



# RMI GUIDELINES FOR HEALTHY LIVING

*A handbook for community members*

by the Public Health Division of the Pacific Community



Pacific  
Community  
Communauté  
du Pacifique

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Suva, Fiji, 2022

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# OVERVIEW

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## Purpose and intended use of the handbook

The main purpose of this handbook is to provide background information and guidance on appropriate and effective use of the *RMI guidelines for healthy living*.

*The guidelines for healthy living* are designed to be culturally acceptable to all Marshallese, and relevant for the general healthy population. They emphasize a holistic approach to healthy living by integrating diet (consumption of locally grown produce), physical activity, and other lifestyle factors such as quitting smoking and minimizing alcohol use. The importance of addressing nutrition throughout life is also recognized with the recommendation on exclusive breastfeeding.

The RMI guidelines for healthy living were endorsed by the RMI government on 11 October 2021 through the Ministry of Health and Human Services and are available in the Marshallese language.

This handbook is divided into two parts: (a) the background, and (b) the guidelines and the technical explanatory notes for each guideline.

This handbook is the result of the review of the Pacific food-based dietary guidelines that were developed in 2000.<sup>1</sup> The Food and Agriculture Organization (FAO) of the United Nations and the Pacific Community (SPC) in consultation with the RMI government and NGOs undertook a review of these guidelines. This handbook has been developed in response to the need for educational material in the Marshall Islands and to help guide future generations to a healthy lifestyle.

## Background

A healthy diet is essential for promoting and maintaining good health and wellbeing, as well as reducing the risk of developing non-communicable diseases (NCDs) such as diabetes, obesity, heart disease and some cancers, as well as micronutrient deficiencies. Just as good nutrition protects us from nutritional disorders, poor nutrition renders the body vulnerable to such illnesses. In addition, unhealthy lifestyle behaviors, such as smoking tobacco, physical inactivity, harmful levels of alcohol consumption and betel nut chewing, increase the risk of health problems.

## Pacific context

The Pacific region is facing high levels of diseases, premature disability and death linked to unhealthy diets and lifestyles. Food plays an important role in Pacific culture, customs and traditions. Inability to access sufficient safe and nutritious food threatens food and nutrition security, undermines livelihoods and economic growth, and is a root cause of the double burden of malnutrition – over- and under-nutrition.<sup>2</sup>

Over-nutrition is a result of eating too much high-energy, low-nutrient food and contributes to obesity and the high prevalence of NCDs, which in turn can lead to increased NCD-related disability and mortality. NCDs are the leading cause of death in most Pacific Island countries, causing around 60–80% of all deaths.<sup>3</sup> As a result, life expectancy in many countries is much lower than would otherwise be the case, averaging in the mid- to low-60s (and in some cases even lower).<sup>4</sup>

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<sup>1</sup> Pacific Community, 2017

<sup>2</sup> Secretariat of the Pacific Community and World Health Organization Subregional Office for the Pacific, 2010

<sup>3</sup> World Health Organization, 2021

<sup>4</sup> Linhart, Carter, Taylor, Rao, & Lopez, 2014

Under-nutrition is a consequence of insufficient intake of nutrient-dense foods, exacerbated by the presence of an underlying illness, poor sanitation and unsafe food-handling practices. Stunting, wasting and undernourishment are common indicators of under-nutrition and are the underlying causes of childhood morbidity and mortality. Also of concern are micronutrient deficiencies, often referred to as 'hidden hunger' because their effects are not seen until too late.<sup>5</sup> Micronutrient deficiencies can have long-term effects, including on education performance and health outcomes. While most Pacific countries have made progress in reducing childhood mortality over the past 20 years, a number of countries still have high levels of mortality in children under five years of age.<sup>6</sup>

The STEPwise Approach to NCD Risk Factor Surveillance (STEPS) reports show that many people in the Pacific have more than one risk factor for NCDs.<sup>7</sup> People are considered at high risk for developing NCDs if they have three or more NCD risk factors (daily smoking, overweight, hypertension, consuming less than five servings of fruit and vegetables per day, and low physical activity). The proportion of Pacific people at high risk of NCDs ranges from 21.9% to 79.3%.

The following section provides the technical information that underpins the guideline recommendations. The information contained in this section is not meant to be presented as it is; it should be used as a reference and needs to be adapted and tailored to the target groups with whom the health professionals or educators communicate.

## RMI guidelines for healthy living

### 1. Eat a variety of local foods from the three major food groups:

- (a) Energy foods (e.g. starchy staples like taro, sweet potato, cassava, breadfruit, whole grains, brown rice, oats, whole wheat bread)
- (b) Protective foods (e.g. leafy greens, tomato, cucumber, papaya, banana, cabbage, carrots, and pandanus)
- (c) Body building foods (e.g. fish, dried beans, milk, eggs, lentils, nuts, seeds, and lean meats).

### 2. Limit highly processed foods with added salt, sugar and fat. Avoid foods with added trans-fatty acids.

### 3. Include local fruits or vegetables with every meal. Try to eat at least five servings or more each day.

### 4. Exclusively breastfeed your baby for a minimum of six months. Start complementary feeding at about six months and continue breast feeding until two years of age or more.

### 5. Drink clean, safe water. Avoid drinking soda or sugar-sweetened beverages.

### 6. Avoid use of tobacco, alcohol, illicit drugs, and betelnut products.

### 7. Allow a maximum of two hours each day of recreational screen time for children and teens (not including schoolwork screen time). For children under five, limit use to maximum of one hour.

### 8. Adults should do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity each week.

### 9. Follow these food safety steps:

- (a) Keep hands clean (wash before and after handling food)
- (b) Separate raw meat from ready-to-eat food (meat, fish, salad)
- (c) Cook meats thoroughly
- (d) Keep food at safe temperatures
- (e) Use safe, clean water and raw materials

### 10. Adults should try to get 7–9 hours of sleep each night, 8–10 hours for teens, and 9–11 hours for children ages 5–13.

### 11. Find time to relax and enjoy spending time with family and friends.

**These guidelines are intended to be easily understood, followed and explained to others.**

<sup>5</sup> FAO Subregional Office for the Pacific Islands, 2014

<sup>6</sup> Pacific Community, 2021

<sup>7</sup> World Health Organization, 2021



# 1. EAT A VARIETY OF FOODS FROM THE THREE MAJOR FOOD GROUPS

Eat a variety of local foods from the three major food groups in the following proportions:

- **Energy foods – should make up half (50%) of all the food you eat each day**  
e.g. starchy staples like taro, sweet potato, cassava, breadfruit, whole grains, brown rice, oats, whole wheat bread
- **Protective foods – should make up one third (35%) of all the food you eat each day**  
e.g. leafy greens, cucumber, papaya, banana, cabbage, carrots and pandanus
- **Body-building foods – should make up one sixth (15%) of all the food you eat each day**  
e.g. fish, dried beans, milk, eggs, lentils, nuts, seeds, and lean meats

## Variety

For good health, eat a variety of foods from the three food groups each day. Foods provide a wide range of essential nutrients, vitamins, minerals, phytochemicals and antioxidants that are beneficial to health. Variety ensures that people eat a nutritionally adequate and balanced diet each day. It can also help keep meals interesting. Eating too much food from one food group can lead to an imbalanced diet.

Eat sufficient food to support nutritional health, growth, development and a healthy body weight. Avoid over-consumption which can lead to overweight and increased risk of chronic disease. The total amount of food to eat each day to meet these requirements depends on factors such as age, life stage, health status and level of physical activity. Individuals differ in the amount of energy they require, and energy requirements affect the total amount of food an individual needs.

## Body mass index

If a person's weight is within a healthy or normal range (considered to be a body mass index [BMI] between 18.5 and 24.9), then it can be assumed that the person is eating enough food to meet their energy requirements. Therefore, the total amount of all foods consumed is not an issue. However, it is still important to eat a balanced diet to ensure nutrient requirements are met.

If the person is overweight (BMI over 25), they are eating more than their energy requirements. Therefore, the total amount of food consumed matters, as well as the types of foods from each food group, and the ratios of the three food groups. It is also important to consider the level of physical activity. Replacing some of the energy foods with more protective foods (particularly vegetables) would be one way of reducing the total energy content of the diet without compromising its nutritional quality.

### BMI classifications

Classification	BMI (kg/m <sup>2</sup> )	Risk of comorbidities
Underweight	< 18.5	Low (but risk of other clinical problems increased)
Normal range	18.5 – 24.9	Average
Overweight	25.0 – 29.9	Increased
Obese class I	30.0 – 34.9	Moderate
Obese class II	35.0 – 39.9	Severe
Obese class III	≥40	Very severe

Source: World Health Organization. (2003).







## Daily intake

The body needs a regular supply of energy to maintain health and growth. Therefore, eating three meals regularly each day is recommended. This will also help to avoid overeating, which can happen if meals are skipped. Note that a snack is not a full meal, but a small amount of food, usually eaten in between main meals. Snacking is not recommended for everyone. It is more suitable for very active children and adults who have high-energy needs, as well as those who can tolerate only small amounts of food and beverages.

Given the high levels of overweight and obesity in the region, guidance is needed to help people control the amount of food they eat. The most accurate way to monitor portion sizes and amount of food consumed is by weighing the food with a food scale and measuring cup.<sup>8</sup> However, this is not realistic or practical for many people. An easier way of helping people to visualize and estimate the appropriate amount of food to eat is by using one's hands as a guide, as shown in Figure 1. Other ways include using portion control plates or simply using smaller plates and cups.<sup>9</sup>

**Figure 1. Food groups and portion size**

Food groups and types of foods to choose	Amount to be eaten	Main nutrients they provide
<p><b>Energy foods – starchy staples</b></p> <p><i>Energy food to choose:</i></p> <ul style="list-style-type: none"> <li>Locally grown root crops</li> <li>Breadfruit, cooked green bananas</li> <li>Whole grain breads</li> <li>Brown rice</li> </ul> <p><i>Energy foods to limit:</i></p> <ul style="list-style-type: none"> <li>Refined grains and cereals such as white rice, pasta, noodles, vermicelli and bread</li> <li>Foods prepared with fats and sugar, e.g. biscuits and cakes</li> </ul> <p><i>Energy foods to avoid:</i></p> <ul style="list-style-type: none"> <li>Processed and deep-fried foods</li> <li>Sugar and free sugars</li> <li>Sugar-sweetened beverages</li> </ul>	<p><b>Should make up half (50%) of all the food you eat each day</b></p> <p>Eat at least six portions each day</p> <p>Example of portion: 1 portion = fist</p> 	<p>Carbohydrates Vitamins Dietary fibre</p>
<p><b>Protective foods – all vegetables and fruits</b></p> <p><i>Protective foods to choose:</i></p> <ul style="list-style-type: none"> <li>All fresh fruits and vegetables, locally grown</li> <li>All frozen vegetables and fruits with no added sugar or salt</li> </ul> <p><i>Protective food to limit:</i></p> <ul style="list-style-type: none"> <li>Canned fruit in juice is a good alternative if fresh fruit is limited.</li> <li>Dried fruits with no added sugar or preservatives</li> <li>Canned vegetables containing little salt</li> </ul> <p><i>Protective foods to avoid:</i></p> <ul style="list-style-type: none"> <li>Canned vegetables</li> <li>Dried fruits with added sugar or preservatives</li> <li>Cordials and fruit drinks</li> <li>Fruit juice and fruit juice concentrate<sup>10</sup></li> </ul>	<p><b>Should make up one third (35%) of all the foods you eat each day</b></p> <p>Eat five or more portions each day Example of portions:</p> <p><b>Vegetables</b> 1 portion = 2 cupped hands</p>  <p><b>Fruit</b> 1 portion = 1 cupped hand</p>  	<p>Vitamins Minerals Dietary fibre Phytochemicals Antioxidants</p>

<sup>8</sup> Centers for Disease Control, 2006

<sup>9</sup> Secretariat of the Pacific Community, 2002

<sup>10</sup> World Health Organization, 2015

## Body-building foods – protein rich foods

### Body-building foods to choose

- Local, lean cuts of meat, chicken
- Fish
- Eggs
- Dried beans and legumes
- Nuts
- Reduced fat milk and milk products

### Body-building foods to limit:

- Meat with visible fat
- Canned meat or fish with high salt content

### Body-building foods to avoid:

- Processed meat – spam, canned corned meat
- Corned beef/brisket in container, burgers, sausages, condensed milk, mutton flaps

## Should make up one sixth (15%) of all the food you eat each day

Eat at least one to two portions each day

Example of portions:

### Meat

1 portion = palm of your hand



### Nuts

1 portion = 1 cupped hand



### Beans/legumes

1 portion = 1 cupped hand

Proteins and essential amino acids  
Vitamins  
Minerals  
Fatty acids  
Fibre (from dried beans and nuts)

## Local foods

These guidelines emphasize the consumption of locally grown produce as much as possible. You should aim to eat at least five servings of fruits and vegetables each day (not with each meal). Local foods are readily available (subject to seasonal variation), and are generally fresher, do not contain preservatives and are high in vitamins, minerals and fiber. Local root crops and staples are naturally high in fiber; fresh local fish is commonly more nutritious than tinned fish; and local foods can often be grown for free and are good for the local economy.<sup>11</sup> The abundant availability of imported foods is a reality in Pacific countries and they have contributed to the changing dietary habits of Pacific people. Not all imported foods are unhealthy so it is important to be aware of the nutrient content of the foods we choose to eat. If you are able to get cabbage, carrots, broccoli and berries then they can count towards your fruit and vegetable intake.

## Ways of eating a variety of healthy foods:

- Choose fresh, locally grown vegetables and fruits.
- Use smaller plates as a way to control the amount of food eaten.
- Prevent overeating during meal times by avoiding skipping meals.
- Set aside time from other activities to eat, and be aware of the food you are consuming.
- Avoid eating out of the packet and follow the recommended serving size.



<sup>11</sup> Secretariat of the Pacific Community, 2012

## 2. LIMIT HIGHLY PROCESSED FOODS WITH ADDED SALT, SUGAR AND FAT. AVOID FOODS WITH TRANS-FATTY ACIDS

Many people consume too many foods and drinks with high levels of salt, fat and sugar, which are linked to increased risks of all the lifestyle diseases. Everyone should aim to reduce consumption of food with high levels of salt, fat and sugar.

### Salt

Salt is the chemical compound sodium chloride (NaCl). Both sodium and chloride are required for health. Sodium plays a very important role in maintaining the fluid balance in the body.<sup>12</sup> It attracts and holds water; therefore a high salt diet can lead to too much water in the body, which would mean extra work for the heart to circulate the blood around the body, resulting in high blood pressure, which is associated with very high risks of stroke and heart disease.<sup>13</sup>

Salt contains sodium, so a diet high in salt would also be high in sodium.

**Salt is commonly used to preserve and flavor foods and it is the main source of sodium in our diet. Most processed foods have high salt content. Examples of very high salt foods are:**

- salty meats such as corned beef, spam, ham, bacon, luncheon meats and sausages;
- canned, packet and instant soups;
- packet foods such as instant noodles;
- soy sauce, salted flavorings, stock cubes, yeast extracts;
- canned foods;
- foods pickled in salted solutions;
- smoked meat and fish;
- salted snacks such as potato crisps, salted biscuits, crackers; and
- high salt ready-to-eat meals and foods, sauces, white bread, cheese, take-away food.

### Salt recommendation

Reduce salt intake to less than one teaspoon of salt a day. One teaspoon of salt contains 2g of sodium. Reduce sodium intake to less than 2 g (2000 mg) per day.

This amount should take into account total salt intake from all dietary sources.

<sup>12</sup> World Health Organization, 2003

<sup>13</sup> World Health Organization, 2012

## Salt – nutrient label

The key message is to choose and prepare foods with little salt, so it is important to know how much salt is contained in foods. A lot of foods do not obviously taste salty but may contain high amounts of salt. Checking the salt content on food labels is one quick way of making healthy food choices. Most food labels list only the sodium<sup>14</sup> content of the food, which can be confusing.

### As a guide to help make healthier food choices:

- to convert salt to sodium – divide by 2.5
- to convert sodium to salt – multiply by 2.5

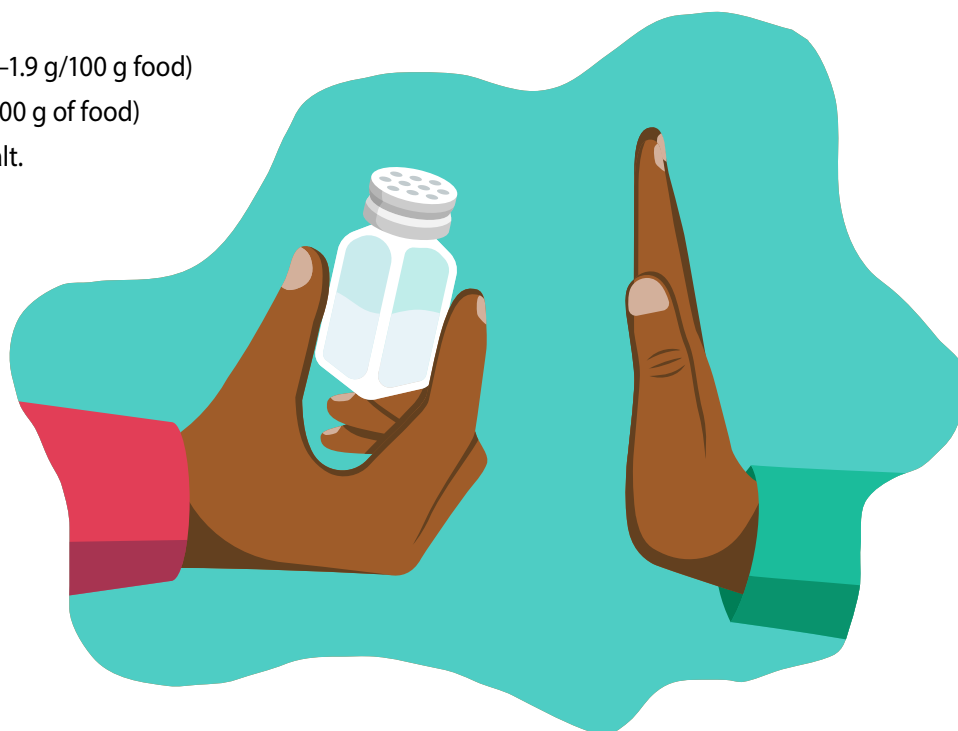
### For example:

- 1000 mg salt = 400 mg sodium
- 225 mg sodium = 562.5 mg salt (1000 mg = 1 g)

It is also wise to check the ingredient list, as 'salt' is known by many other names, such as sodium, rock salt, sea salt, monosodium glutamate (MSG), sodium citrate, sodium bicarbonate and sodium alginate.

## Ways to reduce salt intake

- Individual
  - › Use other ways of adding flavour to the food:
    - use herbs, spices, lemon juice or vinegar to add flavour; and
    - make your own stock and gravy instead of using stock cubes or powder.
  - › If using other salty ingredients such as soy sauce or stock cubes during cooking, avoid adding extra salt.
  - › Avoid using pre-packaged seasoning mixes because they often contain a lot of salt.
  - › Remember to check the food labels for salt or sodium, and choose low salt options, i.e. options that contain less salt – (<300 mg sodium per 100 g of food).
    - Low salt (<0.3 g/100 g)
    - Medium salt foods (0.3–1.9 g/100 g food)
    - High salt foods (> 2 g/100 g of food)
- Check the ingredient list for salt.



<sup>14</sup> World Health Organization, 2012

## Trans-fatty acids

**Trans-fatty acids are the most unhealthy fats anyone can eat. Eating trans fatty acids can:**

- Make cell membranes work poorly.
- Increase insulin resistance.
- Increase bad cholesterol (LDL cholesterol)
- Decrease good cholesterol (HDL cholesterol)

One large study suggests that replacing trans fatty acids with unsaturated fats could decrease risk of diabetes by 40%.

Trans fatty acids are found in processed packaged foods (crackers, cookies, baked goods, margarine, etc.) and deep fried foods.

### DO NOT EAT:

- Foods containing hydrogenated or partially-hydrogenated oils
- Shortening or products containing shortening
- Deep fried foods



**Table 2: Trans-fatty acid content of selected foods**

Food	Total fat (grams)	Trans-fatty acids (grams)
Microwave Popcorn, 3.5 oz.	25	7.5
French Fries, large	23.7	5
Cookies, chocolate chip, 4	12	5
Donut, honey-glazed, 1	15	3.8
Shortening, 1 Tbsp.	14	3.7
Cake, yellow commercial with frosting, 1 piece	12.8	3.2
Margarine, hard, 1 Tbsp.	12	3.1
Crackers, snack, 8	7	2.6
Margarine, soft, 1 Tbsp.	12	1.4
Potato chips, 2 oz.	19.6	1.1

Source: USDA National Agricultural Library, 2019



## Fat

**Fat is an important nutrient in the diet. Dietary fats provide:**

- energy, which is needed for growth and to keep the body functioning. This is important for children to make sure they get enough energy to grow well. Fat is the most energy dense nutrient, with 1 g of fat (regardless of the type of fat) providing approximately 9 kcal;
- essential fatty acids, which are important building blocks for hormones and body structures, such as cell walls.



## Types of fat<sup>15</sup>

Most of the fat in the food we eat is a mixture of three main types of fats: saturated, poly-unsaturated, and mono-unsaturated. There are also some other types of fat such as Omega-3, Omega-6, trans-fats and cholesterol. Different types of fat have different functions and effects and they can all be found in the foods we eat.

## Other types of fat<sup>16</sup>

**Cholesterol** is a fatty substance present in animals, including the human body. The body produces it naturally, even if it is not eaten in the diet. Cholesterol is a problem when there is too much circulating in the blood. It causes narrowing and hardening of the arteries, increasing the risk of heart attacks and strokes. Eating too much saturated fat can cause high blood cholesterol.

**Sterols and stanols** are plant forms of cholesterol found in fruits, vegetables, nuts, seeds and whole grains. When eaten, they prevent our bodies from absorbing the cholesterol from other sources. Recent advances in food manufacturing have enabled these to be added in larger amounts to foods such as margarine, but they are present in small amounts in most plant foods.

## Coconut<sup>17</sup>

Coconut cream and oil from mature coconut flesh have received a lot of attention because of the high fat content, particularly the high levels of saturated fats in coconut oil. Traditional and modern Pacific cuisine includes plenty of coconut cream. Concentrated coconut cream is further processed into coconut oil, which is used for cooking and beauty products for hair and skin.

The fat content of mature coconut flesh (per 100 g edible portion) varies at different stages: coconut flesh, fresh, mature (40 g); coconut cream, fresh, no water (32.3 g); coconut cream, fresh, water added (24.9 g) and coconut oil (99.9 g).

## Fat recommendation

According to the WHO, fat intake should not contribute more than 30% of total energy. Saturated fat should be less than 10% of calories, and trans-fatty acids less than 1% of calories. For someone on a 2,000 kcal per day diet, 20% of total energy from fat would equal 400 kcal or 44.4 grams of total fat per day.

Source: <https://www.who.int/news-room/fact-sheets/detail/healthy-diet>

<sup>15</sup> Food and Agriculture Organization, 2010

<sup>16</sup> Food and Agriculture Organization, 2010

<sup>17</sup> Snowdon, Osborn, Aarlbjerg, & Schultz, 2003



## Sugar

A high intake of free sugars in the form of sugar-sweetened beverages (SSBs) is linked to obesity and dental caries.<sup>18</sup> SSBs are beverages or drinks with added sugar. They are sometimes referred to as 'soft drinks', 'fizzy drinks' or 'sugary drinks.' Fruit juices and fruit juice concentrates are not SSBs, but they do contribute to free sugar intake, as the sugars they contain are no longer held within a cell structure, as they would be in a whole fruit. Consuming fruit juice adds calories to the diet and may contribute to weight gain.

**Table 3: Types of sugar**

Type of sugar	Definition
<b>Intrinsic sugars</b>	Sugar held within cell structures of foods, as in fruits and vegetables
<b>Free sugars</b>	Free sugars include monosaccharides (e.g., glucose) and disaccharides (e.g. sucrose) added to foods and beverages, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates. Free sugars also include white, brown and raw sugars.  Free sugars contribute to overall energy density of diets by providing significant energy without significant nutrients.
<b>Milk sugars</b>	Sugars naturally present in milk and milk products (e.g., lactose and galactose)

## Sugar recommendation

Choose and prepare foods with less added or free sugar. High sugar foods and drinks should not provide more than 10% of total daily energy intake. Choosing foods with less added sugar is important for weight loss or diabetes management.

Everyone should reduce intake of free sugars to less than 10% of daily calorie intake, and a further reduction to below 5% for additional benefits.<sup>19</sup> All sugars provide the same amount of calories, 4 kcal/17 kJ per gram, so for someone on a 2,000 kcal diet per day:

- 10% of total daily energy intake equates to 200 kcal = 53 g = **13 tsp sugar/day**
- 5% of total daily energy intake equates to 100 kcal = 26 g = **5–6 tsp sugar/day**

This amount should also take into account total sugar intake from all dietary sources, especially dietary sources of free sugars, such as sugar-sweetened beverages, fruit juices and table sugar added to tea and coffee, etc.



<sup>18</sup> World Health Organization, 2015

<sup>19</sup> World Health Organization, 2015

## Sugar – nutrient labels

Beware of the hidden sugar in foods – read the food labels and check the sugar content. As a general rule, products that contain 10 g or less of sugar per 100 g of food (more if fruit is present in the product) are healthier options.

Checking the ingredient list is also advised, as sugar can be listed as brown sugar, corn syrup, dextrose, disaccharides, fructose, glucose, golden syrup, honey, invert sugar, lactose, malt extract, molasses, monosaccharides, raw sugar and sucrose. These are all forms of free sugars, which can contribute to unwanted weight gain if consumed in large amounts.

## Ways to reduce free sugar intake

- Choose foods and drinks without added sugar or with minimal added sugars.
- Eat whole fresh fruits and vegetables rather than fruit juices.
- Try reducing the amount of sugar added to coffee and tea from two teaspoons to one and eventually to none.
- While it is better to get used to less sweetness, if you need some sweetener, try Stevia or Xylitol as a low-calorie substitute. Avoid artificial sweeteners such as aspartame<sup>20</sup> (NutraSweet or Equal) and sucralose<sup>21</sup> (Splenda), as they may have negative health effects.

## 3. INCLUDE AT LEAST FIVE SERVINGS OF LOCAL FRUITS AND VEGETABLES EACH DAY

Include local fruits and vegetables with every meal. Try to eat at least five servings or more each day.

There is overwhelming evidence to show that a diet rich in protective foods such as vegetables and fruits can lower blood pressure, prevent micronutrient deficiencies, reduce risk of heart disease and stroke, and prevent some types of cancer.<sup>22</sup> Evidence from STEPS survey reports shows that Pacific people are not eating enough vegetables and fruits. The proportion of adults not eating the minimum recommended five-plus servings of vegetables and fruits a day, ranges from 61.8 per cent in Vanuatu to 99.3 per cent in Kiribati.<sup>23</sup>

Vegetables and fruits are nutrient-dense foods that are low in calories (particularly vegetables) and high in vitamins, fiber, minerals, phytochemicals (which give fruits and vegetables their bright colors) and antioxidants. They are usually low in fat and have no cholesterol, which can also help reduce the risk of developing heart disease. Vegetables and fruits are excellent sources of dietary fiber, which can help prevent constipation.

Ways to eat more vegetables and fruits

- If you need a snack in between meals, choose fresh vegetables and fruits.
- Add colorful salad vegetables to meals.
- Add vegetables to stir-fries, soups and stews.
- Bulk up the meal with a variety of colorful cooked vegetables and salads.



<sup>20</sup> Choudhary & Lee, 2018

<sup>21</sup> Risdon, et al., 2021

<sup>22</sup> World Health Organization, 2003

<sup>23</sup> World Health Organization, 2021

## 4. EXCLUSIVELY BREASTFEED YOUR BABY FOR A MINIMUM OF SIX MONTHS

Exclusively breastfeed your baby for a minimum of six months. Start introducing solid foods at about six months old and continue breastfeeding until two years of age or more

This recommendation acknowledges the importance of taking the life-course approach in promoting good nutrition. It is important, given the high prevalence of NCDs among the adult population in the Pacific. Evidence now shows that a foundation of a person's lifelong health, including pre-disposition to obesity and certain chronic diseases, is largely set during the first 1,000 days of life.<sup>24</sup>

Malnutrition early in life can cause irreversible damage to children's brain development and their physical growth, leading to diminished capacity to learn, poorer performance in school, greater susceptibility to infections and diseases and a lifetime of lost earning potential. It can even put children at increased risk of developing illnesses such as heart disease, diabetes and certain types of cancers later in life.<sup>25</sup>

Exclusive breastfeeding means feeding baby with breast milk and nothing else for the first six months of life. This is the recommendation set by WHO and UNICEF.<sup>26</sup> Breastfeeding provides many benefits for both baby and mother, including survival, health and development of the baby.<sup>27</sup> Breast milk is the best food for the baby. It provides all the essential nutrients baby needs for first six months of life. It contains growth factors, vitamins, proteins, and protective factors, including immunoglobulin that protects against infections and diseases such as diarrhea, asthma, lung infections and eczema. For the breastfeeding mother, breastfeeding contributes to her health and wellbeing, including a reduction in the risk of breast and ovarian cancer. It helps her recover from childbirth, is a natural form of birth control, and is cheap and convenient.



Source: Philippines Department of Health

<sup>24</sup> The Lancet, 2016

<sup>25</sup> Victora, et al., 2016

<sup>26</sup> World Health Organization, 2021

<sup>27</sup> The Lancet, 2016

## 5. DRINK CLEAN, SAFE WATER. AVOID SODA OR SUGAR-SWEETENED BEVERAGES

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Water is essential to life. The human body is made up of between 50% and 70% water.<sup>28</sup> Water helps to keep the body cool, remove waste, lubricate joints, digest food, prevent constipation and carry oxygen and nutrients to body cells.

### Maintaining fluid balance

The amount of water in the body is carefully controlled, and maintaining this fluid balance is essential to life. The body takes in water from drinks and foods – especially vegetables and fruits, which contain varying amounts of water – and routinely loses it when we breathe, sweat, and pass urine and feces. It is important to replace losses with water.

When the loss is not replaced regularly with food and beverages, dehydration (lack of water) can occur. Severe loss of water can also be caused by diarrhea that lasts longer than five days, or vomiting that lasts more than 6–12 hours in babies and children or more than 24 hours in adults. The first symptoms of dehydration are dizziness, confusion, feeling faint, muscle cramps and tiredness. If not treated, the situation worsens and death can result. It is best to seek medical attention sooner rather than later, as treating severe dehydration requires medical supervision.

### Fluids recommendation

To maintain a steady state of fluid balance, a daily intake of about 2.5 L (10 cups) of fluid from drinks and food is recommended to match losses in urine, feces, sweat and breathing.<sup>29</sup> You will need more than this if you are sweating a lot because it is hot or you are being active – or if you have a fever. During intense activity, a person can lose up to 3 liters of water in an hour through sweating. It is very important to replace this as soon as possible, by drinking water during the activity and not waiting till it has finished.

#### Drinks include:

- Water – is the best drink to choose
- Others – fresh drinking coconut, milk, milk, non-dairy milk (e.g., soy, almond), herbal and other tea, vegetable or fruit juice with no added sugar.

## 6. AVOID USE OF TOBACCO, ALCOHOL, ILLICIT DRUGS, AND BETELNUT PRODUCTS

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### Tobacco

There is no safe level of smoking – even breathing other people’s cigarette smoke is harmful. Nicotine is a drug found naturally in tobacco and it is an addictive substance like cocaine, which, with regular intake over time, causes physical and emotional dependence. This makes it difficult for smokers to quit. It is important to understand how smoking affects the body physically and mentally so as to provide appropriate support to those who want to stop smoking.

### Drugs

Drug abuse includes any inappropriate use of pharmaceuticals (both prescription and over-the-counter drugs) and any use of illicit drugs such as cocaine, ice or marijuana. Like smoking, no amount of illicit drug is safe; they all contain chemicals that are harmful to the body, impede judgment and lead to harmful risk-taking behaviors. Preventing drug abuse improves the quality of life and health and reduces accidents.

<sup>28</sup> Institute of Medicine, 2005

<sup>29</sup> Institute of Medicine, 2005



## Betel nut

Betel nut is a seed of the Areca catechu tree and is used as a mild stimulant. It is commonly chewed, wrapped with Piper betel vine leaves coated with lime. This traditional mix is known as the betel quid.

Betel nut use is increasing in the Pacific. In addition, the practice of combining tobacco and betel nut mix is also increasing. Habitual use of betel nut is associated with long-term adverse health effects, such as oral cancer, and other cancers, as well as mental health and addiction problems.

## Alcohol<sup>30</sup>

Drinking too much alcohol may increase the risk of health problems. If you do not drink, it is best not to start drinking, as alcohol consumption does not benefit everyone and the possible benefits to health do not outweigh the risks.

Alcohol contains nearly the same amount of energy per gram as fat, at 7 kcal/1 g alcohol, but these are 'empty calories', as alcohol contains no essential nutrients. Regular consumption of alcohol will increase the amount of energy taken in, making weight loss difficult for those who need to lose weight.

There is general agreement that drinking too much alcohol at one time on a regular basis is not good. This can cause permanent liver damage over a period of time. Unfortunately, most alcohol use in the Pacific is in heavy drinking sessions, drinking more than the recommended standard amount of alcohol, especially among adult men. This also contributes to social problems such as violence and accidents.

## Recommendations

Consider these recommendations for the various population groups:<sup>31</sup>

1. Children and young people (defined as persons who are 18 years and under)
  - **Not drinking alcohol is the safest option.**
2. Adults (defined as persons who are over 18 years old)
  - **Men should not consume more than two standard drinks per day.**
  - **Women should not have more than one standard drink per day.**
3. Pregnant and breastfeeding women
  - **Alcohol should not be consumed during pregnancy and breastfeeding.**



## Standard drink

A standard drink is a unit of measure to define the amount of pure alcohol consumed and is a way of tracking the amount of alcohol people consume. One standard drink always contains 10 g of alcohol, regardless of container size or alcohol type (i.e., beer, wine, or spirits).

### Examples of a standard drink:

- 1 glass beer (285 ml, 5% strength)
- 1 small glass (100 ml) wine
- 1 single measure of spirits, e.g., vodka, gin (30 ml)

<sup>30</sup> Secretariat of the Pacific Community, 2002

<sup>31</sup> National Health and Medical Research Council, Australian Research Council and Universities Australian, 2020

## 7. CAP SCREEN TIME FOR CHILDREN AND TEENAGERS

Allow a maximum of two hours each day of recreational screen time for children and teens (not including schoolwork screen time). For children aged two to five years, limit use to a maximum of one hour per day. Screen time is not recommended for children under two years. For all ages, less is better.

### Why limit screen time?

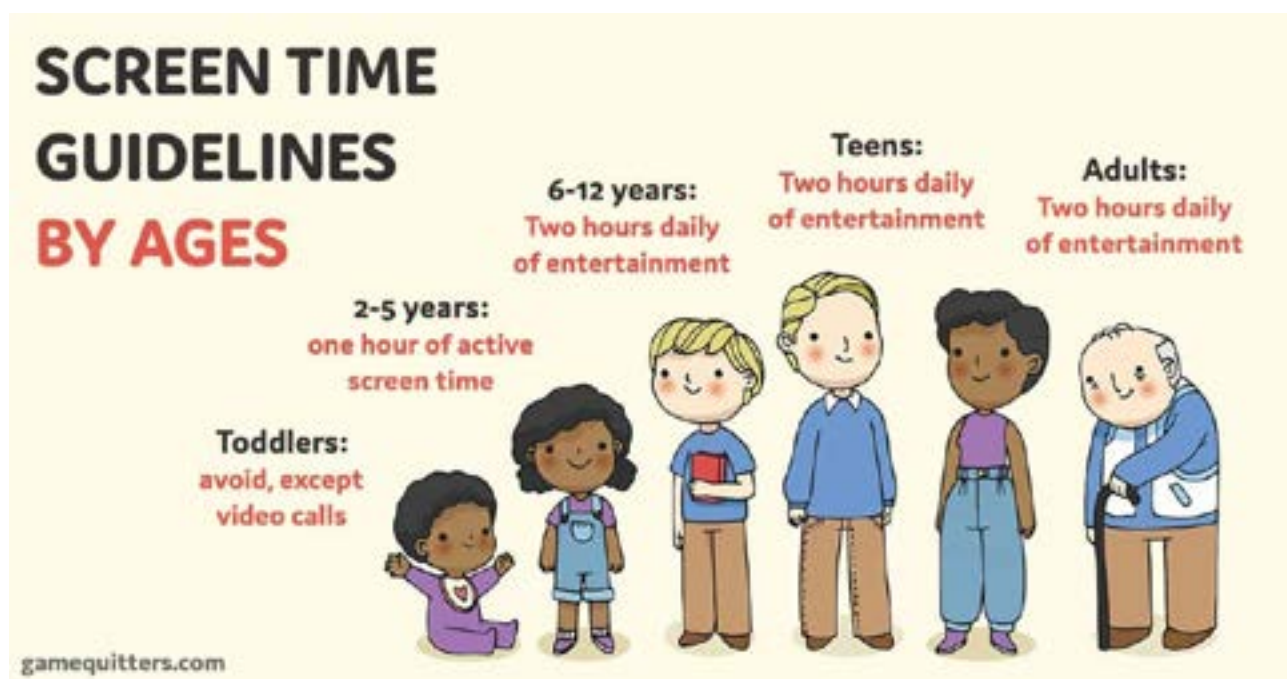
Looking at how we use screens with our kids is important. Generally speaking, if we use screens as a tool, both parents and children come to rely on screens. For example, many parents rely on screens to help calm their children when they are upset or to get their child to sit still. Such reliance, while effective in the moment, can also limit a child's opportunity to develop age-appropriate skills.

### Screen time and your brain

Screen time can have an intense effect on the brain. Even after we turn off the TV or other device, the brain keeps firing as if it were still watching it. It has been shown that children who use screen devices in the two hours before bedtime have poorer quality sleep and are less likely to get enough sleep. Removing screens from the room where the child sleeps is a good way to limit screen time and ensure good sleep.

Recreational sedentary screen time has been shown to be negatively associated with children's adiposity, metabolic health, cognitive development, motor development, behavioral conduct and pro-social behavior, self-esteem, psychological distress, and academic achievement.<sup>32,33</sup>

#### Maximum screen time for all ages



<sup>32</sup> Okely et al., 2022

<sup>33</sup> World Health Organization, 2019

## 8. PARTICIPATE IN THE RECOMMENDED LEVELS OF PHYSICAL ACTIVITY

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Adults should do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate and vigorous intensity activity throughout the week.

Children and teens aged 5–17 years should do an average of 60 minutes per day of moderate- to vigorous-intensity, mostly aerobic, physical activity. Children under five should accumulate at least 180 minutes per day of active play.

Research shows that being active on a daily basis is the best way to maintain and improve health<sup>34</sup> Physical activity is defined as any movement made by the body, while exercise is defined as planned, structured and repetitive bodily movement done to improve or maintain fitness<sup>35</sup> The Pacific Physical Activity Guidelines for adults aged 18–65 year<sup>36</sup> sets out the key recommendations for physical activity. They are applicable to all Pacific countries.

1. If you are not physically active (not moving much), it is not too late to START NOW! Do regular physical activity and reduce sedentary activities.
2. Be active every day in as many ways as you can, your way.
3. Do at least 30 minutes of moderate-intensity physical activity on five or more days each week.
4. If you can, enjoy some regular vigorous-intensity activity for extra health and fitness benefits.

### Ways to increase physical activity

- Make a start and do some physical activity. Anything that makes your body move is good – walking, swimming, gardening, dancing or cleaning.
- Build up the physical activity level gradually to at least 30 minutes. Greater health benefits can be obtained by engaging in physical activity of a vigorous intensity or longer duration of moderate activity.
- Meet friends for a walk instead of sitting in the house to talk.
- Take time to play with family and friends.
- Muscle strengthening benefits everyone

Source: Canvasback Wellness Center



<sup>34</sup> World Health Organization, 2008

<sup>35</sup> Secretariat of the Pacific Community, 2010

<sup>36</sup> World Health Organization, 2008

## 9. FOLLOW FOOD SAFETY STEPS FOR HANDLING, PREPARING AND STORING FOOD

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**The following food safety steps should be taken when handling, preparing, or storing food:**

- Keep hands clean (wash before and after handling food)
- Separate raw meat from ready-to-eat food (meat, fish and salad)
- Cook meat thoroughly
- Keep food at safe temperatures
- Use safe, clean water and fresh ingredients.

### Foodborne illnesses

Eating foods contaminated by harmful microorganisms or chemicals causes Foodborne illnesses. The common symptoms associated with food poisoning are not pleasant and can, if not treated properly, be fatal, especially in young children, pregnant women and the elderly. The symptoms include diarrhea, vomiting, nausea and stomach cramps, depending on the cause of the illness. Symptoms may occur very quickly after eating the food, or may take days or even weeks to appear. Generally, symptoms occur within 24–72 hours after the food has been eaten. Ciguatera is a common type of foodborne illness in Pacific Island countries caused by ciguatera toxins in certain reef fish. This toxin comes from certain algae that the fish<sup>37</sup> eats, and the fish may appear fresh and clean. Details on foodborne illnesses and symptoms can be found in *Five keys to safer food manual*.<sup>38</sup>

### Harmful chemicals

Foodborne illnesses are also caused by eating food that has been contaminated with poisonous chemicals, such as heavy metals (e.g., lead and mercury), environmental pollutants, improperly used pesticides, agricultural and cleaning chemicals, and natural toxins (aflatoxins) produced by mold growing on various foods, particularly cereals, spices and nuts.

Minimizing the risk of contaminating food with harmful chemicals includes proper use of pesticides and cleaning chemicals, and proper disposing of environmental pollutants. Foods that may have chemicals on the surface can be washed with clean water and peeled to reduce the risk of consuming the harmful chemicals. Appropriate storage conditions for high-risk raw foods can reduce the risk of formation of aflatoxins.

Population groups most at risk from consuming contaminated foods are young children and pregnant women. It is recommended that pregnant women avoid eating certain kinds of fish (e.g., shark, swordfish, tuna and seafood) from polluted waters because of the high risk to the unborn baby from mercury poisoning.

### Recommendations

The best way to keep yourself and family healthy and avoid food poisoning is to follow basic food safety guidelines as recommended by WHO.<sup>39</sup>

### Ways to prepare and keep food safe

- Always wash hands with soap and water before and after preparing foods.
- Always wash and keep cooking utensils clean.
- Always wash hands with soap and water after going to the toilet.
- Always check the food labels for the expiration dates.

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<sup>37</sup> Laurent, Yeeting & Gaudechoux, 2005

<sup>38</sup> World Health Organization, 2006

<sup>39</sup> World Health Organization, 2006



# 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, milled meats, 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

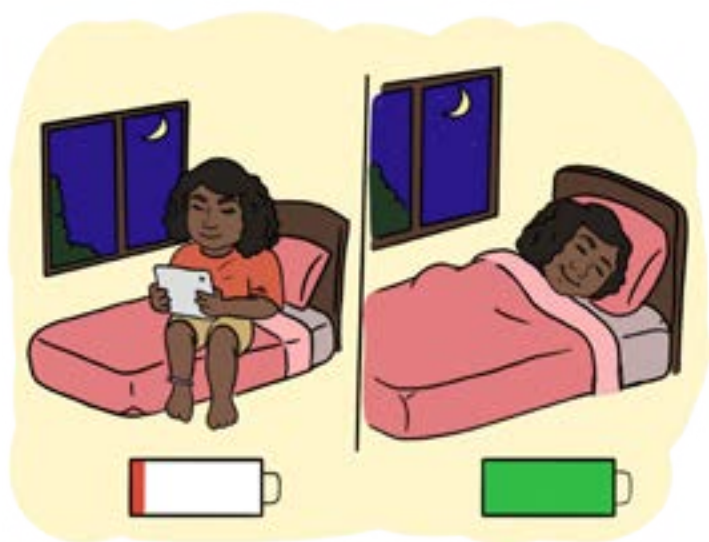
- ✓ Use safe water or treat it to make it safe
- ✓ Select fresh and wholesome foods
- ✓ Choose foods processed for safety, such as pasteurized milk
- ✓ Wash fruits and vegetables, especially if eaten raw
- ✓ Do not use food beyond its expiry date

### 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.



## 10. ADULTS SHOULD GET 7–9 HOURS OF SLEEP EACH NIGHT, 8–10 HOURS FOR TEENS AND 9–11 HOURS FOR CHILDREN AGES 5–13



Source: Canvasback Wellness Center

### Why is sleep so important?

Sleep is an essential component of healthy development and is required for physical and mental health. However, sleep deprivation has become common in contemporary societies with 24/7 availability of commodities.<sup>40</sup> School-aged children and youth generally sleep less now compared with decades ago<sup>41</sup> and factors responsible for this secular decline in sleep duration are generally ascribed to the modern way of living (e.g., artificial light, late-night screen time, caffeine use, and no bedtime rules in the household).<sup>42</sup> Chronic sleep loss and associated sleepiness and daytime impairments pose serious threats to the academic success, health, and safety of children and youth and are important public health issues.<sup>43</sup>

Sleep is important for growth, development, learning, memory, synaptic efficiency, regulation of behavior, emotion, immune strengthening, and cleaning time of neurotoxic substances.<sup>44</sup>

### Ways to ensure good sleep

1. Have a consistent bedtime and wake-up time
2. Avoid screen time one hour before sleep.
3. Keep screens out of the bedrooms.
4. Avoid caffeine, nicotine, alcohol, and other chemicals that interfere with sleep at least six hours before bedtime.
5. A quiet, dark, cool room will promote better sleep.
6. Get enough sunshine during the day, which encourages wakefulness, so you are more ready to sleep at night.
7. Don't nap late in the day.
8. Eat a light meal in the evening or eat a few hours before sleep.  
Avoid a heavy meal in the three hours before sleeping.
9. Drink a little water before bed so you won't wake up thirsty – but not so much that you will wake up to go to the bathroom.
10. Exercise during the day, but not in the three hours before bedtime.

<sup>40</sup> Åkerstedt & Nilsson, 2003; Ohayon, Carskadon, Guilleminault, & Vitiello, 2004

<sup>41</sup> Keyes, Maslowsky, Hamilton, & Shulenberg, 2015; Matricciani, Olds, & Petkov, 2012

<sup>42</sup> Gruber, Gelman, & Ranganath, 2014

<sup>43</sup> Owens, Judith; Adolescent Sleep Working Group and Committee on Adolescence, 2014

<sup>44</sup> Rana, Allende, Latorre, Astorga, & Torres, 2019

## 11. FIND TIME TO RELAX AND ENJOY SPENDING TIME WITH FAMILY AND FRIENDS

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People who are stressed and do not relax are at greater risk of lifestyle diseases, particularly stroke, high blood pressure and heart disease.<sup>45</sup> It is important to identify and avoid stressful situations.

### Causes of stress

**Stress has many possible causes, and they are different for every individual. One situation may make one person stressed but have no effect on someone else. Some common stressors include:**

- environmental problems such as extreme weather
- work, in particular for workaholics
- major life events such as the death of a relative, a lost job, loss of financial support or income, a promotion or a new baby, and
- others, e.g., self-criticism, missing the bus, other people's behavior towards you.

Much stress is related to our reaction to an issue or problem and our ability to cope with it. People react differently to stressful situations. Some people tend to overeat when stressed, while others do not eat. Either extreme poses a health threat. Some react with anxiety, while others have depression. Stress can lead to stomach ulcers, aches and pains, chest pain, trouble sleeping, headaches, high blood pressure, muscle tension, and a weakened immune system.

While stressful situations are inevitable, try to deal with them before they become chronic stressors. Long-term stress is the real danger. It is important to take the time to de-stress. Many people use prayer or meditation to deal with their stress. Trusting in a higher power who is in control of your life can help reduce stress and worry.

### Recommendations

Take time to relax and enjoy time with friends and family.

#### **Ways to enjoy time with family and friends:**

- If you work, avoid taking your work home.
- Take time out to relax and enjoy life.
- Go for a walk, listen to music on the radio, and talk with friends.
- Enjoy a family meal at the table, turn off the TV.
- If you are worried about something, talk to a trusted friend or seek professional help.
- Do some physical activity; it is a great way to relieve stress.
- Join a group that does something you enjoy, such as singing, exercising, or sewing.

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<sup>45</sup> World Health Organization, 2008

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# NOTES

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