

# Food Based Dietary Guidelines

## FOR MALDIVES









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# Glossary

**Adolescent:** A person aged 10 to 19 years inclusive.

**Adult:** A person 18 years and above.

**Child:** A child is a person 17 years or younger unless national law defines a person to be an adult at an earlier age.

**Complementary Feeding:** The process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk.

**Early initiation of breastfeeding:** Provision of mother's breast milk to infants within one hour of birth.

**Elderly:** A person aged 65 years and above.

**Exclusive breastfeeding:** Infant receives no other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse) for 6 months of life, but allows the infant to receive ORS, vitamins, minerals and medicines.

**Fad diet:** Any diet that promises fast weight loss without a scientific basis. These diets often eliminate entire food groups and as a result do not provide a wide range of important nutrients.

**Fruit juice:** Must contain 100% fresh fruit, these are pure products with no preservatives or sweeteners and no artificial colours, and may or may not contain pulp of the fruit itself.

**Infant:** A child younger than one year of age.

**Junk food:** Foods that are highly processed or ready-prepared that has little or no nutritional value and are usually high in calories.

**Obesity:** Having excess body fat.

**Overweight:** Having excess body weight for a particular height from fat, muscle, bone, water or a combination of these factors.

**Overweight and obesity:** The result of "caloric imbalance" too few calories expended for the amount of calories consumed and are affected by various genetic, behavioral and environmental factors.

**Processed foods:** Foods that have been treated to change their physical, chemical, microbial, or sensory properties.

**Ultra processed food:** Industrial formulations which, besides salt, sugar, oils and fats, include substances not used in culinary preparations, in particular additives used to imitate sensorial qualities of minimally processed foods and their culinary preparations.

# Preface

Food and the nutrition play a crucial role in health promotion and chronic disease prevention. Healthy eating is a key component of a healthy lifestyle. Consumption of appropriate foods in proper amounts provides the basis for healthy eating. It is well established that food based approaches provide sustainable solutions to many nutritional problems. Lifestyles of Maldivians are changing from traditional, home cooked diets and an active lifestyle to a more sedentary one with intake of dietary energy from a more ultra-processed food based, energy dense diet with increased use of saturated fats simple sugars, including consumption of sugar sweetened beverages.

The Food Based Dietary Guidelines (FBDGs) for Maldives developed by an interdisciplinary teams by a comprehensive process, is aimed to change the eating behavior of the general population towards more optimal diets that meet energy and nutrient requirements, while simultaneously helping to protect against the development of non-communicable diseases. Hence, it is my pleasure to present the FBDGs for Maldives. It is with great hope, I encourage all health care professional to go through these documents and base practices on the latest evidences provided.

Past experiences and evidence has shown that empowering communities through increased knowledge awareness alone is insufficient and multi-sectoral support and regulatory changes need to happen that can positively affect the food environment.

My sincere appreciation is accorded to the organizations, NGOs and individuals who contributed, especially very appreciative of the key staff of Health Protection Agency for taking the lead and contributions made by technical consultant Ms. Mariyam Najla (Dietitian), the Ministry of Fisheries and Agriculture, stakeholders from Indira Gandhi Memorial Hospital and ADK Hospital who kindly came onboard and shared their expertise in this area. A great deal of credit must go to the rest of the stakeholders who were involved in the various meetings and workshops while developing this document.

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**Abdulla Ameen**  
**Minister of Health**

# Introduction

The goal of this dietary guideline is to help improve the nutritional status of the Maldivian population and to help prevent diet related chronic diseases, also known as non-communicable diseases (NCDs).

Diet plays a vital role in the health of an individual. A diet that is deficient, in excess or with imbalance of nutrients, lead to malnutrition. Likewise, a diet that provides adequate energy and nutrients helps in preventing life style related diseases and help to maintain a healthy weight. Hence healthy eating plays an integral role in obtaining optimal health and wellbeing.

Lifestyles of Maldivians are changing from traditional, home cooked diets and an active lifestyle to a more sedentary one with intake of dietary energy from a more ultra processed food based, energy dense diet with increased use of saturated fats and simple sugars, including consumption of sugar sweetened beverages. Although most of the islands are small, more people are relying on motor bikes or other motored vehicles rather than choosing to walk or bicycle. The negative effects of these changes are already being observed with the increase in obesity and NCDs such as heart disease, stroke, cancer, diabetes and high blood pressure. According to Maldives Demographic Health Survey 2016-2017, 49% of Maldivian women 35% of men are overweight or obese.<sup>1</sup> NCDs account for up to 84% of all deaths and is considered as the main cause of morbidity and mortality in the country.<sup>2</sup> Obesity among children is also an emerging trend in Maldives. Health screening conducted for grade 1 students in 2015 showed that 22% of children are overweight and obese.<sup>3</sup>

NCDs are preventable by modifying behavior through healthy lifestyle, particularly avoiding tobacco use and exposure to second-hand tobacco smoke, physical activity and healthy diets, and through early detection and treatment of the intermediate risk factors: high blood pressure, obesity, high blood sugar and elevated blood cholesterol. This food based dietary guideline will help as a guide to modify the eating behavior and physical activity, thereby helping to reduce the risk of NCD prevalence among Maldivian population.

According to Food and Agriculture Organization, Food based dietary guidelines are short, science-based, positive messages on healthy eating and lifestyles intended to prevent malnutrition and to keep the population well-nourished and healthy. The guidelines simplify the nutrition recommendation so that that the public can easily understand, and focus on foods that should be commonly consumed, portion sizes, and eating behaviors. These guidelines can be used as a nutrition education and behavior change tool by health providers, teachers, journalists, and others working directly with the public.<sup>4</sup>

The Food Based Dietary Guideline for Maldives is intended for the healthy population (i.e. not having a specific illness that requires particular dietary adjustments). Guideline includes some key messages specific for infants and young children, adolescents, for pregnant and breastfeeding women and also for elderly. Number of servings recommended in this guideline are for moderately active adults; small children and older people need smaller servings, while hard working men, adolescents, and pregnant and breast feeding women may need more servings or may need to eat more often. Those requiring special diet need to contact a Dietitian or other health professional for further advice.

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<sup>1</sup>Maldives Demographic and Health Survey (2016-17 MDHS). Ministry of Health


<sup>2</sup>Noncommunicable diseases country profiles 2018. Geneva: World Health Organization  
[https://www.who.int/nmh/countries/2018/mdv\\_en.pdf?ua=1](https://www.who.int/nmh/countries/2018/mdv_en.pdf?ua=1)

<sup>3</sup>Report of School Health Survey Grade 1, Ministry of Education

<sup>4</sup><http://www.fao.org/nutrition/nutrition-education/food-dietary-guidelines/en>



# **Dietary Guidelines for Maldives**

- 
- 01 Eat a variety of food from the main five food groups.**
  - 02 Include fruits and vegetables in your diet daily.**
  - 03 Limit intake of saturated fat, avoid trans fat and use other fats and oils in moderation.**
  - 04 Limit intake of sugar.**
  - 05 Limit intake of salt.**
  - 06 Limit intake of junk food and ultra processed food.**
  - 07 Drink plenty of water and choose water over sugary drinks.**
  - 08 Maintain a healthy weight.**
  - 09 Be physically active most days of the week.**
  - 10 Practice 5 keys to safer food**
  - 11 For Infants, breastfeeding should be initiated within the first hour of life, and be exclusively breastfed for six months, with timely introduction of nutritious, adequate, safe and properly fed complementary foods while continuing breastfeeding for up to two years of age or beyond.**
  - 12 Follow healthy dietary practices during pregnancy and lactation.**
  - 13 Practice healthy eating and be physically active during adolescence.**
  - 14 Pay attention to nutritional needs in elderly**

**GUIDELINE 01**

**Eat a variety of  
Food from the  
main 5 food  
groups**



## GUIDELINE 01

No single food can provide all the nutrients in the proper amount that our body requires. A diet consisting of foods from different food groups provides all the required nutrients in proper amounts. Foods high in fat and sugar provide energy but tend to be low in nutrients. Moderation is the key and contributes to dietary adequacy & balance.

A balanced diet helps to ensure that body receives all the essential nutrients, fibre and energy in quantity enough to maintain optimal health.

Hence, we need to eat a variety of food from all the 5 food groups. The following food groups are divided based on their function and the benefits they provide.

**Cereals and starchy vegetables**

**Fruits**

**Vegetables**

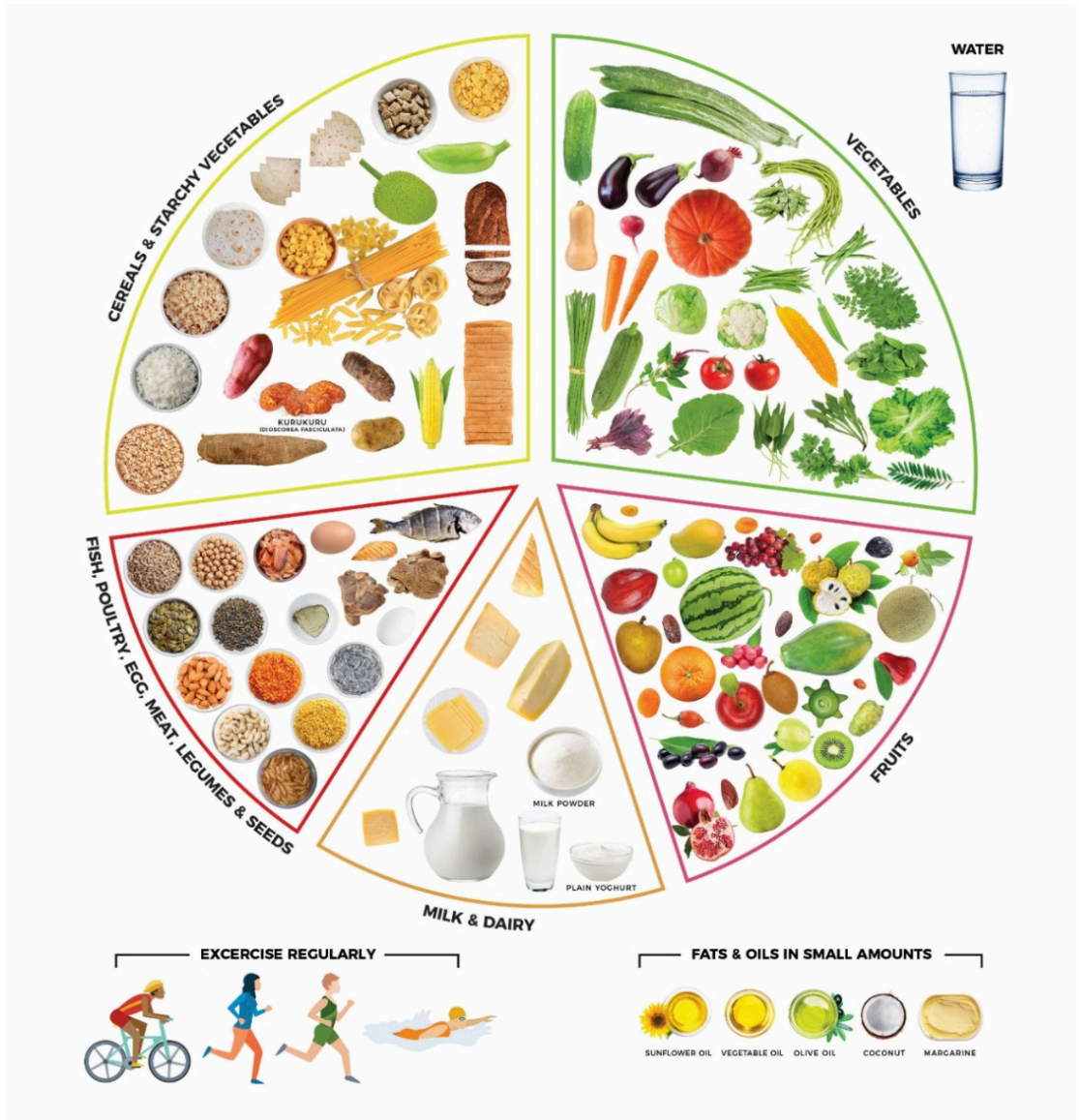
**Fish, poultry, egg, meat, legumes and seeds**

**Milk and dairy products**



# Food Guide

The 'food guide' is a pictorial guide intended to help Maldivian adults choose a variety of nutritious foods over a period of time. The food guide displays proportions of food that should be eaten daily. It does not provide quantities. For specific recommendation for each food group, please refer to the guideline.



## Cereals & Starchy Vegetables

The main component of this food group is carbohydrates. Carbohydrates provide energy for our daily activities. Main cereals and starchy vegetables in our diet include; rice, potato, yam, sweet potato, breadfruit, and products of wheat flour -mainly *roshi*, pasta, bread, rusk [faaroshi] and cracker biscuits.

The amount of food you should consume from this food group depends on how physically active you are. If you are an inactive person and consume too much food from this food group, you are likely to gain weight. However, if you do a lot of exercise regularly, you can consume servings recommended at the higher end.

### Recommendation: 6 - 10 servings per day

Serving Size: 1 serve is equal to



1 Slice Bread



1 Roshi



¼ Huniroshi



½ cup Cooked Rice,  
Pasta, Barley



½ cup Cooked Oats  
Porridge



⅔ cup (30g) Wheat  
Cereal



½ cup sweet potato/  
yam



¾ cup diced plantain  
(maalhoskeyo) / breadfruit

### Health Benefits

Whole grain cereals such as atta flour, brown rice, bimbi and oats are rich in many nutrients, including B vitamins, minerals and fibre. Whole grain cereals help to maintain your blood sugar at a constant level and also helps to keep your bowel regular and healthy. Eating whole grains regularly can help lower the risk of diabetes, heart disease and certain types of cancer.

Always choose minimally processed grains such as brown rice, oats and products made from

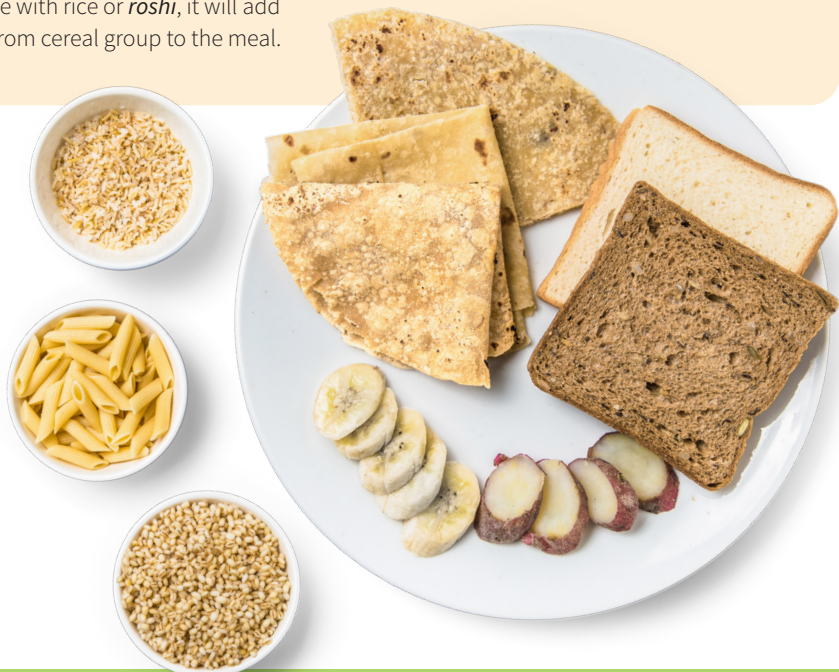
unrefined grains, because it is higher in fibre and more rich in vitamins and minerals. Polished and processed cereals such as white flour is very low in fibre and other nutrients.

Whole grain products such as oats, atta *roshi*, *bimbi* and red rice will keep your hunger away for a longer period than foods made from refined grains such as polished rice/ *roshi* made from white flour. Eating whole grain regularly will help to maintain a healthy weight.



## Healthy Tips

- When preparing rice, *roshi* or pasta, limit fats such as cooking oil and coconut products.
- It is common practice for some Maldivians to eat cream crackers for main meals or with evening tea. Cream crackers are high in salt and fat, it is not considered as a healthy meal option. However, you can enjoy 2-3 crackers as snacks occasionally.
- Healthy snack options include; cut fruits and vegetables, unsalted nuts, roasted unsalted *sanaamugu* and low fat unsweetened yoghurt.
- Some whole grain cereals such as red rice and brown rice might take longer to cook. Soak rice in water for about 30 minutes before cooking. This will minimize the cooking time.
- If you do not like the taste of atta *roshi* or find it too expensive to eat daily, try mixing atta flour with normal white flour. Mixing white flour with ground oats or other whole grains is also a healthier option. This will add more nutrients and fibre, while having little impact on the taste.
- Boiled plantain, breadfruit, yam, sweet potato and other starchy vegetables, are better eaten as a main, rather than having it as a side dish. If you have these with rice or *roshi*, it will add more servings from cereal group to the meal.
- If you consume bread, choose whole grain breads instead of white bread. Be aware that not all brown breads are made from whole grain, some brown bread is normal white bread with food colourings such as caramel or brown colour added to it. Hence it is important to read the ingredient list before buying.
- Just because a biscuit or cookie claims that it is high in oats or wholegrain it might not necessarily be healthy. It could have a high amount of sugar and fat added to it. Always read the nutrient content label and ingredient list on the package.
- Limit intake of *faraata*, *huniroshi*, frozen readymade *roshi*, *farata*, naan because they have a high fat content.
- Avoid deep frying potato, bread fruit and yam.



## Fruits

**Recommendation: Aim for 2 to 3 servings of fruit daily**

**Serving Size:** 1 serve is equal to



1 Cup\* fresh fruits  
(eg: watermelon, papaya)



1 Medium Fruit  
(Eg: Banana/  
Apple/Guava)



¼ dried fruits  
(eg: dates/raisins)

\*1 cup is equivalent to 250ml

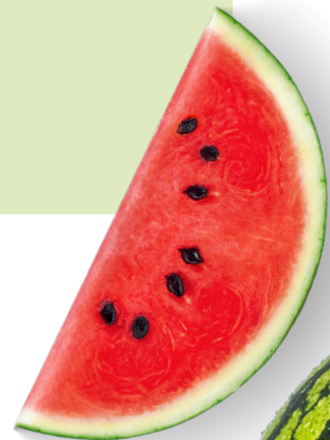
### Health Benefits

Including fruit as part of your regular diet is associated with reduced risk of heart disease, stroke, obesity and weight gain, and some types of cancers.

Fruits are high in fibre, regular consumption of high fibre food may reduce the risk of obesity, type 2 diabetes and also, help to keep your bowels regular.

Fruits are a rich source of several vitamins and minerals that are needed for the body. Fruit is high in vitamin C and folate. Vitamin C is vital for

growth and repair of tissues, assist heal cuts and wounds, and helps to keep teeth and gums healthy. Folate helps the body to form red blood cells and reduces the risk of neural tube defects. Most fruits are high in potassium. Diets rich in potassium may lower blood pressure, and help to decrease bone loss.





## Healthy Tips

- It is good to limit the intake of fruit juice and always advisable to eat whole fruit, because it contains the fibre that help you feel full. Fruit juices, although containing most of the micronutrients of the whole fruit, would have most of the fibre removed and some people tend to add sugar to it, and are therefore high in free sugar and calories. Not more than half a cup (125 ml) of 100% fruit juice should count for the daily 2 to 3 servings of fruits.
- If you are eating dried fruits such as raisins, dates or prunes, do it in moderation and choose dried fruit without added sugar. Dried fruits can be sprinkled on fruit salads, vegetable salads or cereals. Dried fruits have a high amount of sugar.
- Canned or frozen fruits can also be used if fresh fruits are not available. Try to look for fruits canned or packed in natural juice and only use the fruit. The 'syrup' in cans are high in sugar, and is best not used.
- Try to consume different varieties of fruits as you can afford because different fruits are rich in different nutrients.
- Cut fruits are easy and healthy snacks and can be easily packed and taken to work or given as snacks for school interval. Some whole fruits like apples, banana, water apple or stone apple are ready to eat, immediately after washing well or simple peeling, and are very handy as 'on-the-go' foods.
- If you would like a healthy and easy dessert, make a fruit salad.
- Locally grown fruits are as nutritious as imported ones. Try to include locally grown and easily available fruits in your diet, as they can be much fresher than imported ones.
- Some locally grown fruits include: Banana, Mango, Guava, Pomegranate, Papaya, Watermelon, Passionfruit, Stone apple [*Kunnaaru*], Water apple [*Jamburoalu*], [*Jambu*], [*Dhambu*], [*Moonima*], Noni fruit [*Ahivah*], Mangrove apple [*Kulhavah*], Sea almond fruit [*Dhonmadhu*], Jeymu, Custard apple [*Atha*], [*Dhaagandukekuri*], [*Muraaki*], [*Kal huhuthumeyvaa*], [*Sabudheli*]



## Vegetables

### Recommendation

- Aim for 3 to 5 servings of vegetables daily
- Include different varieties of vegetables
- Include vegetables with each meal

Serving Size: 1 serve is equal to



1 cup green leafy vegetables  
or raw vegetables



½ cup cooked  
vegetables



½ cup canned/frozen  
vegetables

### Health Benefits

Including vegetables as part of your regular diet is associated with reduced risk of heart disease, stroke, obesity and weight gain, and some types of cancers.

Vegetables are high in fibre, regular consumption of high fibre food may reduce the risk of obesity, and type 2 diabetes. Regular consumption of vegetables also help to keep your bowels regular. Consuming vegetables with each meal will help you feel full and replace high calorie food.

Vegetables are important sources of many nutrients, including potassium, dietary fibre, folate, vitamin A, and vitamin C. Diets rich in potassium may help to maintain healthy blood pressure. Vitamin A keeps eyes and skin healthy and helps to protect against infection.

Starchy vegetables like potato, sweet potato and yam are categorized under cereals food group because they provide similar nutrients and are predominantly high in carbohydrates.



## Healthy Tips

- Try to include as many varieties and different colours of vegetables.
- If you are using canned vegetables, drain the liquid and rinse well with water. This will help to reduce the salt content.
- To retain the nutrients, steam instead of boiling and do not overcook.
- Try to include locally available green leaves daily. Some commonly available greens in Maldives include; Kankun, Moringa leaves [*Muranga*], [*Kulhafilafayy*], [*Dhiguthiyarafayy*], [*Massaagufayy*], [*Copeefayy*], spinach [*boaveli*], lettuce.
- Raw vegetables such as carrots and tomatoes can be used as a snack.
- Avoid deep frying vegetables and green leaves (eg: *Theulifayy*). Try grilling instead (eg: butternut pumpkin, eggplant).
- Even if you are eating rice and *garudhiya*, make it a habit to eat vegetables (eg: cucumber, green leaves)
- Try home gardening if you have space at home and enjoy home grown fresh products. Many vegetables and leaves are quite easy to grow and save on expenses too.
- Plan meals ahead so that you can avoid buying in excess that could spoil.
- Try vegetables you don't usually cook at home. This helps to increase variety in your diet.
- Try to eat most of the vegetables with skins and seeds, as these are often rich in nutrients.





## Fish, Poultry, egg, meat, legumes & seeds

### Recommendation

- Include 2 servings from this group daily
- Not more than 1 egg daily

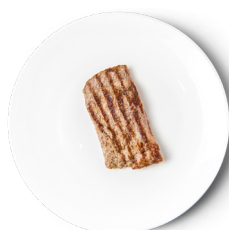
**Serving Size:** 1 serve is equal to



80g Cooked Chicken



100g Cooked Fish



65g Cooked Beef/  
Mutton



1 Cup cooked  
lentils/chickpeas/  
kidney beans



30g Nuts  
pumpkinseeds/peanuts



2 Large eggs

### Health Benefits

The main component of this food group is protein. Protein is required for growth and repair of cells such as in your muscles and skin. Protein is also required to make enzymes and hormones in our body.

Eating a variety of foods from this food group provides protein, iron, zinc and other minerals and vitamins, especially B vitamins. Animal based food are the main source of vitamin B 12.

Locally available fish is a good and safe source of protein. Oily fish such as tuna is a good source of omega-3 fatty acids which is good for our heart health. Eating fish regularly could reduce the risk of dementia in elderly, heart disease and stroke.

Fish liver is a good source of vitamin A. However, do not eat it in excess during pregnancy, especially during first trimester.

Fish liver is also a rich in vitamin D. Vitamin D is important to keep your bones healthy.

Lean red meat such as mutton and beef are good sources of iron. Regular intake of large quantity of red meat is not recommended because it could increase the risk of certain types of cancers.

Chicken and egg are good sources of protein and other nutrients. Eating one whole egg per day does not have an effect of blood cholesterol for healthy individuals.

Nuts, seed and legumes are rich in protein, iron, zinc, fibre and many other nutrients. Fibre helps to regulate blood sugar level, helps to lower blood cholesterol and helps to lower the risk of heart disease.

Processed meat such as sausages and luncheon meat are very high in saturated fat and salt and are not part of this food group. It should be avoided as far as possible.



## Healthy Tips

- Removing the skin from chicken before cooking reduces the fat content. Chicken breast contain less fat compared to chicken thigh or chicken wings.
- If you are eating red meat, remove all the visible fat.
- Rinse canned beans/ chickpeas before eating, to reduce the salt content.
- Dhaal curry (*Muguriha*) if cooked with less coconut milk is a nutritious food for the whole family.
- When consuming legumes, include food high in vitamin C such as green leaves and lime to enhance the iron absorption. Having tea with meals reduces iron absorption from food. Wait for 30 minutes after meals if you want to drink tea.
- Avoid deep frying fish, meat or chicken. Roast, bake or grill instead.
- Do not throw away the seeds in pumpkin, roast and have it as a snack. They are very nutritious and may help to lower blood cholesterol.
- If you are having nuts and seeds, go for unsalted ones and eat in moderation



## Milk & Dairy products

### Recommendation

2 serves of dairy per day

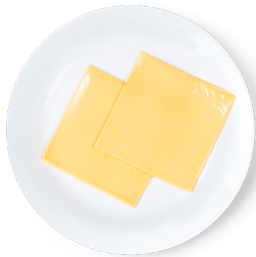
Serving Size: 1 serve is equal to



2 ½ tablespoon full  
cream milk powder



1 glass (250ml)  
UHT Milk



2 slices of Cheese



¾ cup (200g) yogurt

### Health Benefits

Low fat milk and dairy products are best for everyone except young children.

Milk, yoghurt and cheese are rich in protein and calcium and other minerals and may protect against high blood pressure and contribute to stronger bones and teeth.

Butter, cream, ice cream, flavoured sweetened milk, condensed milk and flavoured sweetened yogurt, loaded with sugar do not provide these health benefits.

Babies under 12 months of age should not be given cow's milk.

Children under 2 years of age should not be given low fat milk or other low fat dairy products. Milk fat is an important source of energy, certain vitamins and important types of fat for this age group.



## Healthy Tips

- Avoid condensed milk and creamers, these are high in sugar.
- Limit intake of processed cheese. It is high in salt and fat.
- Some people cannot tolerate milk, (a condition called ‘lactose intolerance’) because they do not have the enzymes to digest lactose, the sugar in milk. Those who cannot tolerate milk can try lactose free milk or soy milk.
- Try plain yoghurt with cut fresh fruits as a healthy snack option.
- When you prepare milk from milk powder, avoid adding sugar and other malt drinks. Most malt drink products also contain large amount of added sugar. Common malt preparations available in the market currently include *Milo, Ovaltine and Bournvita*.
- When buying yoghurt, make sure that you are really buying yoghurt and not a dairy dessert loaded with sugar and fat. Yoghurt will have bacterial culture added to it. Always check the label and make sure that it has the word “yoghurt” written on it. Real yogurt will also have a very short shelf life before expiry. There are many products that resemble yoghurt available in the market but most are just dairy desserts which are very high in fat and sugar content.



## GUIDELINE 02

# Include fruits & vegetables in your diet daily

## GUIDELINE 02

It is important to consume a variety of fruits and vegetables to provide the nutrients our body require. Diet high in fruits and vegetables have been shown to reduce the risk of chronic diseases such as cancer and heart disease. Fruits and vegetables are high in antioxidants which could help prevent cancer and heart disease. It is also thought that antioxidants and other protective constituents from fruits and vegetables need to be consumed regularly from

early life, to be effective. Locally available fruits and vegetables are also good sources of antioxidants. Evidence suggest that antioxidant supplements do not work as well as the naturally occurring antioxidants in fruits and vegetables. Fruits and vegetables are not only high in antioxidants, but they also provide other nutrients, such as folate, magnesium, potassium and dietary fiber, vitamins A, C, and K. They are also low in saturated fat and calories.

- Select seasonally and locally available fruits and vegetables such as water melon and mango.
- If you want to get the full benefit from fruits and vegetables, avoid deep frying, adding sugary syrups, sauces and too much of high fat salad dressings, when fruits and vegetables are prepared and consumed.
- Select a wide variety of fruits and vegetables.
- Always choose whole fruits instead of opting for pulp free fruit juices. Whole fruits contain fibre that will help you keep fuller for longer and could reduce the risk of many chronic illnesses.
- Canned and frozen fruits and vegetables can be used if fresh products are not available.
- Whenever possible, use the entire fruit or vegetable, peel and membrane should be consumed to increase fiber intake.
- Scrubbing visible dirt particles and thorough washing of fruits and vegetables with water is effective in reducing many pesticide residues.



**GUIDELINE 03**

**Limit intake of saturated fat, avoid trans fat & use other fats and oils in moderation**

### GUIDELINE 03

Our body needs fat from the diet to provide energy and to support cell growth. Fat also protects the organs and helps to keep the body warm. Fat helps to absorb some nutrients such as vitamin A, D, E and K and helps to produce some hormones too.

There are different types of dietary fats and consumption of these have different impacts on our health. There are 4 main types of fat in the food we eat;

#### Saturated fat

#### Trans fat

- Saturated fat is found mostly in animal sources such as fatty beef/ mutton, chicken with skin, butter, cream, cheese and full cream milk. Saturated fat is also found in plant sources such as coconut and palm oil. Many baked goods such as biscuits, cakes, pastries and deep fried food such as short eats (hediha) contain high levels of saturated fat.
- We use coconut and coconut milk in our daily cooking. Make it a habit to minimize the amount you use in cooking. Instead of using thick coconut milk, we can use a small quantity of coconut and use thin coconut milk for cooking. If you are preparing mas'huni, use less coconut and add more vegetables such as (chope fayy), eggplant, pumpkin, drumstick, snake gourd or cabbage.
- Eating too much saturated fats increases blood cholesterol levels (in particular LDL, commonly known as bad cholesterol), thereby increasing the risk of heart disease and stroke.
- The main food source for trans fat in processed food is industrially produced "partially hydrogenated oil". Make it a habit to look for it from the ingredient list on food packages. Some oils and margarine available in our market contain partially hydrogenated oil. Cholesterol is not found in food products

#### Monounsaturated fat

#### Polyunsaturated fat

made from plants hence none of the vegetable oils will contain cholesterol. The label might say that the product is "cholesterol free" however if the product is high in saturated fat/trans fat, consumption of that product could cause the blood cholesterol to increase. Some restaurants and fast food outlets use trans fat to deep fry the food repeatedly; this further creates more harmful toxins.

- Trans fats can be found in deep fried food such as donuts and baked food such as certain cakes, biscuits, crackers and some margarines and spreads. It is becoming common practice to consume frozen faratas/roshi, nuggets, wafers and packaged cakes most of these products also contain high amounts of trans fat.
- Trans fat increases the risk of heart disease by increasing the bad cholesterol (LDL) and reducing the good cholesterol (HDL) in our blood. Avoid trans fat consumption as much as possible.





## GUIDELINE 03

- It has not been determined whether the small amount of trans fat that is found naturally in dairy products cause increase in blood cholesterol as the trans fat in industrially manufactured products.
- Replace saturated fats and trans fats with healthier fats such as monounsaturated fat and polyunsaturated fat. This will help lower your risk of heart disease.
- Foods high in monounsaturated fat includes: sunflower oil, olive oil, avocado, peanuts, cashew nuts, almonds, canola oil and sesame oil.
- Food sources of polyunsaturated fats include; fish, walnut, pine nuts, soybean, sunflower, safflower, and canola oil.
- All 4 types of fats provide the same amount of calories. Consuming high level of calories regardless of the source can cause weight gain. Hence, we have to use fats in moderation.
- It has become increasingly common practice to use oil for deep frying purposes too. Deep frying is not recommended even with monounsaturated fats and polyunsaturated fats (eg: olive oil).

## UNHEALTHY

### Reusing oil used for deep frying

Possible impact on health: Reusing oil for deep frying could cause free radicals that cause cancer and also that could increase LDL (bad cholesterol) level which could lead to blockage of blood vessels.

It is always recommended to use a fresh batch of oil if you are deep frying. If you are deep frying a food, use an oil such as sunflower oil, canola oil or soy bean oil. These oils have a high smoke point, which means it does not break down at high temperature. Olive oil have a low smoke point and should not be used for deep frying, however it can be used for stir fries. If the oil you have used for frying had produced foam, changed color or is sticky, it should be discarded immediately.



**GUIDELINE 04**

# **Limit intake of sugar**

## GUIDELINE 04

Consuming too much sugar and too many foods and drinks high in sugar can lead to weight gain, which in turn increases the risk of heart disease, type 2 diabetes, stroke and some cancers. It is also linked to tooth decay in both children and adults. We need to limit the intake of sugar sweetened beverages such as soft drinks, fruit drinks, 3 in 1 coffee and cereal packets, flavored milk and the sugar added to hot beverages such as tea and coffee.

### WHO Recommendation<sup>5</sup>

- WHO recommends a reduced intake of free sugars throughout the life course
  - In both adults and children, WHO recommends reducing the intake of free sugars to less than 10% of total energy intake.
  - WHO suggests a further reduction of the intake of free sugars to below 5% of total energy intake.
- 
- Reducing the intake of free sugars to less than 25 grams or 6 teaspoons per day (5% of total energy intake) would provide additional health benefits.
  - “Free sugars” include monosaccharides (glucose or fructose) and disaccharides (sugar or sucrose, malt or maltose) added to foods and beverages by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates. However, milk sugars are not free sugars and therefore are not counted as part of the 5 or 10 %.
  - Sugar can also be listed as: sugar, sucrose, glucose, fructose, high fructose corn syrup or malt in packaged food. Always remember to check the ingredient list. They are listed in order of what ingredient is highest in weight to lowest in weight.
  - Added sugars can increase the calorie content of our diet and reduce the consumption of important nutrients when we eat these foods in place of foods from the five food groups.

**50%** of sugar that we eat comes from snacks & drinks we have



### UNHEALTHY

#### Energy drinks/fizzy drink consumption

Possible impact on health: Weight gain, lifestyle related disease such as diabetes, heart disease, tooth erosion, tooth decay, weakened bones. These products should not be given to children due to high sugar and high caffeine content.

There is a popular belief that energy drinks are energy boosters. It is caused due to high caffeine and sugar content. The boost is short-lived, and may be accompanied by other problems. Too much caffeine can cause increased heart rate and blood pressure, interrupt sleep, and cause nervousness and irritability. And added sugar provides empty calories, which can contribute to weight gain.

Energy drinks should not be given to children and should be avoided by pregnant and breastfeeding women and people with diabetes and heart disease.

<sup>5</sup>Guideline: Sugar intake for Adults and children (2015): WHO

## GUIDELINE 04

- Have desserts such as custard, pudding, bondibayy (saagu/handoo/bambukeyo) and kandhi only on special occasions.
- By gradually cutting down the sugar we add to our food and beverages, we can train our taste buds to depend less on sweetness to enjoy the taste of food.
- Some Maldivians have the misconception that honey, brown sugar and even palm sugar syrup (dhiyaahakuru) as low calorie substitutes for sugar. But this is not the case. These are all free sugars that have the same negative impact on our body as sugar.
- Even if a packaged juice says “no added sugar”, it does not mean that it doesn’t contain sugar, it simply means that no sugar is added during production, however it will still have fruit sugar minus the fibre.
- Be careful of the hidden sugar in sauces, salad dressings and some dried fruits.
- Many Maldivians are used to eating aracanut products such as killi, which is also loaded with sugar. Remember that even this will add empty calories to your diet and is bad for your oral health.
- Keep cakes and biscuits only for special occasions.

## UNHEALTHY

Many children and adolescents are offered energy drinks as sports drinks. Energy drinks are different from sports drinks. Sports drinks are designed to replenish fluids lost during physical activity. Sports drinks usually contain water, electrolytes and sugar. Energy drinks have added caffeine and other ingredients. Athletes who consume energy drinks before strenuous exercise are more likely to become dehydrated or develop cardiovascular complications because of the diuretic and stimulant effects of the caffeine. Consuming energy drinks before sports may be dangerous and pose significant risk to health.

Recently some restaurants and other food outlets have started mixing energy drinks with other cocktails and market as fancy drinks. The reaction it could cause are un-known but possibly detrimental and could cause more harm.

**GUIDELINE 05**

# Limit intake of salt

## GUIDELINE 05

Salt is an acquired taste. Almost all natural food items contain some amount of salt that is adequate for functions of the body. Added salt is not required. However, because of the traditional practices we add salt to food and as a result many people are used to foods that are high in salt. High consumption of salt over time can increase risk of high blood pressure. High blood pressure and its complications lead to heart disease and stroke. A diet low in salt and high in potassium lowers blood pressure. Reduction of salt intake to less than 5 grams per day for adults, helps to reduce blood pressure and risk of heart disease, stroke and heart attack.

### WHO Recommendation<sup>6</sup>

- WHO recommends a reduction in sodium intake to reduce blood pressure and risk of cardiovascular disease, stroke and coronary heart disease in adults. WHO recommends a reduction to < 2g of sodium (5g/day salt) in adults.
- WHO recommends a reduction of sodium intake to control blood pressure in children. The recommended maximum level of intake of 2g/day sodium in adults should be downwards based on the energy requirement of children relative to those of adults.
- The recommendations apply to everyone except for individuals with illnesses or taking drug therapy that may lead to low sodium level in the blood or those who require a supervised diet. For this recommendation, “adults” refer to individuals ≥16 years of age and “children” refers to individuals 2–15 years of age.
- Eating too much salt can raise blood pressure at any age.
- You need to be aware of the hidden salt in processed food. Breads, biscuits, sauces, processed meat such as sausages/ luncheon meat, instant noodles, instant soups, cheese, breakfast cereals are all high salt products. Locally made products such as rihaakuru, kulhi kaajaa and hedhika are high in salt too.
- Stock cubes, MSG (Monosodium glutamate or Ajinomoto), sauces such as: soy sauce, oyster sauce, tomato sauce are all high in salt and if used in cooking, should be used only occasionally.
- Choose foods that are naturally low in salt such as fruits, vegetables, nuts, seeds and meat, fish, and poultry. Add minimum salt when cooking.
- Instead of relying on salt, add more flavour to your food by adding, lime, herbs such as coriander leaves, lemon grass, curry leaves, rampe leaf, garlic, ginger, vinegar and spices. You can also marinate fish and meat prior to cooking to add more flavour.
- If you start to decrease your salt intake gradually, your taste buds will adjust to it. Once you are adjusted to eating low salt food, you will not prefer to have salty food again. Try to train your taste buds for reduced salt food.
- It has become common practice to give highly processed snack packets such as cheese balls and chips to children. Most of these snacks are very high in saturated fat and salt. Avoid giving these to children. If you can train children to have low salt food, when they will grow up, they are more likely to enjoy food with less salt.

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<sup>6</sup>Guideline: Sodium intake for adults and children (2012): WHO

## GUIDELINE 05

- Some Maldivians have a misconception that cream crackers are a healthy option. Most crackers are very high in saturated fats and salt. Do not replace healthy meals with cream crackers. “Free sugars” include monosaccharides (glucose or fructose) and disaccharides (sugar or sucrose, malt or maltose) added to foods and beverages by the manufacturer, cook or consumer, and sugars naturally



present in honey, syrups, fruit juices and fruit juice concentrates. However, milk sugars are not free sugars and therefore are not counted as part of the 5 or 10 %.

- While eating out at a restaurant, you can request to add less salt to food.

**GUIDELINE 06**

# **Limit intake of junk food and ultra-processed food**



## GUIDELINE 06

Consumption of processed and ultra processed food is becoming increasingly common in Maldivian diet. Commonly consumed processed food includes; instant noodles, processed meat such as luncheon meat and sausages, different types of fruit drinks, energy drinks, fizzy drinks and flavoured sweetened milk, different types of biscuits, cakes and wafers. Traditional homemade roshi is slowly getting replaced with store bought frozen roti/ farata and naan. Canned beans and canned fish, although are processed food, it can be considered as healthy options.

- Processed foods and junk food are usually high in refined sugar, salt, saturated and trans fats associated with obesity and diet related chronic diseases.
- Highly processed food and junk foods are usually very high in saturated fat, salt and sugar, all of which should be limited in our diet. Mostly, these foods provide only high amounts of energy and little or no micronutrients, as they contain less fruits and vegetables.
- Limit consumption of fast food and processed food and try to cook healthy and eat homemade food most days.
- Fast food outlets are becoming increasingly common and unknowingly people are choosing convenience over health. More and more fast food outlets offering different range of fast foods such as burger, pizza and submarine are being opened and promoted throughout the country. It is important to choose healthy food even when eating out.

### UNHEALTHY

#### **Daily consumption of instant noodles and other processed food**

Possible impact on health: Most of these foods are high in sugar, salt, and saturated and trans fats and the excessive consumption of these is linked to obesity and diet related NCDs.

#### **High consumption of processed meat such as sausages, corned beef and luncheon meat**

Possible impact on health: Processed meat is classified as Group 1, carcinogenic to humans, leading to cancers such as colonic cancer. Processed meat is high in fat and salt, and increase the risk of heart disease. Processed meat consumption has also been shown to increase the risk of stroke.

**GUIDELINE 07**

**Drink plenty of  
water and choose  
water over sugary  
drinks**

## GUIDELINE 07

Water is involved in many functions of the body hence is essential for life. We get water from food and drinks, however most water comes from the fluids we drink. Adults under normal circumstances need 1.5 to 2 litres of fluid per day. Always choose water as your preferred drink rather than juices, fizzy drinks or other sugary drinks. Your water requirement will depend on your diet, climate and your level of physical activity. Increase your water intake in hot weather and when you are more physically active.

- It has become common practice for some Maldivians to have fruit drinks such as fruit cordials or powdered fruit drinks with meals. Most of these are high in artificial flavours, colours and are very high in sugar. These will give you only empty calories without nutrients and increases your risk of excessive weight gain and tooth decay. Always choose water as a drink with meals.
- Do not drink other fluids as an alternative to water.
- Tea and coffee, although provide water, are not suitable for young children and large quantities can have unwanted stimulant effects in some people.
- Some people drink juice with meal because they don't like the taste of water. If you are one of them, try adding lime and mint leaves to enhance the taste of water. This will help you save money and reduce calorie intake.
- Elderly should drink water regularly even when not thirsty because they are more prone to dehydration.
- Our body could dehydrate without enough water, which can be life threatening. Drink water regularly, not only when thirsty.
- We often learn to ignore thirst due to our busy lives. Learn to identify your thirst and hunger, which is your body's need for water and food respectively.
- If the water supply at home is rain water, ensure that harvested rain water is safe and clean.

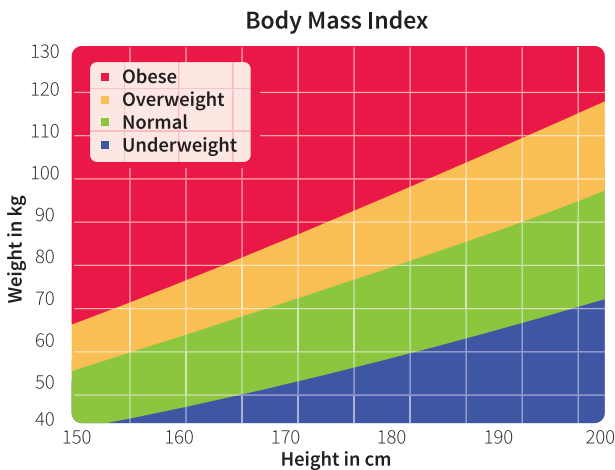


**GUIDELINE 08**

# **Maintain a healthy weight**

## GUIDELINE 08

Maintaining a healthy weight reduces your risk of type 2 diabetes, heart disease, high blood pressure, certain types of cancers, problems of knee joint, respiratory conditions such as sleep apnea, infertility and other reproductive disorders among many other health problems. Focus should be on healthy eating and physical activity that can be sustained over time, as it is a more effective way to lose weight than random efforts to lose weight quickly over a short period. Your focus should not be only on losing weight. Being obsessed about weight could lead to eating disorders. Being under weight is not healthy either. It could cause low immunity and sometimes even conditions such as osteoporosis.



**Body Mass Index (BMI)** is a measure of weight relative to height. It can be used to identify whether you are at a healthy weight range. It can be used for adult, however should not be used for children, adolescents and it is not applicable for people with lots of muscle such as body builders and for pregnant women.

Waist circumference can also be used to assess health risk. Abdominal obesity is strongly linked to heart disease. Abdominal obesity is defined as waist circumference  $\geq 90$ cm for South Asian men and  $\geq 80$ cm for South Asian women<sup>7</sup>. Waist circumference responds to exercise and healthy diet more quickly than body weight, and can show you whether you are going in the right direction even before you see a change in body weight.

<b>BMI= Body weight (kg)/Height<sup>2</sup> (m<sup>2</sup>)</b>	
<b>BMI</b>	<b>Weight Status</b>
< 18.5	Underweight
18.5-24.9	Normal
$\geq 25$	Overweight
$\geq 30$	Obese

<sup>7</sup>The IDF consensus worldwide definition of the metabolic syndrome retrieved from [http://www.idf.org/webdata/docs/MetSyndrome\\_FINAL.pdf](http://www.idf.org/webdata/docs/MetSyndrome_FINAL.pdf)

## GUIDELINE 08

Eat healthy food regularly. Try to minimize high fat and high sugar food consumption. Your diet should not be mainly based on junk food and processed food. Try to do regular exercise.

Sugar sweetened beverages such as carbonated drinks and energy drinks should be avoided.

If you are trying to lose weight, choose reduced fat dairy options such as low fat milk and low fat yoghurt.

Avoid over the counter weight loss pills and buying “slimming” pills and “fat burning” supplement over the internet that promises weight loss. These supplement and pills could have detrimental effects on your body.

Avoid diets that ask you to give up foods from main food groups and extremely low calorie diets that claim rapid weight loss in short duration. It could cause harm to your body and you are unlikely to maintain the weight, furthermore it could cause more weight gain later on.

It is very important to watch your portion sizes. Do not eat large portion sizes. It is very important to eat slowly and enjoy your food. Plan your meals ahead and avoid food shopping when you are hungry. Plan quick and easy to cook meals on busy days. When eating out, if the portion sizes are large, share with a friend.

Maintain healthy eating even during Ramazan and while fasting on other months.

## UNHEALTHY

### Skipping Breakfast & irregular meal timings

Eat regular meals so that you are not tempted to have high sugar foods because you are hungry. People who eat regular breakfast based on wholegrain cereal or bread, low fat milk or yoghurt and maybe some fruit or vegetables are much more likely to be eating well and lose weight than those who skip breakfast.

Avoid consumption of oily deep fried food and high sugar juices daily.

Follow the physical activity guide. Regular physical activity will help you to maintain weight. Spend less time sitting down. Sedentary lifestyle increases the risk of weight gain and weight related health issues. If you want to gain weight, you need to increase your intake from cereals, good fats and proteins. Eating food with more saturated fat, trans fat and sugar could put you at risk of chronic diseases.



**GUIDELINE 09**

# **Be physically active most days of the week**

## GUIDELINE 09

Physical activity benefits all ages. Physical activity has been shown to reduce the risk of numerous chronic conditions, including heart diseases, stroke, high blood pressure, breast cancer, colon cancer, Type 2 diabetes and osteoporosis. It also helps to relieve stress and, can help to regulate blood sugar and increase HDL “good” cholesterol levels, and help maintain a healthy weight.

Physical activity also produces ‘feel good’ chemicals called endorphins, which make you feel very happy, stimulated and satisfied after the activity. Regular physical activity also improves your physique and strength and makes you fit and less prone to illness.

### WHO Recommendation<sup>8</sup>

1. Adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.
2. Aerobic activity should be performed in bouts of at least 10 minutes duration.
3. For additional health benefits, adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity activity.
4. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

nearby shops. Choose walking as your preferred mode of transportation. Instead of taking the elevator, make it a habit to take the stairs. Reduce your screen time. Do not spend too much time sitting at the computer; take a break to do stretching.

- Use physically active games as a fun way to enjoy with your family and friends. Go swimming or play a sport as regular (e.g. weekly) family outings.
- Remember that every step you take count towards your fitness and health.

- Examples of moderate activity: brisk walking, gentle swimming.
- Examples of vigorous activity: jogging, aerobics, sports such as football and netball.
- There are simple changes you can make in your daily routine that could help you from to be more physically active. Avoid taking car or motorbike when you go to

<sup>8</sup>Global recommendations on physical activity for health (2010): WHO





**GUIDELINE 10**

# Practice 5 keys to safer food<sup>9</sup>

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<sup>9</sup>Adapted from: Five keys to safer food manual (2006); WHO

## GUIDELINE 10

Occurrence of food borne diseases can be minimized and prevented by practicing personal hygiene and proper food handling practices. The following are the 5 keys to safer food everyone should practice while handling food.

### 1. Keep Clean

- Wash your hands with soap and water before handling food and wash your hands often during food preparation, especially if you are handling raw fish/chicken/meat.
- Wash your hands with soap and water after going to the toilet. If you are taking care of a baby, wash your hands after changing the diaper.
- Wash and sanitize all surfaces and equipment used for food preparation.
- Protect kitchen areas and food from insects, pests and other animals; discard any food particles that may be in the kitchen sink, dispose rubbish from the kitchen daily.

While most microorganisms do not cause disease, dangerous microorganisms are widely found in soil, water, animals and people. These microorganisms are carried on hands, wiping cloths and utensils, especially cutting boards, and the slightest contact can transfer them to food and cause food borne diseases.

### 2. Separate raw and cooked

- Raw food such as meat, poultry and fish and their juice can contain dangerous bacteria which may be transferred on to other foods during food preparation and storage.
- Separate raw meat, poultry and fish from other from other food. While shopping, keep these separate from other foods. Store these in the refrigerator below cooked or ready to eat food to avoid cross contamination.
- Use separate equipment and utensils such as knives and cutting board for raw meat, poultry and fish. Wash plates used for raw food. Use a clean plate for covered food.
- Store food in containers with lids to avoid contact between raw and prepared food.

### 3. Cook thoroughly

- Cook thoroughly, specially meat, poultry, eggs and fish. Proper cooking can kill almost all dangerous microorganisms. Special attention need to be given if you are cooking the whole chicken. Make sure that juices are clear, not pink.
- Half boiled egg or eggs partially cooked should not be given to children and should not be consumed during pregnancy and by people with low immunity.
- If you are reheating cooked food, it need to be done thoroughly.
- If you are cooking in microwave, you need to know that microwave ovens can cook unevenly and leave cold spots where dangerous bacteria can survive, you need to make sure that food cooked in a microwave oven is at a safe temperature throughout.
- Some plastic containers release toxic chemicals upon heating. Only microwave safe containers should be used in microwaves.

**4. Keep food at safe temperature**

- Do not leave cooked food at room temperature for more than 2 hours.
- Refrigerate promptly all cooked and perishable food (preferably below 5 0C).
- Keep cooked food hot prior to serving.
- Do not store food for too long even in the fridge. Leftover food should not be stored in the fridge for more than 3 days and should not be reheated more than once.
- Do not thaw frozen food at room temperature. Thaw in refrigerator or other cool place.
- Keep your refrigerator clean and do not over stock, it will reduce the circulation of cool air and effect proper cooling. Frequent opening of refrigerator/freezer door will affect the inside temperature.

**5. Use safe water & raw materials**

- Use safe water. Rain water collected in clean tanks is safe as long as tanks are protected from contamination from birds and other animals. In Maldives, contamination of rain water with cat feces is common, leading to a chronic infection called toxoplasmosis. This causes blindness and brain defects in the babies in the mother's womb during pregnancy. Therefore, it is important to make sure it is safe for consumption by proper chlorination, filtration by a microbial filter system or boiling the water.
- It is always better to use boiled rain water for consumption, especially if you are giving it for children or pregnant women. Raw materials including water and ice may be contaminated with dangerous microorganisms and chemicals. Toxic chemicals maybe found in damaged and mouldy food. Take care in selecting raw materials, washing and peeling could reduce the risk.
- Always wash fruits and vegetables before eating. Safe water should be used to wash these.
- Do not buy food that is damaged or rotten. Some shops may sell damaged good at a cheaper price, however always think of your health first.
- Do not buy any dented, swollen or rusted canned food.

# Five keys to safer food



## Keep clean

- ✓ Wash your hands before handling food and often during food preparation
- ✓ Wash your hands after going to the toilet
- ✓ Wash and sanitize all surfaces and equipment used for food preparation
- ✓ Protect kitchen areas and food from insects, pests and other animals

### Why?

While most microorganisms do not cause disease, dangerous microorganisms are widely found in soil, water, animals and people. These microorganisms are carried on hands, wiping cloths and utensils, especially cutting boards and the slightest contact can transfer them to food and cause foodborne diseases.

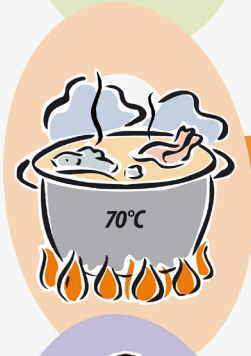


## Separate raw and cooked

- ✓ Separate raw meat, poultry and seafood from other foods
- ✓ Use separate equipment and utensils such as knives and cutting boards for handling raw foods
- ✓ Store food in containers to avoid contact between raw and prepared foods

### Why?

Raw food, especially meat, poultry and seafood, and their juices, can contain dangerous microorganisms which may be transferred onto other foods during food preparation and storage.

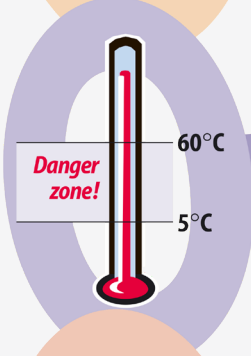


## Cook thoroughly

- ✓ Cook food thoroughly, especially meat, poultry, eggs and seafood
- ✓ Bring foods like soups and stews to boiling to make sure that they have reached 70°C. For meat and poultry, make sure that juices are clear, not pink. Ideally, use a thermometer
- ✓ Reheat cooked food thoroughly

### Why?

Proper cooking kills almost all dangerous microorganisms. Studies have shown that cooking food to a temperature of 70°C can help ensure it is safe for consumption. Foods that require special attention include minced meats, rolled roasts, large joints of meat and whole poultry.



## Keep food at safe temperatures

- ✓ Do not leave cooked food at room temperature for more than 2 hours
- ✓ Refrigerate promptly all cooked and perishable food (preferably below 5°C)
- ✓ Keep cooked food piping hot (more than 60°C) prior to serving
- ✓ Do not store food too long even in the refrigerator
- ✓ Do not thaw frozen food at room temperature

### Why?

Microorganisms can multiply very quickly if food is stored at room temperature. By holding at temperatures below 5°C or above 60°C, the growth of microorganisms is slowed down or stopped. Some dangerous microorganisms still grow below 5°C.



## Use safe water and raw materials

- ✓ Use safe water or treat it to make it safe
- ✓ Select fresh and wholesome foods
- ✓ Choose foods processed for safety, such as pasteurized milk
- ✓ Wash fruits and vegetables, especially if eaten raw
- ✓ Do not use food beyond its expiry date

### Why?

Raw materials, including water and ice, may be contaminated with dangerous microorganisms and chemicals. Toxic chemicals may be formed in damaged and mouldy foods. Care in selection of raw materials and simple measures such as washing and peeling may reduce the risk.

## GUIDELINE 11

**For Infants, breastfeeding should be initiated within the first hour of life, and be exclusively breastfed for six months, with timely introduction of nutritious, adequate, safe and properly fed complementary foods while continuing breastfeeding for up to two years of age or beyond.<sup>10</sup>**

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<sup>10</sup>Adapted from National guideline on optimal feeding of infant and young children (2016): Ministry of Health, Maldives.

## GUIDELINE 11

Exclusive breastfeeding for the first six months of life is essential for the good health of the child. Similar, timely initiation and starting nutritionally-adequate, safe, age-appropriate complementary feeding at six months is recommended for the better health and development of the child. According to the Maldives Demographic and Health Survey 2016-17, 64 % of the children are exclusively breastfed up to 6 months of age and the median duration of exclusive breastfeeding is only 3.9 months. Moreover, 5% of infants begin complementary foods before 6 months of age.

- Promote, protect and sustain exclusive breastfeeding for the first six months and continue breastfeeding till the child is 2 years and beyond.
- Breastfeeding must be initiated within one hour after birth for all newborn babies even if the baby is delivered by caesarean section, unless there is a temporary or permanent medical condition contraindicating it. Breastfeed on demand, both day and night.
- Babies should not be fed other foods and fluids such as dates, honey, or water in the first 6 months, and even at birth, as breast milk contains all the water and other necessary nutrients a baby need for growth and brain development.
- If alternative feeding is required due to severe maternal or infant's illness or condition, it should be given with advice from a medical practitioner and with consent of the mother/parents/guardians after explaining why it is needed.
- Start feeding additional (complementary) food to the child at the age of 6 months.
- Complementary feeding should be timely, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be adequate, meaning that the complementary foods should be given in amounts, frequency, consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding.
- Provide safe, appropriate and adequate complementary food for children between 6 months and 2 years of age.
- Homemade complementary foods are best, if using a commercial product ensure that it is low in salt and sugar.

Be careful about commonly marketed commercial nutrition supplements. Healthy growing children do not require additional commercial nutrition supplements.



## GUIDELINE 12

# Follow healthy dietary practices during pregnancy and lactation<sup>11</sup>

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<sup>11</sup>Adapted from Maternal and child health guide (2015): Ministry of Health, Maldives

## GUIDELINE 12

Follow healthy dietary practices during pregnancy and lactation. The first 1000 days of life, the duration between pregnancy and the child's second birthday is a critical time for the child's mental and physical development. Good nutrition status of the mother and the child during this period can have a profound impact of child's growth and reduce risk of diseases.

- Starting good nutrition practices and taking folic acid before you conceive is ideal for a healthy pregnancy and the growth of your baby. Be sure to eat a healthy diet of fresh fruits, vegetables, whole grains, low fat dairy products, and lean meats and fish. Limit intake of deep fried food such as short eats, pre-packaged foods, sugary drinks, and caffeine.
- It is very important that you maintain a healthy weight before conceiving. Obesity during pregnancy can bring many complications. Being underweight also puts you and your unborn baby at risk of complications.
- Folic acid can prevent birth defects and help your baby's brain and spinal cord to develop. Neural development in your baby happens before some women even know they are pregnant, so it is wise to start folic acid supplementation when you start considering having a baby, even from the time of marriage.
- It is very important to ensure you are eating healthy during pregnancy. Eating a variety of nutritious foods is the best thing you can do to help your changing body during pregnancy and ensure optimum growth and development of your baby. Practicing good nutrition during your pregnancy can help prevent complications and long-term health problems. Iron-deficiency anaemia and gestational diabetes in pregnant women is a problem in Maldives, and is mostly due to poor dietary habits.

Lack of important nutrients and foods high in sugar and unhealthy fats can interfere with your health and the growth and development of your baby, potentially causing premature delivery, low, or excessive birth weight, low blood sugar levels of your baby, type 2 diabetes later in life, jaundice, birth defects, birth injuries, and even stillbirth. Therefore, it is essential that you try your best to eat nutritiously during your entire pregnancy.





## GUIDELINE 12

- Include Iron-rich foods include dark green leafy vegetables (like drumstick leaves, massagu, kankun), lean red meat, fish, dates and beetroot, in your diet. Eat foods containing vitamin C (most fruits and vegetables) with every meal to enhance iron absorption. Avoid drinking tea or coffee during, just before, or just after your meals as it can inhibit the absorption of iron. If you are taking iron supplements (recommended by your doctor) and experiencing constipation or stomach upset, do not stop taking your supplements. Speak to your health care provider about the best options for you.
- If iron folic acid supplements are recommended by your doctor during pregnancy and lactation, it is very important to take those. Deficiencies in iron and folic acid during pregnancy can potentially negatively impact the health of the mother, the pregnancy and fetal development.
- If you don't have enough calcium in your diet, your body will take it from your own bones to give to your developing baby. This can cause negative health conditions for you later in life, such as osteoporosis. Be sure to eat plenty of calcium-rich foods such low-fat milk, unsweetened low-fat yoghurt, cheese, spinach, rehi, kankun, and calcium-fortified cereals.
- It is important that you gain the appropriate amount of weight during your pregnancy. Too much or too little could have negative consequences for the health of you and your baby. Women who are underweight at the start of pregnancy (i.e. BMI < 18.5 kg/m<sup>2</sup>) should aim to gain 12.5–18 kg, women who are normal weight at the start of pregnancy (i.e. BMI 18.5–24.9 kg/m<sup>2</sup>) should aim to gain 11.5–16 kg, overweight women (i.e. BMI 25–29.9 kg/m<sup>2</sup>) should aim to gain 7–11.5 kg, and obese women (i.e. BMI > 30 kg/m<sup>2</sup>) should aim to gain 5–9 kg.<sup>12</sup>
- Breastfeeding mothers need to increase their water intake – at least 2-3 litres of water for a day. Listen to your body's signals of thirst and drink water. Don't ignore your thirst. Keep a glass of water nearby when you breast-feed your baby to make it easier for you to reach. Avoid excessive intake of sugar sweetened beverages. Too much sugar can contribute to weight gain. Choose water as your preferred drink, over sugar-sweetened drinks.
- Make healthy choices to help fuel your milk production. Choose protein rich foods, such as lean meat, eggs, dairy, beans, lentils and fish. Choose a variety of whole grains as well as fruits and vegetables.

<sup>12</sup>WHO recommendations on antenatal care for a positive pregnancy experience (2016) <http://apps.who.int/iris/bitstream/10665/250796/1/9789241549912-eng.pdf>

**GUIDELINE 13**

**Practice healthy  
eating and  
be physically  
active during  
adolescence**

## GUIDELINE 13

Adolescent health screening conducted nationwide in 2015 showed that approximately a quarter had dental problems while 10 % had problems of the oral cavity. Screening results showed that 16.04% percent boys and 12.24 % girls were overweight. It is alarming that 13.18 % girls were severely underweight while 6.15 % boys were severely underweight. The report inferred that the students were not eating an adequate balance diet or their diet is high in junk food. Studies have shown that overweight children grow up to be overweight adults hence we need to instill good eating habits early in life.

- Energy and nutrient requirement is increased during adolescence because it is the time that rate of physical growth increases, second only to that in the first year of life. Total nutrient needs are higher during adolescence than any other time in the lifecycle. Failure to consume an adequate diet at this time can result in delayed sexual maturation and can arrest or slow linear growth. Nutrition is also important during this time to help prevent adult diet-related chronic diseases, such as cardiovascular disease, cancer, and osteoporosis.
- It is important for parents to look out for signs of distorted body image perception among children and adolescents. Do not criticize your child's appearance. This could affect their self-esteem. Remember that media can use different techniques to create unrealistic body images.
- Calcium requirement during adolescence are greater than they are in either childhood or adulthood because of the dramatic increase in growth of bone. Adolescence represents a "window of opportunity" for optimal bone development and future health. Be a healthy role model for your friends. Make the right choice and drink milk instead of drinks high in sugar. Your future self will thank you for the strong bones you develop.
- Healthy eating is fun. Try out new fruits and vegetables you have not tried before.

### UNHEALTHY

Consumption of betel nut products such as supari, smoking, high consumption of sugar sweetened beverages, energy drinks and increased consumption of junk food are habits that could harm your body. Take good care of your body from inside by eating the right food and it will show from outside.

- Regular physical activity in adolescence improves strength and endurance, helps build healthy bones and muscles and helps control weight among other health benefits.
- Being overweight or underweight can be a concern during adolescence. Trying fad diets to lose weight is not recommended and may harm your body. A healthy diet will meet the energy and other nutritional need without providing excess or too little energy.

## GUIDELINE 13

### Adolescents should aim to:

- Enjoy a wide variety of nutritious foods from all 5 food groups:
  - Different varieties and colours of vegetables
  - Fruits
  - Cereals and starchy vegetables, preferably whole grain cereals
  - Lean meats and poultry, fish, eggs, legumes, nuts and seeds
  - Milk, yoghurt and cheese
- Drink plenty of water
- Limit intake of foods containing saturated fat, added salt and added sugars.

## UNHEALTHY

### Chewing of Betel Nut/Killi/Supari

Possible impact of health: Areca nut or betel nut is classified as a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Cancer Research (IARC). Prolonged as well as excessive consumption of areca nut chewing (alone by itself) causes cancer of the mouth and esophagus. Chewing of betel quid (the combination of areca nut, betel leaf and lime) has also been shown to cause cancer of mouth and esophagus. Combination of betel nut with tobacco has been shown to increase the risk of early illness and death. Chewing tobacco causes most of the wide range of diseases that smoking does.

**GUIDELINE 14**

# **Pay attention to nutritional needs in elderly**

## GUIDELINE 14

- The process of ageing results in a decreased function of most systems in the body. A sensory loss characterised by a decreased sense of smell and taste, causes loss of appetite which could cause them to not like food usually prepared at home. Loss of the ability to detect smells put them at the risk of food poisoning. Changes in the digestive system could cause decreased absorption of nutrients, and hence their energy needs increases. Loss of teeth leads to an inability to chew many foods and prepared dishes prepared for the rest of the family. Therefore, older people need foods that are soft, mashed or liquidized, and easy to consume. Due to loss of thirst sensation puts them at the risk of dehydration. They should be encouraged to drink enough water and other beverages.
- It is necessary for older people to be mobile and more independent. However, in our community we observe that elderly living in buildings without an elevator hardly goes out unless there is a necessity. Some perceive roads not safe for them due to increase in the number of vehicles on the road. Encourage elderly people to be more active by providing them assistance and support. Encourage them to go out, accompany them on morning and evening walks.
- Osteoporosis commonly affects elderly, especially women after menopause. Fractures of the hip, leg and wrist are common amongst the elderly. Once calcium is lost from the bones it is

difficult to replace, but there are ways to protect against the disease from progressing, including getting enough calcium, fluoride and vitamin D, as well as physical activity. Milk and milk products such as yoghurt and cheese are high in calcium, and fish with soft, edible bones, such as rehi, are also good sources of calcium. Hence it is recommended for women over 50 year to include one extra serving of milk and dairy products.

- Depression among elderly could also lead to low appetite and it would impact the nutritional status of elderly. Encourage them to eat more when their appetite is good. Take care of elderly and spend more time with them.
- Have healthy family meals together. Spend family time to exercise together, such as swimming in the sea together or walking with an elderly family member. Children can be encouraged to read or recite Qur'an with their grandparents.



## Annex 1

# Dietary habits to prevent from lifestyle related diseases.

Life style related chronic diseases such as high blood pressure, diabetes, high blood cholesterol and certain types of cancers has been increasing in Maldivian population at alarming rate. By eating healthy and being physically active at most days of the week, we will be able to reduce the risk of getting these diseases.

- Choose whole grains. Cut back on refined carbohydrates and sugary drinks. Sugary soft drinks, high sugar fruit juice and sweetened milk causes quick increases in blood sugar.
- Follow the recommended servings of fruits and vegetables mentioned in this guideline.
- Select healthy fats and avoid deep frying. Restrict intake of wafers, cakes, biscuits and deep fried short eats.
- Exercise regularly to keep the body weight in check. Maintaining a healthy weight helps to prevent NCDs.
- If you are a smoker, quit smoking.
- Cut down salt.
- Refrain from substance abuse.

## Annex 2

# Reading food labels

Do not depend on health claims on food labels. The following will help you to choose healthy foods and drinks, for yourself.

<b>Nutrition Facts</b>	
Serving Size 3 pieces (26g) Serving per container About 8	
	<b>Amount per serving</b>
<b>TOTAL Fats</b>	4g
Saturated Fats	2g
Trans Fats	0g
<b>Cholesterol</b>	0mg
<b>Sodium</b>	220mg
<b>Cholesterol</b>	0mg
<b>Cholesterol</b>	0mg
<b>Total Carbohydrates</b>	18g
Dietary Fibre	Less than 1g
<b>Sugar</b>	1g
<b>Protein</b>	3g
<b>Ingredients:</b> Wheat flour, Vegetable oil(Palm oil), Milk powder, Yeast, Leavening(Ammonium Bicarbonate),Salt, Artificial food flavours, Coloured with tumaric,Sodium metabisulphite.	

Choose foods with less than 10g per 100g. For yogurt, choose less than 2g per 100g. For cheese, choose less than 15g per 100g.

Less than 3g per 100g.

Food with less than 400mg per 100g are good, and less than 120mg per 100g is best.

Less than 5 g per 100g is good.

Will be listed in descending order of predominance by weight.

**Expiry Date:** Foods should not be eaten after the use by date and should not be sold after this date because it could pose a health or safety risk.

**Best before date:** “Best before” dates are about quality. When the date is passed, the food might begin to lose its flavour and texture.

The term “light” can mean “reduced in fat” or “reduced in energy” (Calories). “Light” can also light tasting or light colored. “No added sugar” does not mean that the product does not contain sugar. It simply means that sugar was not added during processing.



## Annex 3

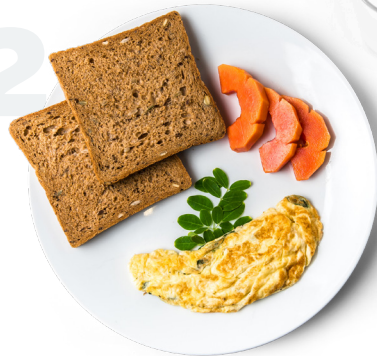
# Healthy meal ideas

1



Rice-lentils curry, grilled chicken, lettuce, carrot and steamed ladies finger

2



Multigrain bread, omelet with moringa leaves and onion, papaya and a glass of milk

3



Atta roshi, chickpeas, kankun leaves and passion fruit

4



Yam, fish soup (garudhiya), green leaves (copee fayy), onions green chili, lime and grilled fish

5



Brown rice, pumpkin curry, moringa leaves and grilled fish

6



Brown rice-spinach, grilled egg plant, fish curry and pomegranate

## Annex 3

# Healthy meal ideas-Continued

7



Brown rice, snake gourd curry, smoked tuna, cucumber, green leaves salad and mango

8



Brown rice, drumstick curry, *massaagufathu satani* and grilled fish

9



Atta roshi, & steamed snake gourd

10



Oats cooked with milk, banana and boiled egg

11



Atta roshi, steamed eggplant mixed with tuna, onion, chili and lime

12



Atta roshi, steamed butternut pumpkin mixed with tuna, onion, lime and chili





# Food Based Dietary Guidelines FOR MALDIVES

