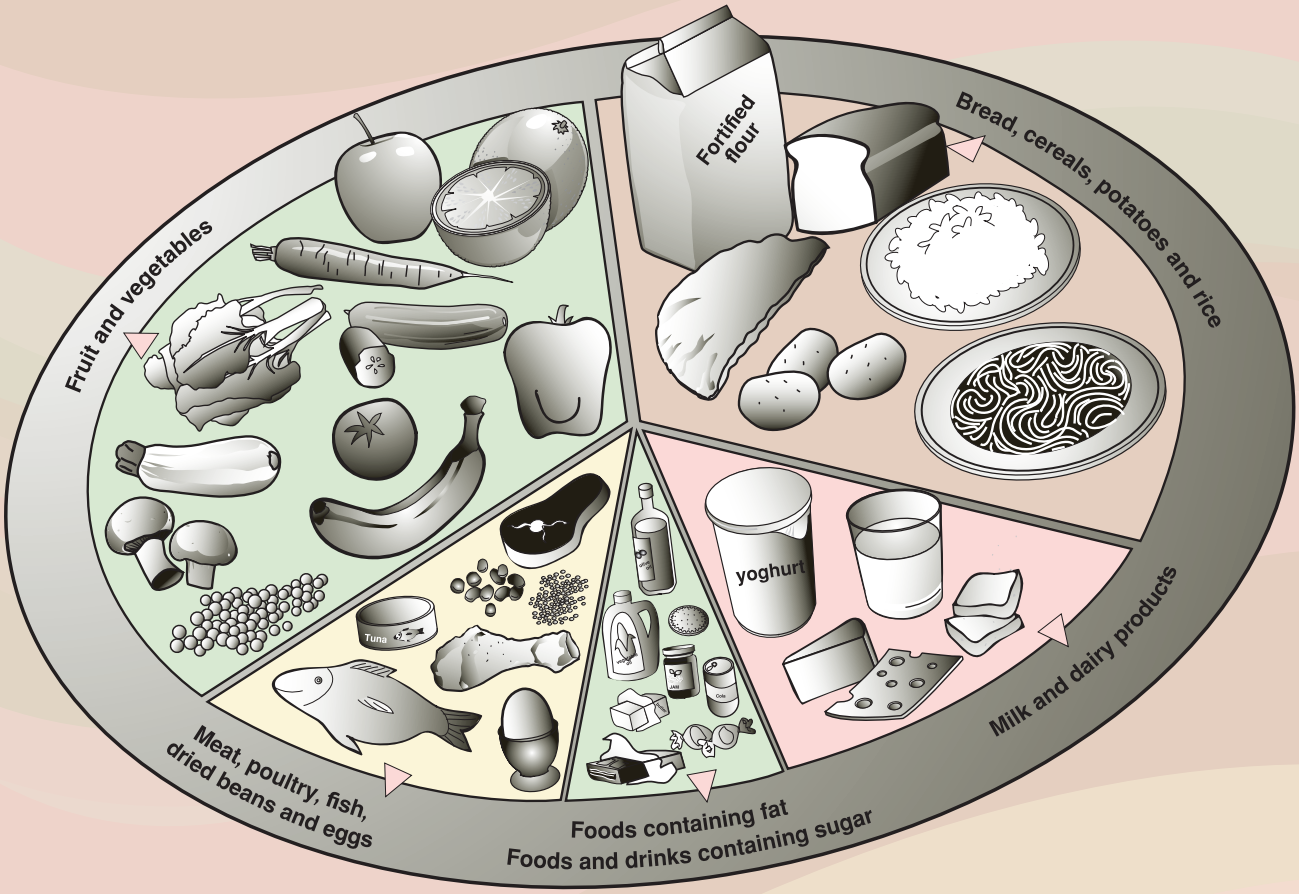
Promoting a healthy diet for the WHO Eastern Mediterranean Region: user-friendly guide

World Health Organization
Regional Office for the Eastern Mediterranean



8 cups per day

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WHO Library Cataloguing in Publication Data

World Health Organization. Regional Office for the Eastern Mediterranean
Promoting a healthy diet for the WHO Eastern Mediterranean Region: user-friendly guide / World Health Organization. Regional Office for the Eastern Mediterranean
p.
1. Diet, Mediterranean 2. Diet, Fat-Restricted 3. Health Promotion - Eastern Mediterranean Region 4. Chronic Disease 5. Health Planning Guidelines 6. Motor Activity I. Title II. Regional Office for the Eastern Mediterranean
ISBN: 978-92-9021-834-0 (NLM Classification: QT 235)
ISBN: 978-92-9021-836-4 (online)

Design, layout and printing by WHO Regional Office for the Eastern Mediterranean, Cairo

Contents

Preface

This user-friendly guide on promoting a healthy diet for the Eastern Mediterranean Region provides information on individual nutrients and food components and presents a set of recommendations for an overall pattern of eating that can be adopted by the general public in countries of the Region. The recommendations contained in this guide are compatible with the different cultures and eating patterns of consumers within the target population and are based on the availability of local and affordable foods which are widely consumed by the population.

The burden of disease associated with inadequate nutrition continues to grow in the Region. As in other developing countries, countries of the Region suffer from the double burden of under-nutrition and obesity, frequently termed "nutrition transition", which negatively impacts health systems. National nutrition policies and interventions are needed to address the two existing problems of under-nutrition and the spreading epidemic of obesity. The guide aims to address existing nutrient deficiencies and excesses and diet-related public health problems. Its development was based on the recommendations of a technical consultation on food-based dietary guidelines held in 2004, organized by WHO and the Food and Agriculture Organization of the United Nations.

Food choices are influenced by cultural, ethnic, social and familial factors, which can be incorporated into food-based dietary guidelines. Diets are more than mere collections of nutrients and the biological functions of food components and the benefits of consuming these compounds in foods and their health effects have not all been identified. The combination of nutrients in various foods can have different metabolic effects. Methods of food processing and preparation influence the nutritional value of foods. There is much evidence from animal, clinical and epidemiological studies that particular dietary patterns are associated with a reduced risk of specific diseases and that food-based dietary guidelines can encourage such practices. Most important, food-based dietary guidelines are better understood by the public than nutrient-based recommendations.

This user-friendly guide is an essential tool to support national and regional strategies to improve nutrition outcomes and health in the Region. The guidelines are intended for use not only by policy-makers, health care providers, nutritionists and nutrition educators but also by other sectors, such as those involved with food distribution, food service and various nutrition programmes. They can be also used by schools, homes, cafeterias and businesses to improve the food choices of a range of consumers.

Acknowledgements

This publication is the product of contributions by several individuals and been developed jointly with the Food and Agriculture Organization of the United Nations, the World Food Programme and the Department of Nutrition and Food Science, American University of Beirut, with the active participation of all Member States through a series of technical consultations. The initial draft of this publication was prepared by Nahla Houalla, Professor and Chairperson, Department of Nutrition and Food Sciences, American University of Beirut, Lebanon. The draft was then reviewed by Haifa Madi, Director of Division of Health Protection and Promotion, WHO Regional Office for Eastern Mediterranean, Egypt, and Ayoub Eid Al-Jawaldeh, Regional Adviser, Nutrition, WHO Regional Office for Eastern Mediterranean, Egypt, who provided valuable technical input and direction. The main contributors to this publication are listed as follows: Ayoub Eid Al-Jawaldeh, Regional Adviser, Nutrition, WHO Regional Office for Eastern Mediterranean, Egypt; Kunal Bagchi, Regional Adviser, Nutrition, WHO Regional Office for South-East Asia, India; Fatima Hachem, Food and Nutrition Officer, Regional Office for the Near East, Food and Agriculture Organization of the United Nations, Egypt; Jalila El Ati, National Institute of Nutrition, Tunisia; Nisreen Omidvar, Assistant Professor, Faculty of Nutrition Sciences and Food Technology, Islamic Republic of Iran; and Leila Cheikh, Project leader, Intergrowth–21st, University of Oxford, United Kingdom.

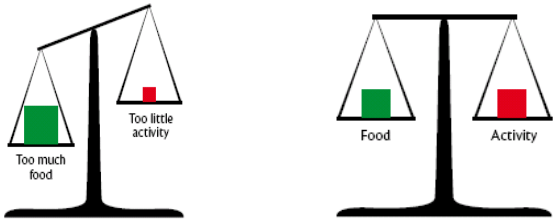
Introduction

The aim of this publication is to provide dietary advice and to promote health in the WHO Eastern Mediterranean Region and to reduce the risk of major chronic diseases through diet and physical activity. Chronic diseases that are linked to a poor diet and physical inactivity include cardiovascular disease, type 2 diabetes, hypertension, metabolic syndrome and certain cancers. Additionally, poor diet and decreased physical activity are the most important factors that contribute to the increase in overweight and obesity observed in some countries of the Region. The recommendations given here have been established after careful analysis of the scientific data on the link between diet, physical activity and health. The prevalence of overweight and obesity and the morbidity and mortality from major chronic diseases and deficiency disorders in the Region has been thoroughly reviewed and these data have been taken into account in formulating the regional nutrition strategy. Thus, these recommendations are tailored to correspond with the national conditions present and are adapted to the dietary needs of the population in countries of the Region. They are also in accord with the food choices and food preferences of the population and take into account the availability and cultural acceptance of foods in different countries.

The publication is intended for use by policy-makers, health care providers, nutritionists and nutrition educators. It is important to note that these recommendations should be integrated and implemented as a whole. They are to be used together when planning an overall healthy diet. However, even if just a few of the recommendations are followed, they can have health benefits.

1. Maintain a healthy body weight

Being underweight or overweight carries with it significant risk factors for diseases such as vitamin deficiencies, diabetes, cardiovascular disease and cancer. Most of the WHO Eastern Mediterranean Region is facing increasing prevalence of overweight and obesity. In fact, current prevalence rates of obesity in some countries are alarmingly high, particularly among females, placing them among the highest rates in the world. Lifestyle studies indicate an increase in energy consumption and decreased physical activity. Faulty dietary habits have also been noted in countries, such as increased intake of saturated fat and sugar and decreased intake of cereals, legumes, vegetables and fruits. At the same time, some countries in the Region still have a high prevalence of underweight, particularly among children, the highest rates being in Afghanistan, Sudan and Yemen (39.3%, 40.7% and 45.6%, respectively).



Weight increases | Weight stable

This section focuses on the achievement and maintenance of a healthy weight and on the prevention of weight gain. People with a healthy weight should strive to maintain it, while underweight individuals should try to increase their body weight. Boxes 1.1 and 1.2 provide key recommendations for overweight and underweight individuals, respectively. Box 1.3 highlights the benefits of a healthy body weight.

Box 1.1 Key recommendations for overweight individuals

- Maintain a healthy body weight and a normal body mass index (BMI) (Table 1.1).
- Balance calories from foods and beverages with energy expended.
- Aim for a calorie-lowering strategy.
  - limit the consumption of energy-dense foods such as high-fat foods and sugary foods (e.g. chocolate, pastries, Arabic sweets)
  - increase consumption of fibre-rich, low-energy foods such as raw vegetables, salads and pulses
  - opt for non-caloric beverages instead of sweetened drinks and regular soft drinks.
- Pay attention to portion sizes, as this can help limit energy intake.
- Aim for a slow, steady weight-loss programme by decreasing energy intake while ensuring an adequate intake of nutrients and increasing physical activity.
- To maintain weight loss, change lifestyle habits, i.e. decrease calorie intake and maintain physical activity.

Table 1.1 Weight classification according to BMI[1]

BMI value (kg/m^2)	
Less than 18.5	Low weight
18.5–24.9	Average weight
25–29.9	Overweight
More than 30	Obese

[1]BMI shows if weight is adequate for height and is obtained by dividing weight in kilograms by height in metres squared.

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

Box 1.2 Key recommendations for underweight individuals

- Maintain a healthy body weight and a normal BMI (Table 1.1).
- Balance calories from foods and beverages with energy expended.
  - a very low energy intake leads to an energy imbalance with disease consequences
  - nutrient-deficient diets can also lead to serious diseases such as coronary heart disease, osteoporosis, dementia and eye disease.
- Eat at least five small meals and snacks each day.
- Try to increase energy intake.
  - sweeten foods and beverages with sugar, jam, jelly or honey
  - add high-fat foods to meals and snacks (e.g. vegetable oil, mayonnaise, grated cheese)
  - choose foods high in protein (e.g. milk, eggs, cheese, meat, fish, poultry, beans)
  - drink healthy high-calorie beverages (e.g. whole milk, juice or shakes).

Box 1.3 Benefits of a healthy body weight

- Feeling and looking better
- Feeling energetic
- Lower risk of disease
- Improved overall health

2. Be active

Physical activity is an essential factor contributing to the maintenance of a healthy body weight and the prevention of chronic noncommunicable diseases such as type 2 diabetes, cardiovascular diseases and some types of cancer. Regular exercise burns calories and fat. The amount of calories burnt depends on the type and duration of the exercise. Lifestyle physical activities can include self-selected activities and incorporate leisure, occupational and household activities that can be conducted throughout the day.

There are high rates of physical inactivity in the Region and a lack of facilities and open areas for exercise and recreation. Children also have low activity levels and schools do not incorporate physical activity into the main curricula. Physical inactivity is linked to an increase in the prevalence of chronic noncommunicable diseases, which currently represent the major cause of adult premature death in the Region. The aim of this section is to encourage regular physical activity for all age groups. Box 2.1 provides key recommendations for increasing levels of physical activity; Box 2.2 highlights the benefits of physical activity; and Box 2.3 lists types of physical activity.

Box 2.1 Key recommendations

- Be active every day.
- Adults should engage in at least 30 minutes of physical activity of moderate intensity on most days of the week.
- The 30 minutes total need not be continuous and can add up throughout the day (through one or a combination of activities).
- Children and youths should engage in at least 90 minutes of activity every day.
- Reduce the time spent being physically inactive (e.g. watching television, playing computer games).
- For greater health benefits, increase the level of physical activity–this includes low-intensity (but long-duration) leisure pursuits, as well as moderate and vigorous exercise.
- For maintenance of body weight and prevention of weight gain, engage in activities of moderate to vigorous intensity (60 minutes most days of the week).
- For weight loss, engage in moderate-intensity exercise of longer duration (60–90 minutes daily).

Box 2.2 Benefits of regular physical activity (at least 30 minutes a day)

- Weight loss and/or weight maintenance
- Burning calories and fat
- Preventing noncommunicable diseases
- Improving blood circulation
- Strengthening muscles and joints
- Relieving stress and tension

Box 2.3 Types of physical activity

- Moderate intensity: brisk walking, cycling, weight-lifting, dancing
- High intensity: swimming, running/jogging, soccer, tennis, basketball, fast walking

Special population groups

For women over 50 years and men over 40 years and those with a history of chronic diseases, consult your health care provider before starting intense exercise

3. Limit intake of fats and oils

Fats are an essential component of the diet. They contain fat-soluble vitamins and essential nutrients. The type and amount of fat consumed is important. Fat contributes to energy density of the diet, leading to unhealthy weight gain, and depending on the type of fat, may have detrimental effects on blood lipids and cardiovascular disease risk. Fat intake has also been associated with the incidence of type 2 diabetes, hypertension and some types of cancer. Box 3.1 provides key recommendations for a healthier diet.

Food availability and consumption surveys reveal that fat intake is increasing in most countries of the Region. It is estimated that between 1969 and 2004, the daily intake of fat increased from 45 g per day to 65 g per day in the Region as a whole, with some intercountry variation. The contribution of vegetable oils to

Box 3.1 Key recommendations

- For cooking and raw consumption, choose predominantly unsaturated vegetable oils such as olive, sunflower, canola, corn and soy rather than animal fats, palm or coconut oil, hard margarine or clarified butter (ghee, *samna*).
- Try to include in your diet foods that are rich in omega-3 fatty acids, such as nuts, flaxseed, sardines, tuna and salmon.
- Use low- or reduced-fat milk (1%–2% fat) instead of full cream milk (4% fat).
- Choose low-fat yoghurt and labneh instead of full-cream varieties.
- Limit consumption of hard (full-fat) cheeses, such as kashkaval, which contain mostly saturated fat. Instead, look for low-fat cheese varieties such as akkawi, halloumi and reduced-fat cream cheese.
- Use cream and *qishta* only as an occasional luxury and choose reduced-fat varieties.
- Choose white meat over red meat.
- Choose lean cuts of meat and trim away the obvious fat before eating.
- Limit consumption of sausages (e.g. *makanik*), processed meats (e.g. *sujuk*, salami) and luncheon meats.
- Replace some of the meat with plant-based protein-rich foods, such as legumes and nuts.
- Avoid eating deep-fried foods, such as French fries, sambousik, falafel (*ta'miyya*) and Arabic sweets (e.g. *katayef*).
- Choose home-made pastry products; commercial pastries usually contain high amounts of trans or saturated fat.
- Eat only sparing amounts of chocolate and chocolate-containing confectionaries.
- Limit consumption of foods with creamy sauces and gravies, such as taratour and garlic mayonnaise.
- Consume a moderate amount of eggs; eat, at most, an average of one a day.

the daily energy supply in the Region ranges from 4% to 14%, whereas the contribution of animal fat to total fat intake ranges from 22% to 45%. Regional and national data have also shown that the prevalence of chronic noncommunicable diseases is rapidly increasing in the Region, with cardiovascular diseases imposing the highest morbidity burden.

The aim of this section is to limit the intake of total fat, particularly saturated fat, by replacing animal and hydrogenated fats with vegetable oils, such as olive oil and canola oil, as well as increasing the intake of omega-3 fatty acids through the regular consumption of nuts and fish. Box 3.2 provides tips to reduce fat intake.

Table 3.1 Alpha-linolenic acid[1] content of selected vegetable oils, nuts and seeds

Oils, nuts and seeds	Alpha-linolenic acid (g/tablespoon)
Flaxseed (linseed) oil	8.5
Flaxseed	2.2
Walnut oil	1.4
Canola oil	1.3
Soybean oil	0.9
Walnuts	0.7
Olive oil	0.1

[1]Alpha-linolenic acid is an omega-3 fatty acid.

Box 3.2 Tips to reduce fat intake

- In recipes, substitute shortening, lard, butter or hard margarine with oil or soft margarine.
- Limit the use of oil in salads such as fattouch and tabbouleh; spray olive oil rather than generously adding large quantities.
- Replace oil with vinegar or lemon juice for flavour.
- Bake, broil, grill or sauté foods instead of frying or deep frying.
- When frying, use a small amount of olive oil, canola oil or sunflower oil, not butter, lard or palm oil.
- Discard fat drippings from cooked meat.
- Discard the skin of chicken before cooking and before eating.
- Use grilled bread rather than fried bread in fattouch-like salads.
- As a spread for bread and for baking, choose olive oil, a good source of monounsaturated fatty acids, or canola oil, a good source of omega-3 fatty acids (Table 3.1). If not available, use low-trans-fat vegetable margarines (reduced-salt) rather than butter or hard margarine.

4. Limit intake of sugars, especially sweetened foods and beverages

High intakes of sugar compromise the nutrient quality of diets by providing significant energy without essential nutrients. High sugar consumption is associated with development of dental caries; moreover, diets high in added sugars can result in unhealthy weight gain.

Food consumption surveys in the Region suggest that a considerable proportion of the population consumes excessive amounts of sugar. The prevalence of dental caries among children and adolescents in most countries of the Region is high and is associated, at least in part, with high sugar consumption. Box 4.1 provides key recommendations for limiting the intake of sugar.

The aim of this section is to promote care and moderation in the consumption of sugar and sugar-containing foods and beverages. Box 4.2 lists foods and drinks that contain the most added sugar in diets of the Region.

Box 4.1 Key recommendations

- Eat sweets such as Arabic sweets, cakes and biscuits only as an occasional treat.
- Consume only moderate amounts of sugars, such as spreading some jam or honey on bread.
- Choose fresh fruits or dried fruits such as dates, dried apricots and raisins instead of snacks that are high in added sugars (e.g. soft drinks and confectionery).
- Choose cereal-based snacks instead of cakes, biscuits, cookies, *baklava*, *knafeh* and confectionery, which are high in both sugar and fat.
- Use non-nutritive sweeteners as substitutes for sugars in tea and coffee.
- Drink fresh juices (e.g. orange, grapefruit, strawberry) instead of sweetened beverages such as *jellab*, *tamir hindi* or sweetened lemonade.
- Choose carbonated beverages with non-nutritive sweeteners.
- Cook puddings such as *muhallabiya* and *mughli* using a small amount of sugar or cook with sugar substitute.

Box 4.2 Foods and drinks that contain the most added sugar in diets of the Region

- Regular soft drinks
- Sweetened fruit drinks (e.g. *jellab*, *tamr hindi*, *amar il deen*)
- Cakes and pastries
- Cookies such as sesame cookies (*barazii'*) or cardamom cookies (*hadji badah*)
- Arabic sweets (e.g. *baklava, knafeh, qashta, katayef, malban, umm ali, ma'amounia, basbousa*)
- Sweetened jams
- Milk-based desserts and products (e.g. *muhallabiya, mughli, riz bi haleeb, sahlab, halawa halib*)
- *Halaweh*

5. Limit salt intake

Increase in blood pressure is associated with an increase in the risk of stroke and ischaemic heart disease. There is good evidence that a reduction in dietary sodium intake will reduce the mean population blood pressure, as well as the prevalence of hypertension. Data from food composition tables indicate that the amount of sodium in the diet of most countries in the Region is high and that an increasing trend in the levels of sodium in foods is documented. Increasing levels of hypertension, stroke and cardiovascular diseases are also reported in the Region.

The aim of this section is to encourage the reduction of salt in the diet. Boxes 5.1 and 5.2 provide key recommendations and tips to reduce salt intake, respectively.

Table 5.1 Range for sodium content in selected foods (USDA, 2005)

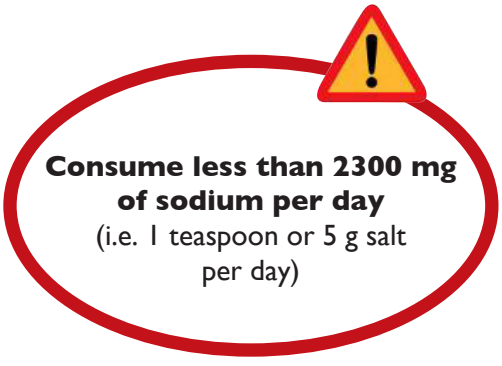
Food group	Serving size	Range (mg)
Pizza, plain, cheese	115 g	450–1200
Tomato juice	240 g (about 1 cup)	340–1040
Potato chips	30 g	120–180
Breads, all types	30 g	95–210
Frozen vegetables, all types	½ cup	2–160

Box 5.1 Key recommendations

- Choose and prepare foods with little salt and make sure the salt you use is iodized.
- Consume fresh foods, foods normally processed without salt and low-salt or no-added-salt groceries.
- Choose low-salt foods with sodium content less than 120 mg per 100 g.
  - Fruit, vegetables, meat, milk and yoghurt are below this sodium limit
  - Most manufactured foods are well above the limit
  - Breads have sodium content typically as high as 400–725 mg per 100 g; however, "salt-free" bread can be found.
- Read labels, compare sodium contents of foods and purchase lower sodium options.
- Table 5.1 gives examples of the range of sodium content in selected foods.

Note 1: Salt substitutes containing potassium chloride may be useful for some individuals. However, they may be harmful to those with certain medical conditions. A health care provider should be consulted before trying salt substitutes.

Note 2: Iodized salt is important for growth and brain development.



Box 5.2 Tips to reduce salt intake

- Do not place the salt shaker on the table. Table salt is the main source of sodium in people's diet.
- Limit consumption of cheeses high in salt, such as *bulghari* and *shankleesh*.
- Soak high-salt white cheeses (e.g. halloumi, *akkawi*) in water before consumption to remove excess salt.
- Avoid consumption of pickled vegetables (e.g. pickled cauliflower, pickled cucumber, pickled turnip, *makdoos*).
- Avoid fast foods and processed foods, such as ready-made dishes, processed creamy cheese and traditional pie products (e.g. *manakeesh* thyme, *manakeesh* cheese, *manaekesh kishk*, *fatayer, sambousik,* pizza) as they have a high salt content.
- Avoid using canned, ready-made tomato paste while cooking; instead use fresh tomato sauce.
- Avoid using ketchup, mustard and other ready-made sauces.
- Limit *zaatar* consumption, unless prepared with a low salt content.
- Avoid using canned vegetables, and if you do, wash them with water several times to decrease salt content.
- Limit consumption of canned meats and cold meat cuts (e.g. *sujuk, makanik*, luncheon meat) as they contain high levels of salt.
- Avoid consuming potato chips and crackers prepared with high levels of salt.
- Consume unsalted nuts and seeds.
- For taste, use other ingredients such as vinegar, lemon, spices, garlic, onion and herbs.

When eating out, use the pepper shaker rather than the salt shaker

Special population groups

Individuals with hypertension, middle-aged and older adults should aim to consume no more than 1500 mg of sodium per day and should consume potassium-rich foods, such as fruits and vegetables

6. Eat a variety of foods every day

A diet based on a wide range of foods may ensure that essential nutrients are supplied in adequate amounts and may protect against vitamin and mineral deficiencies, as well as some chronic noncommunicable diseases. Studies have documented an inverse relationship between increased dietary diversity and micronutrient deficiencies, cancer, cardiovascular disease and all causes of mortality. This may be achieved through a reduced intake of foods rich in fat and salt, and an increased consumption of protective nutrients such as phytochemicals, antioxidants and fibre. Box 6.1 provides key recommendations for a healthier diet.

There has been considerable progress in food production and processing in the Region and thus the average consumer has access to a constantly increasing variety of fresh, processed, mixed and prepared foods. However, appropriate food choices are not always made by individuals, and in some cases, access to a varied diet may be compromised. The situation in the Region can be described as having some food insecurity in some population groups, with persistence of micronutrient deficiencies and an increasing prevalence of chronic noncommunicable diseases. Amounts of various food groups that are recommended (per day or per week) are shown in Table 6.1 based on a 2000 kcal (8.4 MJ) level of daily intake.[1]

Iron deficiency is the most frequent micronutrient deficiency in the Region, affecting 63% of children under 5 years. Iron deficiency and its associated anaemia have been shown to affect brain development in infancy, retard growth and impair cognitive performance; they are also associated with premature delivery, low birth weight and increased morbidity and mortality in women. This emphasizes the importance of increasing iron dietary intake in the Region through the consumption of a varied diet and the inclusion of iron-rich foods. Box 6.2 provides tips to increase iron intake and Table 6.2 provides examples of iron-rich foods.

Box 6.1 Key recommendations

- Choose a variety of vegetables from all vegetable subgroups (e.g. dark green, orange, legumes, starchy vegetables) several times per week.
- Choose from the different fruit groups (e.g. citrus, berries, melons, stone fruits).
- Consume wholegrain products every day.
- Consume 3 cups per day of fat-free or low-fat milk, or low-fat milk products such as *labneh*, yogurt, *muhallabiya* or low-salt yogurt drink.
- Choose nutrient-dense foods from each food group and decrease intake of less nutrient-dense foods to stay within energy needs.
- Limit the consumption of foods that are rich in added sugar, saturated fats (i.e. animal fat) and trans fats, which are typically foods of low nutrient density.
- Select low-fat varieties within each food group; this helps avoid overconsumption of energy and food components such as total fat, saturated fat and cholesterol.

[1] This is based on the USDA Dietary guidelines for America, which considers 2000 calories (8.4 MJ) appropriate for most sedentary men aged 51–70 years, sedentary women aged 19–30 years and for some other gender/age groups who are more physically active.

Box 6.2 Tips to increase iron intake

- Consume adequate amounts of food groups rich in iron, including meat and poultry, dark green vegetables and pulses (Table 6.2).
- Lean meat and poultry are rich sources of haem iron.
  - red meat can be eaten 1–2 times per week
  - poultry can be eaten 2–3 times per week
- Avoid drinking tea or coffee with meals (wait approximately 2 hours before having tea or coffee after a meal).
- Eat more dark green vegetables (e.g. spinach, *molokhiya*) and make sure to include a source of vitamin C (e.g. lemon juice, orange juice) or some form of meat in the same meal in order to enhance the absorption of iron from plant-based dishes.
- Consume pulses (e.g. lentils, fava beans, beans, chickpeas) at least three times per week and make sure to include a source of vitamin C or some form of meat in the same meal.
- Consume iron-fortified breakfast cereals.

A high prevalence of vitamin D deficiency is also documented in the population of the Region, ranging from 46% to 83% and with even higher estimates among veiled women (50%–62%). Vitamin D status depends on both dietary intake and cutaneous synthesis and has been reported to be inadequate even in sunny countries of the Region. Vitamin D deficiency is a risk factor for osteoporosis and can lead to bone fragility and increased risk of fractures. Osteoporosis poses a heavy financial burden in the Region and this is expected to further increase due to the steady growth of the ageing population. Thus, a substantially higher vitamin D intake has been recommended to ensure adequate vitamin D status.

Other micronutrient deficiencies, such as deficiencies in vitamin A, vitamin C, iodine, niacin and thiamine, have also been documented in some countries of the Region. Vitamin B12, zinc and folic acid deficiencies may also be of concern, particularly in certain population groups such as strict vegetarians and women of childbearing age.

The aim of this section is to ensure that the diet contains adequate amounts of essential nutrients, such as vitamins, minerals and phytochemicals. As dietary diversification increases, it is essential to reduce serving sizes of each food consumed to avoid overconsumption of energy. The recommendations should therefore be interpreted as promoting the consumption of nutrient-dense foods rather than unhealthy calorie-rich, nutrient-depleted foods.

Table 6.1. Recommended amount of various food groups (USDA, 2005)

Food group and subgroups	Recommended amounts	Single serving amount	Examples
Fruit group	2 cup equivalents[a] (4 servings) per day	1 serving is equal to:	
Fresh fruit		½ cup fresh fruit 1 medium fruit ½ cup of fresh fruit juice	Oranges and other citrus fruits, bananas, peaches, pears, watermelons, strawberries
Dried fruit		¼ cup dried fruit	Dried dates, dried raisins, dried apricots, dried plums, dried figs
Vegetable group	2½ cup equivalents (5 servings) per day	½ cup is equivalent to:	
Dark green vegetables	3 cups per week	½ cup of cut-up raw or cooked vegetable 1 cup raw leafy vegetable ½ cup of vegetable juice	Spinach, *molokhiya*
Orange vegetables	2 cups per week		Carrots
Legumes (dry beans)	3 cups per week		Fava beans, lentils, beans, chickpeas
Starchy vegetables	3 cups per week		Potatoes
Other vegetables	6.5 cups per week		Salad vegetables such as lettuce, cabbage, cucumbers, tomatoes
Grain group	180 g equivalents per day	30 g is equivalent to:	
Whole grains	90 g equivalents per day	1 slice bread	Brown bread, *markouk* bread, *tannour* bread
		1 cup dry cereal	Whole breakfast cereals (unsweetened)
		½ cup cooked rice, pasta, bulgur, cereal	Whole rice, wholewheat pasta
Other grains	90 g equivalents per day		White bread, toast, rice, wheat, breakfast cereals (unsweetened), *ka'ak* (unsweetened, unsalted), *bulgur*
Meat and beans	160 g equivalents per day	30 g is equivalent to:	
		30 g cooked lean meats, poultry, fish	Lean meat, chicken breast, grilled or baked fish
		1 egg	Boiled egg
		¼ cup cooked dry beans	Lentil-based dishes (*mujaddara, koshari*), chickpeas (hommos balila), fava beans (*ful moudammas*), broad beans, red beans (e.g. red bean stew)
		15 g nuts or seeds	Unsalted nuts and seeds

Table 6.1. Recommended amounts of various food groups (cont.)

Food group and subgroups	Recommended amounts	Single serving amount	Examples
Milk group	3 cup equivalents per day	1 cup is equivalent to:	
		1 cup low-fat or fat-free milk, yogurt	Low-fat or fat-free yogurt, low-fat milk
		45 g low-fat or fat-free natural cheese	Low-fat traditional white cheeses: *akkawi*, halloumi, cream cheese, labneh
		60 g low-fat or fat-free processed cheese	Low-fat processed cheese
		8 tbsp of low-fat *labneh*	Low-fat *labneh*
Oils	24 g (6 tsp) per day	1 tsp is equivalent to:	
		1 tsp olive oil, canola oil or other vegetable oil 1 tbsp low-fat mayonnaise 2 tbsp light salad dressing 1 tbsp soft margarine	Olive oil can be eaten raw (e.g. in salads, with *labneh*) and can be used in cooking
Discretionary calorie allowance	267 kcal (1.1 MJ) per day		
Solid fat	18 g	–	Butter, lard
Added sugars	8 tsp	1 tbsp added sugar equivalent is: 1 tbsp jam or honey 1 cup lemonade	

tsp: teaspoon; tbsp: tablespoon
a cup = 240 ml.

Special population groups
Strict vegetarians

- Include a variety of plant-based protein sources to ensure adequate intake of amino acids, iron, zinc and vitamin B12.
- Increase bioavailability of iron from plant sources by adding vitamin C-rich foods to meals.
- Vitamin B12 is found only in animal products and may need to be consumed from enriched foods or supplements.
- Include a higher proportion of legumes and nuts to provide needed nutrients, including iron and protein.

Table 6.2 Examples of iron-rich foods

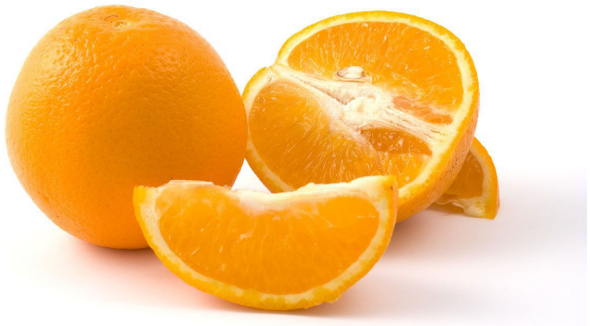
Foods	Iron (mg)
Organ meats (liver, giblets), various, cooked (90 g)	5.2–9.9
Pumpkin and squash seed kernels, roasted (30 g)	4.2
White beans, canned, ½ cup (120 ml)	3.9
Lentils, cooked, ½ cup (120 ml)	3.3
Spinach, cooked from fresh, ½ cup (120 ml)	3.2
Kidney beans, cooked, ½ cup (120 ml)	2.6
Sardines, canned in oil, drained (90 g)	2.5

Special population groups
Women of childbearing age

Daily intake of 400 µg folic acid per day decreases the risk of anaemia and neural tube defects in newborn infants.

Sources of folic acid are:

- synthetic folic acid (from fortified foods or supplements)
- fruits (e.g. oranges and orange juice)
- dark leafy green vegetables (e.g. spinach)
- cooked dry beans and peas.



7. Eat cereals, preferably whole grains, as the basis of most meals

Recent reviews have supported the beneficial effects of cereal fibre and whole grains in relation to decreased risk of noncommunicable diseases, such as coronary heart disease and some types of cancers. Data from several countries suggest that higher intakes of breads and cereals help people achieve dietary targets for lower fat consumption. Cereals are a major source of fibre in the diet, which is important for colon health.

Box 7.1 Key recommendations

- Consume whole rice, pasta, noodles or bulgur with hot dishes such as vegetables stuffed with rice and meat (e.g. stuffed zucchini, stuffed eggplant, stuffed grape leaves) and vegetable-based stews that are usually consumed with rice (e.g. bean stew, okra stew, *molokhiya* stew), as well as *bulgur*-based dishes (e.g. *burghol bi banadura, freekeh*).
- Consume wholewheat bread with most meals (e.g. *markouk, tannour* or new commercial varieties prepared with bran).
- Choose grain-based snacks: examples include wheat-based deserts (e.g. *kamhyeh, smeed*), sandwiches prepared with wholewheat bread (e.g. *labneh* sandwich, cheese sandwich, thyme sandwich) and popcorn.
- Avoid cakes, biscuits and pastries, which can have high levels of added fats and sugars.
- Choose cereal products with a lower GI value, such as wholegrain breads and pasta (Box 7.2).

Cereals and cereal-based products are among the principal staple foods in most countries in the Region. However, there has been a consistent decline in the consumption of these products over the years. This decrease has been accompanied by a rise in the dietary intake of fat by the general population. At the same time, an increasing trend in the incidence of chronic noncommunicable diseases is documented in many countries of the Region.

The aim of this section is to emphasize the importance of cereals as a major component of the diet and to encourage consumption of wholegrain cereals, which generally are higher in dietary fibre and have a lower glycaemic index (GI). Boxes 7.1 and 7.3 provide key recommendations for increasing consumption of wholegrain cereals.

Recommended intake (based on a 2000 kcal [8.4 MJ] diet)

- For a healthy diet, the greatest proportion of food should come from wholegrain breads, cereals, rice, pasta and noodles.
- It is recommended to consume six servings of cereals per day.

Box 7.2 Glycaemic index of foods

Lower GI diets may possibly be protective against both diabetes and heart disease and may help with weight control.

- Low GI foods (GI value of 55 or less)
  - 100% stone-ground wholewheat bread
  - heavy mixed-grain bread
  - bran cereals
  - parboiled or converted rice
  - bulgur
  - pasta/noodles
  - sweet potato
  - legumes: lentils, chickpeas, kidney beans, soy beans.
- Medium GI foods (GI value of 56–69)
  - wholewheat bread
  - basmati rice
  - brown rice
  - couscous
  - sweet corn
  - popcorn.
- High GI foods (GI value of 70 or more)
  - white bread
  - bran flakes/corn flakes
  - short-grain rice
  - baked potato
  - French fries
  - *ka'ak*.

Box 7.3 Tips to eat more whole grains

- Substitute a wholegrain product over a refined one, such as brown rice stuffing in zucchini or brown pitta bread instead of white.
- Use whole grains in mixed dishes such as *bulgur* or *freekeh* in vegetable stews or *kibbeh* (mixed meat and *bulgur*).
- Add oatmeal to daily breakfast instead of bread or toast.
- Choose *ka'ak* or pitta bread made of whole grains such as *aysh baladi* rather than *aysh shami*.
- Eat low-sugar, low-salt *ka'ak* as snacks; *ka'ak bi halib* (*ka'ak* with milk) can be an excellent source of carbohydrate and calcium for children.
- Snack on ready-to-eat wholegrain cereals, such as toasted oat cereal.
- Popcorn, a whole grain, can be a healthy snack as long as little or no salt or butter are added.

1 serving equals:

- ¼ loaf of Arabic bread
- 1 slice of bread
- ½ cup of cooked rice, pasta, noodles or bulgur
- 30 g ready-to-eat cereal

8. Eat more vegetables and fruit every day

Regular consumption of fruit and vegetables is associated with a substantially lower risk of coronary heart disease, stroke, several major cancers, type 2 diabetes mellitus, cataract and macular degeneration of the eye, and possibly hypertension. The protective effects of these foods are mediated through numerous beneficial nutrients, including antioxidants, vitamins, minerals, phytochemicals and fibre.

Box 8.1 Key recommendations

- Choose from a wide variety of vegetables.
  - green leafy vegetables (e.g. spinach, *molokhiya*, chicory leaves)
  - orange vegetables (e.g. carrots, peppers)
  - crucifers (e.g. cauliflower, cabbage)
  - starchy vegetables (e.g. potatoes)
  - salad vegetables (e.g. lettuce, tomato, cucumber).
- Choose from a wide variety of fruits (e.g. melons, berries, citrus and exotic fruits).
- Eat vegetables and fruits raw as often as possible.
- Eat at least one dark green and one orange vegetable each day.
- Choose vegetables and fruits prepared with little or no added fat, sugar or salt.
- Choose whole vegetables and fruits more often than juice.
- Eat fresh fruits and vegetables more often than canned or dried fruit.
- Dried fruits are high in fibre and more energy dense, therefore consume modestly.
- Canned fruits and vegetables are usually prepared with high sugar and salt content, so consume sparingly.

Box 8.2 Tips to increase vegetable intake

- Buy fresh vegetables in season.
- Vary vegetable choices.
- Stock up on frozen vegetables for quick and easy cooking.
- Eat more green salads (e.g. fattouch, tabbouleh, green thyme salad, cabbage salad).
- Eat raw vegetables as snacks with low-fat dip.
- Eat more vegetable-based dishes such as okra stew, green bean stew, *molokhiya* stew and mixed vegetables sauté.
- Grill vegetables (e.g. tomatoes, onions, mushrooms, green peppers) as part of a barbeque meal.
- Decorate plates with slices of colourful vegetables.

Box 8.3 Preparing fruit and vegetables

- To preserve nutrients, do not overcook vegetables.
- Stir-frying, light microwaving and steaming rather than boiling are effective methods of cooking vegetables; this minimizes nutrient loss and provides a tasty product.
- Use a small amount of oil to enhance absorption of fat-soluble vitamins (e.g. vitamins A and E) and carotenoids.
- Use fresh or dried herbs, garlic, spices, flavoured vinegars or lemon juice instead of salt to add flavour to vegetables.

National studies have reported low consumption of fruits and vegetables in the Region. An assessment of fruit and vegetable intake in nine countries in the Region (Egypt, Iraq, Islamic Republic of Iran, Jordan, Kuwait, Lebanon, Pakistan, Saudi Arabia and Syrian Arab Republic) revealed that 70% of the adult population (15–65 years) consume less than the recommended five servings per day. In view of the rising prevalence of cardiovascular disease, diabetes and obesity among the population in the Region, recommending an increase in the consumption of fruits and vegetables may have favourable positive effects in controlling the incidence of such diseases and conditions. It will also help in controlling micronutrient deficiencies prevailing in the Region.

This section aims to promote the consumption of fruits and vegetables and presents suggestions for the incorporation of these foods into the daily diet. Box 8.1 provides key recommendations for increasing the consumption of fruits and vegetables; Box 8.2 provides tips to increase the intake of vegetables; Box 8.3 provides tips on the best way to prepare fruits and vegetables; and Box 8.4 provides tips to increase the intake of fruits.

Recommended daily intake (based on a 2000 kcal [8.4 MJ] diet)

- 2 cup equivalents of fruits; and
- 2 ½ cup equivalents of vegetables.

Box 8.4 Tips to increase fruit intake

- Buy fresh fruit in season.
- Vary fruit choices, as fruits differ in nutrient content.
- Keep a bowl of whole fruit on the table, kitchen counter or in the refrigerator.
- Sprinkle fresh cut-up fruit (e.g. bananas, strawberries) or dried fruits (e.g. raisins, dates) on top of cereal or yogurt.
- Cut-up fruit or dried fruit makes a good snack and is easy to pack.
- For dessert, have baked apples, pears or a fruit salad.
- Choose dried fruits without added sugar or chocolate, such as *madgooga* (date truffles).
- Cook meat-based dishes with fruits (e.g. *kafta bil karraz, kafta mishmisheya*).

1 cup equivalent of vegetables equals:

- 1 cup cooked spinach
- 1 cup green peas
- 1 cup cooked zucchini
- 1 cup cooked or raw mushrooms
- 1 cup cauliflower
- 2 medium carrots
- 1 cup cucumber, sliced
- 1 large tomato
- 2 cups raw leafy greens (e.g. endive, romaine, iceberg lettuce)

1 cup equivalent of fruit equals:

- 1 cup (240 ml) 100% fruit juice
- ½ cup dried fruits (e.g. raisins, prunes, apricots)
- 1 small apple
- 1 small banana
- 32 grapes
- 8 large strawberries
- 1 large orange
- 1 large peach
- 1 medium pear
- 1 small wedge of watermelon

9. Eat legume-based dishes regularly and choose unsalted nuts and seeds

Legumes are rich sources of carbohydrates, vegetable protein, dietary fibre, oligosaccharides, phytochemicals and minerals, including iron. The dietary fibre present in legumes includes soluble components, which help lower cholesterol and blood glucose concentrations, and insoluble components, which improve gastrointestinal function because of their bulking properties, hydration capacity and fermentability. Nuts and seeds have been shown to have a fatty acid profile that can favourably affect blood lipids and thus decrease the risk of cardiovascular disease.

Legume-based dishes and nuts and seeds are among the traditional and most popular types of food in the Region. However, despite their relative popularity, consumption of pulses and nuts is decreasing in most countries. Increasing the consumption of legumes, nuts and seeds (unsalted) may have favourable effects on noncommunicable diseases, which are steadily increasing in the Region. Legumes and some seeds (e.g. pumpkin seeds) are a good source of iron. This is highly important in view of the persistence of iron deficiency anaemia in the Region.

This section aims to encourage the consumption of legumes, nuts and seeds. Boxes 9.1 and 9.2 provide key recommendations for increasing their consumption.

Box 9.1 Key recommendations

- Consume legume-based dishes regularly (e.g. red bean stew, lima bean stew).
- Prepare legume-based dishes such as lentils, fava beans and chickpeas with an iron absorption enhancer such as vitamin C (e.g. orange juice) or some meat.
- Choose unsalted nuts and seeds.
- Choose raw or roasted nuts and seeds rather than fried.

Box 9.2 Tips to increase legume consumption

- Vary the types of beans and lentils.
- Top a salad with beans and nuts or seeds.
- Top rice dishes with a small amount of toasted pine nuts and cashew nuts (e.g. dishes such as *mansaf*).
- Consume dishes such as *balila, fatteh, ful moudammas* and red kidney bean *tashrib*.
- Consume *mujaddara* and *mudardara* types of dishes, which combine legumes and rice.
- Add nuts to breakfast cereal.
- Prepare falafel (*ta'miyya*) with limited amount of oil and bake instead of deep frying.

1 serving is equivalent to:

- ¼ cup cooked dry beans and peas (e.g. chickpeas, fava beans, lentils, split peas);
- 15 g nuts:
  - 12 almonds
  - 24 pistachios
  - 7 walnut halves.
- 15 g seeds (e.g. pumpkin, sunflower, squash).

Recommended daily intake (based on a 2000 kcal [8.4 MJ] diet)

160 g of meat and meat substitutes (i.e. legumes, nuts, seeds)

10. Eat fish at least twice a week

Fish contains protein in quantities equivalent to those in red meats and poultry and is also a valuable source of iodine. Fish, particularly oily fish, is a very rich source of omega-3 polyunsaturated fats, which are recommended for adequate brain development in children and prevention of cardiovascular disease. Consumption of fish is associated with several favourable effects, including lower coronary heart disease, mortality rate and reduced all-cause mortality.

Data suggest that in most countries of the Region consumption of fish is lower than the minimum recommended two servings of fish per week. In view of the increasing prevalence of noncommunicable diseases, particularly cardiovascular disease, in the Region the consumption of fish, especially fatty fish, should be promoted as a way of reducing the risk of coronary heart disease. Also fish, as a good source of iron, would help to reduce iron deficiency, which is a major problem in some countries of the Region.

The aim of this section is to promote the consumption of fish at least twice a week. Boxes 10.1 and 10.2 provide key recommendations and tips to increase the intake of fish.

Box 10.1 Key recommendations

- Consume at least two meals of fish (180 g) per week to achieve adequate intake of omega-3 fatty acids (Table 10.1).
- Bake or grill fish instead of frying.
- Preferably, select fatty types of fish, such as salmon, tuna, sardines and herring.
- Consume a variety of fish to minimize any potentially adverse effects due to environmental pollutants.
- For those who do not eat fish, have limited access to a variety of fish or cannot afford to purchase fish, a fish oil supplement may be considered.

Table 10.1 Amount of fish required to provide approximately 1 g of omega-3 fatty acids per day

Type of fish	Amount required to provide approximately 1 g of omega-3 fatty acids[1] per day (g)
Mackerel	60–250
Tuna, white, canned in water, drained	120
Salmon, Atlantic, wild	60–100
Sardines	60–90
Salmon, Atlantic (farmed)	45–75
Herring	45–60
Flounder/sole	2–10

[1]Docosahexaenoic acid and eicosapentaenoic acid.
Source: Kris-Etherton et al., 2002.

Box 10.2 Tips to increase fish intake

- Wrap a fish fillet along with vegetables and herbs in parchment paper or aluminum foil and bake in the oven.
- Include fish in pasta- or rice-based dishes (e.g. *sayadieh, samkeh harra, masgouf*).
- Pack a tuna or salmon salad sandwich for lunch at school or work.
- Buy fresh or frozen fish.
- When dining out, order the catch of the day.
- Choose fish seasoned with herbs and lemon.

Omega-3 sources:

- fish such as salmon, trout, herring
- plant sources (e.g. walnuts, flaxseed, purslane, soybean oil, canola oil).

11. Consume milk/dairy products daily (preferably low fat)

Apart from being important contributors of protein, vitamin A, riboflavin, vitamin B12 and zinc, milk and dairy products are the richest source of calcium. Calcium is important for bone health and is required for all age groups. It plays an essential role in attaining peak bone mass and in preventing osteoporosis and has a potential role in promoting dental health. Box 11.1 provides key recommendations for increasing calcium intake.

Overall, food consumption surveys conducted in the Region indicate that the intake of milk and dairy products is increasing over the years. However, deficiencies of several micronutrients persist, including calcium, vitamins A, D, B12 and zinc. Osteoporosis prevalence is expected to increase among the population in the Region and oral health has been shown to be deteriorating in many countries of the Region, with dental caries affecting 60%–70% of children. Box 11.2

Box 11.1 Key recommendations

- Consume 3 cups of low fat yogurt or milk per day.
- Choose and consume calcium-enriched milk if available.
- Consume natural yogurt instead of salted yogurt-based drinks (*laban ayran*), which can be very high in salt.
- Choose and consume low-fat varieties of cheeses (e.g. low-fat halloumi, low-fat cream cheese, low-fat *akkawi*) (Table 11.1).
- Avoid the consumption of caffeine with dairy products, as this tends to decrease the absorption of calcium.
- Limit intake of salt since excessive salt intake is associated with increased calcium excretion.

Box 11.2 Tips to increase milk and dairy products consumption

- Include milk as a beverage at meals.
- Ask for cappuccinos and lattes prepared with low-fat or fat-free milk.
- Use low-fat evaporated milk instead of cream or coffee whitener in coffee or tea.
- Use fat-free or low-fat milk when preparing cream soups, scrambled eggs, hot cereals and casseroles.
- Make a dip for fruits and vegetables from yogurt.
- Make fruit yogurt smoothies in a blender.
- For desert, make *muhallabiya* or rice pudding or *sahlab* with fat-free or low-fat milk.
- Top casseroles, soups, stews or vegetables with shredded low-fat cheese.
- Top cut-up fruit with flavoured yogurt for a quick desert.

Recommended daily intake (based on a 2000 kcal [8.4 MJ] diet)

3 cup equivalents of milk and dairy products

Table 11.1 Fat content of some regular and reduced-fat white cheeses

Dairy product	Full fat (g/100 g)	Low fat (g/100 g)	No fat (g/100 g)
Akkawi cheese	14–22	12–16	3.4
Cream cheese	11–25	–	2.9
Halloumi	21–24	11–25	3.3
Labneh	3–11	4–7.5	0.1–0.6

Source: Abou Jaoude, 2005.

provides tips to increase the consumption of milk and dairy products.

The aim of this section is to promote daily consumption of at least three servings of dairy products. However, it should be noted that low-fat milk and dairy products should be chosen in order to prevent further escalation of obesity and other noncommunicable diseases in the Region.

1 cup equivalent of milk is equal to:

- 1 cup liquid milk
- ½ cup evaporated milk
- 1 cup yogurt
- 45 g natural cheese
- 60 g processed cheese
- 8 tablespoons *labneh*
- 1 cup milk-based pudding such as *muhallabiya* or rice pudding or *sahlab*
- 1½ cup ice cream.

Special population groups
Vegetarians

- Find an alternative source of calcium such as:
  - calcium fortified juices, cereals, or breads
  - canned fish (e.g. sardines, salmon with bones) soybeans and other soy products (e.g. soy-based beverages, soy yogurt)
- Consider calcium supplements (Table 11.2 gives calcium content of common dairy products).

Lactose intolerance

- Choose lactose-free milk and other dairy products, if available.
- Choose dairy products with least content of lactose (Table 11.2).
- Substitute the following foods in terms of calcium equivalents for one serving:
  - 1 cup of almonds
  - 5 sardines or ½ cup of pink salmon with bones
  - 1 cup of calcium-fortified breakfast cereal.

Table11.2 Lactose and calcium content of common dairy products

Dairy products	Calcium content (mg)	Lactose content (g)
Halloumi cheese, 100 g	729	0.7–1.2
Akkawi cheese, 100 g	463	0.5–1.2
Yogurt, plain, low fat, 1 cup	448	8.4
Full-fat cream cheese, 100 g	377	0.7–1.2
Milk, reduced fat, 1 cup	285	12.2
Milk, whole (3% fat), 1 cup	276	12.8
Cheddar cheese, 30 g	204	0.07
Cottage cheese (*arisheh*), 1 cup	135	1.4
Ice cream, vanilla, ½ cup	92	4.9
Labneh, 100 g	79	0.0–0.2

Source: Abou Jaoude, 2005.

12. Choose poultry and lean meat

Meat and poultry are the best sources of high-quality dietary protein and are valuable sources of essential micronutrients, including iron, zinc and vitamin B12. Box 12.1 provides key recommendations to increase the consumption of poultry and lean meat.

An increasing trend in the consumption of meat is observed in countries in the Region and is documented by the consistent increase in total available protein, and in particular, animal protein since 1969. However, iron deficiency anaemia continues to be the main problem in some countries in the Region. In areas where underweight and iron deficiency anaemia is still prevalent, recommendations for a regular intake of meat and poultry should be made, with emphasis on low-fat products.

This section aims to promote the regular intake of poultry and lean meat.Box 12.2 provides tips to keep meat intake lean.

12.1 Key recommendations

- Select lean meat cuts.
- Choose extra-lean ground beef for shawarma, kebab and kofta preparation.
- Boneless skinless chicken breasts and turkey cutlets are the leanest poultry choices.
- Avoid the consumption of luncheon meats, smoked cold meat cuts (e.g. jambon, *basterma*), sausages (e.g. *makanik*) and canned meat as these can be high in salt and fat and carcinogenic compounds (nitrates).
- Adopt healthy cooking techniques such as grilling or baking instead of frying meat and poultry.

Box 12.2 Tips to keep meat intake lean

- Broil, grill, roast, poach or boil meat, poultry and fish instead of frying.
- Trim away all visible fat from meats and poultry before cooking.
- Drain off any fat that appears during cooking.
- Skip or limit the breading on meat, poultry or fish. Breading adds fat and calories.
- Choose and prepare foods without high fat sauces and gravies.
- Use extra lean lamb or beef when preparing traditional dishes such as *mansaf, quzi* (stuffed baby lamb).
- Prepare more dishes made with poultry and white lean meat.
- Limit intake of offal and dishes prepared with offal, such as *ghamee*, tripe stuffed with rice and chickpeas.

Special population groups
Vegetarians

- Find an alternative source of protein, iron and zinc such as:
  - a variety of legumes, nuts and seeds
  - wholegrain cereals and fortified varieties if available
- Drink orange or other fruit juice with meals to enhance absorption of iron and zinc from plant-based dishes.

Recommended daily intake (based on a 2000 kcal [8.4 MJ] diet)

160 g of meat and meat substitutes (i.e. eggs, legumes, nuts, seeds)

13. Drink lots of clean water

Water consumption is essential for the metabolism and for normal physiological functions. Water is required for digestion, absorption, transportation, elimination of waste products, thermoregulation, and acts as a solvent for nutrients. Drinking-water may contain different concentrations of calcium and magnesium, which contribute to meeting the recommended dietary intakes of these minerals. Bladder and breast neoplasms are among the major and most frequently encountered types of cancer in the Region. Adequate water intake may contribute, as indicated by some studies, to lowering the risk of these types of cancer, which can be of direct relevance to the population of the Region.

Available data suggest that water intake is declining at the expense of other beverages, such as soft drinks and sweetened juices. In most countries of the Region, the climate is usually hot and therefore drinking enough water is essential to avoid dehydration, especially in older adults, very young children and people engaging in physical activity. Dehydration causes physical and mental tiredness and in the long term may increase the risk of kidney stones.

The aim of this section is to encourage and promote fluid and water intake among all individuals and age groups in the population. Box 13.1 provides recommendations for drinking adequate amounts of water.

Box 13.1 Key recommendations

- Drink an adequate amount of water per day.
- Choose water over other types of drinks, such as coffee, tea, carbonated beverages and juices.
- Drink more water in hot weather and when very active.
- Make sure to drink clean tap water; if access to clean water is limited, opt for filtered or bottled water.

Recommended daily intake of liquids, preferably water

Adequate intake is set at:

- 3.7 litres for men
- 2.7 litres for women

Special population groups
The elderly

The elderly are more vulnerable to changes in body water and electrolyte imbalances due to:

- decline in cardiac and renal functions
- decreased thirst sensation
- increased use of diuretics, laxatives and other medications
- limited mobility.

Special population groups
Lactating women

- 0.75–1 litre fluid is needed above basic needs to account for fluids lost in breast milk.

Drink water with meals

14. Eat clean and safe food

Foodborne illness can have detrimental health effects, especially for vulnerable population groups, such as the elderly, people with compromised immune systems, pregnant women and children.

Available studies from different countries of the Region indicate that microbiological contamination of food may be considered a public health hazard in the Region. The incidence of foodborne illness can be considerably reduced by the proper handling of food during all stages of its preparation and storage.

This section focuses on microbiological aspects of food safety and practical matters related to safety precautions. Key recommendations for cleaning, purchasing, transportation and storage, as well as for the preparation, cooking and serving of food are given in Box 14.1. Box 14.2 provides tips for eating clean and safe food while travelling.

Box 14.1 Key recommendations

Cleaning

- Thoroughly clean work surfaces, crockery, cutlery, cooking utensils and other equipment by using warm water with detergent.
- Make sure that utensils and other equipment are thoroughly dry before reusing them.
- Make sure to frequently wash and dry kitchen towels, sponges and cloths and to replace sponges regularly. You can reduce the risk of cross-contamination by using paper towels, which by being disposable cannot harbour and spread bacteria.
- Keep appliances such as microwave ovens, toasters, can openers, and blender and mixer blades free of residual food particles.

Purchase, transport and storage

- Do not purchase food items that have defective packaging, that are improperly sealed or that show signs of spoilage.
- Do not purchase or consume the content of swollen or leaking cans and throw out the contents of any can if there is an unusual odour.
- Keep the purchasing of chilled and frozen foods until the end of a shopping trip to avoid warming or thawing of these products.
- Always read the label for storage instructions of purchased food items.
- Check the expiry date of packaged food before purchasing.
- When opening vacuum-sealed jars, make sure to listen for a popping sound, which indicates that the jar's seal was intact.

Box 14.1 Key recommendations *(continued)*

- Make sure that areas used for food storage, such as cupboards, are clean and that foods are stored in food-grade containers away from chemicals.
- Take care to store raw foods separately from ready-to-eat foods to prevent cross-contamination.
- Store frozen food in fully sealed packages to prevent "freezer burn", (i.e. the drying that occurs on the surface of a product and negatively affects its quality but not its safety).
- Store opened canned foods in the refrigerator, preferably not in the can.
- Store rehydrated foods in the refrigerator.
- Store dried food in a sealed container and in a cool, dry place away from direct heat or sunlight.
- Make sure that the refrigerator temperature is 5 °C or lower.
- Make sure to cover all cooked foods and to store them on a shelf above uncooked foods.
- Make sure to wrap raw meats or place them in a closed container and store them near the bottom of the refrigerator to prevent the dripping of meat juices on other foods.
- Make sure to regularly clean fridge and freezer shelves and doors and to immediately clean up incidental spills.
- Make sure that frozen food is kept hard frozen.
- Regularly inspect dried food for insect infestation.
- Make sure to eat leftovers and ready-to-eat meals within 1–2 days.

Box 14.1 Key recommendations *(continued)*

Preparation, cooking and serving

- Thoroughly wash hands with soap before starting to prepare food, giving attention to areas between fingers and under fingernails.
- After washing, thoroughly dry hands using a clean towel or a paper towel.
- Do not engage in food preparation if suffering from a foodborne illness, such as Salmonella.
- Thoroughly clean chopping board and utensils used for cutting up raw meat in hot soapy water before using them for preparing foods to be eaten raw (e.g. vegetables, fruits).
- Keep vegetables separate from raw meat, chicken and fish while shopping, preparing and storing.
- Make sure to thaw foods in the refrigerator or a microwave oven, using the defrost setting.
- When thawing raw meat, make sure meat juices do not contaminate other foods, containers or utensils.
- Thoroughly wash fruits and vegetables under running water before peeling and cutting. Rub vegetables briskly to remove dirt and dry after washing.
- When preparing green salads (e.g. lettuce-based or parsley-based salads) make sure to thoroughly wash leaves as these items are usually harder to clean.
- Do not partially cook products and finish cooking them later; meat, fish and poultry must be thoroughly cooked before storage in the refrigerator.
- Make sure to carefully select meat intended to be eaten raw and to consume it immediately.
- Make sure to limit the time during which cooked foods such as stews and other meat and poultry dishes are left at room temperature.
- Make sure to refrigerate milk-based deserts and to consume them in 1–2 days after purchase or preparation.
- Never serve cooked food in plates and utensils that have held raw meat, poultry or seafood.
- When reheating food, heat it until it is "steaming hot" throughout or boiling.
- Make sure to boil unpasteurized milk before consuming it.
- Avoid raw (unpasteurized) milk or any of its products.
- Avoid raw or partially cooked eggs or foods containing raw eggs.
- Do not reheat foods more than once.

Box 14.2 Travel tips

- Limit the consumption of raw foods such as salads, uncooked vegetables and fruit, unpasteurized milk and milk products, raw meat, shellfish, lightly cooked (runny) eggs, and foods containing raw egg, which may be particularly contaminated.
- Buy bottled water for drinking and for cleaning teeth. In eating establishments ask that beverages be served without ice.

Special population groups
Pregnant women

Avoid foods that may contain listeria during pregnancy; these foods are generally chilled, ready-to-eat foods such as:

- soft cheeses (e.g. brie, camembert, ricotta), unless cooked and served hot
- cold meat cuts
- chilled cooked, diced chicken in takeaway food (e.g. chicken sandwiches); freshly cooked chicken is safe
- stored salads
- raw seafood (e.g. sashimi)
- smoked seafood (e.g. smoked salmon); canned varieties are safe
- unpasteurized milk and dairy products prepared with unpasteurized milk.

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?

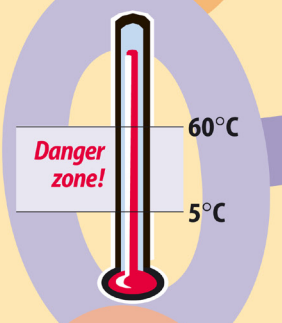
Raw food, especially meat, poultry and seafood, and their juices, can contain dangerous microorganisms which may be transferred onto other foods during food preparation and storage.

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.

Knowledge = Prevention

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Promoting a healthy diet for the WHO Eastern Mediterranean Region: user-friendly guide provides dietary advice to promote health and reduce the risk of major chronic diseases through diet and physical activity. This user-friendly guide presents a set of dietary recommendations that are compatible with the different cultures and eating patterns of consumers in the Region, based on the availability of local and affordable foods. This publication represents an essential tool in supporting national and regional strategies to improve nutrition outcomes and health in the Region. It is primarily intended for use by policy-makers, health care providers, nutritionists, nutrition educators and anyone involved in food distribution and food service. It can also be used by schools, homes, cafeterias and businesses to improve the food choices of a range of consumers.

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