Congratulations!

Sarasota County Government has gone beyond standard testing to examine your inflammation levels so you can know your risk for heart attack and stroke!

Moving towards Optimal Wellness

You have taken an important step to know your risk.

There is strong evidence that cholesterol testing only measures half of your estimated risk for cardiovascular disease, or a subsequent heart attack or stroke. While routine lipid screening plays an important role in the management and prevention of heart disease, it does not provide a complete picture of your health. Cleveland HeartLab’s next generation testing for cardiovascular disease provides insight into your individual risk. We are all exposed to various risk factors, however everyone’s body will respond to them differently. Inflammation testing identifies this unique response and can help find cardiovascular risk that would not have been identified using traditional testing. This important information, along with advanced lipids and metabolic testing, provides a personalized health profile that you and your doctor can use to determine your path towards optimal wellness.
Learn about the tests.

Inflammation

Oxidized LDL (OxLDL) measures oxidized damage to LDL cholesterol (bad cholesterol). High levels trigger inflammation, increasing your risk of developing metabolic syndrome and your future risk of plaque buildup.

ADMA is a chemical in your blood that reduces nitric oxide production needed to keep a health endothelium (the cells that line your blood vessels). High levels of ADMA indicate damage.

hsCRP measures inflammation in the body. Increases of hsCRP are seen with recent illnesses, tissue injury, if you are fighting a virus or infection, with periodontal (gum) disease as well as cardiovascular disease.

Lp-PLA₂ Activity measures vascular-specific inflammation. When cholesterol enters, and gets trapped in the vessel wall, inflammation occurs. Lp-PLA₂ Activity may identify active cholesterol build-up inside the vessel wall and the progression of cardiovascular disease.

MPO identifies vulnerable plaque due to the breakdown of cells lining the blood vessel. This breakdown leads to white blood cells attacking the vessel wall and marks the progression of cardiovascular disease.

Advanced Lipids

Apolipoprotein (ApoB) is found on the surface of LDL (the carrier of ‘bad’ cholesterol. This acts as a ligand for LDL receptors on various cells throughout the body thereby regulating cholesterol influx into tissues.

Small-Dense LDL (sdLDL) is a smaller, more dense, particular of LDL which carries “bad cholesterol.” sdLDL is easily oxidized, has a higher affinity for vessel walls, and remains in the circulation longer because it is less likely to be cleared by the liver, making it more atherogenic than larger LDL particles.

Metabolic

Hemoglobin A1C (HbA1C) measures the average blood sugar level over the previous two to three months. The HbA1c test is used to diagnose pre-diabetes or diabetes, and monitor glucose control in patients with diabetes.


About us.

Cleveland HeartLab is a premier, next-generation clinical reference laboratory focusing on inflammation and advanced cardiovascular biomarkers that help identify patients with hidden risk for heart disease.
**DEFINITIONS**

| **MPO**  | MPO is an enzyme released by your white blood cells and acts as a measurement of your body’s response to damaged artery walls. These artery walls are affected by inflammation and cholesterol. MPO is associated with increased risk of heart disease even in people with other markers within normal limits. You may be 2 times more likely to die from cardiovascular complications. If you have an increased MPO it is important to manage your blood pressure and if you smoke quit! Eating a diet rich in fiber, whole grains, vegetables and fresh fruit won’t hurt either. |
| **Lp-PLA<sub>2</sub>** | Lp-PLA<sub>2</sub> is an enzyme that assesses inflammation in the arteries due to buildup of cholesterol. Increased Lp-PLA<sub>2</sub> predicts development of Coronary Artery Disease (CAD) in otherwise healthy people. An increased Lp-PLA<sub>2</sub> is an indicator of possible artery rupture. If you have an elevated Lp-PLA<sub>2</sub> you may wish to address lowering your LDL cholesterol, weight management and increasing the fiber in your diet. Menopausal women are more apt to see an increase in Lp-PLA<sub>2</sub>. |
| **hsCRP** | CRP is produced by the liver whenever there is inflammation present in your body. hsCRP, (high sensitivity CRP) measures smaller amounts of CRP in the blood. hsCRP is a clinical marker of general and cardiac inflammation. Healthy individuals with increased CRP are up to 4 times as likely to have Coronary Artery Disease (CAD). Inflammation can be both cardiac related or affected by pretty much anything that impacts the immune system such as a cold, infection, an autoimmune condition or stress. If you have an elevated hsCRP consider quitting smoking if you smoke, getting good dental care and eating a diet rich in whole grains, high fiber, fruit and vegetables. Decrease the sugar in your diet which increases inflammation and consider ground flax (a natural anti-inflammatory). |
| **ADMA** | Correlates with endothelial damage and increased likelihood for cardiovascular disease, hypertension, metabolic syndrome*, insulin resistance and hyperlipidemia. If you have an increased ADMA it is very important to focus on managing your blood pressure and if you smoke, quit. Certain foods help protect the endothelial wall because they are nitrous oxide precursors. You may wish to include them in your diet; beets, kale, arugula, spinach, salmon, walnuts, pistachios, oranges, cranberries, pomegranate, watermelon, brown rice, black tea, cayenne pepper, honey and garlic. |
| **SDMA** | Correlates with endothelial damage and increased likelihood for kidney insufficiency. If your SDMA is elevated you may wish to have your physician look at other kidney markers. An elevated SDMA puts you at greater risk for cardiovascular disease, hypertension, metabolic syndrome*, insulin resistance and hyperlipidemia. If you have an increased ADMA it is very important to focus on managing your blood pressure and if you smoke, quit. Certain foods help protect the endothelial wall because they are nitrous oxide precursors. You may wish to include them in your diet; beets, kale, arugula, spinach, salmon, walnuts, pistachios, oranges, cranberries, pomegranate, watermelon, brown rice, black tea, cayenne pepper, honey and garlic. |

[https://www.scgov.net/government/human-resources/wellness-program](https://www.scgov.net/government/human-resources/wellness-program)
### OxLDL
An elevated OxLDL reflects oxidation of ApoB attached to LDL cholesterol and is an early marker for Metabolic syndrome*. An increased OxLDL increases your risk for cardiovascular disease and heart attack. An Increased OxLDL often occurs with Polycystic Ovarian Syndrome (PCOS) / Kidney disease and some autoimmune diseases. If you have an elevated OxLDL, you may wish to manage your weight, reduce the portions of carbohydrates and eliminate simple sugars. Increase the fiber in your diet and exercise. Couch potatoes are particularly prone to elevated OxLDL. By changing your lifestyle you can affect your risk.

### ApoB
Reflects total number of atherogenic particles or bad cholesterol. The ApoB can be elevated even when your LDL cholesterol is within normal limits. The ApoB will reflect the early stages of insulin resistance, Metabolic Syndrome*, Diabetes, Kidney disease, Cystic Fibrosis. If you have an elevated ApoB, you may wish to manage your weight, reduce the portions of carbohydrates and eliminate simple sugars. Increase the fiber in your diet and exercise. If you smoke, quit.

### SdLDL
Small dense lipoprotein - determines cardiovascular risk in individuals with Metabolic Syndrome* and is associated with triglycerides in the range of 70 – 140+. If you have an elevated SdLDL, you may wish to manage your weight, reduce the portions of carbohydrates and eliminate simple sugars. Increase the fiber in your diet and exercise.

### HbA1c
HbA1c is short for Hemoglobin A1c, a 3-month average blood sugar – associated with pre-diabetes / diabetes, Metabolic Syndrome and Polycystic Ovarian syndrome, (PCOS). The HbA1c can be affected by stress, steroids and weight gain. If you have an Increased HbA1c consider weight management, decreasing the portions of carbohydrates and simple sugars while increasing the fiber in your diet. Exercise and managing your stress can help improve your blood sugars as well.

- **Metabolic Syndrome is a cluster of conditions that include 3 or more of the following markers: large waist circumference, (> than 35” for women and >40” for men. high blood pressure, high blood sugar, low HDL cholesterol and high triglycerides.**

If any of your markers are elevated, discuss with your medical provider to create a treatment plan that is right for you.
If you wish to discuss these markers in further detail, please call 861-6833 to make an appointment with Heidi-Jo Kaplan RD, CDE.

[https://www.scgov.net/government/human-resources/wellness-program](https://www.scgov.net/government/human-resources/wellness-program)
Myeloperoxidase
Know your risk of a heart attack.

What is myeloperoxidase?

Myeloperoxidase, or MPO, is an enzyme that is released by white blood cells called macrophages that measures your body’s response to damaged artery walls that have become thin, cracked, and ultimately unstable due to cholesterol accumulation and inflammation.

Why check my MPO levels?

When the walls of your arteries become damaged, cholesterol can enter and build up. Your body tries to remove the cholesterol by sending in immune cells. These cells wrongly think the cholesterol particles are bacteria or viruses that have invaded the body, and try to kill them by releasing MPO which acts like bleach. Instead of killing the cholesterol, MPO damages the cholesterol and contributes to the formation of foam cells, a name for cholesterol-filled immune cells. Instead of removing the cholesterol, these foam cells get stuck in the artery wall and contribute to chronic inflammation. Over time, the artery wall gets filled with plaque – a mixture of cholesterol, immune cells and foam cells – which goes relatively unnoticed until it is too late.

Just as lava in a volcano becomes hot and bursts open through the surface of the earth, plaque buildup inside the artery wall can become inflamed and burst through the wall of the artery to where the blood flows. When the plaque ruptures into the blood, the body responds to this injury by forming a clot. If the clot causes a complete blockage of blood flow, this can cause a heart attack.

Whether you have traditional risk factors for heart or vascular disease, such as abnormal cholesterol levels or high blood pressure, or known heart disease, the MPO test can help your medical provider find out if you have inflammation in your arteries that can add to your risk for a heart attack.

What can I do to help lower my MPO levels?

There are a number of things you can do to lower your overall risk of heart disease, as well as lowering your MPO levels.

- It is important to maintain a healthy blood pressure because high blood pressure may damage the vessel wall and begin plaque formation.
- A heart-healthy diet is also recommended, as research has shown that weight loss helps decrease inflammation.
- If you are a smoker, the importance of stopping smoking to decrease the chance of plaque rupture and clot formation is even more urgent.
- There are prescription and non-prescription medicines your medical provider can give you that reduce MPO levels.

Your medical provider will work with you to develop a treatment plan that is right for you to help reduce your risk of a heart attack. This may include imaging testing, such as CIMT or coronary artery calcium scoring.

<table>
<thead>
<tr>
<th>RELATIVE RISK</th>
<th>MPO (pmol/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>&lt;470</td>
</tr>
<tr>
<td>Moderate</td>
<td>470 - 539</td>
</tr>
<tr>
<td>High</td>
<td>&gt;540</td>
</tr>
</tbody>
</table>

Sarasota County
EMPLOYEE HEALTH and BENEFITS
What is the Lp-PLA2 Activity test?
The Lp-PLA2 Activity test measures the activity (or actions) of Lp-PLA2 in the bloodstream. Lp-PLA2 is an enzyme that can assess the amount of inflammation in your arteries due to a build-up of cholesterol.

Why should I get the Lp-PLA2 Activity test?
The Lp-PLA2 Activity test can help assess your risk for heart disease. When LDL cholesterol (the carrier of “bad” cholesterol) gets into your artery wall, the body tries to get rid of it by making Lp-PLA2. Unfortunately, the actions of Lp-PLA2 contribute to increased inflammation and increased cholesterol accumulation in the artery wall, forming what is called plaque. Inflammation can also make the cap covering the plaque thinner, which makes it more likely to rupture. The body responds to the rupture by forming a blood clot, which can block the flow of blood. If the blood flowing to the heart is blocked, it may cause a heart attack, while blocked blood flow to the brain may cause a stroke.

In short, the Lp-PLA2 Activity test can help your medical provider better understand the health of your arteries and determine if you are actively growing plaque that is at risk for rupturing and developing a heart attack or stroke.

What can I do to help lower my Lp-PLA2 Activity levels?
There are a number of things you can do to lower your overall risk of heart disease, as well as lowering your Lp-PLA2 Activity levels.

- Adopt a heart-healthy diet by eating more vegetables, fruits, and whole grains and reducing the amount of simple sugars and trans fats.
- Increase the fiber in your diet.
- Exercise more and on a consistent basis.
- If you smoke, quit, it is not easy but there are programs and strategies (including over-the-counter and prescription medications) that can improve your chance of success. Talk with your medical provider to find what works best for you.
- See your dentist as periodontal disease is a contributor to heart disease.
- There are prescription and non-prescription medicines, as well as supplements, your medical provider can give you that reduce Lp-PLA2 Activity levels.

Your medical provider will work with you to develop a treatment plan that is right for you to help reduce your risk of a heart disease.

RELATIVE RISK
Lp-PLA2 (nmol)

<123 Low

≥123 High Risk
hsCRP
Know your risk for chronic inflammation.

What is hsCRP?

C-reactive protein (CRP) is produced by the liver when inflammation is present somewhere in your body. Traditionally, the CRP test has been used to identify risk for infection or chronic inflammatory conditions. Now, there is a newer test available called high-sensitivity CRP, or hsCRP, that measures smaller amounts of CRP in the blood.

Why should I get my hsCRP levels checked?

Most of the time, you can tell if you have inflammation. For example, if you cut your finger, you may see redness and swelling, and feel pain. This is called acute inflammation, or short-term inflammation. Other times, inflammation in your body may not be so obvious. This type of inflammation may be present for a long period of time without any symptoms. This is called chronic inflammation, or long-term inflammation.

Recently, it has been shown by researchers that chronic inflammation may occur within the arteries of the heart, where it may play a role in the development and progression of heart disease, acting as a “silent killer”. Standard heart health tests, such as cholesterol tests, miss this chronic inflammation. The good news is that chronic inflammation can be monitored by measuring hsCRP levels in your blood.

Researchers have shown that high hsCRP levels can indicate heart attack and stroke risk, even in apparently healthy individuals. High hsCRP levels are also a risk factor for people who do not have other risk factors that medical practitioners commonly look for such as high cholesterol or high blood pressure. For people who have had a heart attack, elevated hsCRP levels may indicate if they are at risk for another heart attack or an ischemic stroke.

What can I do to help lower my hsCRP levels?

- Lifestyle changes, such as exercising more, eating more heart-healthy high fiber foods such as fruits/vegetables and whole grains or following a Mediterranean diet, can help to lower hsCRP levels.
- Quitting smoking helps reduce the amount of general inflammation in your body.
- Taking good care of your teeth can also help lower hsCRP and reduce your risk of heart disease.
- There are prescription and non-prescription medications that also can lower hsCRP.

It is important for you to work together with your medical provider to come up with a plan that is right for you.

<table>
<thead>
<tr>
<th>RELATIVE RISK</th>
<th>hsCRP (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.0 Low</td>
<td></td>
</tr>
<tr>
<td>1.0 – 3.0 Moderate</td>
<td></td>
</tr>
<tr>
<td>&gt;3.0 High</td>
<td></td>
</tr>
</tbody>
</table>
What is the endothelium and why is it important?

The endothelium is a thin layer of cells lining the inside of your blood vessels. These cells are in constant contact with the blood supply and, therefore, play an integral role in immunity, blood clotting and maintenance of blood pressure. When your endothelium is damaged, it may signify that you are at increased risk of having cardiovascular disease or renal (kidney) failure.

What are ADMA and SDMA?

ADMA (asymmetric dimethylarginine) and SDMA (symmetric dimethylarginine) are compounds made in your body as proteins are degraded, or broken down. ADMA and SDMA reduce your body’s ability to produce nitric oxide, a molecule that helps maintain a healthy endothelium. Therefore, elevated levels of ADMA and SDMA may identify reduced nitric oxide production and endothelial dysfunction, or damage.

What causes increased ADMA/SDMA levels?

Your ADMA and SDMA levels may increase if you have a poor diet/lifestyle, elevated LDL cholesterol, high blood sugar, high blood pressure, or if you are a smoker. These are all risk factors that can damage the delicate endothelial cells that protect your vasculature.

What can I do to lower my ADMA/SDMA levels?

Focusing on the health of your endothelium may help to lower ADMA and SDMA levels. This may be accomplished through:

- Lifestyle changes, including a diet that includes whole grains, fruit and vegetables. You should limit your intake of high sugar snacks and salty foods.
- There are certain foods that have been shown to help protect the endothelial wall. They are beets, kale, arugula, spinach, salmon, walnuts, pistachios, oranges, cranberries, pomegranate, watermelon, brown rice, black tea, cayenne pepper, honey and garlic.
- Maintaining an active lifestyle and a healthy weight, lowering blood pressure and decreasing blood LDL cholesterol levels can be beneficial.
- Your provider may prescribe medication to achieve a healthy blood pressure or normalize blood cholesterol and blood sugar levels.

It is important that you talk with your medical provider to develop a plan that works for you.

<table>
<thead>
<tr>
<th>RELATIVE RISK</th>
<th>REFERENCE RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMA (ng/Ml)</td>
<td>SDMA (ng/Ml)</td>
</tr>
<tr>
<td>&lt;100 Low</td>
<td>73 - 135 Low</td>
</tr>
<tr>
<td>100 – 123</td>
<td>Moderate</td>
</tr>
<tr>
<td>&gt;123 High</td>
<td>&gt;135 High</td>
</tr>
</tbody>
</table>

Sarasota County

EMPLOYEE HEALTH and BENEFITS
Metabolic syndrome consists of various risk factors that increase your chance of developing diabetes or vascular disease. Metabolic syndrome is characterized by having at least 3 of the following risk factors: a large waistline, high triglyceride levels, low HDL cholesterol (the "good" cholesterol) levels, high blood pressure or high blood glucose levels. In the US, approximately 34% of adults meet the criteria for metabolic syndrome. Even more alarming is the increasing presence of metabolic syndrome in children due to obesity.

Unfortunately, by the time metabolic syndrome is diagnosed, your blood vessels and heart are already damaged. Researchers have recently found that measuring oxidized LDL can predict your risk of developing metabolic syndrome.

**What is oxidized LDL?**
Oxidized LDL is LDL cholesterol (the “bad” cholesterol) that has been modified by oxidation. Oxidized LDL triggers inflammation leading to the formation of plaque in the arteries, also known as atherosclerosis. Oxidized LDL may also play a role in increasing the amount of triglycerides the body produces, as well as increasing the amount of fat deposited by the body. In turn, fat tissue can enhance the oxidation of LDL, creating a vicious cycle.

**Why should I get my oxidized LDL levels tested?**
Researchers have found that individuals with high levels of oxidized LDL are 4x more likely to develop metabolic syndrome up to five years following testing. In particular, increased oxidized LDL levels were associated with abdominal obesity and high triglyceride levels, as well as high blood glucose.

The oxidized LDL test can also help your medical provider decide if you may be at a higher risk for heart attack or heart disease than by looking at traditional risk factors alone. Oxidized LDL may be twice as good at helping your medical provider know your risk for heart disease as any one of the traditional risk factors.

**What can I do to help lower my oxidized LDL levels?**
- Lifestyle changes are the best option to help lower your oxidized LDL levels.
- If you smoke, ask your medical provider to help you quit. It is not easy but there are programs and strategies (including over-the-counter and prescription medications) that can improve your chance of success.
- Increase your amount of physical activity as approved by your medical provider.
- Manage your weight by decreasing your portions of carbohydrates and simple sugar.
- Increase the fiber in your diet.

**RELATIVE RISK**

<table>
<thead>
<tr>
<th>OxLDL (U/L)</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;60</td>
<td>Low</td>
</tr>
<tr>
<td>60 – 69</td>
<td>Moderate</td>
</tr>
<tr>
<td>≥70</td>
<td>High</td>
</tr>
</tbody>
</table>
**ApoB**

**Apolipoprotein B**

Know your risk for heart disease.

---

**What is ApoB?**

ApoB is the primary apolipoprotein found on the surface of LDL (the carrier of bad cholesterol). ApoB attaches to LDL receptors on various cells throughout the body and encourages influx into tissues.

LDL particles tend to be small and dense in patients who have elevated triglyceride levels and reduced HDL cholesterol levels, as well as in patients who are sedentary or obese, or who have type 2 diabetes, hypertension, increased abdominal fat, or who are smokers. In other words, if you have a few of these more “traditional” risk factors, you are also likely to have small, dense LDL particles.

**Why should I get the ApoB test?**

The ApoB test is used, along with other lipid tests, to help determine your risk of developing cardiovascular disease.

**What can I do to help lower my ApoB levels?**

There are many things you can do to help lower your overall risk of heart disease as well as lowering your ApoB levels.

- Reducing simple sugars and reducing your intake of empty carbohydrates.
- Eating a diet rich in whole grains, fruit and vegetables.
- If you are overweight, weight reduction can improve your ApoB level.
- If your blood pressure tends to be elevated you may benefit from reducing the salt in your foods and eating less processed foods that are high in salt.
- Exercising more or increasing your activity.
- If you smoke, quit. It is not easy but there are programs and strategies (including over-the-counter and prescription medications) that can improve your chance of success. Talk with your medical provider to find what works best for you.
- There are prescription medications that can help lower your cholesterol, triglycerides, blood sugar and blood pressure. There are supplements that may assist as well.
- Your medical provider will work with you to develop a treatment plan that is right for you to help reduce your risk of heart disease.

---

**RELATIVE RISK**

Apo B (mg/dl)

- **<100 Low**
- **100 – 120 Moderate**
- **>120 High**
What is sdLDL?
Small, dense LDL is a type of LDL cholesterol that is considered to be an emerging risk factor for cardiovascular disease.

It is smaller and heavier than typical LDL cholesterol and can increase your risk of developing atherosclerosis. It is thought that small, dense LDL contributes to atherosclerosis because it is small enough to penetrate the walls of arteries, is more susceptible to being oxidized, and stays in the bloodstream longer.

Why should I check my sdLDL levels?
Testing LDL alone may not show the whole picture. If you have an LDL that is within normal range with a high portion of sdLDL, you may still be at increased risk for cardiac disease. Increased levels of sdLDL are found in people with metabolic syndrome and may go hand in hand with elevation in triglycerides and low HDL cholesterol.

What can I do to lower my sdLDL levels?
- Reducing simple sugars and reducing your intake of empty carbohydrates. Eating a diet rich in whole grains, fruit and vegetables.
- If you are overweight, weight reduction can improve your sdLDL level.
- If your blood pressure tends to be elevated you may benefit from reducing the salt you add to your food and eating less processed foods that are high in salt.
- Exercising more or increasing activity.
- Taking good care of your teeth can also reduce your inflammation and reduce your risk of heart disease.
- If you smoke, quit. It is not easy but there are programs and strategies (including over-the-counter and prescription medications) that can improve your chance of success. Talk with your medical provider to find what works best for you.
- There are prescription medications that can help lower your cholesterol, triglycerides, blood sugar and blood pressure. There are supplements that may assist as well.
- Your medical provider will work with you to develop a treatment plan that is right for you to help reduce your risk of heart disease.

RELATIVE RISK
sdLDL (mg/dl)

<table>
<thead>
<tr>
<th>sdLDL (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 40 Low</td>
</tr>
<tr>
<td>&gt; 40 High</td>
</tr>
</tbody>
</table>

Sarasota County

EMPLOYEE HEALTH and BENEFITS
What is the Hemoglobin A1c test?
The A1c test reflects one’s average blood sugar over the past 2-3 months. It measures the glucose that clings to hemoglobin molecules in red blood cells. The higher the glucose levels in the blood, the more glucose clings to the hemoglobin and thus the higher the A1c. The red blood cells live for about 120 days, so by measuring the percentage of hemoglobin molecules that have glucose attached to them, health care providers can see how much extra glucose has been in the bloodstream over the previous few months.

Why should I get the A1c test?
An elevated A1c can reflect that your blood sugars are beginning to go high and that can be a reflection of pre-diabetes or diabetes, insulin resistance, or one component of metabolic syndrome. The higher your A1c, the greater your risk for developing complications such as heart attack, stroke, kidney disease, neuropathy and circulation problems. Other things that can affect the A1c include certain medications such as prednisone (a steroid), high stress levels, weight gain, trauma or injury. People who are anemic may have a lower A1c due to decreased hemoglobin levels.

What can I do to help lower my A1c?
There are many things you can do to help lower your overall risk of diabetes and your Hemoglobin A1c.

- Reducing simple sugars and reducing your intake of empty carbohydrates. Eating a diet rich in whole grains, fruit and vegetables.
- If you are overweight, weight reduction can improve your A1c levels.
- If your blood pressure tends to be elevated you may benefit from reducing the salt in your foods and eating less processed foods that are high in salt.
- Eat foods that are naturally high in fiber.
- Exercising more or increasing your activity.
- Sitting less.
- Taking good care of your teeth can also reduce your inflammation and reduce your risk of heart disease.
- If you smoke, quit. It is not easy but there are programs and strategies (including over-the-counter and prescription medications) that can improve your chance of success. Talk with your medical provider to find what works best for you.
- There are prescription medications that can help lower your cholesterol, triglycerides, blood sugar and blood pressure. There are supplements that may assist as well.
- Your medical provider will work with you to develop a treatment plan that is right for you to help reduce your risk of heart disease.

RELATIVE RISK

<table>
<thead>
<tr>
<th>A1c</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5.7</td>
</tr>
<tr>
<td>5.7 – 6.4</td>
</tr>
<tr>
<td>≥ 6.5</td>
</tr>
</tbody>
</table>
Individuals with Systolic B/P and Diastolic B/P in 2 categories should be designated to the higher BP category. BP indicates blood pressure (based on an average of ≥2 careful readings obtained on ≥2 occasions).

The new guidelines change the definition of high blood pressure to a systolic blood pressure (SBP) reading of **130 mm Hg or higher** or a diastolic blood pressure (DBP) reading of **80 mm Hg or higher**. This is a considerable reduction from the previous definition of 140/90 mm Hg. The updated guidelines also eliminate the term “pre-hypertension” and outline four new blood pressure categories.

**Why worry about High Blood Pressure?**
Hypertension adversely impacts the heart structure and function. Damage to the left heart chamber is a precursor to something called “Atrial Fibrillation or A Fib” which increases one’s risk of a stroke. Chronic uncontrolled hypertension can also lead to Congestive Heart Failure; Chronic Kidney Disease or Kidney Failure and other heart conditions. Overall, chronic uncontrolled hypertension has a severe and possibly detrimental effect on the heart muscle itself. To put it simply, too much pressure will blow a gasket (aka an artery or vein) so to speak; if the “gasket” is in the brain = stroke; in the eye = blindness; in the kidneys= kidney failure; and if the pressure washes off a chunk of cholesterol in the lining of artery = heart attack.

**What if I am in the new category of Stage 1 hypertension; do I need to start medication?**
Maybe yes, maybe no; depends on a few other factors. If your b/p is Stage 1 and your overall Arteriosclerotic Cardiovascular Disease (ASCVD) risk is <10% then NO, you do not need to start on a blood pressure medication. But if you are at >10% or greater risk for cardiovascular disease then YES, you would be started on a blood pressure medication.

**How to calculate your 10-year risk (ASCVD RISK)**
The easiest way is to visit the American College of Cardiology website: [http://tools.acc.org/ASCVD-Risk-Estimator-Plus/#!/calculate/estimate/](http://tools.acc.org/ASCVD-Risk-Estimator-Plus/#!/calculate/estimate/)
**Circumstances that go into the calculation of your 10-year risk:**
1. Age; Gender; Race
2. Labs (Total Cholesterol, HDL, LDL)
3. Systolic B/P
4. History of diabetes
5. Smoking status
6. Currently treated for blood pressure, cholesterol or currently on Aspirin therapy

I’ve been told I have White Coat Hypertension
White Coat hypertension is characterized by elevated office BP but normal readings when measured outside the office with either Ambulatory BP Monitor (ABPM) or Home BP Monitor (HBPM). The white coat effect is considered clinically significant when office SBP/DBPs are >20/10 mm Hg higher than home or ambulatory readings. Because a diagnosis of white coat hypertension would result in a decision to not treat elevated office BP readings, confirmation of BP control by Home B/P Monitoring (HBPM) or Ambulatory B/P Monitoring (ABPM) provides more definitive support for the decision not to initiate drug therapy or accelerate current treatment. **Recommendation:** take your blood pressure at home; record both a daytime and night time reading on multiple occasions (2 weeks or longer) and share with your doctor.

**Masked Hypertension**
In contrast, masked hypertension is characterized by office readings suggesting normal BP but out-of-office (ABPM/HBPM) readings that are consistently above normal. The risk of cardiovascular disease (CVD) and all-cause mortality in persons with masked hypertension is similar to that noted in those with sustained hypertension and about twice as high as the corresponding risk in people with normal BP readings. **Recommendation:** same as white coat hypertension; take your blood pressure at home; record both a daytime and night time reading on multiple occasions (2 weeks or longer) and share with your doctor.

**Recommendation for Lifestyle:**
1. **Maintain a Normal Weight.** Studies have identified a direct relationship between body mass index and BP. Becoming normal weight reduced the risk of developing hypertension to a level similar to those who had never been obese.
2. **Exercise.** Even modest levels of physical activity have been associated with a decrease in the risk of hypertension.
3. **Limit Alcohol Intake.** Alcohol has detrimental effect on BP, alcohol intake is associated with a higher level of high-density lipoprotein cholesterol.
4. **Reduce Sodium (salt) Intake.** Increase in sodium load disproportionately increases BP.
5. **Increase dietary potassium.** Dietary potassium is inversely related to BP and hypertension; especially for those who have a high sodium diet. 4700 mg/day.
6. **Check your blood pressure regularly.** Either at home or with your medical provider.
7. **Manage your stress.** HeartMath, Meditation, Breathing Exercises, Yoga among many other options.