Making Choices™:

Life Changes to Lower Your Risk of Heart Disease and Stroke

A Decision Aid for Patients

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Welcome

This decision aid is for you if:

- you are interested in learning about your personal risk of heart disease and stroke
- you are concerned about your cholesterol or blood pressure
- you are ready to consider life changes to reduce your risk of heart disease and stroke

This booklet and personal worksheet will help prepare you for an informed discussion with your doctor, pharmacist or nurse about options you have to reduce your risk of heart disease and stroke. These options may include changing your lifestyle and taking medicine.

This decision aid was developed by a team of doctors, nurses, pharmacists and researchers and is based on the best available studies. These studies are shown in the text of the booklet with small numbers and are listed at the end in the references section.

Technical terms are defined in the Glossary of Terms found at the end of the booklet.

To make the most of this decision aid you should:

- review and answer questions in the booklet
- complete your personal worksheet
- take your completed worksheet when you meet with your doctor or pharmacist to discuss ways to lower your risk of heart disease and stroke

In order to lower your risk of heart disease and stroke you need to think about long-term changes. These may include lifestyle changes and taking medicine.

Heart Disease and Stroke

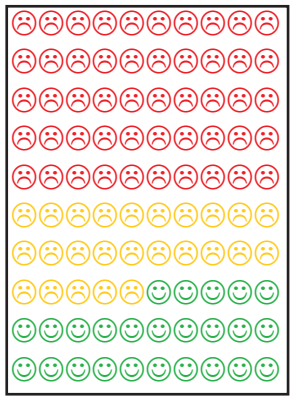
Heart disease and stroke happen when your blood vessels or arteries become narrower. Heart disease and stroke are the leading cause of death for 1 out of every 3 North Americans.

When the arteries in the heart become narrow, this can cause chest pain, (also called angina), or a heart attack. A heart attack is actually damage to a part of the heart muscle. After a heart attack, the heart can no longer pump blood easily through your body. The person will feel frequent or constant pain in the chest.

If the arteries that carry blood up to the brain become narrow, this can cause a stroke. A stroke is actually damage to part of the brain and is due to lack of blood going to that part of the brain. A stroke often causes loss of movement or speech. The loss depends on which part of the brain was injured. Lack of blood to the brain can also cause a Transient Ischemic Attack (or TIA). This is a small stroke.

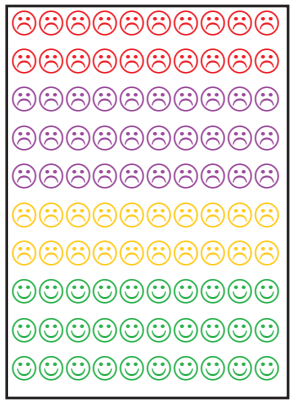
Heart Disease and Stroke

Let's look at what happens to people who have heart attacks or strokes:[1-2]



Out of 100 people who have a heart attack...

- ☹ about 50 will die within one month (50%)
- ☹ about 25 will have to limit their activities due to chest pain or shortness of breath (25%)
- ☺ about 25 will be able to get back to their normal activities after a few weeks (25%)



Out of 100 people who have a stroke...

- ☹ about 20 will die within one month (20%)
- ☹ about 30 will go to a nursing home as they need help with eating, going to the bathroom and walking (30%)
- ☹ about 20 will return home, but will have some problems walking or talking (20%)
- ☺ about 30 will be able to return home and recover fully (30%)

Major Risk Factors

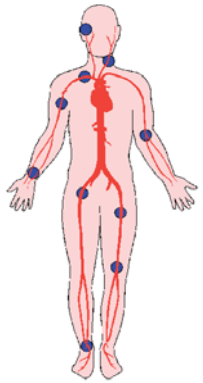
Personal factors, (for example, being under stress), and lifestyle habits (for example, smoking), increase your risk of heart disease and stroke. The six main risk factors are:

- abnormal blood cholesterol
- high blood pressure
- lack of physical activity or exercise
- smoking
- being overweight or obese
- stress

If you suffer from diabetes or if you had a heart attack or stroke in the past, your cardiovascular risk is higher. Let's look at the risk factors more closely and learn what you can do to reduce them.

ABNORMAL BLOOD CHOLESTEROL[3]

Cholesterol is a fat-like material. It is necessary to help the body function. However, too much cholesterol is bad because it sticks to the walls of the arteries and makes them narrower. This means that blood cannot flow well through the arteries.



Major Risk Factors

There are two kinds of blood cholesterol.

LDL-cholesterol (the "dump truck")

- It is called *bad cholesterol* because it "dumps" cholesterol on the walls of your arteries.

- People with high levels of LDL-cholesterol have a greater chance of having heart disease and stroke.

HDL-cholesterol (the "vacuum cleaner")

- It is often called *good cholesterol* because it carries cholesterol to the liver, which gets rid of it. This helps to clear out the blood vessels and make them wider. So, a higher HDL-cholesterol reading is good.

- People who have low levels of HDL-cholesterol have a greater chance of having heart disease and stroke.

Ideal Cholesterol Levels

The ideal LDL-cholesterol level is different for different people. In general, the ideal LDL-cholesterol level for someone:

- with diabetes, heart disease and stroke is a reading of 2.5 or lower
- with hypertension, who smokes or has low HDL-cholesterol, is a reading of 4.0 or lower
- with no other risk factors, is a reading of 5.0 or lower

The ideal HDL-cholesterol reading is 1.4 and above for women and 1.2 and above for men.

People who have too much "dump truck" (high LDL-cholesterol) and too little "vacuum cleaner", (low HDL-cholesterol) have a greater chance of heart disease and stroke.

Major Risk Factors

HIGH BLOOD PRESSURE[4-6]

Your blood pressure measures how hard your heart has to work to pump the blood through your body. It is measured in millimetres (mm) of mercury (Hg), and is shown by two numbers, such as "135 over 85".

The higher number, 135, is the **systolic blood pressure**. This is the pressure in your blood vessels when your heart beats.

The lower number, 85, is the **diastolic blood pressure**. This is the pressure in your blood vessels when your heart rests (between beats).

A blood pressure reading of "129 over 84" or less is ideal, while a blood pressure reading of "140 over 90" or higher is high. The tables below give examples of high, high-normal and ideal blood pressure readings.

Systolic	Diastolic
HIGH 140 or more	HIGH 90 or more
HIGH-NORMAL 130-139	HIGH-NORMAL 85-89
IDEAL 129 or less	IDEAL 84 or less

Blood pressure changes from time to time. To find out if you have high blood pressure, your doctor must check your blood pressure on 3 to 5 visits.

You have high blood pressure if either number is higher than the ideal over several visits.

Major Risk Factors

LACK OF EXERCISE

Lack of exercise or physical activity can put you at a higher risk of high blood pressure, unhealthy levels of cholesterol and high blood sugar. High blood sugar can cause diabetes.

SMOKING

Smoking increases your risk of heart disease and stroke. It also increases your risk of lung cancer and other cancers. Smoking also causes chronic lung diseases, like chronic bronchitis.

BEING OVERWEIGHT OR OBESE

Being overweight can lead to high blood pressure, high cholesterol, diabetes, heart disease and stroke. A person who is more than 20% over his or her desired weight is called obese.

For example, if your height is between 5’3” and 5’5”, your ideal weight is around 132 lbs. (60kg). If you actually weigh more than 158 lbs. (72 kg), then you are obese.

STRESS

Stress may be linked to a higher risk of heart disease and stroke.

Life Change Options

There are a number of choices you can make to lower your risk of heart disease and stroke. You may choose to change your lifestyle or take medicine.

Lifestyle options include:

- eat a healthy diet
- get more exercise or physical activity
- don’t smoke or stop smoking
- reach or maintain a healthy weight
- control the stress in your life

If lifestyle changes do not result in the desired or expected changes, you can take medicine to better control your cholesterol level or blood pressure.

Your Diet[7-23]

A healthy diet is:

- low in fat and cholesterol
- low in salt
- high in dietary fibre, found in foods like bran, vegetables and fruit
- high in omega-3 fatty acids found in foods like cold water fish or fish oil capsules
- low in alcohol

A healthy diet reduces your:

- LDL-cholesterol by 5%
- blood pressure by 5-9mm
- risk of having a heart attack
- risk of having a stroke

Take a minute to look at the table on the next two pages and check (✓) all of the options that you have already tried…

Goal	Options
Reduce fat and cholesterol	❑ Eat smaller portions of meat (about the size of your palm) and more meals without any meat. ❑ Choose leaner meats (such as poultry and fish) and remove fat from meat before cooking. ❑ Choose dairy products that are lower in fat, like skim or 1% milk, cottage cheese and yogurt with 1% milk fat. ❑ Cook with little or no fat or use smaller quantities of vegetable oils like olive, canola, corn, sunflower, safflower and peanut oil in your cooking. ❑ Avoid store bought baked goods such as croissants, muffins and donuts.
Reduce salt	❑ Limit the use of salt in your cooking. ❑ Limit the use of salt at the table. ❑ Avoid salty foods. ❑ Choose fresh or frozen foods rather than canned or pre-cooked foods. ❑ Avoid pre-packaged foods and sauces because of the fat and salt used. ❑ Read food labels to become familiar with the amount of fat and salt used. ❑ Use other seasonings such as herbs, spices, lemon juice and garlic instead of salt.

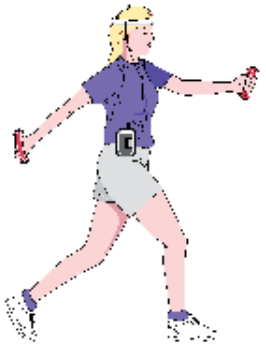
Goal	Options
Increase fibre intake	❑ Eat 5-10 servings of fruits and vegetables per day. ❑ Eat 5-10 servings of grains per day such as oats, barley, brown rice, buckwheat and whole wheat.
Increase intake of omega-3 fatty acids	❑ Eat 2-3 meals each week that include fatty fish found in cold water, such as salmon or tuna. ❑ Add ground flax seed to your cereal, baking and casseroles. ❑ Eat leafy green vegetables, soybeans and walnuts.
Reduce alcohol use	If you drink too much alcohol, it may increase your blood pressure and the risk of heart disease and stroke ❑ **Men**: Limit alcohol to no more than two bottles of beer, two glasses of wine or two ounces of hard liquor (rye, gin, whiskey, vodka) per day. ❑ **Women**: Limit alcohol to no more than one bottle of beer, one glass of wine or one ounce of hard liquor per day.

Lifestyle Options

Your Level of Exercise or Physical Activity[15, 24, 29-39]

You should exercise regularly at a moderate level of intensity. This will allow you to:

- reduce your LDL-cholesterol by 4%, for example, from 5.6 to 5.3
- increase your HDL-cholesterol by 5%
- reduce your blood pressure by 5-7 mm Hg
- lower your risk of heart disease and stroke



You can increase the amount of physical activity you do in many ways. Some activities require more effort than others and will have different effects, as seen in the table on the next page.

Use the following table to check (✓) all the activities you enjoy.

Effort	Activities	Effect
Light Effort 60 Minutes each day	❑ Light walking ❑ Volleyball ❑ Light gardening ❑ Stretching	Helps you: ● lose weight and keep it off
Moderate Effort 50-60 minutes 3 to 4 times per week	❑ Walking quickly ❑ Biking ❑ Raking leaves ❑ Swimming ❑ Dancing ❑ Taking a water aerobics class	Helps you: ● lose weight and keep it off ● reduce blood pressure ● lower LDL ● increase HDL
Intense Effort 20-30 minutes 3 times per week	❑ Aerobics ❑ Jogging ❑ Hockey ❑ Basketball ❑ Fast swimming ❑ Fast dancing	Helps you: ● lose weight and keep it off ● lower LDL ● increase HDL

If you exercise with a medium level of effort for 50-60 minutes, 3 to 4 times a week, it will help reduce your risk of heart disease and stroke.

Your Smoking[40-45]

If you quit smoking, you can lower your risk of heart disease and stroke. But it is not easy. Of those smokers who try to quit by themselves, only 10% continue to be smoke-free 6 to 12 months later. This is why there are different ways to help smokers quit.

In the table on the next page, you'll find different ways to help you quit smoking. The table shows the number of people out of 100 who try to quit smoking using each strategy and are still not smoking after 6 to 12 months.

If you have tried to quit smoking, use the table to check (✓) the strategies you have tried to help you quit.

Strategies	Non-Smokers After 6-12 Months
❑ **Quit on your own without any help**	10 out of 100
❑ **Acupuncture** Needles inserted through the skin	Long term compliance has not been shown
❑ **Hypnosis** Allows patient to concentrate deeply, which may lead to change in patient's view about smoking	Long term compliance has not been shown
❑ **Group Counseling** Offers tactics and tips and provides peer support	14 out of 100
❑ **Individual Counseling** Meetings with smoking cessation counsellor	14 out of 100
❑ **Nicotine patches** Release nicotine through the skin	16 out of 100
❑ **Nicotine gums** Release nicotine through the mouth	18 out of 100
❑ **Bupropion (Zyban)** Antidepressant pill taken by mouth	20 out of 100
❑ **Nicotine patches & bupropion**	26 out of 100

Most strategies are available without prescription. Ask your pharmacist for additional information.

Your Weight[15, 25-28]

Obesity is linked with many health problems. However, losing as little as 10 pounds (4.5 kg) can:

- reduce your LDL-cholesterol by 3%. This means your LDL could drop from 5.60 to 5.40
- increase your HDL-cholesterol by 4%. This means your HDL could rise from 1.00 to 1.04
- lower your blood pressure by 7 to 12 mm Hg

In the table on the next page, you will find a list of possible ways to lose weight.

If you have tried to lose weight, check (✓) the strategies you have tried…

Strategies	Long Term Weight Loss After 6-12 Months
❑ **Low calorie diet with exercise** ● 800 to 1,500 Kcal per day ● light to moderate exercise, 30-60 minutes most days of the week	you could lose 6 to 7 kg (13 to 15 lbs)
❑ **Behaviour therapy with diet/exercise** individual or group sessions to help with diet and exercise	may help keep weight off if you continue therapy and exercise
❑ **Medicine with dieting** Reduces appetite or prevents fat from being completely absorbed by the body.	not shown to work in the long-term
❑ **Surgery** **(for those dangerously obese)** Reduces appetite and prevents body from absorbing fat.	you could lose 28 to 46 kg (60-100 lbs)

Eating a low calorie diet and getting regular exercise can result in a long-term weight loss of 13 to 15 pounds.

Your Stress[46]

Stress may also increase your risk for heart disease and stroke. Below, indicate the overall level of stress you feel:

❑ ❑ ❑ ❑ ❑

Not at all Stressed — Extremely Stressed

If you already have high blood pressure, stress can increase your blood pressure levels.

Lifestyle Options

If you have tried to reduce the stress in your life, check (✓) the strategies you have tried …

Strategies	Effects on Blood Pressure
❑ **Use one of these methods:** biofeedback, meditation, relaxation	not clear that this helps to reduce stress
❑ **Use more than one of these methods to reduce stress:** a combination of biofeedback, meditation and relaxation	can decrease blood pressure by 7 to 10 mm Hg
❑ **Personal Counseling to discuss or learn about:** ● causes of and responses to stress ● communication skills training ● problem-solving skills ● managing negative emotions ● relaxation/exercise	can decrease blood pressure by 9 to 15 mm Hg

Personal counseling about stress or a combination of two or more of biofeedback, meditation and relaxation may decrease blood pressure.

Medicine Options

Medicines are **not** meant to replace a healthy lifestyle. No medicines can cure high cholesterol or blood pressure, but they can be used to reduce your risk of developing heart disease when lifestyle changes alone are unable to lower your levels to a healthy range.

Medicines to Lower Cholesterol[47-57]

Cholesterol medicines help to control blood cholesterol levels. Each of these medicines has a different effect on LDL- and HDL-cholesterol. These medicines are only helpful if you take them regularly for the rest of your life.

All medicines may cause side effects and some work better for some people than for others. For this reason, you may have to try more than one medicine to find the right one for you.

There are four broad types of medicines available:

- resins
- niacin
- fibrates
- statins

The table on the following page gives a summary of the research about the effects of each of these families of drugs. The 1st column contains the name of the medicine. The 2nd column contains the name of the type of medicine. The 3rd column contains information about how your body may react to the medicine. The 4th column shows how much the medicine is able to lower LDL and raise HDL.

Names of Medicine	Type of Medicine	Notes and Side Effects	Effects on Cholesterol
Cholestyramine Colestipol	Resins	Unpleasant to take, but safe to take in long term as body does not absorb it. May cause bloating, gas, nausea, feeling constipated	lowers LDL (15-25%) raises HDL (0-5%)
	Niacin	People often stop using it due to side effects which may include: warm feeling on face and body (usually decreases after 2 weeks and if taken with food), itchy skin, rash, nausea.	lowers LDL (20%) raises HDL (20-40%)
Bezafibrate Fenofibrate Gemfibrozil	Fibrates	Side effects are often mild and not frequent. They may include stomach upset or muscle pain. May affect the liver.	lowers LDL (10-20%) raises HDL (0-30%)
Atorvastatin Fluvastatin Lovastatin Pravastatin Simvastatin	Statins	Side effects are mild and only affect some patients. Not clear what the long term effects are, if any. Most common side effects are stomach upset, bloating, muscle cramps. May affect the liver.	lowers LDL (20-50%) raises HDL (5-10%)

Medicines to Lower Blood Pressure[58-66]

You and your doctor may decide that you need to take a medicine to lower your blood pressure. There are many medicines that can treat blood pressure, but the choice is often based on two factors. The first factor is the person's medical condition. The second factor is how much a person is able to put up with the side effects of a specific blood pressure medicine.

If you use a medicine to lower blood pressure, it may reduce systolic blood pressure by about 7 to 15 mm Hg, and diastolic blood pressure by 5 to 10 mm Hg. So, if your systolic blood pressure is now 140, one of these medicines could bring it down to between 125-133. If your diastolic blood pressure is now at about 90, it could go down to 80-85. Some people may need to take more than one medicine.

The most frequently used medicines are described in the following table. Other medicines for high blood pressure are also on the market.

On average, a single blood pressure lowering medicine can reduce systolic blood pressure by about 7 to 15 mm Hg and diastolic blood pressure by 5 to 10 mm Hg [67]

Medicine Options

Names of Medicine	Type of Medicine	Side Effects	Effects on Blood Pressure
Bumetanide, Chlorthalidone, Hydrochlorothiazide, Indapamide, Metolazone, Amiloride, Triamterene, Spironolactone	Diuretics	May feel tired, headache, skin rash, may become sensitive to the sun, have nausea.	lowers systolic 7 to 15 mm Hg lowers diastolic 5 to 10 mm Hg
Acebutolol, Atenolol, Labetalol, Metoprolol, Nadolol, Exprenolol, Pindolol, Propranolol, Timolol	Beta-Blockers	May feel tired, have a slow pulse, change in sleeping pattern, make breathing problems worse.	same as above
Benazepril, Captopril, Cilazapril, Nalapril, Fosinopril, Lisinopril, Perindopril, Quinapril, Losartan, Ramipril	Angiotensin-converting enzyme (ACE) inhibitors	May feel tired, have dry cough, feel dizzy	same as above
Candesartan, Irbesartan, Losartan, Telmisartan, Valsartan	Angiotensin-II - receptor antagonists	May feel tired, dizzy	same as above
Amlodipine, Felodipine, Nicardipine, Nifedipine, Diltiazem, Verapamil	Calcium channel inhibitors	May feel tired, have swelling in ankles, headache, slow pulse, feel constipated (verapamil)	same as above

Four Steps to Lower Your Risk

Now it's time to learn how to put all the information you have learned together to find a solution that is right for you.

Turn the page to learn about the four steps to lower your risk.

Four Steps to Lower Your Risk

We have included a personal worksheet with this workbook that can help you decide what the best ways are to reduce your risk of heart disease and stroke. The worksheet will help you:

- assess your own risk for heart disease and stroke
- think about the life changes that could reduce your risk
- make your plan of action
- plot your progress over time with your health practitioner

Four Steps to Lower Your Risk

The worksheet is divided into four steps:

In **Step One** of the worksheet you review your own risk for heart disease and stroke. You will look at your risk factors and find out what these mean in terms of your present risk of heart attack or stroke. You will also learn how your risk compares to the risk for the average North American of your age and sex.

In **Step Two** of the worksheet you will look at possible benefits of different lifestyle and medicine options and figure out how important they are to you. You will do this by rating how important each of the benefits is. You will use 5 stars for changes that you think are very important and fewer stars for those you think are less important. You'll also see how making changes will reduce your present risk of heart attack or stroke.

In **Step Three** you will make your plan of action by listing the changes that you are interested in considering over the next 3 months.

Finally, in **Step Four** you will be able to plot your progress over time with your health practitioner.

To help you learn how to use the worksheet, we will show you how Marie and Pierre used it to make changes to lower their risk of heart attack and stroke. You might want to pull out your worksheet and follow along.

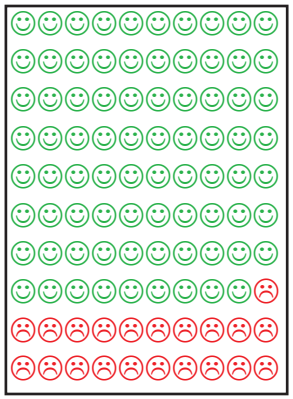
Marie's Situation

Marie is a 53 year-old woman who has not had a heart attack or stroke. Marie has been trying to lower her LDL-cholesterol by following a low fat and low cholesterol diet, but after three months her LDL remains high.

Step One: Marie's Personal Risk of Heart Disease and Stroke

	YES	NO
Abnormal cholesterol	☑	❒
High blood pressure	❒	☑
Smoking	☑	❒
Lack of Exercise	❒	☑
Overweight or obese	❒	☑
Diabetes	❒	☑
Heart attack or stroke	❒	☑

As identified in Step 1 of her worksheet, Marie has two risk factors that can be improved. She has unhealthy cholesterol levels because her HDL is slightly low (1.15) and her LDL is high (4.8) and she is also a smoker.



Marie has an estimated risk of heart attack or stroke of 21%. This means that if we followed 100 people who have the same risks as Marie over the next 10 years, on average **21** would have a heart attack or a stroke and **79** would not.

For the average North American female of Marie's age, the risk of having a heart attack or stroke is between 4% and 11%.

Although she is 53 years old, Marie has the same risk for heart disease and stroke as the average North American female 60 years of age.

Marie's Situation

Step Two: Possible Benefits of Life Change Options

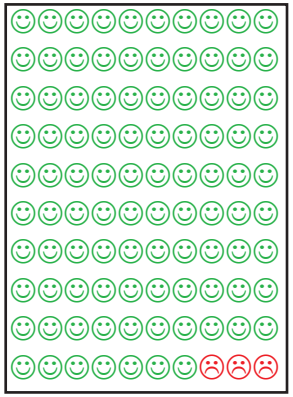
Marie could reduce her risk of having a heart attack or stroke by quitting smoking and improving her cholesterol. The table below shows how effective each option would be.

Life Change Options	Number of people out of 100 who will have a heart attack or stroke over the next 10 years	How important is the benefit (out of 5 stars) *****
☑ No change	21	
☑ ↓ LDL with lifestyle changes	20	*****
☑ ↓ LDL with medicine	12	*
☑ ↑ HDL with lifestyle changes	20	****
☑ ↑ HDL with medicine	16	*
❑ ↓ Blood pressure with lifestyle changes		
❑ ↓ Blood pressure with medicine		
☑ Quit smoking	8	*****
☑ Changing all risk factors	3	*****

The third column shows how important Marie thinks certain life change options are to her. For example, she thinks that reducing LDL by changing her lifestyle is much more important than lowering it with medicine.

Marie's Situation

If 100 people like Marie changed all their risk factors, over the next 10 years on average, 3 of them would have a heart attack or stroke. This means that, as shown in the block of 100 faces, on average **3** would have a heart attack or stroke and **97** would not.



If Marie reduced her cholesterol and stopped smoking, she would have the same risk of heart disease and stroke as the average North American female **51** years of age.

Marie's Situation

Step Three: Marie's Plan of Action

Marie discussed the pros and cons of the different treatment options with her health practitioner. In Step 3 of her worksheet Marie checked the options she is interested in trying over the next 3 months. As Marie prefers not to take medicines, she decides to try lifestyle modifications to improve her cholesterol levels. While she does some exercise, she plans to increase her physical activity by signing up for water aerobics. After consulting with her pharmacist, Marie decides to try nicotine patches to help her quit smoking.

Step Four: Marie's Progress

After three months, Marie returned to her doctor to discuss her progress. She had quit smoking. Her HDL cholesterol had risen to 1.21 and her LDL cholesterol had gone down to 3.60. She had also gained 2 pounds.

Marie's risk of having a heart attack or stroke over the next 10 years had dropped to 7 out of 100 from 21 out of 100 and her risk of heart attack and stroke is now the same as the average North American female 52 years of age.

Marie is pleased with her progress and chooses to continue with her plan without any changes.

Pierre's Situation

Pierre is a 63 year-old man who has had one heart attack. Pierre also has high blood pressure.

Step One: Pierre's Personal Risk of Heart Disease and Stroke

	YES	NO
Abnormal cholesterol	❒	☑
High blood pressure	☑	❒
Smoking	❒	☑
Lack of exercise	❒	☑
Overweight or obese	☑	❒
Diabetes	❒	☑
Heart attack or stroke	☑	❒

In Step 1 of his worksheet Pierre can see that he has two risk factors that can be improved: high blood pressure (168 over 92) and being overweight. Pierre weighs about 220 pounds. Ideally he should weigh between 150-180 pounds.

Pierre has an estimated risk of heart attack and stroke of 60%. This means that if we followed 100 people like Pierre over the next 10 years, on average **60** would have a heart attack or stroke and **40** would not.

For the average North American male of Pierre's age, the risk of having a heart attack or stroke is between 34% and 61%.

Pierre's Situation

Step Two: Possible Benefits of Life Change Options

Pierre could reduce his risk of having a heart attack or stroke by lowering his blood pressure with lifestyle changes and medicine. The table shows how effective each option would be.

Life Change Options	Number of people out of 100 who will have a heart attack or stroke over the next 10 years	How important is the benefit (out of 5 stars) *****
☑ No change	60	
❑ ↓ LDL with lifestyle changes		
❑ ↓ LDL with medicine		
❑ ↑ HDL with lifestyle changes		
❑ ↑ HDL with medicine		
☑ ↓ Blood pressure with lifestyle changes	52	***
☑ ↓ Blood pressure with medicine	47	****
❑ Quit smoking		
☑ Changing all risk factors	47	*****

For example, if 100 people with Pierre's risk factors made some lifestyle changes, they could lower their blood pressure. This would mean that 52 of them would have a heart attack or stroke over the next 10 years.

Pierre's Situation

If 100 people like Pierre changed all their risk factors (lowering blood pressure with medicine), over the next 10 years on average **47** of them would have a heart attack or stroke and **53** would not.

Step Three: Pierre's Plan of Action

Pierre discussed the pros and cons of the different treatment options with his doctor. In Step 3 of his worksheet Pierre checks the options he is interested in trying over the next 3 months. He decides to start taking medicines to lower his blood pressure. He also believes that increasing his level of exercise could improve his blood pressure and help him to lose weight. Pierre's cardiologist refers him to a supervised exercise program designed for patients who have had a heart attack.

Pierre's Situation

Step Four: Pierre's Progress

After three months, Pierre returns to his doctor to discuss his progress. He has started to take the medicine to lower his blood pressure. He has been watching his diet and has begun a supervised exercise program. He has lost 10 pounds and his blood pressure has dropped to 158 over 88.

Pierre's risk of having a heart attack or stroke over the next 10 years has dropped to 46 out of 100.

Pierre would like to reduce his risk even more. He makes a plan to learn more about how meditation and relaxation techniques could reduce the stress in his life.

Now it's time for you to complete your personal worksheet. Good luck with your decision making!

Summary Table

Refer to the summary table below as a quick reference guide for the information we have presented on lifestyle options.

In both tables, the ↑ arrow means raises and the ↓ arrow means lowers.

Lifestyle Options				
	LDL	HDL	Blood Pressure	
			Systolic	Diastolic
Healthy Diet	↓5%		↓9 mm Hg	↓5 mm Hg
Increase Exercise	↓ 4%	↑ 5%	↓5–7 mm Hg	↓5–7 mm Hg
Quit Smoking		↑ 14%		
Lose Weight 10 pounds (4.5 kg)	↓ 3%	↑ 4%	↓7–12 mm Hg	↓7–12 mm Hg
Reduce Stress				
References	7, 25, 28	25, 28, 40–42	8, 20, 26, 29	8, 20, 26, 29

Summary Table

Cholesterol Lowering Medicines				
	LDL	HDL	Blood Pressure	
			Systolic	Diastolic
Resins	↓15–25%	↑0–5%		
Niacin	↓ 20%	↑ 20–40%		
Fibrates	↓ 10–20%	↑ 0–30%		
Statins	↓ 20–50%	↑ 5–10%		
Blood Pressure Lowering Medicines				
Diuretics			↓ 7–15 mm Hg	↓ 5–10 mm Hg
Beta-blockers			↓ 7–15 mm Hg	↓ 5–10 mm Hg
Angiotensin-converting enzyme inhibitors			↓ 7–15 mm Hg	↓ 5–10 mm Hg
Angiotensin II-receptor antagonists			↓ 7–15 mm Hg	↓ 5–10 mm Hg
Calcium channel inhibitors			↓ 7–15 mm Hg	↓ 5–10 mm Hg
References	47, 50–51, 53	45–47, 51, 53, 55	57–61, 63–65	57–61, 63–65

Resources

Smoking Cessation:

Quebec Pulmonary Association
Tel: Call toll free 1-888-poumon-9
Internet: http://www.pq.lung.ca
Description: free counselling by nurse every day from 13:00 to 20:00

Canadian Cancer Society
Tel: Call toll free 1-888-939-3333
Internet: http://www.cancer.ca
Description: free brochure on smoking cessation

Smoking cessation clinic
Notre-Dame Hospital
Tel: (514) 890-8000 extension 23761
Description: counselling and medical follow-up

Nicotine anonymous
Tel: (514) 849-0131
Internet: http://www.nicotine-anonymous.org
Description: support group for people who wish to stop smoking

Smoking Cessation Guide
Fax: (613) 567-2730
Or send request to Canadian Council on Smoking and Health
170 Laurier Avenue West, Suite 1000, Ottawa, ON K1P 5V5

Ordre des acupuncteurs du Québec
Tel: (514) 523-2882

Association des hypnologues du Québec
Tel: (514) 939-3780

Resources

Exercise:

Canada's Physical Activity Guide
Tel : Call toll free 1-888-334-9769
http://www.paguide.com

Nutrition:

Health Canada Food Guide
Tel: (613) 954-5995

Dietitians of Canada
480 University Avenue, Suite 604
Toronto, Ontario, Canada
M5G 1V2
Tel: (416) 596-0857
Internet address: http://www.dietitians.ca

Counselling to reduce stress:

Ordre des psychologues du Québec
1100, avenue Beaumont, bureau 510
Mont-Royal, Québec
H3P 3H5
Tel. : (514) 738-1223

Glossary of Terms

Acupuncture: Thin needles inserted through the skin into energy points found in specific parts of the body to balance energy levels. The needles may also be gently twirled or heated.

Angina: Chest pain caused by a lack of oxygen to the heart.

Angiotensins-converting enzyme (ACE) inhibitors: Medicines that reduce blood pressure by reducing the constriction of blood vessels and allowing the blood to flow more easily in the vessels.

Angiotensin II - receptor antagonists: Reduce the constriction of blood vessels, which makes it easier for the blood to flow through them, reducing **blood pressure** and increasing the elimination of water and salt through the kidneys.

Beta-blockers: Medicines that reduce blood pressure by slowing the heart rate and reducing the force of contractions of the heart muscle.

Biofeedback: A technique in which people learn to control body functions, such as **blood pressure**, that are normally not under a person's control.

Blood Cholesterol: An essential part of the body. It is carried through the body by **lipoproteins**. There are three kinds of blood cholesterol: **LDL-cholesterol, HDL-cholesterol** and **triglycerides**.

Blood Pressure: A measurement of how hard your heart has to work to pump the blood through your body. It is measured in millimetres (mm) of mercury (Hg), and is represented by two numbers, such as "135 over 85". The higher number is your **systolic** blood pressure and the lower number is your **diastolic** blood pressure.

Calcium channel inhibitors: Medicines that act on the muscles of the heart. They decrease the work of the heart in pumping blood, decrease the pressure of blood flow through the body and improve the circulation of blood through the heart muscle.

Glossary of Terms

Counseling: Advice and psychological support given by a health professional aimed at helping you cope with a particular problem.

Diastolic Blood Pressure: The lower number in your **blood pressure** reading. This is the pressure in your blood vessels when your heart is resting (between beats).

Diuretics: A group of medicines that help remove extra water from the body by stimulating the kidneys to get rid of more urine.

Fibrates: Medicines used as adjuncts to lifestyle changes to lower **triglycerides** and increase **HDL-cholesterol**.

Heart Attack: Sudden death of part of the heart muscle causing severe continuous pain.

Heart Disease: A narrowing of the arteries in the heart resulting in **angina** and **heart attack**.

HDL-Cholesterol: High-density lipoprotein, or HDL-cholesterol is known as good cholesterol because it promotes the elimination of cholesterol from the blood causing them to widen. People with low levels of HDL or good cholesterol have a higher risk of **heart disease** and **stroke**.

LDL-Cholesterol: Low-density lipoprotein, or LDL-cholesterol is known as bad cholesterol because it promotes the deposit of cholesterol on artery walls, causing them to narrow. People with high levels of LDL or bad cholesterol have a higher risk of developing **heart disease** and **stroke**.

Lipoproteins: The particles that transport **cholesterol** and fat around the body.

Meditation: A technique in which people concentrate on an object, a word, or an idea for the purpose of changing their mood.

Glossary of Terms

Niacin: A medicine used as an adjunct to lifestyle changes to increase **HDL-cholesterol** or decrease **triglycerides**. Can be used alone or in combination with other medicines.

Personal Counseling: For example, meeting regularly with a professional counselor to help you talk about the causes of your stress, improve your communication skills to manage stress, learn how to problem-solve and manage your negative emotions using relaxation and exercise.

Relaxation: A method of consciously releasing tension in the muscles to help a person become calmer.

Resins: Medicines used as adjuncts to lifestyle changes to decrease **LDL-cholesterol**. Mostly used in combination with other **cholesterol** medicines.

Statins: Medicines used as adjuncts to lifestyle changes to decrease **LDL-cholesterol**. Can be used alone or in combination with other **cholesterol** medicines.

Stroke: Damage to part of the brain caused by an interruption of the blood supply or leakage of blood through the walls of the blood vessels. Sensation, movement, or function controlled by the damaged area of the brain is impaired. Strokes can be fatal.

Systolic Blood Pressure: The higher number in your **blood pressure** reading. It is the pressure in your blood vessels when your heart is beating.

Transient Ischemic Attack: A brief interruption of the blood supply to part of the brain that results in a temporary impairment of vision, speech, sensation, or movement.

Triglycerides: Chemical form of fat that exists in blood. Represents very important stock of fatty acids.

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