

# Mission Bay Doctors Ltd – Cholesterol

## YOUR CHOLESTEROL – FIND OUT MORE

Your body needs some cholesterol to work properly, but too much cholesterol in the blood can create a fatty build up in your artery walls, narrowing arteries and restricting blood flow. This can cause a heart attack or stroke.

Cholesterol is a fatty, waxy substance carried in the bloodstream made mostly by your liver as well as the foods we eat. Cholesterol plays an essential role in how every cell in the body works. However, too much cholesterol in the blood can increase your risk of heart disease.

Your liver and other cells in the body make about 75 percent of your blood cholesterol. The other 25 percent comes from the foods you choose to eat.

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### A CHOLESTEROL BLOOD TEST PROVIDES INFORMATION ON BLOOD LIPID (FAT) LEVELS:

- **Total cholesterol** (combines the amount of all the different kinds of cholesterol in your blood stream)
- **LDL-cholesterol** or 'bad' cholesterol because it deposits cholesterol in artery walls. Although heart attacks are unpredictable, higher levels of LDL cholesterol increase your risk.
- **HDL-cholesterol** or 'good' cholesterol because it transports cholesterol back to the liver, where it is broken down from the body
- **Triglycerides** are the most common form of fat in our body - carried in the blood alongside cholesterol
- **HDL-cholesterol /total cholesterol** ratio is used to calculate your risk of heart attack or stroke.

You run a greater risk of having a heart attack or stroke if your cholesterol levels are not well controlled.

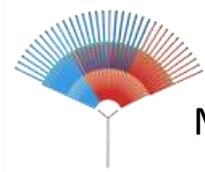
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### IDEAL CHOLESTEROL LEVELS

- Total cholesterol Less than 4 mmol/L
- LDL cholesterol Less than 2.0 mmol/L
- HDL cholesterol Greater than 1 mmol/L
- TC/HDL ratio Less than 4.0
- Triglycerides Less than 1.7 mmol/L

## WHAT CAUSES HIGH BLOOD CHOLESTEROL?

- 🚫 A diet too high in saturated fats found mostly in animal products e.g. meat, chicken, dairy
- 🚫 A genetic tendency to high blood cholesterol (runs in families)
- 🚫 Inefficient liver function due to a variety of reasons - stress, caffeine, lack of exercise, smoking, alcohol, overweight
- 🚫 Hormonal problems e.g. under active thyroid gland



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## WHAT PROBLEMS CAN CHOLESTEROL CAUSE?

Having high cholesterol can lead to the buildup of plaque in artery walls. This buildup is called atherosclerosis. It can lead to coronary artery disease (CAD), heart attack, stroke or transient ischemic attack (TIA), and peripheral arterial disease.

### ATHEROSCLEROSIS CAN CAUSE THESE PROBLEMS BECAUSE IT:

**Narrows your arteries.** When enough plaque builds up, it starts to narrow your arteries. This happens slowly over many years. In time, the plaque can limit blood flow throughout your body, including the heart and brain.

**Hardens your arteries.** A healthy artery can widen (dilate) so that more blood can flow through when needed, such as during activity. When hard plaque forms in the walls of an artery, it can make the artery too stiff to widen. This "hardening" of your arteries can also limit blood flow in your body.

**Blocks your arteries.** When a blood clot forms around a crack or rupture in the plaque, it can block the artery. This can cause a heart attack or stroke.

## HOW CAN I LOWER MY BLOOD CHOLESTEROL LEVEL?

Follow a heart healthy eating pattern; the [Mediterranean diet](#) has been shown to be even more effective than cholesterol lowering medications!

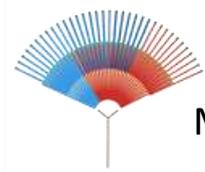
About 30 percent of heart attacks, strokes and deaths from heart disease can be prevented in people at high risk if they switch to a [Mediterranean diet](#) rich in olive oil, nuts, beans, fish, fruits and vegetables, and even drink wine with meals, a large and rigorous new study has found.

The findings, published on The New England Journal of Medicine's Web were based on the first major clinical trial to measure the diet's effect on heart risks. The magnitude of the diet's benefits startled experts. The study ended early, after almost five years, because the results were so clear it was considered unethical to continue.

- ♥ Lose weight if you are overweight
- ♥ Do moderate physical activity for at least 30 minutes on most days
- ♥ If you drink alcohol, do so in moderation
- ♥ If you smoke, stop. Quitting can improve your HDL cholesterol level. And the benefits don't end there. Just 20 minutes after quitting, your blood pressure decreases. Within 24 hours, your risk of a heart attack decreases. Within one year, your risk of heart disease is half that of a smoker's. Within 15 years, your risk of heart disease is similar to that of someone who's never smoked.

### YOU CAN FURTHER REDUCE YOUR CHOLESTEROL BY:

- Eating plenty of plant food (fruit, vegetables, dried peas and beans, soy products, oats, whole grains) and some nuts (not so much roasted, salted nuts) and seeds. Checkout the [Mediterranean Diet](#).
- Checking food labels and choosing foods that are low in saturated fats
- Using vegetable oils instead of butter and animal fats



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- Choosing low-fat milk and limiting cheese intake
- Avoiding deep-fried and fatty foods, sweet bakery products, pastries and pies
- Cutting the fat off meat, the skin off chicken and only occasionally eating processed meats
- Considering including sterol-fortified spreads
- Diluting coconut cream with milk or water (thickened with cornflour for sauces) or replacing with lite coconut milk/cream.

IF YOUR CHOLESTEROL LEVEL IS TOO HIGH, WE MAY RECOMMEND TAKING MEDICATION. IF YOUR OVERALL RISK IS HIGH OR YOU ALREADY HAVE SOME PROBLEMS IN YOUR ARTERIES THIS IS ALMOST CERTAIN, THOUGH YOU WILL NEED TO EAT WELL AND EXERCISE AS WELL AS TAKING THE MEDICATION.

### WHICH FOODS CONTAIN CHOLESTEROL?

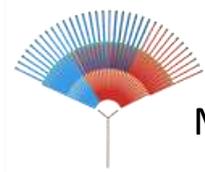
Most cholesterol in the body is made in the liver from saturated fat in the diet, thus the important thing is to reduce your saturated fat intake as much as possible.

Fatty meats and full-fat dairy products are particularly high in saturated fat. Some foods e.g. prawns are high in cholesterol, but low in saturated fat. Cholesterol intake per se should not be excessive, but it plays a much lesser role than saturated fat in determining your blood cholesterol level.

Most plant foods such as fruits, vegetables and cereal grains contain no fat or cholesterol.

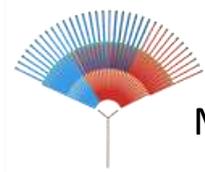
### Effects of different foods and drinks on your cholesterol

Dietary element	Examples	Effect on your cholesterol level
<b>Alcohol</b>	Red wine	Moderate consumption (up to 1 drink a day for a woman; 1 or 2 a day for a man) may raise your HDL. But doctors don't recommend starting to drink alcohol to raise your HDL.
	White wine	
	Beer	More than 2 drinks a day may raise triglyceride levels in people who are overweight or who have high triglyceride levels.  Heavy drinking greatly increases risk of heart and liver damage, addiction, and other serious health problems.
	Hard liquor	
<b>Dietary cholesterol</b>	Egg yolks Poultry, especially skin Red meat, especially organ meats Dairy products that are not low-fat (1%) or nonfat Shellfish	Raises total blood cholesterol



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<b>Dietary fibre (soluble)</b>	Oats Dried beans (legumes) Peas Barley Citrus fruits Apples	Proven to reduce total cholesterol and LDL
<b>Dietary fibre (insoluble)</b>	Whole wheat breads and cereals Beets Cauliflower Carrots Turnips	Does not affect cholesterol but promotes healthy bowel movement
<b>Saturated fat</b>	Fatty meats (beef, pork) Poultry skin Butterfat (in whole milk, cream, ice cream, cheese) Tropical oils (coconut, palm)	Raises LDL Little effect on HDL or triglycerides
<b>Monounsaturated fat</b>	Olive oil Canola oil Avocados Walnuts	Lowers LDL if substituted for saturated fat Keeps HDL up
<b>Polyunsaturated fat</b>	Safflower oil Sunflower oil Sesame oil Corn oil Soybean oil Flaxseed oil	Linoleic acid, found in these oils, can lower LDL if used in moderation.
<b>Omega-3 fats</b>	All fish, especially fatty fish, such as salmon and mackerel Plant sources, such as walnuts, canola, and flaxseed oils	Lowers triglycerides
<b>Trans fats</b>	Hydrogenated fats, found in some margarines, vegetable shortenings, non dairy creamers, and whipped toppings Snack foods (potato chips, cookies, cakes) Peanut butter that contains hydrogenated fat (except all-natural varieties)	Raises LDL Little effect on HDL but at high levels can lower HDL
<b>Soy protein</b>	Soybeans Soy products such as tofu	Lowers LDL by a small amount No effect on HDL
<b>Plant sterols</b>	Specially labelled margarine	Lowers LDL No effect on HDL



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## WHAT FOODS SHOULD YOU AVOID?

Keep cheeses such as cheddar, fancy cheeses, and feta cheeses to a minimum

Avoid ice-cream - use low fat and low sugar versions or fruit-based jellies and sorbets

Avoid using butter, a saturated fat, or only use small amounts of unsalted butter

Full fat milk, but post-menopausal women or others needing a high calcium diet should have low fat calcium-enriched milk

Vegetable fats such as palm oil or vegetable shortenings, some margarines

Takeaways and fried or roasted foods that have had fat or oils added to them

Meat pies, pastry, croissants, cheese-coated bread

Sausage, luncheon sausage, salami

Cakes, biscuits, puddings

Chocolate and snack bars high in fat

Chips, crisps, crackers

Eggs - no more than 6 per week (provided they weren't fried or had added butter)

Coconut cream and coconut milk are high in saturated fat which produces LDL cholesterol

## FOODS TO ENJOY

- ♥ High fibre foods help to produce HDL cholesterol. Include daily:
- ♥ Wholegrain breads, cereals, brown rice, wholegrain pasta
- ♥ Leave skins on vegetables and eat them e.g. potatoes, kumara, taro
- ♥ Use wholegrain rolled oats for porridge or muesli, or add oat bran to breakfast cereals
- ♥ Eat up to three fish meals a week. Fish helps to reduce LDL levels
- ♥ Go vegetarian
- ♥ Eat dishes containing beans, lentils, chickpeas, soybeans, and tofu; these do not contain cholesterol and they are high in fibre

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FRESH FRUITS AND VEGETABLES CONTAIN ANTIOXIDANTS AND VITAMIN C WHICH PROTECT THE ARTERY WALLS. INCLUDE DAILY

THREE SERVINGS OF FRUIT - RAW, COOKED, OR TINNED WITHOUT SUGAR

TWO TO FIVE SERVINGS OF VEGETABLES - EITHER RAW AS SALADS OR LIGHTLY COOKED.



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## FURTHER TIPS FOR LOWERING CHOLESTEROL

- ♥ Exercise daily for a minimum of half an hour
- ♥ Reduce stress where possible
- ♥ Drink less coffee, chocolate drinks and colas
- ♥ Stop smoking (smoking reduces the good HDL cholesterol)
- ♥ Aim for a healthy body weight

## CHECK UPS

If you are taking cholesterol-lowering medication, you should have your cholesterol measured every 3 -6 months until it is controlled and then every 6 – 12 months.