



STAY HEALTHY ONBOARD GUIDE

JULY 2023

Cholesterol

Hyperlipidaemia, Risk Factors, Prevention and Diet



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INTRODUCTION

Overview

Cholesterol is a waxy and fatlike substance in human's blood which is essential for good health.

- Blood cholesterol derives from liver and helps body build cells and create certain vitamins and hormones.
- Dietary Cholesterol derives from foods consumed such as poultry, meat, seafood, eggs, cheese, and milk.

There are two types of cholesterol: HDL and LDL.

High-density Lipoprotein (HDL)

HDL is the 'good' cholesterol. It absorbs cholesterol in blood and carries it back to the liver which will then be flushed from the body. High levels of HDL cholesterol lower heart disease and stroke risks.

Low-density Lipoprotein (LDL)

LDL is the 'bad' cholesterol which makes up most of the body's cholesterol. High levels of LDL increase heart disease and stroke risks.

Triglycerides plays an important role in cholesterol build up.

Triglycerides are another type of fat found in blood and is used for energy. High triglycerides levels, low HDL and/or high LDL cholesterol levels can increase several health problems risks, such as heart attack.

Total Cholesterol is the total amount of cholesterol in blood, including HDL, LDL, and triglycerides.



Key Facts

- ❖ Cardiovascular disease remains the leading cause of morbidity and mortality amongst seafarers, making cholesterol levels a great concern.
- ❖ The latest global prevalence of high cholesterol, recorded in 2008 and was 39% (37% men, 40% women). (WHO)

Understanding Cholesterol Levels

DANGEROUS

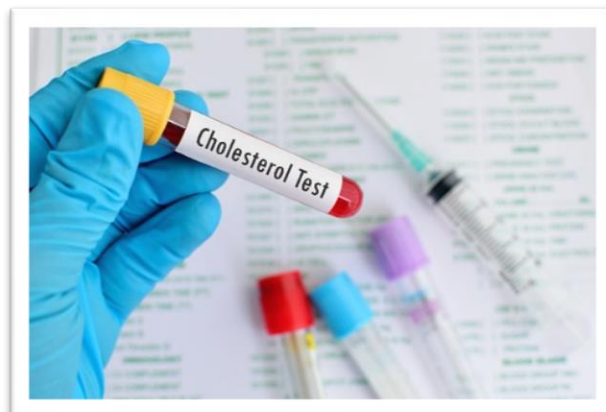
Total Cholesterol	LDL	HDL
240mg/dL and higher	160mg/dL and higher	Under 40mg/dL (men) Under 50mg/dL (women)

AT RISK

Total Cholesterol	LDL	HDL
200-239mg/dL	100-159mg/dL	40-59mg/dL (men) 50-59mg/dL (women)

OPTIMAL

Total Cholesterol	LDL	HDL
Lower than 200mg/dL	Lower than 100mg/dL	Higher than 60mg/dL



HIGH CHOLESTEROL (HYPERLIPIDAEMIA)

Hyperlipidaemia is having cholesterol higher than 200mg/dL.

Symptoms

There are not any obvious symptoms when having hyperlipidaemia, therefore regular checks are crucial.

People with heart disease, diabetes, or family history of high cholesterol, are advised to check their cholesterol levels more often.

Risk Factors

Several health conditions increase risk of hyperlipidaemia, and include:

- Type 2 diabetes
- Obesity
- Family history of high cholesterol
- Physical inactivity
- Diet high in saturated and trans fats

Consequences

- **Cardiovascular Disease (CVD)**

Hyperlipidaemia might lead to plaque accumulation on the walls of arteries. Over time, plaque builds up causing the insides of the arteries to become narrow. As a result, blood flow to and from the heart and other organs is blocked, causing chest pain (i.e., angina) or heart attack (i.e., myocardial infarction). Lastly, heart disease and stroke risks are increased.

- **Stroke**

High cholesterol is accumulated in the blood, clogging up the arteries, resulting in the blockage of a critical path to the brain. This process can result in stroke.

- **Diabetes**

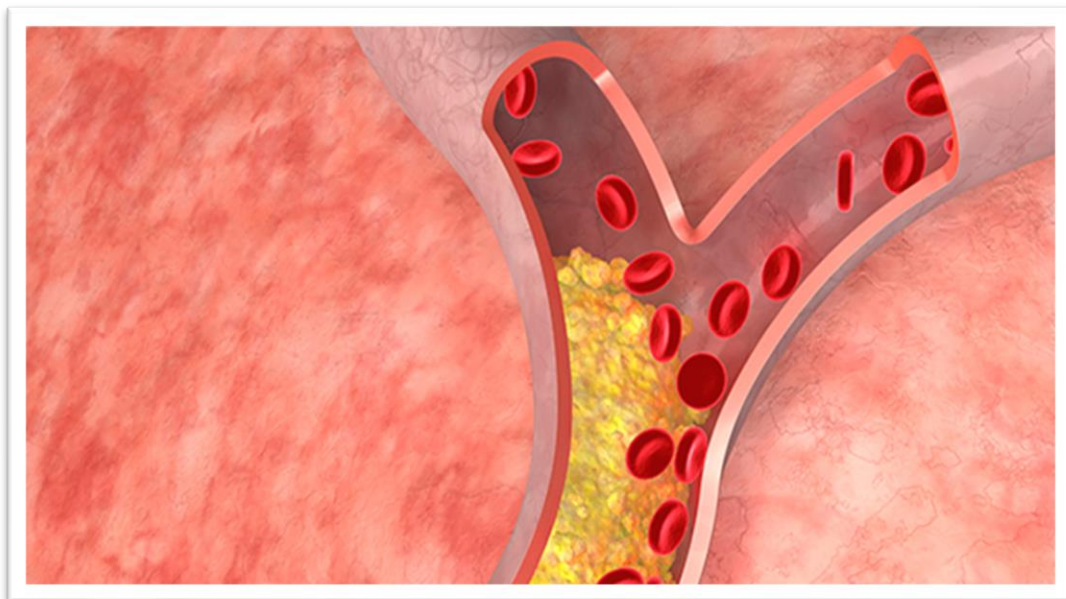
Diabetes affects HDL, increases LDL and hence contributing to higher heart attack and stroke risks.

- **Artery Disease**

Peripheral artery disease can narrow arteries, reducing blood from the heart to other body parts. Hyperlipidaemia raises peripheral artery disease risk while narrowing important pathways through arteries.

- **High Blood Pressure**

High blood pressure (i.e., hypertension) damages and narrows the blood vessels where cholesterol is accumulated. Therefore, the circulatory system is impaired, leading to other serious health conditions.



STEPS FOR MANAGING PREVENTION

A healthy lifestyle is crucial to keep cholesterol levels in an optimum range, lowering heart disease and stroke risks.

✓ **Limit foods high in saturated fat!**

Animal products such as milk and dairy, fatty meats, and dairy desserts, contain a lot of saturated fat. Eating them in high amounts daily, may elevate cholesterol levels.

✓ **Prefer foods low in saturated and trans fats, salt and added sugars!**

Foods such as fish, fruits and vegetables, low fat milk or dairy, whole grains, and lean meats are all part of a healthy and well-balanced diet.

Oceanic ensures that all menus are of good nutritional quality, based on World Health Organization recommendations, as part of healthy and well-balanced diet.

✓ **Choose high fibre foods!**

Foods such as boiled potato, porridge, fruits, and vegetables are all great sources of fibre. Including these foods in the daily diet may help with the prevention and management of high levels of LDL, cholesterol, triglycerides, and favour HDL.

✓ **Maintain a healthy body weight!**

Being overweight or obese increases LDL levels. Additionally, surplus body fat impacts how body utilizes cholesterol, and declines the body's ability to remove LDL from blood. The combination of both, increases heart disease and stroke risks.

BMI calculation

$$\text{BMI} = \text{Body Weight (kg)} / \text{Height (m}^2\text{)}$$

BMI = less than 18.5 (underweight)

BMI = 18.5-24.9 (normal weight)

BMI = 25-29.9 (overweight)

BMI = higher or equal to 30 (obesity)

✓ **Exercise!**

Doing regular physical activity helps with maintaining a healthy body weight and lowering cholesterol levels.

✓ **Quit tobacco use!**

Tobacco use damages blood vessels, arteries become harder much faster, and heart disease risk is increased.

✓ **Limit alcohol!**

Increased alcohol consumption can increase cholesterol and triglycerides levels.



STEPS FOR MANAGING HYPERLIPIDAEMIA ON BOARD

Coping with high cholesterol on board can be challenging, but with some proactive measures, it is possible to manage it effectively.

Below are some strategies that might help:

❖ **Healthy Diet!**

Focus on consuming a well-balanced diet which is low in SF and TF. Opt for lean proteins such as fish, chicken, and legumes, and include a variety of fruits, vegetables, whole grains, and healthy fats such as olive oil. Limit processed foods, sugary snacks, and fatty food whenever possible. Omega-3 fatty acids found abundant in oily fish such as milk fish (bangus), help with lowering cholesterol levels.

❖ **Portion Control!**

Be mindful of portion sizes and avoid overeating. Pay attention to your body's hunger and fullness cues.

❖ **Physical activity!**

Regular exercise is essential for managing cholesterol levels. Incorporate physical activity onto your daily routine, even while on board. Engage activities such as brisk walking, jogging in place, climbing stairs, or using onboard fitness equipment if available. Aim for at least 30 minutes of moderate intensity exercise most days of the week.

Tips to increase physical activity while on board:

- Try to use the gym equipment on your vessel, if available!
- Start small with doing exercise for 20-30 minutes once or twice per week and increase duration and intensity every week.
- Dynamic strength training exercises such as squats and lunges are encouraged if exercise equipment is not available.

❖ **Do not forget your medication!**

Ensure that medication is taken as directed by the doctor.

❖ **Stress Management!**






High stress levels can impact cholesterol levels. Find ways to manage stress while onboard, such as practicing relaxation techniques like deep breathing, meditation, or yoga. Engage in enjoyable activities such as reading, listening to music, or pursuing a hobby during downtime.



CHOLESTEROL AND FOOD ITEMS THAT MIGHT BE AVAILABLE ON BOARD

“The biggest influence on blood cholesterol levels is the mix of fats and carbohydrates in diet – not the amount of cholesterol you eat from food.” (Harvard)

Food Items	Saturated Fat (SF) or Trans Fat (TF)
	<p>Coconut oil SF = 87g per 100g Coconut fruit SF = more than 23g per 100g</p>
	<p>SF = 3.3g per 100g</p>
	<p>SF = 32g per 100g</p>
	<p>SF = 51g per 100g</p>
	<p>SF = 14g per 100g</p>
	<p>SF = 9g per 100g</p>

Food Items	Saturated Fat (SF) or Trans Fat (TF)
	<p>TF = 0.2g per 100g</p>
	<p>TF = 0.2g per serving (226g) SF = 4.2g per serving (226g)</p>
	<p>SF = 15g per 1 tablespoon ghee</p>
	<p>SF = 4.5g per 100g lean meat</p>
	<p>SF = 5g per glass of full fat milk</p>

Healthy Food Items included in the Oils Group of the Healthy Eating Plate (Appendix 1) that might be mistaken for unhealthy:

- Avocado
- Nuts
- Seeds
- Olive oil
- Palm oil in moderation



Cholesterol-friendly Recipe

Paksiw Na Bangus (Milk Fish in vinegar) with mixed vegetables and red rice

Milk Fish:

Ingredients (10 servings):

2kg milk fish (bangus) cut in 5 pcs
100ml white vinegar
100g dry yellow onions
30g chopped garlic
30g sliced ginger root
20g whole hot green chili pepper
1g cooking salt
100g bitter melon
1g whole black pepper
100g green beans



Method:

1. Heat a cooking pan and pot and then pour the vinegar and water.
2. Add salt and whole peppercorn, stir and boil.
3. Place the fish in the pan with ginger, garlic, onion, bitter melon, and some chili.
4. Cover and simmer in low to medium heat for 12 to 15 minutes.

Note: You may substitute salt with $\frac{3}{4}$ to 1 tablespoon fish sauce.

Minimum internal cooking temperature for fish: 155°F (68°C) for 15 seconds.

Red rice:

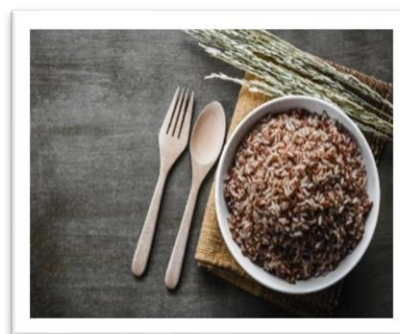
Ingredients (10 servings):

1kg red rice

Method:

1. Wash the rice and soak it at least 30 minutes in water.
2. Boil or steam the rice for approximately 20 minutes or until ready.

Note: The amount of water to be added might vary between different rice types, but usually is 2:1.



Mixed vegetables:Ingredients (10 servings):

1kg mixed vegetables

1g salt

Method:

1. Steam vegetables for 5 to 10 minutes.
2. Season to taste.

Note: Avoid overcooking the vegetables.

Nutritional comments:

This recipe is healthy and well-balanced as it combines food from 3 main food groups (protein, carbohydrates, vegetables). Milk fish is oily fish and hence a great source of omega-3 fatty acids which, as mentioned above, helps lowering cholesterol levels.

If a certain food is not available at your vessel, you might order.





Oceanic's Suggestions:

- ✓ Follow a healthy and well-balanced diet low in SF and TF!
- ✓ Prefer fish when possible!
- ✓ Exercise!
- ✓ Maintain a healthy body weight!

Appendices

Appendix 1.

HEALTHY EATING PLATE

HEALTHY OILS

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.

VEGETABLES

The more veggies – and the greater the variety – the better. Potatoes and French fries don't count.

FRUITS

Eat plenty of fruits of all colors.

WATER

Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

WHOLE GRAINS

Eat a variety of whole grains (like whole-wheat bread, whole-grain pasta, and brown rice). Limit refined grains (like white rice and white bread).

HEALTHY PROTEIN

Choose fish, poultry, beans, and nuts; limit red meat and cheese; avoid bacon, cold cuts, and other processed meats.

STAY ACTIVE!

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