoting good health.

It is important to:

- Choose a variety of fruits and vegetables
- Choose whole grain and high fiber foods
- Choose lean meats (at least 90% lean)
- Choose low-fat dairy
- Limit sodium (salt) intake
- Limit added sugars

Balance Your Meal

- Use MyPlate as a guide (ChooseMyPlate.gov) when making choices.
- Have protein with most meals and snacks. Choose from many sources including plant items like beans, legumes, nuts, and seeds.
- Choose starchy foods in moderation.
- Fill up on larger amounts of non-starchy vegetables.

Choose the Right Fat

Choose monounsaturated fatty acids and omega-3 polyunsaturated fatty acids. The goal is to include two servings of omega-3 fatty acids per week.

Limit Desserts and Sweets

The American Heart Association recommends:

- Women take in no more than 26g of added sugar/day (6 tsp)
- Men take in no more than 36g of added sugar/day (9 tsp)



Exercise and Your Heart

Benefits of Exercise

Exercise helps your health in many ways. Talk with your doctor before beginning an exercise program.

Exercise:

- Strengthens the heart muscle so it can pump the amount of blood your body needs with less effort
- Increases levels of HDL, or good cholesterol, while decreasing triglycerides
- Reduces risk of heart disease, high blood pressure, osteoporosis, diabetes, and obesity
- Keeps joints, tendons, and ligaments flexible which makes it easier to move around
- Reduces some of the effects of aging
- Adds to your mental well-being by improving your mood and helping to relieve stress and anxiety
- Increases your energy and endurance
- Helps you sleep better
- Helps you maintain a normal weight

Tobacco Use and Heart Health

All forms of tobacco increase the risk of developing heart disease or stroke. When you smoke one cigarette each day your:

- Heart rate and blood pressure increase and your major blood vessels narrow causing the heart to work harder.
- Oxygen supply in your blood decreases causing shortness of breath and lack of oxygen.
- Blood can clot faster, causing a greater chance of heart attack, stroke, and circulatory problems.

If you currently use any form of tobacco and are ready to stop, talk with your provider to discuss resources and helpful tips to quit.

Helpful Resources

Sanford Health

www.sanfordhealth.org

Sanford Vascular Associates

www.totalvascularcare.com

American Cancer Society

www.cancer.org

American College of Sports Medicine

www.acsm.org

American Heart Association

www.heart.org

Centers for Disease Control

www.cdc.gov

Exercise is Medicine

www.exerciseismedicine.org

Healthy South Dakota

www.healthysd.gov

Men's Health

www.cdc.gov/men

National Heart Lung and Blood Institute

www.nhlbi.nih.gov

Take Heart America

www.takeheartamerica.org

Women's Health

www.womenshealth.gov

North Dakota Department of Health

www.ndhealth.gov

Minnesota Department of Health

www.health.state.mn.us

South Dakota Department of Health

www.doh.sd.gov

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