



Cholesterol

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Cholesterol 101

High blood cholesterol (also known as hyperlipidemia) is a condition in which lipid levels in the body are abnormal. This condition affects almost 40% of Canadians, although you may not be able to “feel” it. Cholesterol is normally found in all parts of the body and is needed to make cell membranes, vitamin D and hormones. We need cholesterol for the body to function properly, but too much can result in an increased risk of heart disease. Cholesterol comes from two major sources - about 80% of it is made by the body and the other 20% comes from the foods we eat. It is carried

through the blood by two major lipoproteins, called low-density lipoprotein (LDL) and high-density lipoprotein (HDL).

LDL is often referred to as “bad” cholesterol because high levels of it are responsible for the build-up of plaque in blood vessels.

HDL is often referred to as “good” cholesterol because it helps to remove the “bad” cholesterol from the blood.

Triglycerides are not cholesterol; however they are derived from fats eaten in foods or made in the body from other energy sources such as carbohydrates and are the most common form of fat in our bodies,

high levels of which are linked to an increased risk of heart disease. Triglyceride levels are often measured at the same time as cholesterol levels.

Why should I care?

High cholesterol levels can lead to the build-up of plaque (a substance that sticks to the inside walls of blood vessels), which can result in blocked blood vessels or in some cases a blood vessel bursting open. Depending on where in the body this happens, it can lead to serious conditions such as a heart attack or stroke, as well as damaged blood vessels and circulation problems.

Calculating your risk – For Women

Step 1: Age

Years	Points
20-34	-7
35-39	-3
40-44	0
45-49	3
50-59	6
60-64	10
65-69	12
70-74	14
75-79	16

Step 2: Total Cholesterol

TC (mmol/L)	Points at age				
	20-39	40-49	50-59	60-69	70-79
≤4.14	0	0	0	0	0
4.15 - 5.19	4	3	2	1	1
5.2 - 6.19	8	6	4	2	1
6.2 - 7.2	11	8	5	3	2
≥7.21	13	10	7	4	2

Step 3: HDL Cholesterol

HDL-C (mmol/L)	Points
≥1.55	-1
1.3 - 1.54	0
1.04 - 1.29	1
<1.04	2

****Note:** Anyone with established coronary artery disease, cardiovascular disease, peripheral vascular disease, peripheral artery disease, chronic kidney disease, or diabetes is automatically considered high-risk. For anyone with a family history of coronary artery disease in a first-degree relative before the age of 55 years in a male or 65 years in a female, the calculated 10-year risk should be multiplied by a factor of 2.0.

Step 4: Systolic Blood Pressure

Systolic BP(mmHg)	Points (if untreated)	Points (if treated)
<120	0	0
120 - 129	1	3
130 - 139	2	4
140 - 159	3	5
≥160	4	6

Step 5: Smoking Status

	Points at age				
	20-39	40-49	50-59	60-69	70-79
Non-smoker	0	0	0	0	0
Smoker	9	7	4	2	1

Step 6: Adding up the points

Age	_____
Total Cholesterol	_____
HDL Cholesterol	_____
Systolic Blood Pressure	_____
Smoking Status	_____
Point TOTAL**	_____

Step 7: Coronary Heart Disease Risk

Point Total	10-Year Risk
<9	<1%
9	1%
10	1%
11	1%
12	1%
13	2%
14	2%
15	3%
16	4%
17	5%
18	6%
19	8%
20	11%
21	14%
22	17%
23	22%
24	27%
≥25	≥30%

Calculating your risk – For Men

Step 1: Age

Years	Points
20-34	-9
35-39	-4
40-44	0
45-49	3
50-54	6
55-59	8
60-64	10
65-69	11
70-74	12
75-79	13

Step 2: Total Cholesterol

TC (mmol/L)	Points at age				
	20-39	40-49	50-59	60-69	70-79
≤4.14	0	0	0	0	0
4.15 - 5.19	4	3	2	1	0
5.2 - 6.19	7	5	3	1	0
6.2 - 7.2	9	7	4	2	1
≥7.21	11	8	5	3	1

Step 3: HDL Cholesterol

HDL-C (mmol/L)	Points
≥1.55	-1
1.3 - 1.54	0
1.04 - 1.29	1
<1.04	2

****Note:** Anyone with established coronary artery disease, cardiovascular disease, peripheral vascular disease, peripheral artery disease, chronic kidney disease, or diabetes is automatically considered high-risk. For anyone with a family history of coronary artery disease in a first-degree relative before the age of 55 years in a male or 65 years in a female, the calculated 10-year risk should be multiplied by a factor of 2.0.

Step 4: Systolic Blood Pressure

Systolic BP(mmHg)	Points (if untreated)	Points (if treated)
<120	0	0
120 - 129	0	1
130 - 139	1	2
140 - 159	1	2
≥160	2	3

Step 5: Smoking Status

	Points at age				
	20-39	40-49	50-59	60-69	70-79
Non-smoker	0	0	0	0	0
Smoker	8	5	3	1	1

Step 6: Adding up the points

Age	-----
Total Cholesterol	-----
HDL Cholesterol	-----
Systolic Blood Pressure	-----
Smoking Status	-----
Point TOTAL**	-----

Step 7: Coronary Heart Disease Risk

Point Total	10-Year Risk
<0	<1%
0	1%
1	1%
2	1%
3	1%
4	1%
5	2%
6	2%
7	3%
8	4%
9	5%
10	6%
11	8%
12	10%
13	12%
14	16%
15	20%
16	25%
≥17	≥30%



What should my cholesterol levels be?

Target Lipid Levels

Level of Risk	Recommendations	
High (10-year risk $\geq 20\%$)	Primary Target: LDL < 2.0	Secondary Target: TC/HDL < 4.0
Moderate (10-year risk 10-19%)	Treat when: LDL ≥ 3.5	Treat when: TC/HDL ≥ 5.0
Low (10-year risk < 10%)	Treat when: LDL ≥ 5.0	Treat when: TC/HDL ≥ 6.0

LDL = low-density lipoprotein HDL = high-density lipoprotein TC = total cholesterol

Canadian guidelines recommend having your cholesterol tested every 1-3 years if you:

- Are a male over 40 years of age or a female over 50 years of age and/or post-menopausal
- Smoke or have a smoking history (within the previous year)
- Have a family history of heart disease or stroke
- Have a waist circumference over 102 cm (males) or over 88 cm (females)
- Have heart disease, diabetes or high blood pressure



What YOU can do

TRY

- To be physically active. Aiming for 30 to 60 minutes a day on most days of the week can increase your HDL (“good”) cholesterol, and can reduce the risk of heart disease and stroke by almost half!
- A diet lower in fat. Aim for 20-35% of your day’s calories to be from fat. For women this would be approximately 45-75 grams a day and for men 60-105 grams a day. The focus should be on monounsaturated and polyunsaturated fats since these can lower LDL (“bad”) cholesterol levels.
- To include Omega-3 fats in your diet. These are polyunsaturated fats that can help improve your blood cholesterol levels.



AVOID

- Saturated and trans fats. Saturated fats raise LDL (“bad”) cholesterol and trans fats not only raise LDL cholesterol, they lower HDL (“good”) cholesterol too.
- Smoking. Studies show smokers have lower HDL (“good”) cholesterol levels than non-smokers. These levels increased to the same as those of non-smokers within a few weeks of becoming smoke-free!
- Being overweight. This can increase your triglyceride and lower your HDL (“good”) cholesterol levels and this may increase your risk of diabetes, heart disease and stroke.



Understanding types of fats

Healthy Fats		Unhealthy Fats	
Type	Major Food Sources	Type	Major Food Sources
Monounsaturated	Olive, canola, peanut oils; non-hydrogenated margarines, nuts, seeds, avocados.	Saturated	Fatty meats, full-fat milk products, butter, lard, coconut, palm and kernel oils, many fast foods and snack foods, many ready-made foods, hydrogenated vegetable oil.
Polyunsaturated Omega-6	Safflower, sunflower, corn oils; non-hydrogenated margarines, nuts, seeds.	Trans	All foods made with shortening or partially hydrogenated vegetable oil, many snack foods, fast foods and ready-made foods.
Omega-3	Fatty fish (mackerel, herring, trout, salmon, swordfish, cod, bluefish); canola, soybean oils; flaxseeds, Omega-3 eggs, walnuts, pecans, pine nuts.		





Keeping track of your cholesterol levels

	Total Cholesterol	LDL Cholesterol	HDL Cholesterol	Total Cholesterol/HDL Cholesterol ratio	Triglycerides
Target level set by your physician based on your risk factors					
Your Test Results					
Year	Total Cholesterol	LDL Cholesterol	HDL Cholesterol	Total Cholesterol/HDL Cholesterol ratio	Triglycerides



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