

Comparing Blood Fats & CVD Risk

Your blood fat levels compared to recommended target levels based on your CVD risk

BLOOD FATS	CURRENT LEVELS		TARGET LEVELS (mmol/L)	LIFESTYLE CHANGES THAT MAY IMPROVE BLOOD FAT LEVELS & REDUCE HEART DISEASE RISK
	Date:	Date:		
FRAMINGHAM RISK SCORE				
TOTAL CHOLESTEROL			No target; used as part of your Framingham Risk Score	
LDL CHOLESTEROL <i>(bad cholesterol)</i> <ul style="list-style-type: none"> <i>builds up in artery walls</i> 			High/Mod Risk: 2.0 or less or >50% reduction Low Risk: 50% reduction	<ul style="list-style-type: none"> Choose a heart healthy eating pattern such as Mediterranean, DASH, Plant-Based, Portfolio, Low GI/GL Avoid commercial trans fats Reduce high saturated fat foods and replace with foods high in poly- and mono-unsaturated fats
NON-HDL CHOLESTEROL <i>(Total cholesterol minus HDL cholesterol)</i>			High/Mod Risk: 2.6 or less or Apo-B 0.8 g/L or less	More individual factors to reduce LDL cholesterol: <ul style="list-style-type: none"> Viscous soluble fibres (oats, barley, psyllium, pectin, or konjac mannan) ≥ 10 grams/day Plant sterols/stanols 1 to 2 grams/day Nuts $\geq 1/4$ cup (60 mL)/day (a handful) Pulses (e.g., dried beans & peas, chickpeas, lentils) ≥ 1 serving/day (3/4 cup) Soy protein from unrefined soy foods ≥ 30 grams/day Other factors to reduce CVD risk: <ul style="list-style-type: none"> Whole grains ≥ 3 servings/day Legumes ≥ 4 servings/week Vegetables and fruits ≥ 5 servings/day Moderate alcohol intake (e.g., 1-2 drinks/day)* Moderate energy/calorie intake Physical activity 150 minutes/week Reduce excess waist measurement Smoking cessation Sleep duration 6-8 hours/night
HDL CHOLESTEROL <i>(good cholesterol)</i> <ul style="list-style-type: none"> <i>blood cholesterol removal</i> 			If Metabolic Syndrome: 1.29 or more \oplus 1.03 or more \oplus	<ul style="list-style-type: none"> Smoking cessation Physical activity ≥ 150 minutes / week Reduce excess waist measurement Moderate alcohol intake (e.g., 1- 2 drinks/day)* Moderate energy/calorie intake Avoid commercial trans fats Increase foods with omega-3 and monounsaturated fat
TRIGLYCERIDES <ul style="list-style-type: none"> <i>thickens the blood and increases clotting</i> 			If Metabolic Syndrome: 1.7 or less If diabetes: 1.5 or less	<ul style="list-style-type: none"> Decrease intake of sugar and refined carbohydrates Control blood sugars (with prediabetes and diabetes) Increase fish and seafood sources of omega-3 fat Moderate energy intake Reduce or avoid alcohol Eat regular meals Physical activity ≥ 150 minutes/week Reduce excess waist measurement Nuts $\geq 1/4$ cup (60 mL/30 grams)/day
LIPOPROTEIN(a)			≤ 100 nmol/L OR ≤ 50 mg/dL	Measured as part of first lipid screening
MEDI-DIET SCORE			≥ 11	<ul style="list-style-type: none"> Mediterranean eating pattern (Maximum score of 14); each 2-point increase is significant in reducing death risk
CV or HEART AGE			$= <$ Current Age	

(*Consult healthcare provider to review this recommendation.)

INCREASING YOUR HDL CHOLESTEROL

HDL cholesterol (healthy cholesterol) is found in your blood stream. It removes extra cholesterol from your blood.

In general, the **higher** your HDL level, the **lower** your risk of cardiovascular (CV) disease.

Current guidelines do not specify a target HDL; but in Metabolic Syndrome the target is 1.03 mmol/L or more in men; 1.29 or more in women.

Action Steps to Increase HDL	My Action Plan
<p>Increase your activity level.</p> <ul style="list-style-type: none"> • Aim for at least 150 minutes per week in amounts of 10 minutes or more • Include heart-beat raising (walking, biking) and resistance-training (push-ups, light weights) exercises • 30-60 minutes/day of moderate to vigorous intensity activity reduces risk of CVD events by 20% to 30%; and increases HDL-C 5% to 10% 	
<p>Moderate amounts of alcohol:</p> <ul style="list-style-type: none"> • May help raise HDL • Check with your healthcare provider to see if this is okay for you • 1 to 2 drinks/day decreases risk of CVD events 32%; and increases HDL-C 5% to 10% 	
<p>Increase your intake of omega-3 and monounsaturated fats found in:</p> <ul style="list-style-type: none"> • Fish and seafood, ground flax or flax oil, canola or olive oil, mayonnaise or salad dressings, nuts, sesame or pumpkin seeds, non-hydrogenated margarines and soy foods • Choosing these more often over foods with saturated fat decreases risk of CVD events by 28% 	
<p>Eat more fruits and vegetables:</p> <ul style="list-style-type: none"> • Eat at least 3 fruit and 4 vegetable servings each day • Vegetarian dietary patterns reduce risk of CVD events by 19% • 5 or more servings/day of vegetables/fruit reduce risk of death from CV by 4% per serving/day 	

Action Steps to Increase HDL	My Action Plan
<p>Lose excess fat if it's harming your health.</p> <ul style="list-style-type: none"> • Reduce your waist measurement to less than 40 inches (102 cm) for men and 34.5 inches (88 cm) for women • Every 5-inch (12.6 cm) reduction in waist measurement reduces CVD risk by 9% • 5% to 10% body weight loss increases HDL-C by 3% 	
<p>Decrease or eliminate foods that have trans fat. These are partially hydrogenated fats (processed to be hardened) or fats that result from deep-frying in oil. Foods that may contain trans fat include:</p> <ul style="list-style-type: none"> • Deep fried foods (chips, French fries) • Candy bars • Store bought cookies, cakes, muffins, crackers and other commercial baked goods • Fast food and convenience foods (frozen ready-made food, pancakes, waffles) • Hydrogenated margarines <p>Read labels carefully and look for zero trans fat on the Nutrition Facts table.</p>	
<p>Do not smoke.</p> <ul style="list-style-type: none"> • Smoking will lower your HDL level • CV death is reduced 52% for never smoking; 10% up to 5 years of stopping and 39% after 20 years • Increases HDL-C 7% to 12% 	
<p>Decrease your intake of sugary drinks & foods (e.g.):</p> <ul style="list-style-type: none"> • Fruit juice, fruit beverages, pop, sugar-sweetened beverages, flavoured/sweet coffee & tea drinks • Table sugar, brown sugar, icing sugar, jam, honey, syrups, molasses, candy, sweetened products, sweet desserts, dried fruit, syrup-packed fruit, products with sucrose, fructose and high-fructose corn syrup (glucose-fructose) 	

DECREASING YOUR LDL CHOLESTEROL

LDL cholesterol (lousy/bad cholesterol) is found in your blood stream. It is needed in small amounts but too much can build up in your blood vessels. This is called plaque.

This plaque build-up can eventually plug up your blood vessels and may cause heart attack or stroke. The lower your LDL level, the lower your risk of heart disease.

Action Steps to Decrease LDL	My Action Plan
<p>Increase your intake of monounsaturated fat (e.g.):</p> <ul style="list-style-type: none"> • Fish and seafood, canola oil, olive oil, peanut oil, sesame oil, nuts and seeds • Reduces risk of CVD events by 15% to 28% • 30+ grams/day (handful) nuts reduces LDL-C 5% to 7% 	
<p>Include sterol enhanced products in your diet such as:</p> <ul style="list-style-type: none"> • Non-hydrogenated margarine with plant sterols • Drinkable lower fat yogurt with plant sterols • See the ‘Facts on Plant Sterols’ for more details • 1 to 2 grams of plant sterols/stanols per day reduces LDL-C 6% to 12% 	
<p>Add more soluble fibre to your diet (e.g.):</p> <ul style="list-style-type: none"> • Cereal with psyllium, barley, prunes, flaxseed, oranges, oats, potatoes with skin, avocados, pulses/legumes (e.g. beans, lentils, chickpeas, peas), corn and plums • 10 grams or more from oats, barley, psyllium, pectin, konjac mannan reduces LDL-C by 5% to 10% • 1 serving or more/day of pulses/legumes reduces LDL-C by 5% • 4 servings or more/week of legumes decreases risk of CVD events by 14% 	
<p>Eat more fruits and vegetables:</p> <ul style="list-style-type: none"> • Eat at least 3 fruit and 4 vegetable servings each day • Vegetarian dietary patterns reduce risk of CVD events by 19% • 5 or more servings/day of vegetables/fruit reduce risk of death from CV by 4% per serving/day 	

Action Steps to Decrease LDL	My Action Plan
<p>Include more plant proteins in your diet including:</p> <ul style="list-style-type: none"> • Legumes, beans, soybeans & products, nuts, seeds, whole grains, meat alternatives (see ‘Plant-Based Protein Choices’ for more detail) • 30 grams or more/day of soy protein reduces LDL-C 3% to 5% 	
<p>Increase your activity level.</p> <ul style="list-style-type: none"> • Aim for at least 150 minutes per week in amounts of 10 minutes or more • Include heart-beat raising (walking, biking) and resistance-training (push-ups, light weights) exercises 	
<p>Decrease or eliminate foods that have trans fat. These are partially hydrogenated fats (processed to be hardened) or fats that result from deep-frying in oil. Foods that may contain trans fat include:</p> <ul style="list-style-type: none"> • Deep fried foods (chips, French fries) • Candy bars • Store bought cookies, cakes, muffins, crackers and other commercial baked goods • Fast food and convenience foods (frozen ready-made food, pancakes, waffles) • Hydrogenated margarines <p>Read labels carefully and look for zero trans fat on the Nutrition Facts table.</p>	
<p>Decrease the amount of saturated fat in your diet including:</p> <ul style="list-style-type: none"> • Meat, poultry skin, dark meat from poultry • Processed meats • High fat dairy products (cream, whole milk, cheese, ice cream) • Butter, lard, foods with palm oil, palm kernel oil and coconut oil • Egg yolks, bakery products made with butter • Reduces LDL-C 10% to 16% & risk for CVD events as much as 21% 	
<p>Lose excess fat if it’s harming your health.</p> <ul style="list-style-type: none"> • Reduce your waist measurement to less than 40 inches (102 cm) for men and 34.5 inches (88 cm) for women • 5% to 10% body weight loss reduces LDL-C by 11% 	

LOWERING YOUR TRIGLYCERIDES

Triglycerides are fats made by your body.





High blood triglycerides (more than 1.7 in Metabolic Syndrome or more than 1.5 in diabetes) can increase your risk of cardiovascular disease.

Action Steps to Lower Triglycerides	My Action Plan
<p>Increase your intake of omega-3 fat (EPA/DHA) including:</p> <ul style="list-style-type: none">• Fish (such as salmon, trout, herring, sardines, and mackerel) and seafood (2 to 3 servings/week)• Fish oil supplements can be used under a doctor's care of 2 to 4 grams of EPA/DHA per day• 2 to 4 grams of EPA/DHA per day reduces TG 25% to 30%	
<p>Include some nuts & soy products in your diet including:</p> <ul style="list-style-type: none">• Soy milk, tofu, soybeans, soy nuts, and other soy-based food• 30 or more grams/day of soy protein reduces TG by 4%• 30 or more grams/day (handful) of nuts reduces TG by 5% to 10%	
<p>Increase your activity level.</p> <ul style="list-style-type: none">• Aim for at least 150 minutes per week in amounts of 10 minutes or more• Include heart-beat raising (walking, biking) and resistance-training (push-ups, light weights) exercises	
<p>Eat balanced meals at regular times.</p> <ul style="list-style-type: none">• Eat every 3 to 4 hours• Skipping meals can lead to overeating at other times and can cause higher triglyceride levels• Include a variety of foods from each of the food groups	

Action Steps to Lower Triglycerides	My Action Plan
<p>Decrease your intake of sugary drinks & foods including:</p> <ul style="list-style-type: none"> • Fruit juice, fruit beverages, pop, sugar-sweetened beverages, flavoured/sweet coffee & tea drinks • Table sugar, brown sugar, icing sugar, jam, honey, molasses, syrups, candy, sweetened products, sweet desserts, dried fruit, syrup-packed fruit, products with sucrose, fructose and high-fructose corn syrup (glucose-fructose) 	
<p>Decrease or avoid alcohol.</p> <ul style="list-style-type: none"> • A drink is 5 oz of wine, a bottle of beer, or 1 1/2 oz of liquor • Maximum daily intake is 2 drinks for men and 1 drink for women 	
<p>If you have diabetes or prediabetes, keep your blood sugar levels well controlled.</p>	
<p>Lose excess fat if it's harming your health.</p> <ul style="list-style-type: none"> • Reduce your waist measurement to less than 40 inches (102 cm) for men and 34.5 inches (88 cm) for women • 5% to 10% body weight loss reduces TG by 32% 	



WHAT'S FAT GOT TO DO WITH IT?

	TYPES OF FAT IN FOODS (and some food sources)	What it does to your blood fats
	Best Choices - Use in Moderation	
	<p>OMEGA-3 FAT Fish: (especially fatty fish such as mackerel, sardines, salmon, herring, trout), seafood, omega-3 eggs, wild game (grass fed). Oils: canola, flax, hemp seed. Nuts and Seeds: walnuts, pumpkin seeds, ground or crushed flaxseed. Soybean products, non-hydrogenated margarines (made with above oils).</p>	<p>Decreases triglycerides (fish sources only)</p> <p>May improve HDL (good cholesterol)</p> <p>Thins the blood</p>
	<p>MONOUNSATURATED FAT Fish and seafood. Oils: olive, canola, peanut, and sesame. Nuts: almonds, cashews, chestnuts, hazelnuts, macadamias, pecans, pistachios, and their butters. Olives, avocado, mayonnaise, sesame seeds, non-hydrogenated margarines (made with above oils).</p>	<p>Decreases LDL (bad cholesterol)</p> <p>May improve HDL (good cholesterol)</p>
	Use in Small Amounts	
	<p>OMEGA-6 FAT, OMEGA-9 FAT (PolyUNsaturated Fat) Oils: Grapeseed, corn, safflower, sunflower, soybean, cottonseed. Sunflower seeds, wheat germ, non-hydrogenated margarines (made with these oils).</p>	<p>Decreases LDL (bad cholesterol)</p> <p>May decrease HDL (good cholesterol)</p>
	Limit	
	<p>SATURATED FAT Meat (fresh or processed), dark poultry meat (fresh or processed); poultry skin, high fat dairy products, egg yolk, butter, lard (beef tallow), hydrogenated oils. Tropical oils: palm oil, palm kernel oil, coconut oil. Bakery products (made with butter), potato chips, chocolate.</p>	<p>Increases LDL (bad cholesterol)</p> <p>Increases HDL (good cholesterol)</p>
	Avoid	
	<p>TRANS FAT Partially hydrogenated vegetable oil, vegetable oil shortening. Deep fried foods, fast foods. Some packaged foods: some cookies, crackers, potato chips, convenience foods, commercial baked goods, hydrogenated margarines, candy bars. Note: natural trans fats found in the milk and meat of ruminant animals, such as dairy cattle, beef cattle, goats and sheep are not harmful.</p>	<p>Increases LDL (bad cholesterol)</p> <p>Decreases HDL (good cholesterol)</p>

STEPS TO IMPROVE THE FAT IN YOUR DIET

A heart-healthy diet is more than just about the fat content. But when it comes to fat, the overall message is to replace some saturated fats with polyunsaturated fats including omega-3s and choose plant sources of monounsaturated fats.

1

Choose foods high in omega-3 fat most often.

- Eat fatty fish or seafood more often (aim for 3 times weekly).
- Sprinkle ground flaxseed on cereal, salads or into plain yogurt.
- Add walnuts to salads, baking or other recipes.
- Use small amounts of canola oil in cooking.
- Use flax oil in a salad dressing, mix into mustard and use as a spread or blend into a smoothie.

2

Choose monounsaturated fat more often.

- Use small amounts of olive, canola, peanut or sesame oils to cook with or add to vegetables and salad.
- Add a small amount of nuts to stir fry, salads, etc.
- Enjoy avocado several times a week.
- Choose spreads such as hummus, olive tapenade, tzatziki, nut butters, mashed avocado. See 'Rethink Your Spread' for more details.

3

Consider including plant sterol enhanced products.

- See separate 'Facts on Plant Sterols' handout for more details.

4

Minimize or eliminate foods with trans fat.

- Choose foods that are baked, broiled, poached or grilled instead of deep fried.
- Find snack foods and baked goods made with acceptable oils that are non-hydrogenated and do not contain shortening.
- Replace processed and convenience foods that are made with partially-hydrogenated oils with homemade alternatives.
- Replace hard or hydrogenated margarines and shortening with oil or small amount of butter mixed with oil.

5

Limit foods high in saturated fat.

- Choose lean meats, have smaller portions and limit red meat to 2 servings a week.
- Trim visible fat from meat and remove skin from poultry.
- Limit processed meat.
- Choose lower-fat dairy products.
- Limit processed foods and commercial baked goods.
- Choose oils or a small amount of butter mixed with oil.

STEPS TO IMPROVE THE FAT IN YOUR DIET

Research tells us the type of fat we eat, not our total intake of fat, is important in lowering our risk of heart disease.

The trick is to **replace sources of saturated fats** in our diet with **healthier, unsaturated fats!**

Unsaturated Fat



Saturated Fat

