Plan a healthy meal

Nutrition Division

Ministry of Health

Aarōgyā

Healthy Life Through Proper Nutrition

Food Based Dietary Guideline

Eat whole grains and their products including less polished or parboiled rice, instead of refined grains and their products

Cereals and starchy food

Cereals
Rice- e.g., parboiled, kekulu
Traditional rice - *Suwendal, Pachchaperumal, Madathawalu, Heenati varities*
Wheat – atta flour, whole grain flour, semolina,
Corn / maize
Kurakkan, Meneri

Starchy roots, tubers and yams
Potato, manioc, sweet potato
Kiriala, Raja ala, Hulankeeriya, Buthsarana, Kidaran ala

Starchy tree Crops
Boiled or cooked jackfruit, breadfruit

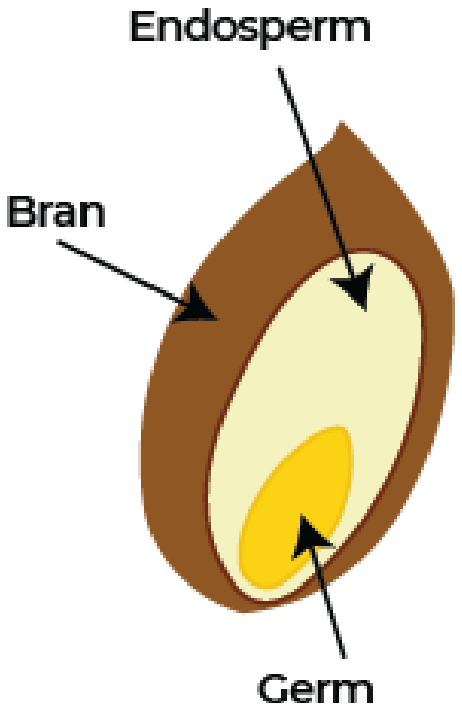
Preparations
Milk rice *(Kiribath)*,
string hoppers, hoppers, *Pittu*, bread, *Roti*, *Dosai,*
Idli, Naan, Parata, Poori, Chapathi

Rice is the staple cereal consumed in Sri Lanka

- Cereals/grains (e.g., rice, millet, maize, wheat);
  - are main source of carbohydrate.
  - provide protein, fibre and a range of vitamins and minerals too.

Carbohydrate should provide 55-65% of the daily requirement of energy

Consume whole grains and their products



Components of a grain

- Bran of grains is high in vitamins, minerals and fiber.
- During polishing or refining, nutrients are lost depending on the degree of milling.
- During parboiling, water-soluble nutrients move from the bran into the starchy endosperm.
- This minimizes the nutrient loss when polishing/washing.
- Consume parboiled or less polished rice

Cereal based products

- Products made of whole grains are more nutritious and healthier over the refined (polished) grains and their products.
- To increase the nutritional value and health benefits of refined grains/products, they can be mixed with unrefined ones
- e.g. refined wheat flour can be mixed with atta flour






Starchy tree crops, roots, tubers and yams

- Cereals and starchy food should fill up half of the plate.
- If consuming starchy food with rice, reduce the amount of rice proportionately.
- Yams, tubers and starchy tree crops are eaten after boiling, roasting or as a curry.






How much cereals & starchy foods recommended per day?

For a healthy adult :
8 – 13 (4 - 6 ½ cups) servings

One serving is equal to;

Remember

- At least a half of the cereals consumed daily should be from whole grains.
- If starchy food or cereal products are consumed alone in a meal, the rest of the servings of cereals per day should be adjusted accordingly.
- Limit white bread and refined wheat flour preparations.
- When using more refined cereals or grains; add more fibre containing food to the meal (e.g. green leaves, vegetables or other whole grain mixtures).

Food Based Dietary Guideline

Eat at least two vegetables, one green leafy vegetable and two fruits daily

Eat at least five varieties of vegetables and fruits everyday

- Good sources of vitamins and minerals (especially high in potassium)
- Rich in antioxidants, other phytochemicals and fibre
- Low in calories
- Low in saturated fat and no cholesterol or trans fat
- Different colours add variety of nutrients
- Give diverse health benefits
- Increase appetite

How to serve vegetables and green leaves for a person?

Consume 3-5 servings of vegetables and green leaves daily.

Vegetables 	Cooked vegetables (fruit and leafy vegetables)	**1 serving equals to;** **3 tbsp (1/2 cup)**
	Raw salads	**1 cup**
Green leaves 	Green leafy vegetables (*mallum* and salad)	**3 tbsp (1/2 cup)**

How to serve vegetables and green leaves for a person?

Eat 2-3 servings of fruits daily.

- A person should eat 400 grams of vegetables, green leafy vegetable and fruits a day.
- This is equal to eating at least:
  - 6 tablespoons of vegetables, and
  - 3 tablespoons of green leafy vegetables and
  - 2 fruits a day






6 tablespoons of vegetables + 3 tablespoons of green leafy vegetables + 2 fruits

Let colours guide the selection of fruits and vegetables

- Phytochemicals including antioxidants present in plant food
- contribute to colour, taste and smell
- Antioxidants (e.g., selenium, pro-vitamin A, vitamin C, vitamin E) reduce or delay cell damage
- Reduces the risk of many chronic diseases

  e.g., cardiovascular disease, cancers

Dietary fibre is essential for a healthy diet.

- Fibre is present only in plant food.
- Two types of fibre; soluble and insoluble.
- Insoluble fibre;

- not digested and absorbed by the human body.
- provides bulk to the stool
- reduce constipation, irritable bowel syndrome, and bowel cancer
  - Indirectly removes toxic substances in food
  - Reduces absorption of cholesterol, sugar and chemical compounds
  - Helps in early satiety and limits the intake of calories

Remember

- Eat seasonal and locally available fruits and vegetables.
- Choose fruits and vegetables of rainbow colours to add variety.
- Try something new;

-buy fresh fruits and vegetables that are low in demand

- Try new recipes.
- Always have fresh fruits in their natural form rather than juices.

Food Based Dietary Guideline

Eat fish or egg or lean meat with pulses at every meal

Protein containing food

1. Plant sources

- Pulses and beans

2. Animal sources

- Fish and other sea foods (oily fish, shellfish, dried fish and sprats)
- Eggs
- Poultry (e.g. chicken, turkey, duck), Red meat (e.g. beef, pork, lamb, mutton)
- Ultra-processed meat (e.g. sausages, ham, bacon, meatballs)

Why do we need to consume protein rich food?

- Essential for ;

- the growth and repair of muscles and tissues

- the formation of hormones and enzymes.

- prevention and control of infections by enhancing immunity.

- also rich in vitamins and minerals.

- Inadequate consumption of protein rich food leads to,

- poor growth and cognitive development in children

- sarcopenia in adults.

Eat 3 tablespoons of pulses such as dhal, chickpeas, green gram, cowpea, soya beans at each meal.

- Contain an average of 20 to 25% protein
- Low in saturated fat
- Contain high amount of soluble fibre
- Give additional health benefits such as reducing the risk of heart disease, diabetes and obesity.
- Do not contain some essential amino acids (e.g., methionine and cysteine).
- A mixture of cereals and pulses ensures an adequate amino acid balance.

Animal sources of protein

- good quality sources of protein containing all the essential amino acids
- Rich in iron, zinc, calcium, vitamin A and vitamin B12.
- Vitamin B12 is naturally found only in animal origin foods

Fish are rich sources of protein

- Contain vitamins (B1, B6, niacin, B12, A and D) and minerals (Calcium, Phosphorus and Iodine)
- Oily fish are a better option as they contain essential fatty acids

  e.g., anchovies (*Halmassa*), sardinella sp. (e.g. *Salaya, Hurulla*), *Kumbalawa, Bolla*, tuna sp.

A healthy adult can consume one egg daily

- Eggs are the best source of complete protein
- contains all the essential amino acids in correct proportions
- better digested, absorbed and utilized by the body

Choose poultry or lean meats over fatty meats and processed meats.

- Meat is a good source of;
  - high quality protein
  - vitamins (A,B,D)
  - minerals ((e.g. iron, zinc)
- But fat in meat is high in total fat and saturated fat which are unhealthy
- Ultraprocessed meat Contain a lot of salt, saturated fat and additives including nitrates

How to serve pulse/fish/egg/lean meat for a person?

Out of daily servings of protein, 2/3 should be from plant sources of protein and 1/3 from animal sources of protein.

Pulses - 3-5 serving per day

Cooked dhal	3 tbsp
Cooked *kadala parippu*	3 tbsp
Cooked *mung parippu*	3 tbsp
Boiled chickpea	½ cup (75 g)
Boiled cowpea	½ cup 75 g)
Boiled green gram	½ cup (75 g)
Boiled soyabean	½ cup 75 g)

1 serving = ½ cup or 3 tbsp

Egg - 1 per day

Fish/lean meat - 2-4 servings per day

Fish	30 g
Chicken	30 g
Beef	30 g
Pork	30 g
Mutton	30 g
Dried sprats	15 g (9 – 10 sprats)
Dried fish	15 g (one match box size piece)

1 serving = 30 g (two match box size piece / 2cm x 3 cm x 4 cm)

Remember

- Eat a variety of pulses and mix them with cereals to acquire all essential amino acids.
- To improve the absorption of iron in pulses; add vitamin C rich food (e.g. lime, fruits) or germinate /ferment them or mix with meat, fish or poultry.
- Avoid cooking meat over a direct flame (e.g. grilling, barbecuing, smoking) at high temperature as it may produce carcinogenic compounds.
- When a person is sick or under stress, protein requirement is higher: make sure to eat more protein during illness.
- Small fish eaten with bones provide high levels of calcium and phosphorus.

Food Based Dietary Guideline

Have fresh milk or its fermented products

Fresh milk & its fermented products.

- Fresh liquid milk and its fermented products provide important nutrients;
  - protein, carbohydrate and saturated fat
  - other micronutrients; calcium, vitamin A, Vitamin B2 (riboflavin) & B 12, phosphorous, potassium, magnesium, selenium, and zinc etc.

- Fresh milk or its fermented products are not necessary to be a part of the daily diet.
- They can contribute to increased dietary diversity when taken as per individual preference within recommended amounts.
- Fresh milk, butter and cheese are high in saturated fat; use them sparingly.

Recommended servings

Number of servings depend on age, gender, health and dietary pattern

Fermented fresh milk products

- During fermentation the milk sugar, lactose is converting to lactic acid by specific bacteria.
- better tolerated by people with lactose intolerance.
- contain pre-biotic and pro-biotic which are important for healthy gut flora. effective against diarrhoea, modulates immune regulation & prevents osteoporosis
- examples include curd, yoghurt, cheese, Butter and ghee etc.

What are pre-biotics and pro-biotics?

- Pro-biotics - live bacteria found in certain foods (yoghurt, curd, ghee) which are similar to the gut flora.
- Pre-biotics - non-digestible compounds that help gut-friendly bacteria to grow.
- Eating **balance amounts of prebiotics and probiotics** can help;
  - to have right balance of these bacteria and,
  - **keep your microbiota/gut flora healthy**.

Food Based Dietary Guideline

Eat a handful of nuts or oily seeds daily.

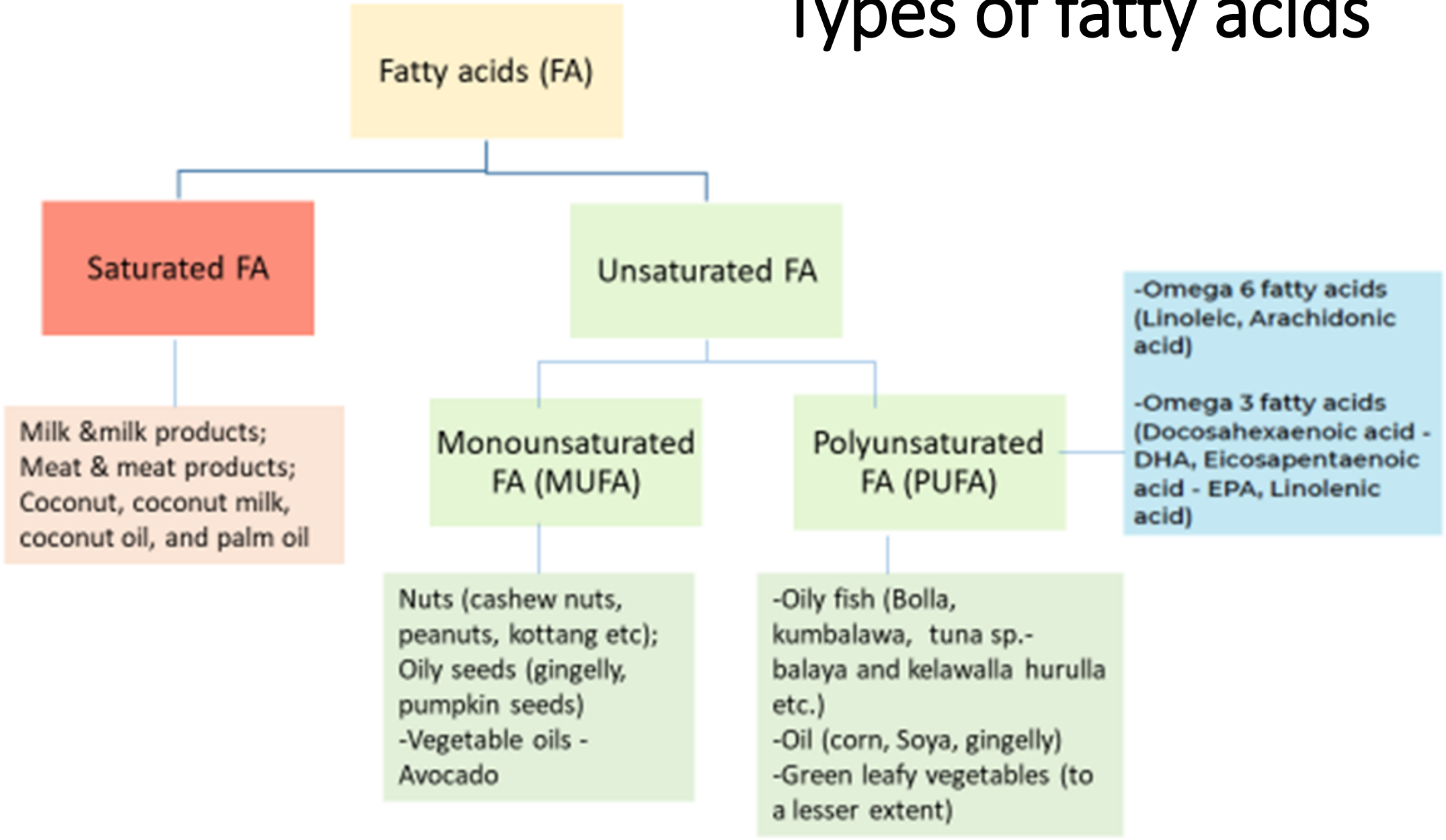
Eat a handful of nuts or oily seeds daily.

- Everyone needs moderate amounts of fat in the diet.
- Nuts and oily seeds are healthier options of fat.
- Nuts & oily seeds commonly available in Sri Lanka are peanuts, cashew nuts, gingelly, Kottang.

Why do we need fat in the diet?

- Increases palatability by improving texture, flavour and taste.
- Required for many functions in the body;
  - provides energy - one gram of fat provides 9 kcal of energy
  - helps to absorb fat soluble vitamins (e.g. vitamin A, D, E, and K)
  - provides essential fatty acids that are not synthesized in the body

Types of fatty acids



Healthy fats – Monounsaturated fat

Healthy fats - to be eaten in moderation

Monounsaturated fat

Some common food sources :

- Nuts (e.g. cashew nuts, peanuts, Kottang)
- Oily seeds (e.g. gingelly, pumpkin seeds)
- Oils (e.g. gingelly, olive, canola)
- Avocado

Health effects :

- Lowers LDL (bad cholesterol) and triglycerides
- Maintains HDL (good cholesterol)

Healthy fats – Polyunsaturated fat

Healthy Fat

Polyunsaturated fat
Omega - 3

Some common food sources :

- Oily fish (e.g. mackeral, tuna species, herrings, sardinella)
- Oils (e.g. sunflower, corn, soybean, gingelly, canola)
- Vegetables of cabbage family
- Green leafy vegetables (to a lesser extent)
- Breast milk (has an adequate amount of Docosahexaenoic acid - DHA for an infant)

Health effects :

- Lowers LDL cholesterol and triglycerides
- Maintains HDL cholesterol
- May reduce risk of coronary heart disease
- Associated with the reduction in various diseases (e.g. asthma, diabetes, skin diseases, arthritis and other auto-immune diseases)

Polyunsaturated fat
Omega - 6

Some common food sources :

- Seeds (e.g. gingelly, pumpkin, kottang)
- Oils (e.g. gingelly, corn, soya beans, sunflower)
- Egg, poultry, meat

Health effects :

- Lowers LDL cholesterol and triglycerides
- Increases HDL cholesterol
- Important to maintain the correct balance between Omega 6 and 3 (4:1), for development and functioning of nervous, vascular, immune, and renal systems
- Maintaining the right balance (4:1) while keeping total fat intake to less than 30% may help to reduce the risk of cardiovascular diseases

Fats that need to be limited

Saturated fat

Some common food sources :

- Coconut, coconut milk, coconut oil, palm oil
- Meat and meat products
- Full cream milk and dairy products
- Bakery products
- Chocolates

Health effects :

- Increases total cholesterol and LDL cholesterol
- Increases the risk of cardio vascular diseases

Cholesterol

Some common food sources :

- Animal sources of food (e.g. meat, sausages, bacon, whole milk, cheese, butter, liver)

Health effects :

- The body synthesizes cholesterol for its requirements, excess dietary saturated fat leads to elevated cholesterol
- Excess cholesterol in the body may lead to build up of plaque in arteries (atherosclerosis)

Fats that need to be avoided

Fat that needs to be avoided

Trans Fats

Some common food sources :

- Deep fried foods (e.g. *patties, rolls, cutlets*, potato/manioc chips)
- Other bakery products (e.g. pastries, doughnuts)
- Biscuits and cakes
- Some types of fat spreads
- Chilli paste

Health effects :

- Increases LDL cholesterol
- Lowers HDL cholesterol
- Increases the risk of cardiovascular diseases

At high temperatures (e.g. deep frying, baking), a proportion of unsaturated fat is converted to trans fat. Therefore they should not be used for deep frying or repeated frying.

Consume moderate amount of fats in your diet.

Try to replace some saturated fat with unsaturated fats.

- One gram of fat provides 9 kcal of energy.
- Fats should contribute to 30% of total energy requirement per person
- Discard the skin of chicken and remove the visible fat in meat before cooking.
- Include fish in your daily diet, preferably oily fish like tuna, herring, sardines and mackerel.
- Cholesterol intake should be less than 300 mg/day.

Coconut milk, kernel and oil

- Provide mainly energy
- Contains saturated fat
- Suitable for deep frying - Risk of formation of trans fats is less
- An average family of five can use one medium size coconut per day.
- Scraped coconut is preferred over coconut milk and oil.
- Can have 3-6 servings (3-6 table spoons) of coconut (scrapped/kernel/milk) per day based on preference.

Eat a handful of nuts or oily seeds daily

- How to serve nuts, oily seeds and oils for a person?
  - Consume 2 servings (2 tablespoons) of nuts and oily seeds daily.
  - Can add 1-3 servings (1-3 teaspoons) of oils per day as per preference.

Remember

- Try to meet daily requirement of fat by consuming nuts and seeds.
- Limit consumption of ultra-processed meat (e.g., sausages, meat balls, ham).
- Avoid foods which have hidden saturated fat and trans fat as much as possible - cakes, biscuits, short-eats, fried snacks, chips etc.
- Read the nutrition information labels on packaged food to choose food low in fat.

THE END