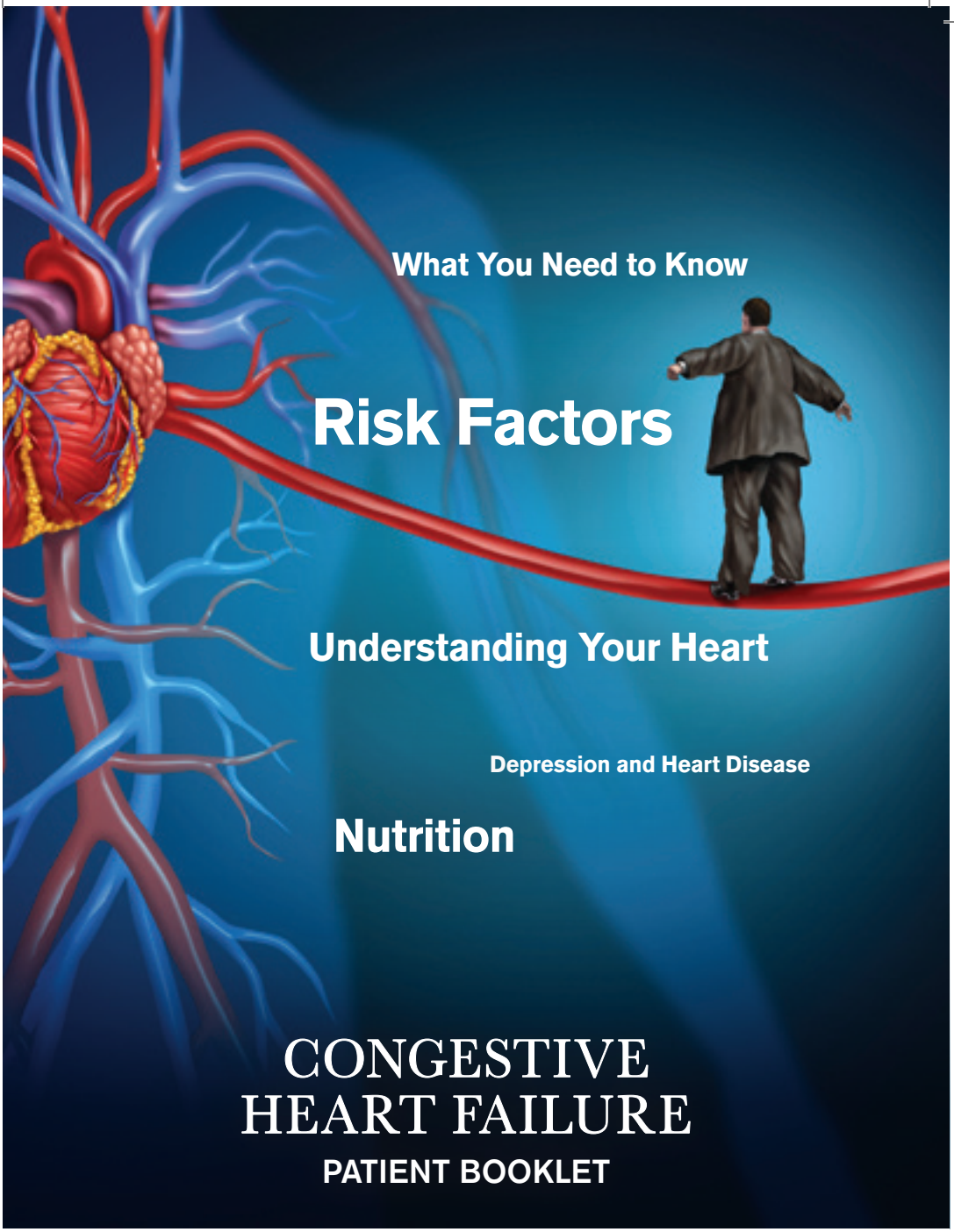

What You Need to Know

Risk Factors

Understanding Your Heart

Depression and Heart Disease

Nutrition

CONGESTIVE HEART FAILURE

PATIENT BOOKLET

McLaren FLINT

DOING WHAT'S BEST.®

CONGESTIVE HEART FAILURE PATIENT BOOKLET

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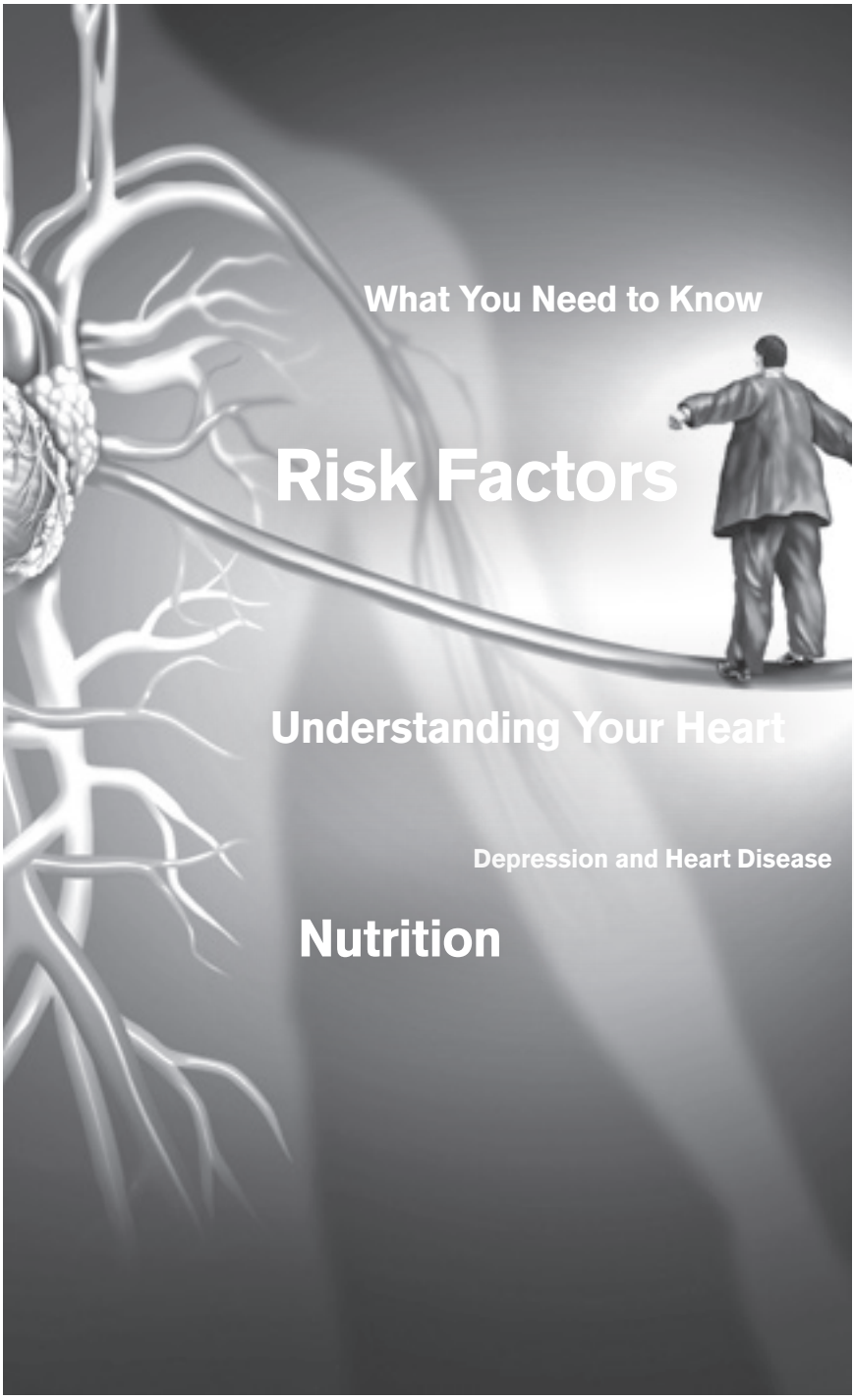
What You Need to Know
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1. HEART FAILURE ZONE

Everyday

Every Day:

- Weigh yourself in the morning before breakfast, write it down and compare to yesterday's weight.
- Take your medicine as prescribed.
- Check for swelling in your feet, ankles, legs, and stomach.
- Eat low-salt food.
- Balance activity and rest periods.
- Complete home exercise program.

Which Heart Failure Zone are you today? GREEN, YELLOW or RED?

Green Zone

Green Zone = "All Clear"

- No cough, chest tightness or shortness of breath during the day or night
- No decrease in your ability to maintain normal activity

Green Zone Means:

- Your symptoms are under control
- Continue taking your medications as ordered
- Follow a low-salt diet
- Continue your exercise plan
- Keep all physician appointments

Yellow Zone

Yellow Zone = "Caution"

- Increased swelling of ankles or feet
- Increased shortness of breath with activity
- Weight loss or gain of 3 pounds
- Fever of 100.5° F (oral) or 99.5° F (under your arm)
- Increased number of pillows needed to sleep or need to sleep in a chair
- Anything else unusual that bothers you

Yellow Zone Means:

- Your symptoms indicate that you may need an adjustment in your medication
- Call your Homecare Nurse and/or your physician:

Primary Physician:

_____

Physician Phone Number:

_____

Note: Please notify your Homecare Nurse if you contact or go see your physician.

Red Zone

Red Zone = "Medical Alert"

- Unrelieved shortness of breath
- Unrelieved chest pain
- Wheezing or chest tightness
- Increased irregular heart beat
- Change in color of your skin, nail beds or lips to gray or blue
- Mental changes
- Chest pain or pain that worsens
- Dizziness or sweating when you breathe or cough

In An Emergency Situation Call 9-1-1

Red Zone Means:

- This indicates that you need to be evaluated by a physician right away
- Call your physician or call 9-1-1

Primary Physician:

_____

Physician Phone Number:

_____

Agency Phone Number:

_____

Note: Please notify your Homecare Nurse if you go to the emergency room or are hospitalized

2. HEART FAILURE

WHAT YOU SHOULD KNOW

Heart failure means your heart has become too weak to pump enough blood to your organs and tissues. Heart failure is often the result of damage or injury to your heart caused by other heart problems and high blood pressure. Heart failure is a long-term condition that tends to get worse over time. It is important to manage your health to improve your quality of life. Heart failure can be worsened by heavy alcohol use, smoking, diabetes, and obesity.

AFTER YOU LEAVE

Medicines: You may need any of the following:

- **Heart medicines** help regulate your heart rhythm, lower your blood pressure and get rid of extra fluids.
- **Antiplatelets**, such as aspirin, help prevent blood clots. Take your antiplatelet medicine exactly as directed. These medicines make it more likely for you to bleed or bruise. If you are told to take aspirin, do not take acetaminophen or ibuprofen instead.
- **Anticoagulants** are a type of blood thinner medicine that helps prevent clots. Clots can cause strokes, heart attacks and death. These medicine may cause you to bleed or bruise more easily.
  - Watch for bleeding from your gums or nose. Watch for blood in your urine and bowel movements. Use a soft washcloth and a soft toothbrush. If you shave, use an electric razor. Avoid activities that can cause bruising or bleeding.
  - Tell your caregiver about all medicines you take because many medicines cannot be used with anticoagulants. Do not start or stop any medicines unless your caregiver tells you to. Tell your dentist and other caregivers that you take anticoagulants. Wear a bracelet or necklace that says you take this medicine.
  - You will need regular blood tests so your caregiver can decide how much medicine you need. Take anticoagulants exactly as directed. Tell your caregiver right away if you forget to take the medicine, or if you take too much.
  - If you take warafin, some foods can change how your blood clots. Do not make major changes to your diet while you take warfarin. Warfarin works best when you eat about the same amount of vitamin K every day. Vitamin K is found in green leafy vegetables, broccoli, grapes, and

other foods. Ask for more information about what to eat when you take warfarin.

- **Take your medicine as directed.** Call your primary healthcare provider (PHP) if you think your medicine is not helping or if you have side effects. Tell him if you are allergic to any medicine. Keep a list of the medicines, vitamins and herbs you take. Include the amounts and when and why you take them. Bring the list or the pill bottles to follow-up visits. Carry your medicine list with you in case of an emergency.

Follow-up with your PHP or cardiologist as directed:
You may need to return for other tests. Write down your questions so you remember to ask them during your visits.

Go to cardiac rehab as directed:
Cardiac rehab is a program run by specialists who will help you safely strengthen your heart. The program includes exercise, relaxation, stress management, and heart-healthy nutrition. Caregivers will also make sure your medicines are helping to reduce your symptoms.

Manage your conditions:

- **Weigh yourself every morning** using the same scale, in the same spot. Do this after you use the bathroom, but before you eat or drink anything. Wear the same type of clothing. Do not wear shoes. Record your weight each day so you will notice any sudden weight gain. Swelling and weight gain are signs of fluid retention. If you are overweight, ask how to lose weight safely.
- **Check your blood pressure and heart rate every day.** Ask for more information about how to measure your blood pressure and heart rate correctly. Ask what these numbers should be for you. Check your blood sugar as directed if you have diabetes. You will have fewer symptoms if you manage other health conditions such as high blood pressure, COPD or diabetes.
- **Get a flu shot every year.** You should also get a pneumonia vaccine. Vaccines protect you from these infections, which can be severe for those with heart failure.
- **You may need to limit the amount of liquids you drink if you retain fluid.** Ask how much liquid to drink each day and which liquids are best for you.

Lifestyle choices to help you feel your best:

- **Stay active.** If you are not active, your symptoms are likely to worsen quickly. Walking, bicycling and other types of physical activity help maintain your strength and improve your mood. Physicial activity also helps you manage your weight.

- **Eat heart-healthy foods and limit sodium.** An easy way to do this is eat more fresh fruits and vegetables and fewer canned and processed foods. Replace butter and margarine with hearty-healthy oils such as olive oil and canola oil. Other heart-healthy foods include walnuts, fatty fish like salmon and tuna, whole-grain breads, low-fat dairy products, beans, and lean meats. Ask how much salt you can eat each day. Avoid salt substitutes.
- **Limit alcohol.** Ask your cardiologist if it is safe for you to drink any alcohol. If it is safe, you must limit the amount you drink. Women should limit alcohol to 1 drink a day. Men should limit alcohol to 2 drinks a day. A drink of alcohol is 12 ounces of beer, 5 ounces of wine, or 1-1/2 ounces of liquor.
- **Do not smoke.** If you smoke, it is never too late to quit. Smoking makes shortness of breath and other symptoms worse. Ask for information on programs that can help you quit.

Contact your PHP or cardiologist:

- **You have symptoms of worsening heart failure:**
  - Shortness of breath at rest, at night, or that is getting worse in any way
  - Weight gain of 5 or more pounds (2.2 kg) in a week
  - More swelling in your legs or ankles
  - Abdominal pain or swelling
  - More coughing
  - Loss of appetite
  - Feeling tired all the time
- You feel hopeless and depressed, or you have lost interst in things you used to enjoy.
- You often feel worried or afraid.
- You have questions or concerns about your condition or care.

Seek care immediately or call 911 if:

- **You have any of the following signs of a heart attack:**
  - Squeezing, pressure or pain in your chest that lasts longer than 5 minutes or returns
  - Discomfort or pain in your back, neck, jaw, stomach, or arm
  - Trouble breathing
  - Nausea or vomiting
  - Lightheadedness or a sudden cold sweat, especially with chest pain or trouble breathing
- You gain 3 or more pounds (1.4 kg) in a day (or more than your cardiologist says you should)
- Your heartbeat is fast, slow or uneven all the time

3. NUTRITION

HEART HEALTHY NUTRITION: THE DIET IS HALF THE BATTLE!

Nutrition is an important part of the heart healthy lifestyle. This section will give tips on how to transition to a heart healthy diet. Everyone can benefit from a heart healthy diet. This is going to be part of a patient's lifestyle change once discharged from the hospital and after having a heart problem.

MAKE A CHANGE

- Aim to be at a healthy weight for body size and structure.
- Increase activity level on a daily basis or stay active.

START HEALTHY HABITS

- Eat 5-6 small meals per day.
- Do not skip meals.
- Eat a variety of whole grains. Have 6-8 servings of whole grain bread, cereal, brown rice or pasta per day.
- Eat a variety of fresh fruits and vegetables daily. Aim for five servings per day.
- Eat fish 2-3 times per week in order to get a healthy dose of omega fish oils.
- Limit intake of red meat.
- Eat more lean meats such as chicken or turkey.
- Have two cups of low fat dairy products (milk, cheese, yogurt or cottage cheese) per day.
- Stock the refrigerator with "safe foods" to eat. Avoid buying unhealthy snacks at the store.
- Choose and prepare foods that are low in saturated fat and cholesterol and moderate in total fat.
- Choose beverages and foods low in sugar.
- Choose and prepare foods with less salt (sodium).
- Limit alcoholic beverages to 1-2 drinks per day.

NOTE: While in the hospital ask to speak with one of the dieticians. They can give the patient more specific guidelines to fit their dietary needs.

Avoid these as much as possible.

- Avoid fried foods and commercial baked goods. These foods can be very high in total and trans-fats.
- Choose fats and oils that have 2 grams or less saturated fat per tablespoon.
- Olives and avocados are high in monounsaturated fats. These are the good fats but those foods are also high in calorie content. Use them sparingly.
- Nuts and seeds contain mostly polyunsaturated or monounsaturated fats (the good fats) and no cholesterol. These too can be high in total fat and calories.
- Corn, safflower, sesame, soybean and sunflower oils are polyunsaturated fats. They are good to use in limited amounts for cooking or dressings.

SALT

Our bodies need salt/sodium in order to survive. When we have too much salt in our bodies problems begin to arise. Salt helps retain fluid which can ultimately lead to congestive heart failure. Too much salt can cause an increase in blood pressure as well.

Tips for Cutting Salt Intake

A lot of people have too much salt in their diets. Some people put salt on their food at the table before they even taste it. It is just programmed in us to grab the salt shaker at every meal. The heart works harder when too much salt is part of the daily diet of people. A low salt (sodium) diet is considered to be a heart healthy diet. Following are tips to cut salt intake:

- Avoid adding salt during cooking or when sitting down at the table.
- Choose fresh, frozen or "No Salt Added" canned vegetables.
- Choose low sodium or "Heart Healthy" soups.
- If regular canned foods cannot be avoided make sure to drain and rinse before cooking. Cook in fresh water.
- Use low-sodium versions of condiments such as mustard, ketchup, worcestershire sauce, soy sauce, barbeque sauce, chili sauce or steak sauce.
- Use onion powder, garlic powder or an herb-seasoning (Mrs. Dash) instead of onion salt, garlic salt or seasoning salt. It is also important to note the "No Salt", "Sea Salt" or any other salt substitutes still contain sodium.
- Season foods with fresh garlic, onion, lemon juice, vinegar, herbs and spices.
- Marinate meat, poultry and fish in fruit juice, flavored vinegar and seasonings before cooking.
- Avoid preserved foods such as; bacon, lunch/deli meats, hot dogs, sausage, cheese, pickles, olives, relish and sauerkraut.
- Avoid "processed" foods such as; frozen dinners, pre-packaged or boxed rice, potatoes, stuffing, pasta, dried soup or gravy mixes. Some cereals can also be high in sodium. Make sure to read food labels for sodium content per serving.
- Select snack foods that are unsalted varieties of chips, pretzels, crackers, popcorn and nuts.
- Read package labels for salt or sodium additives. If the label reads "sodium" or "soda", use sparingly.
- Eat out less. When eating at home try to concentrate on fresh ingredients instead of using something that comes in a box.
- When eating out at a restaurant ask for the food to be prepared without salt. Request that all of dressings or sauces be served

on the side. Try to use as little as possible.

DINING OUT SUGGESTIONS

When eating out at a restaurant, there is no knowing how the food is prepared. Make sure to ask questions. Everyone has every right to know what they will be eating. It is important to plan ahead. Below are some tips to follow for a successful meal out.

- Avoid "all-you-can-eat" or buffet style restaurants.
- Eat a small snack before leaving the house.
- Look ahead at the restaurant's menu and do some research to see what the best choices available are.
- Drink a full glass of water after being seated.
- Take advantage of the low fat appetizers.
- Ask for a nutritional fact sheet.
- Request all salad dressings or sauces to be served on the side.
- Limit your alcohol intake. Alcohol can add a lot of empty calories and can stimulate the appetite.
- Ask for steamed veggies; make sure they are seasoned without butter or salt.
- Baked turkey, chicken or fish are always safe and healthy options.
- Eat slow, chewing the food well. Stop eating when beginning to feel full. Ask the waiter for a to-go container to take the rest of the food home.
- Healthy choices for dessert can be hard to find at a restaurant, but they do exist. If a dessert is needed to satisfy the sweet tooth, share one. By doing so only half the calories will be consumed, but the satisfaction of having a dessert occurs.

Avoid These Choices

- Foods prepared with these sauces; béarnaise, alfredo, hollandaise or lemon butter.
- Foods served with gravies.
- Potatoes prepared; au-gratin, scalloped or in cream/cheese sauce.
- Foods that are fried (pan, deep, or sautéed) or braised.

Try to Limit These High Sodium Food Preparations

- Pickled, smoked or barbequed.
- Soy, teriyaki and cocktail sauces.

Choose These Healthier Preparations

- Steamed, baked, broiled, roasted, poached, char grilled, or dry grilled (with lemon juice and wine.

If there are more diet questions, please refer to the McLaren "Heart Healthy Nutrition Guide and Cookbook or call (810) 342-2185.

Sodium in Your Diet

Using the Nutrition Facts Label to Reduce Your Intake

You've probably heard that most Americans eat too much salt. Salt contains sodium and too much sodium can raise blood pressure – which can have serious health consequences if not treated.

Despite what many people think, use of the salt shaker is not the main cause of too much sodium in your diet. In fact, over 75% of dietary sodium comes from eating packaged and restaurant foods.

- The Nutrition Facts Label on food and beverage packages is a useful tool for making healthful dietary choices and monitoring how much sodium is contained in a food you are considering.
- Full nutrition labeling is not required of restaurants for their menu items, unless nutrient claims are made, such as "Low Sodium" or "Low Fat." So, you may not learn how much sodium is in a food unless you ask.

Check the Label!

High levels of sodium may seem "hidden" in packaged food, particularly when a food doesn't "taste" salty – but sodium is not hidden on the **Nutrition Facts Label!**

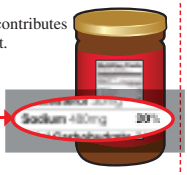
- The Nutrition Facts Label lists the **Percent Daily Value (%DV)** of sodium in **one serving** of a food.
- The %DV for sodium is based on 100% of the recommended amount of sodium, which is **less than 2400 milligrams (mg) per day**.
- The %DV listed is for one serving, but many packages contain more than one serving! Look at the serving size and how many servings you are actually consuming – if you eat **two servings** you get **twice** as much sodium (or **double** the %DV).

Use the Percent Daily Value (%DV) to Compare Products

The %DV tells you whether a food contributes a little or a lot to your total daily diet.

5%DV (120 mg) or less of sodium per serving is low

20%DV (480 mg) or more of sodium per serving is high



You can also check the front of the food package to quickly identify foods that may contain less sodium. For example, look for foods with claims such as:

Salt/Sodium-Free	**Less than 5 mg of sodium per serving**
Very Low Sodium	**35 mg of sodium or less per serving**
Low Sodium	**140 mg of sodium or less per serving**
Reduced Sodium	**At least 25% less sodium than in the original product**
Light in Sodium or Lightly Salted	**At least 50% less sodium than the regular product**
No-Salt-Added or Unsalted	**No salt is added during processing, but not necessarily sodium-free. Check the Nutrition Facts Label to be sure!**

Sodium's Health Connection

Sodium attracts water and a high-sodium diet draws water into the bloodstream, which increases the volume of blood and over time can increase your blood pressure. High blood pressure (also known as hypertension) forces the heart to work harder and can damage blood vessels and organs – increasing your risk of **heart disease, kidney disease, and stroke**.

And since blood pressure normally rises with age, limiting your sodium intake becomes even more important each year. The good news is that eating less sodium can often help lower blood pressure to within the normal range… which can, in turn, help reduce your risk of developing these serious medical conditions.

Potassium Helps

Research shows that eating foods high in potassium can lower blood pressure by reducing the adverse effects of sodium on blood pressure. Examples of foods rich in potassium include potatoes, sweet potatoes, tomatoes, spinach, apricots, bananas, beans, low-fat or non-fat milk and yogurt, and juices (prune, carrot, tomato and orange).

HEALTH FACT

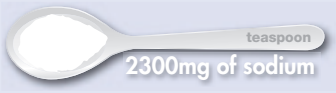
- **High blood pressure** affects approximately **one in three U.S. adults**, or 75 million people.
- An additional 78 million adults suffer from slightly elevated blood pressure, which can turn into high blood pressure.
- Heart disease is the leading cause of death, and stroke is the fourth leading cause of death among men and women in the United States (U.S.).

Know Your Numbers

The human body needs a small amount of sodium to maintain a balance of body fluids, keep muscles and nerves running smoothly and help certain organs work properly. However, about 90% of Americans eat too much of it – and they may not even know it.

Americans eat on average about 3,300 mg of sodium a day.

The Dietary Guidelines for Americans recommends limiting sodium to **less than 2,300 milligrams (mg) per day** – that's equal to about 1 teaspoon of salt!



You should reduce your intake further to **1500 mg per day** if you are in any of the following population groups who have been shown to be more susceptible to sodium's blood pressure-raising effects.

- People with high blood pressure, diabetes or chronic kidney disease
- African-Americans
- People ages 51 and older

These specific populations account for about half of the U.S. population and the majority of adults, so talk to your healthcare professional about whether you are at risk for high blood pressure … and use the Nutrition Facts Label as your tool to evaluate how much sodium you are eating and drinking.

Salt/Sodium: Defined

The words "salt" and "sodium" do not mean the same thing, but they are often used interchangeably. Salt, also known by its chemical name sodium chloride, is a crystal-like compound that is abundant in nature and is used to flavor and preserve food. Sodium is one of the chemical elements found in salt.

Sodium as a Food Ingredient

Salt has been used as a food preservative for centuries. As a food ingredient, it has multiple uses – like curing meat, baking, retaining moisture, covering up less desirable flavors, and even enhancing the flavor of other ingredients, like making sweets taste sweeter.

Salt is the main source of sodium for most people, but some common food additives – like monosodium glutamate (MSG), sodium nitrite, and sodium bicarbonate (baking soda) – also contain sodium and contribute in lesser amounts to the total amount of "sodium" listed on the Nutrition Facts Label.

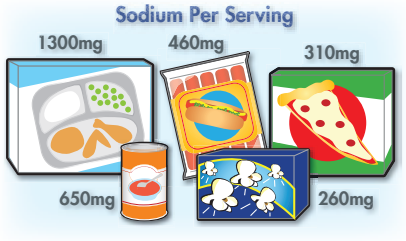
Surprisingly, some foods that don't taste salty can still be high in sodium, so don't use taste as a guide. For example, some foods that are high in sodium taste salty – like pickles or soy sauce. But there are also many foods – like cereals and pastries – that contain sodium but don't taste salty. In addition, some foods that you eat several times a day, such as breads, add up to a lot of sodium even though each serving may not be high in sodium.

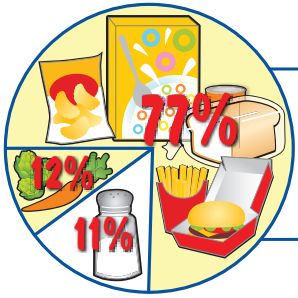
Food Choices Matter!

More than 40% of the sodium consumed by Americans comes from the following 10 types of foods:

- Breads and rolls
- Cold cuts and cured meats (such as deli or packaged ham or turkey)
- Pizza
- Fresh and processed poultry
- Soups
- Sandwiches (such as hot dogs, hamburgers and submarine sandwiches)
- Cheese (natural and processed)
- Mixed pasta dishes (such as lasagna, spaghetti with meat sauce, and pasta salad)
- Mixed meat dishes (such as meat loaf with tomato sauce, beef stew, and chili)
- Snacks (such as chips, pretzels, popcorn, and crackers)

But remember, the sodium content can vary significantly within food categories – so use the Nutrition Facts Label to compare the amount of sodium in different products. Make sure the serving sizes are similar, and select products with the lowest sodium.





The Surprising Truth about Sodium Consumption

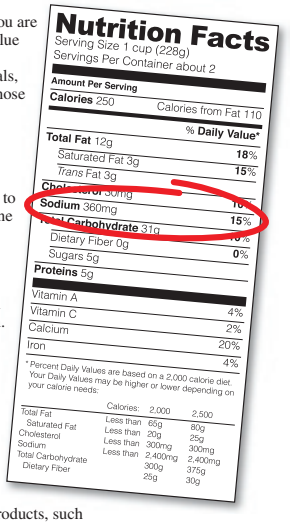
Americans' sodium intake breaks down like this:

- **77%** from packaged and restaurant food
- **12%** is naturally occurring in foods
- **11%** from adding salt to food while cooking or at the table

July 2012

Start the Shake-Down:
10 Easy Steps for Cutting Sodium

Learning about the sodium in foods and new ways to prepare foods will help you to achieve your sodium goal. And, if you follow these tips for reducing the amount of sodium you are consuming, your "taste" for salt will gradually decrease over time – so eventually, you may not even miss it!



1. **Read the Nutrition Facts Label** to see how much sodium is in the foods you are considering. All Americans should consume less than 100% of the Daily Value or less than 2400 mg of sodium each day. Check the label for lower sodium choices and compare sodium in different brands of foods — like frozen meals, packaged soups, breads, dressings/sauces, and snack foods — and choose those with lower sodium.

2. **Prepare your own food when you can.** Don't salt foods before or during cooking, and limit salt shaker use at the table.

3. **Add Flavor Without Adding Sodium.** Use herbs and spices instead of salt to add flavor to your foods. Try rosemary, oregano, basil, curry powder, cayenne pepper, ginger, fresh garlic or garlic powder (not garlic salt), black or red pepper, vinegar or lemon juice, and no-salt seasoning blends.

4. **Get fresh when you can.** Buy fresh or frozen (not processed) poultry, pork and lean meat rather than canned, smoked or processed meats like luncheon meats, sausages and corned beef. Fresh foods are generally lower in sodium. Also, check the package on fresh meat and poultry to see if salt water or saline has been added.

5. **Watch your veggies.** Buy fresh, frozen (without sauce), or low sodium or no-salt-added canned vegetables.

6. **Give sodium the "rinse."** Rinse sodium-containing canned foods, such as tuna, vegetables, and beans before using. This removes some of the sodium.

7. **Examine your dairy products.** Choose fat-free or low-fat milk and milk products, such as milk, yogurt, cheese and fortified soy beverages (often called soymilk) in place of processed cheese products and spreads, which are higher in sodium.

8. **"Unsalt" your snacks.** Choose unsalted nuts and seeds, and snack products such as chips and pretzels, that are marked "low sodium" or "no-salt-added" – or have a carrot or celery stick instead.

9. **Consider your condiments.** Sodium in soy sauce, ketchup, salad dressings, and seasoning packets can add up. Choose lite or reduced sodium soy sauce and no-salt-added ketchup, add oil and vinegar to a salad rather than bottled salad dressings, and use only a small amount of seasoning from flavoring packets instead of the entire packet.

10. **Speak up at restaurants.** Ask to see the nutrition information in restaurants and choose a lower-sodium option. Ask for your meal to be prepared without salt and request that sauces and salad dressings be served "on the side," then use less of them. You can also reduce your portion size – less food means less sodium! For example, ask the server to put half of your meal in a take out container before it comes to your table or split an entrée with a dinner companion.

4. TRACKING YOUR PROGRESS

Daily Weight Chart

Keep this by your weight scale.

DATE	WEIGHT	AMOUNT OF WEIGHT CHANGE	SWELLING IN FEET/ANKLES			Did you take your Medication today?	
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
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			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No
			New	Same	Increased	Yes	No

5. CARDIAC TESTING

It is very important to be aware of certain tests that may be done to determine the severity of heart disease. This section will explain all of the different tests a patient may undergo to determine what type of treatment may be needed.

Before participating in the following tests, discuss with the doctor what medications need to be taken or stopped prior to the test. Certain tests require that medications are stopped, while others may require certain special medications. Adjust any medication only when specifically instructed to by the doctor. In addition, if certain equipment will be needed while in the hospital, such as a sleep apnea machine, please notify the nurse so that all needed equipment is available.

Stress Test

This is a test that tells the doctor how the heart responds when it is put under chemical or physical stress. A doctor may want to order a stress test to determine:

- If the symptoms are related to heart disease.
- If prior prescribed treatments are still working properly.
- The test is completed by walking on a treadmill, while being monitored by an EKG and trained medical staff.
- If exercise cannot be completed, different medications will be given to make the heart behave like it was exercising.
- During this test, pictures of the heart may be taken prior to and after exercising. (These pictures are to give the doctor more information.)

Echocardiogram: (ECHO)

An ECHO creates a moving picture of the heart using sound waves. This is also known as an ultrasound of the heart. An ECHO is prescribed when the doctor wants to know how well the heart is pumping or if there are any possible problems with the heart valves or heart walls.

Ejection Fraction (EF)

This is a measurement of the percent of blood being pushed out of your heart with each beat. A normal heart pumps out slightly more than half the heart's volume of blood with each beat. A normal EF is considered to be 55-65%. If the measurement is lower than normal, further testing or treatment may be warranted.

Transesophageal Echocardiogram (TEE)

This is a special type of ECHO. It is used to look for heart defects, valve problems, and blood clots in the heart.

Heart Scan

This is a new form of technology that allows the doctors the ability to see the coronary arteries using a specialized machine called a CT

machine. An IV will be started to allow dye in the blood stream to get a better view of the coronary arteries. As the dye is going through the blood vessels, a series of pictures are taken that will show whether there are blockages in the arteries.

Heart (Cardiac) Catheterization
This is the best way to tell if there are blockages in the heart that need to be treated or to tell how well the heart and heart valves are working. This test can be scheduled as an outpatient procedure or completed in an emergency if sudden chest pains occur.

- An area in the groin, wrist, or arm will be numbed so that an IV catheter can be inserted into one of the arteries. A burning sensation will be felt, but will go away.

Electrophysiology (EP) Study
An EP study is done to find out what is causing an irregular heart rate or rhythm (arrhythmia) and what should be done to fix it.

INTERVENTIONS

There are some common procedures that are used to treat problems with the heart. The doctor will determine the best treatment options available depending on the evaluation of symptoms and past medical history.

Percutaneous Coronary Intervention (PCI)
PCI is a common procedure used to open up blocked arteries in order to clear a path for blood flow. This is used during a cardiac catheterization. Certain PCI procedures are:

- Balloon Angioplasty (Figure 1): A balloon-tipped catheter is used to widen a narrowed artery. This is going to restore blood flow through narrow or blocked arteries.
- Stenting (Figure 2): A metal mesh tube is inserted in the area widened by the balloon to hold the artery open. After a certain amount of time the artery will heal around the stent.
- Atherectomy (Figure 3): A special catheter is used to grind or cut away a blockage.

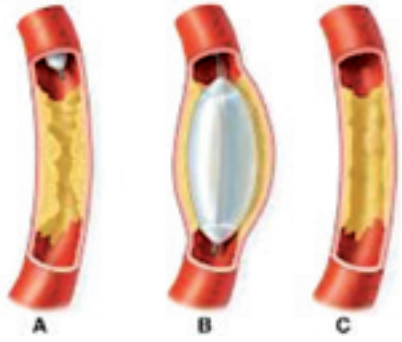
In most cases the doctor will keep the patient in the hospital overnight after this procedure. It is important to be monitored and the doctor may want to administer a medicine to prevent blood from clotting and causing another blockage around the stent. After being discharged from the hospital patients are prescribed a medicine to take daily in order to prevent their blood from getting thick and sticky. Patients are also given a card that will have the information about their condition and the stent devices. It is important for patients to hold on to this card and be sure it is used to keep their medical records updated.

Catheter Ablation
This is a nonsurgical procedure that

is similar to a heart catheterization. The main reason a doctor would want to perform this procedure is to help regulate any irregular or rapid heart rhythms. The heart has its own electrical system. This electrical system can begin to have malfunctions. The electrical system can begin to have problems in the top part of the heart (atria) or the bottom part of the heart (ventricle). If this problem is detected the doctor may want to perform an ablation. The doctor will insert a special electrode catheter into the heart. The catheter will be positioned so that it lies close to the electrical pathway that is causing the irregular heartbeat. Once it is in position there will be radiofrequency (heat)

BALLOON ANGIOPLASTY

FIGURE 1

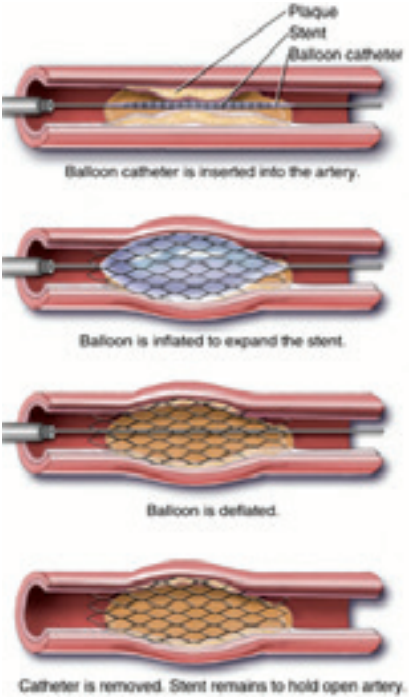


A. Deflated balloon catheter is approaching an atherosclerotic plaque
B. Plaque is compressed by inflated balloon
C. Plaque remains compressed after balloon catheter is removed

http://biology-forums.com

STENTING

FIGURE 2



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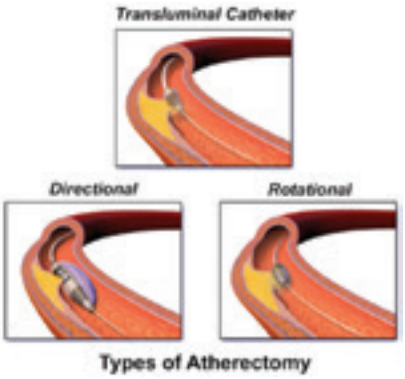
passed through it. This heat is going to destroy (ablate) the small area of the tissue that is causing the abnormal heartbeat. This will allow the heart to beat in a normal rhythm again.

Cardioversion

This is a short procedure that is used to deliver an electrical shock to the heart in order to shock the heart back into a regular rhythm. This procedure may need to be combined with a Catheter Ablation or Implantable Cardioverter Defibrillator in order to maintain a regular heart rhythm.

ATHERECTOMY

FIGURE 3



http://en.wikipedia.org

ELECTRONIC DEVICES

Cardiac Pacemaker

A pacemaker is one device that can be implanted to help the heart. It is about the size of a half dollar. It regulates the heart rate when it gets too slow or too fast. When the heart rate needs to be regulated the pacemaker sends an electrical impulse to the heart to beat at a more controlled rate.

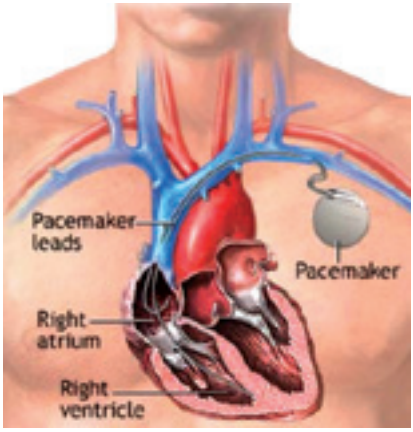
Implantable Cardioverter Defibrillator (ICD)

Some patients have fast heart rhythms that can be very serious and life threatening if not monitored. The ICD monitors information about the heart. The computer is programmed to give an electric shock to the heart if it senses a rhythm that could be life threatening. This electric shock interrupts the irregular heartbeat and allows the heart to return to a normal safe rhythm. ICD's can also work like a pacemaker and in some cases the doctor may feel the patient should have both.

Biventricular Pacemakers and Defibrillators

Over time the heart can become weak and/or increase in size. This can be a result of chronic congestive heart failure. When the heart becomes enlarged or weak it is harder for it to pump properly. If this happens the cause could be that the bottom two parts of the heart (ventricles) are not beating together in sync. In this case the doctor may want to implant a special type of pacemaker or defibrillator called a biventricular device. Unlike a regular pacemaker that is working from the right side of the heart only, this device has a extra wire that goes into a vein on the surface of the left side of the heart. By sending

PACEMAKER



http://www.nlm.nih.gov/medlineplus/ency/images/ency/fullsize/19566.jpg

an electrical impulse to both sides of the heart at the same time the heart will contract properly and will beat in sync again. This will make the heart stronger and a more efficient pump. If needed, some of the devices can function as a defibrillator also.

6. CARDIAC RISK FACTORS

Research has shown a number of different factors can lead to heart disease. These have been named cardiac risk factors. Many of these risk factors can be controlled. There are a small number of risk factors that cannot be controlled or managed. It is important to know the difference between these risk factors to reduce the likelihood of cardiac disease or damage.

Risk Factors which can be controlled

- Smoking
- High Blood Pressure (Hypertension)
- Over Weight (Obesity)
- High Blood Cholesterol (Hyperlipidemia)
- High Blood Sugar (Diabetes)
- Unhealthy Diet
- Lack of Physical Exercise (Sedentary Lifestyle)
- Stress
- Alcohol/Drug Abuse

Risk Factors which cannot be controlled

- Family History
- Ages
- Male Gender
- Female Gender (After Menopause)

It is important to learn about these risk factors in order to maintain a healthy lifestyle and prevent further cardiac complications in the future.

RISK FACTORS WHICH CAN BE CONTROLLED

Smoking

While the number of cigarette smokers has decreased to about 27% of all men and women, the health impact of smoking continues to be the greatest cause of death and disease in the United States. This habit creates a very serious health risk and influences many serious diseases. Nicotine and other chemicals in tobacco increase the risk of heart disease. Smokers have twice as many heart attacks as non-smokers. Smokers also have a greater risk of having a stroke. Smoking can also cause cancer, emphysema, and other lung problems.

Smoking damages the inner lining of the blood vessels. Nicotine can cause the narrowing or constrictions of blood vessels that can lead to high blood pressure.

Smoking can also cause the blood to thicken causing clots to form and cholesterol plaques to develop in your blood vessels. As cholesterol levels increase, chances of developing heart disease also develop.

Smoking also can lower the good cholesterol (HDL) in the blood. The more cigarettes smoked, the more the HDL levels will be affected. Smoking affects women's HDL levels more than men.

There is nothing easy about quitting smoking. But as hard as quitting may be, the results are well worth it. In the first year after quitting smoking, the risk of heart disease drops sharply and then gradually returns to "normal" or equal to someone who has never smoked.

Keys to Quitting Smoking

- Decide now to quit. Set a date to quit and stick with it! Make an internal promise to yourself!
- Review all efforts to quit in the past. Make a list of everything that prevented you from succeeding: emotions, stress, work or lack of support from loved ones. Then write down ways to combat these problems.
- Get support and encouragement from your family and friends. Join a smoking cessation support group or class.
- Clean out your car and your house. Vacuum and wash the windows. Have your clothes cleaned. Have the interior of your car cleaned thoroughly and remove the ashtray and cigarette lighter. Do not allow others to smoke in your car, house, office, or elsewhere.
- Identify situations that make you want to smoke: people, places, times and etc. Avoid these situations.
- Make a conscious effort to spend time with people who do not smoke.
- Change your habits. For example, change your morning routine and incorporate something new.
- Create a cigarette "money jar." Each day put the money you saved from not smoking in the jar. Watch the dollars accumulate and use the money to treat yourself to something new.
- Try deep breathing: inhale slowly and deeply through your mouth. Purse your lips and exhale slowly, gently, and fully. Do this four times in a row and talk to yourself mentally about how important it is to have good health and not smoke.
- Substitute carrots, celery sticks, sugarless gum and mints when there is an urge to smoke. Keep your hands busy during the day.
- If you need assistance, consult your physician about using a medication that will work best for you. Nicotine gum and patches are available without a prescription. You can also ask your doctor about medications that can help reduce the urge to smoke.
- Be prepared for relapse during difficult situations. Avoid alcohol. Be careful around other smokers. Eat a healthy diet and stay active. Find other ways to improve your mood other than smoking.

High Blood Pressure (Hypertension)

High blood pressure is often called the "Silent Killer" because it usually does not have any symptoms. With high blood pressure, the heart has to pump harder because of the increased pressure being placed on it. Over time the extra workload that is being placed on the heart can cause the heart to increase in size and ultimately weaken the heart muscle. Over sixty million Americans have hypertension; of these, approximately one-third do not know they are hypertensive.

These are several lifestyle factors that can lead to an increase in blood pressure

- Excessive Alcohol Intake
- High Salt Intake
- Excessive Body Weight
- High Levels of Emotional Stress
- Smoking

High blood pressure has several negative effects on the heart and coronary arteries. The constant high pressure and increased tension in the artery walls damages the inner lining of the arteries and helps develop plaque that can increase the risk of having a heart attack or stroke.

Blood pressure is measured with an inflatable cuff and a stethoscope by listening to the sound of blood flowing through the arteries. Two numbers indicate a blood pressure. The first number represents the highest pressure when the blood vessels are contracting. The second number is the lowest pressure in the vessels when the heart is relaxed. A normal blood pressure is considered to be 120/70 mmHg.

The recommended treatments for high blood pressure are:

- Eat less sodium and salt.
- Exercise on a regular basis.
- Learn to practice stress-reducing techniques.
- Lose weight if you are overweight.
- Stop smoking.
- Take medications as prescribed by your doctor.

Obesity

Obesity has become an epidemic in this country. When overweight, the heart muscles have to work harder to pump the blood. Being overweight places stress, not only on the heart, but on the entire body.

The major health risks for being overweight include:

- Diabetes
- Diminished Life Expectancy
- Gallbladder Disease
- High Blood Pressure
- Orthopedic Problems
- High Cholesterol and Triglycerides
- Psychological Stress
- Sleep Disorders and Depression
- Some Types of Cancer

The keys to permanent and successful weight control are to

recognize and modify any eating habits and to exercise regularly. What is eaten, as well as why it is eaten contribute to weight gain. There is no such thing as a "quick fix" when it comes to weight loss.

Lack of Exercise:
The body is meant to be moving and it works the best when it is active. The heart is a muscle; thus needs the proper amount of activity and rest to keep it in good working condition. Regular exercise can help control several risk factors associated with heart disease; obesity, high cholesterol, stress, high blood pressure and diabetes. People who do not exercise are twice as likely to develop heart disease when compared to people who participate in a regular exercise regimen.

High Cholesterol
Cholesterol is a soft, fatty substance, found in the cells throughout the body. Cholesterol is helpful in maintaining certain hormones and other tissues needed throughout the body. However, too much cholesterol in the body can ultimately be a problem. There are two types of cholesterols that are involved with heart disease.

1. Low Density Lipoproteins (LDL)- Otherwise known as the bad cholesterol. LDL is the major cholesterol carrier in the blood stream. When your LDL number is high, cholesterol can build up in the walls of the arteries. This can form plaque that can clog arteries and cause blockages. If a blockage is formed this can cause blood flow to the heart to be restricted causing a heart attack or stroke.
2. High Density Lipoprotein (HDL)- Otherwise knows as the good cholesterol. About one third to one fourth of blood cholesterol is carried

	Desirable Levels	How Can I Improve My Levels
Total Cholesterol	Below 150	Diet low in saturated fat. Exercise and weight loss. Medication
LDL (Bad Cholesterol)	Below 70	Diet low in saturated fat. Exercise and weight loss. Medication
HDL (Good Cholesterol)	Above 40 (men) Above 50 (women)	Diet low in saturated fat. Exercise and weight loss. Limit alcohol. No smoking.
Triglyceride	Less than 150	Decrease sugars and alcohol in diet. Exercise and weight loss. Fish Oil

by HDL. Most of our HDL is made by the liver. This good cholesterol is thought to carry harmful cholesterol away from the arteries and back to the liver where it can be passed out of the body. A good way to maintain a high HDL is through a regular exercise regimen.

Triglyceride

Triglyceride is the major form of fat found in nature and in the foods that are eaten. Triglycerides are made and broken down in the liver. A low triglyceride level helps reduce the amount of LDL (bad cholesterol) being made by the liver.

KNOW YOUR NUMBERS

Cholesterol levels are measured by testing your blood. Food should not be consumed for 12 to 14 hours before the blood test. The chart below shows the proper levels of cholesterol for people with evidence of coronary artery disease and/or diabetic:

Cholesterol levels can be controlled by:

1. Proper nutrition
2. Exercise: A regular exercise regimen will help lose weight, lower the LDL, raise the HDL and lower blood pressure.
3. Medication: Prescription medication can help lower cholesterol.
4. Quit Smoking.

High Blood Sugar (Diabetes):

Uncontrolled blood sugar levels are a serious risk factor for heart disease. People with diabetes are at risk for developing "hardening of the arteries" (atherosclerosis) at an earlier age than those without diabetes. This, in turn, increases the chance of heart disease, stroke, kidney disease and loss of vision. When people have diabetes, platelets (cells in the blood) tend to become sticky and can add to the plaque. When this happens, the blood vessels become even narrower which can put that individual at a higher risk for having a heart attack or stroke. Good blood sugar control decreases the stickiness of the platelets and can decrease this dangerous risk factor. People with diabetes may not have the "classic" signs of a heart attack such as chest pain. Instead, other symptoms may include nausea, shortness of breath, sweating and in some instances, vomiting.

Diabetes can be managed with exercise, diet and medications. Here are some tips to help manage your diabetes:

- Exercise daily for 45-60 minutes. Cardiovascular activities like walking can increase the ability of the cells to use insulin properly, decrease insulin resistance and lower blood sugar levels.
- Maintain a heart-healthy balanced diet.

- Manage your weight. This can help the body use insulin properly.
- Check blood sugar levels regularly. The fasting blood sugar should be 90-130 mg/dl.
- Have a Hemoglobin A1c (HbA1c) test done to make sure the diabetes is under control. The goal for this is to be below 6.5%.
- Take medicine as prescribed by your doctor.
- Take part in a diabetes education class.

Metabolic Syndrome

A recent study has found that at least 47 million Americans have this condition and are at an increased risk for cardiovascular disease and do not even know it. It consists of having three or more of the following:

- Fasting blood glucose greater than 100mg/dl
- Serum Triglycerides greater than 150mg/dl.
- Serum HDL cholesterol less than 40mg/dl.
- Blood Pressure greater than 130/85mmHG.
- Waist girth greater than 102cm (40 inches) in men or greater than 94cm (37 inches) in women.

Proper nutrition and exercise helps prevent hypertension, raised glucose and high cholesterol levels associated with metabolic syndrome. Some patients will benefit from medications to correct the individual metabolic disorders. These include effective anti-hypertensive as well as elective cholesterol-lowering drugs.

Stress

Stress affects everyone. While we often think of stress as a negative risk factor in our lives, we forget positive stress often pushes us to produce good things. However, high levels of stress over a long period of time can affect our health. Stress causes an increase in blood pressure and heart rate, which puts extra pressure and workloads on the heart. During periods of stress, cholesterol levels in the blood stream are much higher than when things are calm. During stress, some people smoke more, eat too much fast food and do not get enough sleep.

There are many factors in our daily lives that cause stress. How we deal with stress influences how it affects the heart. Below are some tips to remember during a stressful period or situation;

- Talk with family, friends, and trusted advisors about your concerns and stresses. Ask for their support.
- Take time during the day to sit quietly and relax. Breathe in and out deeply. Read a calming book.
- Learn to accept things that cannot be changed. You don't have to solve all of life's problems in that moment.

- Count to 10 before answering or responding to someone when you are feeling angry.
- Do not use smoking, drinking, overeating, drugs or caffeine to cope with stress.
- Look for the good in every situation instead of the bad.
- Exercise regularly. Do something you enjoy like walking, swimming, jogging, golfing, gardening, walking a pet or cycling. Always check with your doctor to see what activity level is appropriate for you.
- Think ahead of what triggers may upset you and try to avoid them. Spend less time with people who bother you.
- Talk about your problems/ stressors with your family and friends. The longer the problem stays bottled up inside the more it is going to bother you.
- Let the doctor know if the stress is becoming too overwhelming to handle. The doctor can then discuss your options.
- Maintain a positive outlook on life, surround yourself with positive people and remove negative influences and relationships from your daily life.

Alcohol/Drug Abuse

Alcohol and drug intake can cause damage to the heart and body in a number of different ways. Alcohol affects the ability of the liver to control cholesterol levels. The more alcohol/drug abuse that is done over time can cause the arteries to become hard and stiff, which can overwork the heart muscle causing a heart attack. Many recreational drugs are considered to be stimulants. Stimulants cause a dangerous increase in blood pressure and heart rate causing your heart to work harder than normal. This extra workload can lead to a heart attack. Alcohol and drugs may also interfere with medications the doctor wants you to take. The use of drugs or alcohol can dramatically slow down any recovery process. Talk to a doctor about options that can help with quitting drug and alcohol abuse.

Make a Plan to be Healthy

It is important to realize and be able to identify all cardiac risk factors in order to make adjustments for a new lifestyle. There are many things that can be done to gain control of the cardiac risk factors. Below is a table to help identify and modify those risk factors and action plans to prevent/ decrease the risk for heart disease.

THE DANGERS OF SNOW SHOVELING

After the first snow fall there are always stories of how perfectly healthy people shovel their driveways and end up in the hospital with a heart attack or worse. Studies show that:

- Energy expenditure during shoveling is nearly six times

more than at rest. This can be compared to playing a vigorous round of singles tennis.

- During snow shoveling, the average heart rate and blood pressure rose to dangerously high levels. This response can be higher than what is experienced on a max treadmill stress test.
- After only two minutes of shoveling, most people exceed the upper limit for their heart rate that is safe for them during exercise.
- In just 10 minutes the average person can lift and throw nearly a ton of snow.

All of the above can deprive the heart of its much needed oxygen supply. This can lead to chest pain (angina) or dangerous heart rhythms that can be deadly. Also, the fast rise in blood pressure and heart rate can cause cholesterol and other substances to dislodge, resulting in a heart attack.

Who should avoid shoveling snow?

Men and women over the age of 45 who have a history of heart disease should avoid doing any heavy work outside in the winter. Also anyone with any known cardiac risk factors should avoid snow shoveling. Cardiac risk factors include; high blood pressure, high cholesterol, smoking, overweight or a sedentary (not active) lifestyle.

DEPRESSION AND HEART DISEASE

This type of procedure/disease process is going to cause a major change in the patient's lifestyle. It is 100% normal to go through some sort of depression or "blues" after getting home. These feeling are more related to being frustrated, than anything else since the patient is not going to be able to do the things they are used to doing immediately. It is not unusual to have those "up and down days" for several weeks after leaving the hospital. The patient's life has been changed due to surgery, thus they must adopt to a new way of living, such as, following a new diet regimen, incorporating exercise into one's daily routine and being more aware of daily symptoms. It is very important to have someone to talk to that is trusted. This could be a spouse, child, other family members, or close friends. Never be ashamed of these feelings. If the patient has more days of felling down and bad days outweigh the good days, they may be depressed.

Signs of depression include

- Difficulty sleeping
- Loss of appetite
- Weight loss
- Fatigue
- Emotional stress (feeling tense, irritable or easily agitated)
- Trouble concentrating
- Loss of interest in your usual activities

- Feelings of worthlessness, inadequacy or constant sadness

NOTE: The patient will always have good and bad days. When the bad days start to outnumber the good, the patient may be going through depression. This is considered normal after going home from open heart surgery. If this feeling of depression gets worse over time and the patient is healing physically but not emotionally, it is really important to talk to a doctor about the different treatment options to help with these feelings.

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