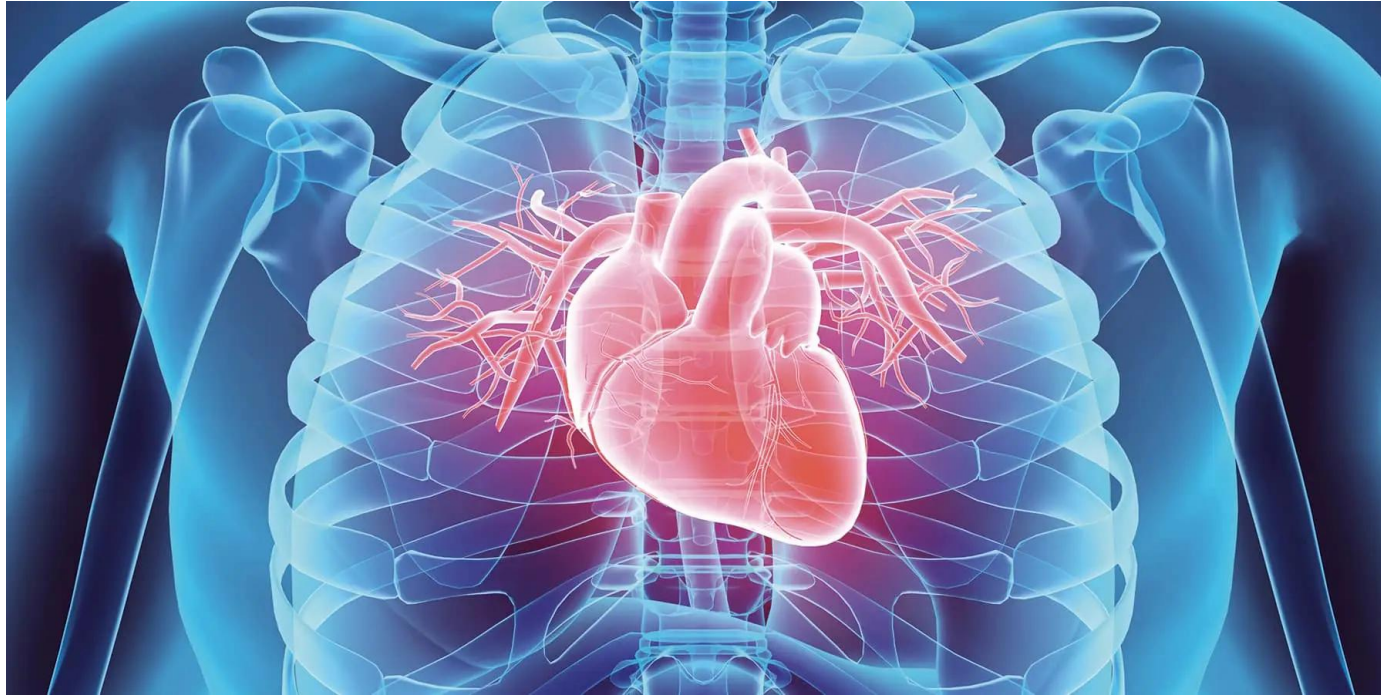




HEART HEALTH & CARDIOVASCULAR DISEASES

Nazia Hossain, MD

Internal Medicine Physician

Credit Valley Hospital, Mississauga

Aroga Lifestyle Medicine Clinic, Brampton

OUTLINE

Definitions of heart disease

Symptoms and emergency response

Potential complications

Causes

Management

Prevention

WHAT IS HEART DISEASE?

Atherosclerotic heart disease

- Buildup of cholesterol in the blood vessels that supply the heart
- Heart attack: one of the blood vessels is completely blocked

Heart failure

- Heart does not pump blood effectively

Valvular heart disease

- Heart valve does not function properly

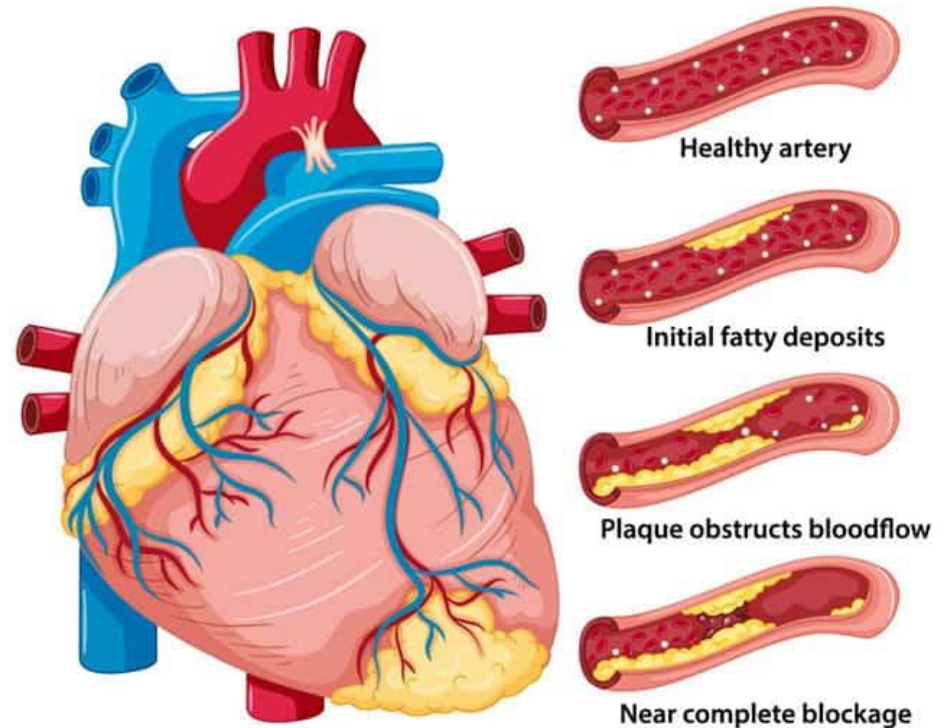
Arrhythmia

- Heart pumps irregularly

Cardiac arrest

- Heart stops pumping

CORONARY ARTERY DISEASE



According to 2017–2018 data¹ from the *Canadian Chronic Disease Surveillance System (CCDSS)*:



**ABOUT
1 in 12**

(or **2.6 million**) Canadian adults
age 20+ live with diagnosed **heart disease**

**EVERY
HOUR**



14 Canadian adults age 20+
with diagnosed **heart disease** die



**DEATH
RATE is**

2.9x higher among adults age 20+ with diagnosed **heart disease** vs those without

4.6x higher among adults age 20+ who had a **heart attack** vs those without

6.3x higher among adults age 40+ with diagnosed **heart failure** vs those without

HEART DISEASE AFFECTS **MEN** AND **WOMEN** DIFFERENTLY



MEN are **2x more likely**
to suffer a **heart attack**
than **WOMEN**

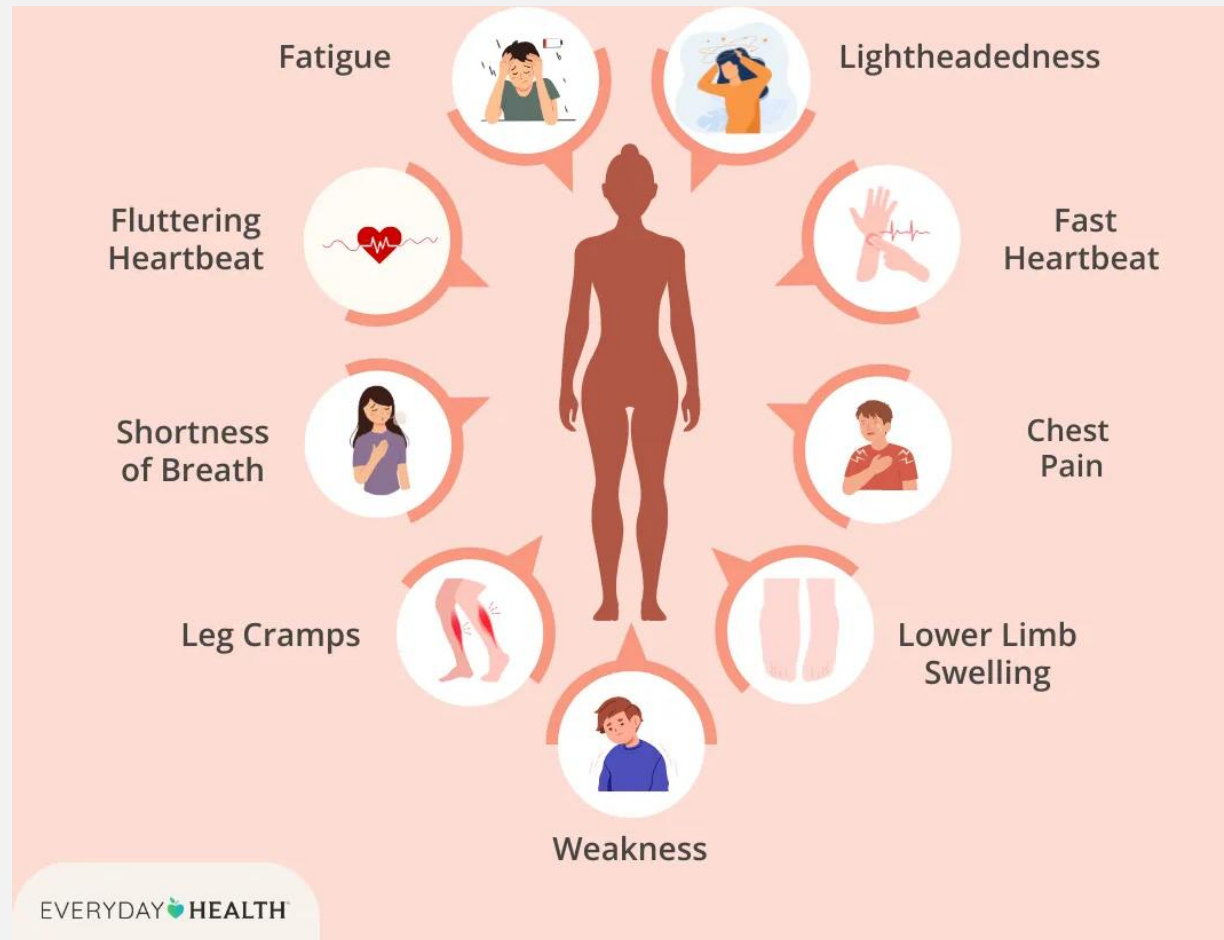
MEN are newly diagnosed with
heart disease about **10 years**
younger than **WOMEN**

55 to 64
years



65 to 74
years

SYMPTOMS OF HEART DISEASE



<https://www.everydayhealth.com/heart-disease/types-symptoms/>

Compression-Only CPR



Call 911

Immediately call 911 to ensure help is on the way.



Push Hard

Place your hands in the center of the chest and start compressions.



Push Fast

Compress 100 - 120 times per minute and **DON'T STOP** until help arrives.



AMERICAN SAFETY & HEALTH INSTITUTE

MEDIC First Aid



POTENTIAL COMPLICATIONS

- Shortness of breath or chest discomfort
- Difficulty with breathing when lying flat
- Recurrent ER/hospital visits
- Need for surgery
- May need to have driver's license taken away in some cases

MOST COMMON CAUSES

High cholesterol

- Leads to plaque buildup in arteries of heart and brain

Diabetes/high blood sugars

- Leads to plaque buildup
- Causes inflammation in blood vessels

High blood pressure

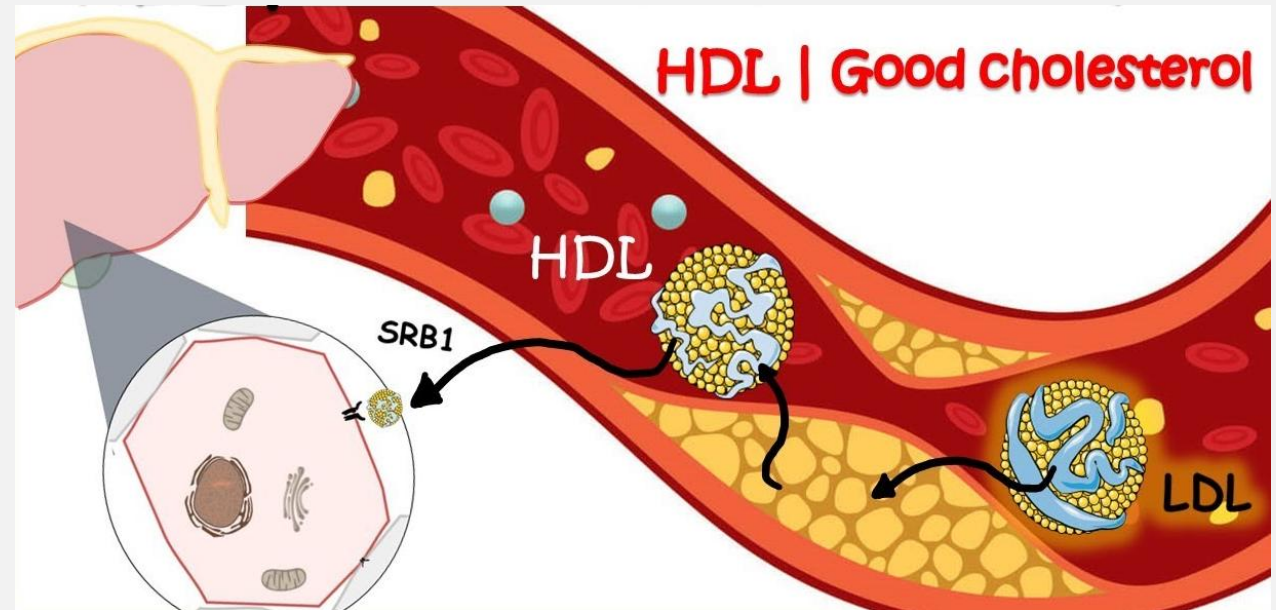
- Heart muscles become thick, weaker
- Blood vessels in brain become weaker

Smoking

- Causes inflammation in blood vessels
- Leads to plaque buildup

WHAT IS CHOLESTEROL?

- A fat-like substance made by the liver to produce hormones and certain vitamins
- Your body makes all the cholesterol it needs to function



CHOLESTEROL BLOODWORK

- Total cholesterol – total amount of cholesterol measured
- LDL = “bad” cholesterol – responsible for heart disease, target of cholesterol-lowering drugs
- HDL = “good” cholesterol – counteracts the effects of LDL
- Non-HDL = “bad” cholesterol – equal to the total cholesterol minus the HDL
- Triglycerides – a type of fat, contributes to bad cholesterol buildup and inflammation
- Apolipoprotein-B – carries bad cholesterol, including LDL, and contributes to cholesterol buildup in arteries
- Lipoprotein(a) – carries bad cholesterol but does not seem to decrease significantly with diet, exercise, or medications
 - If you have high Lp(a) we target lower LDL levels to decrease the risk of heart disease and stroke

SOURCES OF CHOLESTEROL

- Dietary cholesterol only comes from animal products
 - Top sources of cholesterol: eggs, dairy, cheese, organ meats, shellfish
- Saturated fat and trans fat also contribute to increased 'bad' cholesterol
 - Mostly found in animal products and processed foods
 - Top sources of saturated fat: cheese, beef, milk, sausages, luncheon meats
 - Top sources of trans fats: partially hydrogenated plant oils, butter, red and processed meat, refined grains (e.g. doughnuts, cookies, muffins, pies, cakes)

MANAGEMENT - MEDICATIONS

Antiplatelets – prevent blockages of blood vessels in heart

- aspirin (ASA), clopidogrel, ticagrelor

Cholesterol lowering medications

- atorvastatin, rosuvastatin, ezetimibe, evolocumab

Diabetes medications

- metformin, semaglutide, canagliflozin, empagliflozin, insulin

Blood pressure medications

- ramipril, telmisartan, amlodipine, hydrochlorothiazide

MANAGEMENT - MEDICATIONS

Diuretics – reduce fluid buildup in the legs and lungs

- furosemide, hydrochlorothiazide, indapamide

Beta blockers and calcium channel blockers – regulate heart rate

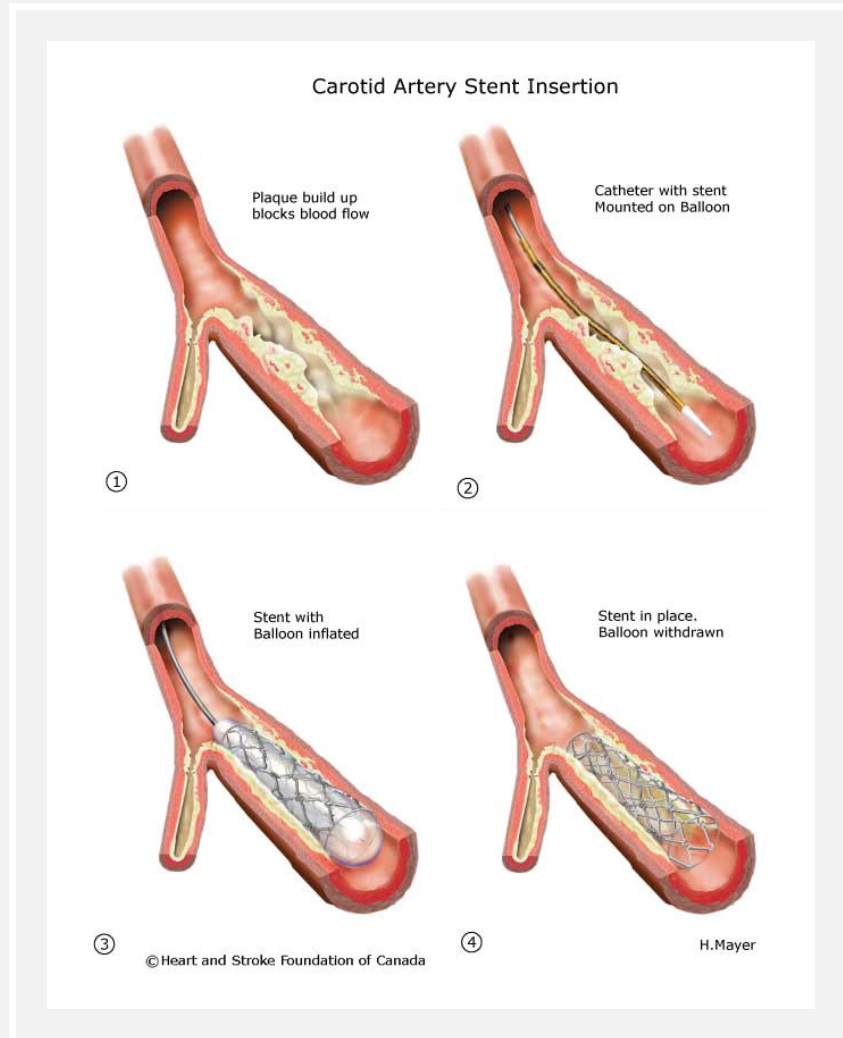
- bisoprolol, metoprolol, diltiazem, verapamil

Anticoagulants – blood thinners that prevent strokes for certain patients

- apixaban, rivaroxaban, dabigatran, warfarin

MANAGEMENT - SURGERY

- Percutaneous coronary intervention (PCI)
 - Stent is placed in a blocked artery in the heart
- Bypass surgery
 - Open heart surgery when multiple blood vessels in the heart are blocked
- Heart valve replacement
- Ablation
 - Eliminates area of the heart that is causing an arrhythmia



LIFESTYLE MANAGEMENT AND PREVENTION



LIFESTYLE MEDICINE - DIET

- Predominantly whole food plant-based diet
- Avoid processed foods with a lot of added salt and sugar
- Eat 3-4 servings of vegetables per day
- Eat 2-3 servings of fruits per day
- Choose plant-based proteins over animal-based proteins
 - Plant-based proteins: lentils, beans, chickpeas, tofu, soy milk, tempeh, nuts, seeds
 - Animal-based proteins: chicken, eggs, dairy, red meat, pork
- Choose whole grains over refined grains
 - Whole grains: brown rice, wild rice, quinoa, whole wheat, millet flour, lentil pasta
 - Refined grains: white rice, white bread, white flour



HOW TO LOWER CHOLESTEROL

- Portfolio diet
 - Rich in plant sterols, nuts, seeds, soluble fiber, plant protein
 - Lowers LDL by 20-30%
- Soluble fiber
 - Vegetables – 2-3 cups per day: leafy greens, sweet potatoes, broccoli, Brussel sprouts, eggplant, asparagus
 - Fruits – 1-3 per day: apples, berries, oranges, avocados, okra
 - Whole grains: 1-2 cups per day: oatmeal, oat bran, barley
- Nuts and seeds
 - 1/4 cup daily: walnuts, almonds, ground flaxseeds, cashews, hazelnuts, pecans, pine nuts, pumpkin seeds, chia seeds, hemp seeds, natural nut butters
- Plant proteins
 - Soy milk (1 cup), beans and lentils (1-2 cups), edamame (1-2 cups), tofu or tempeh (3/4 cup)
- Supplements
 - Plant sterols – 2 g daily taken with meals
 - Ground black cumin seeds – 1 g daily with food
 - Psyllium husk

LIFESTYLE MEDICINE

- Regular exercise
 - 150 minutes of moderate intensity aerobic exercise per week – e.g. brisk walking, cycling, dancing
 - Strength training 2x/week – e.g. pushups, sit-ups, squats, lunges
- Get enough sleep
 - 7-9 hours of good quality sleep per night

LIFESTYLE MEDICINE

- Manage stress
 - Talk to others, exercise, meditate, pray, seek professional or group counseling
- Maintain positive relationships
 - With family, friends, coworkers
 - Stay away from negative/toxic relationships – talk to a professional if you need help
- Avoid substances like tobacco, alcohol, cannabis, and other recreational drugs
 - Talk to your doctor if you need help quitting
 - See Resources section

SUMMARY

- Seek medical attention immediately if you are experiencing symptoms of a heart attack
- Have regular visits with your doctor to monitor your blood pressure, blood sugar, and cholesterol
- If you have heart disease, or have conditions that increase your risk, take your medications as prescribed and have regular follow up with your family doctor and specialists
- Prevention is key – follow the six pillars of lifestyle medicine
 - Eat a mostly plant-based diet, exercise regularly, get enough sleep, manage stress, maintain positive relationships, and avoid substances like tobacco and alcohol

RESOURCES

- Aroga Lifestyle Medicine: <https://www.aroga.com/>
- American Heart Association: <https://www.heart.org/en/>
- Heart and Stroke Foundation of Canada: <https://www.heartandstroke.com/>
- Public Health Ontario: [https://www.publichealthontario.ca/en/Diseases-and-Conditions/Chronic-Diseases-and-Conditions/Cardiovascular-Disease#:~:text=Cardiovascular%20disease%20\(CVD\)%20is%20an,Many%20CVDs%20are%20preventable](https://www.publichealthontario.ca/en/Diseases-and-Conditions/Chronic-Diseases-and-Conditions/Cardiovascular-Disease#:~:text=Cardiovascular%20disease%20(CVD)%20is%20an,Many%20CVDs%20are%20preventable)
- Government of Canada: <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/heart-disease-canada.html>
- Quit smoking: <https://www.islandhealth.ca/learn-about-health/smoking-tobacco/helping-people-quit-smoking>
- Quit substance use: <https://www.canada.ca/en/health-canada/services/substance-use/get-help-with-substance-use.html>
- Video Link: <https://www.youtube.com/watch?v=Xvu0BEtZnzI>