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Education Session A


Cardiovascular Risk Management Program


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Today's Program

- Review of common cardiovascular diseases
- Briefly discuss available interventions
- Highlight the risk factors for cardiovascular disease and discuss treatment targets
- Introduction to exercise guidelines
- Outline of program structure


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Our Focus

- The primary objective of the Cardiovascular Risk Management Program is to provide you with the skills and knowledge necessary to make informed decisions and healthy lifestyle changes to reduce your risk of cardiovascular diseases.


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Quick Facts

- The heart is a muscle with 4 hollow chambers that pumps blood around the body
- Each beat pumps 60 to 125mL of blood.
- The heart is located in the center of your chest behind the sternum and is roughly the size of your fist
- The heart beats about 100,000 times a day, pumping approximately 7500 litres of blood
- All the blood vessels in the body (arteries, veins and capillaries) laid out in a line would total close to 100,000 miles in length


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Cardiovascular Diseases

- Atherosclerosis
- Peripheral Vascular Disease
- Coronary Artery Disease (angina)
- Myocardial Infarction (heart attack)
- Congestive Heart Failure
- Cerebrovascular Disease (stroke)

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Atherosclerosis

- Cholesterol and fat can build up on the inside walls of the arteries over time causing the arteries to become stiff and narrowed
- These plaques can lead to partial or complete blockage of the artery and restrict blood flow
- Coronary artery disease is atherosclerosis developed in the arteries of the heart

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Atherosclerosis

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Peripheral Vascular Disease

- An acute or chronic lack of blood flow to tissues of the arms or legs
- Causes include atherosclerosis, embolism or an inflammatory response
- Signs and Symptoms of PVD include:
 - Claudication – pain, weakness or cramping in the muscles due to decreased blood flow
 - Sores, wounds or ulcers that heal slowly or not at all
 - Noticeable change in skin colour or temperature
 - Diminished nail or hair growth on affected limb

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Angina Pectoris

- Angina is a condition caused by a lack of blood supply to the heart muscle (myocardial ischemia)
- Symptoms may present as:
 - Pressure, squeezing or a burning sensation in the chest, arms, back or jaw
 - Unusual shortness of breath or fatigue during normal daily activities
- Typically triggered by activity or stress and relieved with rest
- In some cases there are no symptoms at all and we must rely on diagnostic testing for a diagnosis

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Heart Attack & Stroke

- These atherosclerotic plaques can rupture causing the formation of a blood clot
- A blood clot can break loose and travel through the arterial system until they lodge in a blood vessel which is too small to pass through
- The clot blocks the blood vessel and obstructs blood flow leaving the tissue below the blockage deprived of oxygen
- When oxygen deprivation occurs, tissue death results
- Blockage in a coronary artery = Heart attack
- Blockage in a cerebral artery = Stroke

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Signs and Symptoms of Heart Attack

- Sudden onset of chest pain or pressure which does not go away with rest
- Pain or discomfort may radiate to arms, back, jaw and neck
- May be accompanied by nausea or uncontrolled sweating
- Often triggers feelings of fear, uncertainty or denial

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Signs and Symptoms of Stroke

- **Weakness** - Sudden loss of strength or sudden numbness in the face, arm or leg, even if temporary.
- **Trouble speaking** - Sudden difficulty speaking or understanding or sudden confusion, even if temporary.
- **Vision problems** - Sudden trouble with vision, even if temporary.
- **Headache** - Sudden severe and unusual headache.
- **Dizziness** - Sudden loss of balance, especially with any of the above signs.

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Call 911

- If you are experiencing symptoms of a heart attack or Stroke **Call 911 immediately**
- Do NOT Drive yourself
- Do NOT ask someone to drive you
- The faster you seek medical treatment, the greater your chance of survival and rapid recovery

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Interventions for Blocked Vessels

- Angioplasty with or without stents
- Thrombectomy
- Arterial Bypass Grafting
- Carotid Endarterectomy
- Clot Blusters

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Angioplasty

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Arterial Bypass Grafting

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Carotid Endarterectomy

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Non Modifiable Risk Factors

- Age
- Gender
- Ethnicity
- Family History

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Modifiable Risk Factors

- Smoking
- Hypertension
- High Cholesterol
- Diabetes
- Obesity
- Stress, Anxiety and Depression
- Inactivity

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Smoking

- The best thing that you can do for your cardiovascular health and overall health is to **Quit Smoking**
- Try to avoid situations where you are exposed to 2nd hand smoke
- Medications and or psychosocial therapy can help you to quit

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Hypertension

- High blood pressure is known as the “silent killer” as it often has no symptoms
- Persistent hypertension can damage any of the arteries in the body leading to plaque formations
- Untreated, it will increase the risk of stroke, heart disease, kidney failure, peripheral vascular disease, retinopathy
- 25% of Canadians have high blood pressure
- The W.H.O says that suboptimal blood pressure is responsible for 50% of coronary heart disease

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Blood Pressure Targets (mmHg)

	Systolic	Diastolic
Optimal	< 120	< 80
Pre-hypertension	120-140	80-90
Hypertension	> 140	> 90

- Must have optimal control if diabetic or 2° prevention

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Cholesterol

- A soft fatty waxy substance produced by the liver
- Vital for the body to make cell membranes, nerve cells, hormones, etc...
- 80% produced by liver and 20% comes from eating animal food products - meat, eggs, dairy
- However, an excess can cause fatty deposits and plaque to build up in the lining of your arteries which accumulate over time and contribute to the progression of atherosclerosis

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Cholesterol Targets (mmol/L)

	1°	2° or Type 2 DM
Total Cholesterol	< 5.2	< 4.0
LDL (bad)	< 3.4	< 2.0
HDL (good)	>1.0 *	>1.0 *
Triglycerides	< 2.3	< 1.5
TC/HDL Ratio	< 5.2	< 4.0

* Recent research has suggested that the HDL level in women should be > 1.3 mmol/L

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Diabetes

- Type 1 is known as juvenile diabetes and occurs when the pancreas doesn't produce enough insulin
- Type 2 is known as adult onset diabetes and occurs when the bodies cells resist taking up sugar from the blood
- Insulin is a hormone that transports sugar from your blood into cells to be used as energy
- Untreated diabetes may cause damage to blood vessels or nerve cells and is the leading cause of amputation of the lower limbs

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Blood Sugar Targets (mmol/L)

	Non Diabetic	Diabetic
Fasting	3.9 – 6.1	4.0 – 7.0
Post Prandial	< 7.8	5.0 – 10.0 *
HGB A1c	< 0.060	< 0.070

- * 5-8 if unable to achieve A1c < 7% and not at risk for hypoglycemia
- Keeping blood sugars in these target ranges can reduce the risk of eye, kidney and nerve damage by 40-70%
- Will also reduce the risk of heart disease by 50% in type 1 diabetics

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Obesity

- Statistics Canada reports that 2 out of every 3 adults in Canada are overweight or obese
- The prevalence of obesity in Canada climbed from 14% in 1979 to 23% in 2004 and continues to rise
- Body Mass Index (BMI) is used to classify a person's weight
- $BMI = \text{weight (kg)} / \text{height (m)}^2$

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Weight Classifications

Classification	BMI	Cardiovascular Risk
Underweight	<18.5	Increased risk
Normal Weight	18.5 – 24.9	Lowest risk
Overweight	25 – 29.9	Increased risk
Obesity Class 1	30 – 34.9	High risk
Obesity Class 2	35 – 39.9	Very high risk
Obesity Class 3	≥40	Extremely High risk

- Even modest amounts of weight loss (as little as 5%) can have a significant impact on health indicators such as blood pressure, cholesterol and glucose intolerance

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Weight Loss


- Fact: 1 pound of fat = 3500 calories
- Brisk paced walking for 60 minutes expends about 300 calories
 - (5 x week = 1500 calories)
- Eating 300 calories less each day (i.e. decrease portion size, less junk food)
 - (7 x week = 2100 calories)
- $1500 + 2100 = 3600$ calories or ~1 lb per week
- To succeed you need both diet and exercise, neither by itself will work effectively

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Weight Distribution

- Research has shown that where your body stores the weight is as important as the amount of weight itself
- Abdominal obesity has been specifically linked to impaired glucose tolerance, hypertension and the metabolic syndrome
- Waist circumference is used in conjunction with BMI to classify risk level



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Waist Circumference Targets (cm)

	Waist Measurement
Caucasian Male	≤102
Caucasian Female	≤ 88
Asian/South Asian Male	≤ 90
Asian/South Asian Female	≤ 80

- Waist circumference is measured at the top of the hip bone (approximately level with the navel)

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Stress, Anxiety and Depression

- Research has shown that stress and depression are known to contribute to the progression of coronary artery disease
- Depression will also have an indirect effect on your attempt to manage your risk factors by making you three times less likely to adhere to lifestyle change
- The Hospital Anxiety and Depression Scale is a screening tool used to assess for signs these conditions

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Inactivity

- Physical activity = all body movements which result in a substantial increase in energy expenditure

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- Exercise = a physical activity that is planned, structured and repetitive with the sole purpose of improving one's health and fitness
- The overload principle states that a training stimulus must exceed the level of normal daily exertion in order to elicit a training response

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Exercise Guidelines

- Health Canada recommends that you accumulate a minimum of 60 minutes of physical activity every day
- Cardiovascular Exercise
 - Minimum of 30 minutes, 3 days per week
 - Increase frequency, duration or intensity to meet desired outcomes
- Resistance Training
 - 2-3 times per week, targeting each of the major muscle groups
 - Weight and # of reps will be dictated by personal goals
- Flexibility
 - Perform daily
 - can include yoga, pilates etc.

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Exercise Prescription

- Everyone will be given an individual exercise prescription based upon your stress test results
- Taking your personal goals and medical history into account, we will prescribe exercise based on the F.I.T.T. principle
- F.I.T.T. = Frequency, Intensity, Time & Type
- Intensity of cardiovascular exercise is generally prescribed using a target heart rate range
- Begin by considering what frequency and duration of exercise are realistic for your lifestyle


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Benefits of Exercise

- Helps control body weight and reduce stress
- Lowers resting blood pressure and resting heart rate
- Increases good cholesterol (HDL)
- Reduces triglycerides
- Helps control blood sugars
- Increases strength and efficiency of heart and lungs
- Improves vascular compliance
- Increases energy reserves
- Stronger muscles and bones
- Reduces risk for cardiovascular disease and cancer
- Increases basal metabolic rate
- Maintain independent living and improve quality of life

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Program Structure

- 16 week program
- 1 hour exercise class, once per week
- Arrive 30 minutes prior to 1st exercise class to review stress test results
- Individual consultations with a Dietitian, Psychologist, Social Worker or Pharmacist are available by appointment
- Intake and follow-up graded exercise tests
- Optional 6 month post program stress test
- Ongoing elective education workshops

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Staffing

You will be assigned a case manager who will supervise your exercise classes. Their responsibility will be to help you safely and effectively progress your exercise to achieve your personal goals.

Our staff have backgrounds in Kinesiology with Clinical Exercise Specialist accreditation from the American College of Sports Medicine.

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In Your Package

- Blood Lab Requisition
 - Fasting: no food or drink for 12 hours
 - Every Friday: 8am – noon
- Medical History, FFQ, HADS, WHY test and Your Health and Well Being
 - To be completed prior to intake assessment
- Copy of the presentation is available on our website

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