MEDITERRANEAN DIET

MINISTRY OF RURAL DEVELOPMENT AND FOOD

Directorate of Agricultural
House Hold Economy

Dietary guidelines

for adults in Greece

INDEX

The full text of dietary guidelines for adults in Greece can be found
• in the web page: (www.nut.uoa.gr) the Public Health Nutrition and Nutritional Epidemiology Unit Department of Hygiene and Epidemiology of the University of Athens Medical School
• in the relevant publication of the scientific magazine "Records of Greek Medical" (1999, 16(6), 615-625).

Introduction

Food availability has shaped human history over the centuries and nutritional deficiencies remain critical determinants of the nosological spectrum in many population groups of the developing world. In the developed countries however, the face of malnutrition has changed. Known nutritional deficiencies persist in some segments of the population and new deficiency syndromes continue to be discovered (e.g. folic acid in relation to neural tube defects). Most nutrition-related disorders, however, can be traced to nutritional excesses and qualitative aberrations that take their toll from the adult population through such common diseases as cardiovascular or cancers of several sites.

Until the end of world war II, Greece had many problems that are still common in developing countries. Since 1950, however, economic growth has been accompanied by the reduction of premature mortality and an increase in the incidence of coronary heart disease and several forms of cancer (Trichopoulos et al, 1989; Katsouranni et al, 1990; Trichopoulou et al, 1994). High prevalence of tobacco smoking and some aspects of urbanization (Kalapothaki et al, 1992; World Health Organization 1997) may have contributed to the unfavorable trends in adult morbidity, but there has been increased recognition and epidemiological substantiation that a major factor underlying these trends has been a shift in the dietary habits of a large and increasing segment of the Greek population away from the traditional Mediterranean diet and towards westernized dietary practices and lifestyles. Consequently, the formulation and implementation of dietary guidelines has gained momentum in the scientific cycles as well as in the public at large.

Food-based dietary guidelines (FBDG)

Dietary guidelines at the nutrient level generally provide 3 values per nutrient the Lowest Threshold Intake (LTI: the nutrient intake below which, on the basis of our current knowledge, almost all individuals will be unlikely to maintain metabolic integrity according to the criterion chosen for each nutrient; it is equal to the mean nutrient intake minus two standard deviations), the Average Requirement (AR: the mean nutrient intake in a population) and the Population Reference Intake (PRI: it corresponds to what used to be called "recommended dietary allowance" or RDA and is the nutrient intake which will meet the needs of virtually all healthy people in a population; it is equal to the mean nutrient intake plus two standard deviations) (Commission of the European communities, 1993). Dietary guidelines at the nutrient level are useful concepts because they allow the operationalization of dietary requirements to meet metabolic needs and minimize the likelihood of nutritional deficiencies. However, they are

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of little use to the average consumer who thinks in terms of foods rather than nutrients. **Food-based dietary guidelines**, on the contrary, can be both scientifically sound and generally intelligible for the following reasons:
• Diet is made of foods and food-, rather than nutrient,- based dietary guidelines are easier for the public to follow
• The epidemiological evidence concerning diet in relation to health and disease relies on food intakes, whereas the evidence concerning nutrients is based on animal studies or is inferred from epidemiological investigations under the constrains of existing food composition tables. Compounds of unknown physiologic consequences cannot be accommodated through RDAs, whereas they can be indirectly accounted for through FBDG.
• Patterns of food intake may be more relevant to health and disease than intakes of specific foods or particular nutrients and only FBDG can directly address this issue.
• Food-based dietary guidelines can incorporate aspects of the socio-cultural environmental that affect food availability and choices, and can overcome behavioral obstacles that hinder their implementation.

The scientific evidence on diet and health

There is a substantial body of evidence concerning diet in relation to health. The evidence has been reviewed in a publication by the United States National Research Council (National Research Council, 1989) and more recent developments have been summarized in several publications (Commission of the European Communities, 1993; World Cancer Research Fund-American Institute for Cancer Research 1997; World Health Organisation, 1998; Willett, 1994; Willett and Hunter, 1994; Rimm et al, 1996; Platz et al, 1997; Willett, 1998). Important research on diet and health has also been undertaken in Greece, early on by the Greek contributors to the Seven Countries Study (Keys, 1980) and later by several groups working on cancer, cardiovascular and childhood disease epidemiology. Recently, there has also been considerable research on the relation between diet and adult-onset diabetes mellitus in Greece (Voyatzoglou et al, 1995; Katsilambros et al, 1996). It is neither essential nor realistc to summarize this evidence for the purposes of the present document, but it is useful to highlight the key findings with special reference to the contemporary Greek situation.
• Nutrient deficiencies are highly unlikely to occur when the recommended nutrient intakes are met, as they usually are in most industrialized countries. Special attention is still required with respect to calcium intake for the prevention of osteoporosis, iron intake for the prevention of iron deficiency anemia, folic acid intake for the prevention on neural tube defecs, iodine intake for the prevention of goiter and fluorine intake for the prevention of dental caries.
• Energy imitake has occasionally erroneously been perceived by the

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public as adversely affecting health. In reality, when body mass index (BMI) is adjusted for, higher energy intake is associated with lower cardiovascular and total mortality – because, in this instance, energy intake equals energy expenditure, which is partially determined by physical activity. In fact, it is physical inactivity and obesity that adversely affect health, the former by increasing the risk of cardiovascular diseases, osteoporosis, colorectal cancer and possibly other forms of cancer, and the latter by increasing the risk of non-insulin depended diabetes mellitus, hypertension and dislipidaemias. In other words, between two persons with the same BMI, the one who consumes more food is likely to be healthier than the one who consumes less food. It is noted that central (male-type) obesity is generally considered more disease-conducive than peripheral (female-type) obesity.

• **Consumption of whole grain cereals** has not been positively associated with a particular disease, and may reduce the risk of diverticulosis and constipation. The glycaemic effect of starchy foods, often measured as the glycaemic index, depends on rate of digestion, which is in turn determined to some extent by the fiber content, but mainly by the availability of starch to digestion. Leavening and baking increase the glycaemic effect of starch in bread, but starch in pasta and pulses has a low and retarded glycaemic effect. In hypertriglyceridaemic people, long-term consumption of low-glycaemic index foods may reduce the risk of cardiovascular diseases by improving glucose tolerance, reducing insulin secretion and lowering blood lipids.

• **Potatoes** provide as much percentage energy from protein as do wheat and rice, and are a good source of vitamin C. Like white bread, however, potatoes have a high glycaemic index because they are rapidly converted to glucose after being consumed. Potato consumption has been found to be positively associated with the risk of type 2 diabetes in men and women.

• **Consumption of simple sugars** has been associated with increased occurrence of dental caries particularly in the absence of water fluoridation and proper hygienic measures. The glycaemic effects of simple sugars are mainly comparable to or less than those of starch from cooked foods.

• **Vegetables and fruits** have been inversely associated with the occurrence of coronary heart disease and most common cancers, probably on account of their high content in dietary fiber, folic acid, vitamin C, beta-carotene, other carotenoids, polyphenols and phytoestrogens.

• **Pulses** have not been consistently associated with a particular disease, in spite of some reports of a positive association with stomach cancer. Their glycaemic effects are lower than those of starchy foods, and their high protein and low fat content increases their nutritional appeal.

• There is strong evidence that **dietary fiber** from cereals, pulses, vegetables and fruits has a beneficial role in controlling constipation, preventing diverticular disease, and favorably affecting blood lipid profile and the regulation of diabetes mellitus.

• **Nuts** are good sources of monounsaturated fatty acids and several types of them have been shown to have hypocholesterolaemic effects. Seeds are frequently considered together with nuts and, like nuts, they also have a high content of vitamin E and fiber. To the extent energy intake does not exceed energy expenditure, nuts and seeds can be among the healthier choices of a snack.

• **Meat and eggs** provide high quality protein. Meat also contains vitamins of the B complex and selenium. Moreover, it is rich in iron and zine, but excess intake of these minerals in adult life is not necessarily beneficial Furthermore, intake of meat, particularly red meat, has been consistently associated with colorectal cancer and inconsistently with other forms of cancer and coronary heart disease. Both meat and eggs contain relatively high quantities of cholesterol and this should always be taken into account, even though dietary cholesterol is not the major contributor to serum cholesterol levels.

• **Fish** (especially those high in lipids) and seafood consumption has been reported to reduce the risk of coronary heart disease, possibly because these foods contain high quantities of long chain polyunsaturated fatty acids.

• The health implications of high consumption of **milk and dairy products** have not been conclusively documented. On the one hand, these foods are rich in calcium, but on the other, they can also be an important source of saturated fat. Consumption of fat-free dairy products theoretically provides many advantages which, however, have not yet been documented.

• **Saturated fatty acids** have been positively associated with coronary heart disease, cancer of the prostate, probably cancer of the large bowel and possibly other forms of cancer. Trans fatty acids, which can be found in many margarines and certain food products (e.g. biscuits), have similar or even worse properties than those of saturated fatty acids. Polyunsaturated fatty acids are generally considered beneficial to the heart because they reduce low density lipoprotein (LDL) cholesterol in the blood, even though they also tend to decrease the level of high density lipoprotein (HDL) cholesterol, an undesirable effect. Polyunsaturated fatty acids, however, have been implicated in animal carcinogenesis and even human carcinogenesis in some studies. Logh chain ω-3 polyunsaturated fatty acids have been inconsistently reported to reduce the risk of coronary heart disease, perhaps by affecting thrombogenesis and reducing blood triglyceride levels. Monounsaturated fatty acids, and in particular olive oil, have been reported to be inversely associated with breast cancer and perhaps other forms of cancer and are known to reduce LDL cholesterol, without reducing HDL cholesterol. In fact, olive oil has been found to have either a beneficial effect or no adverse effect with respect to any chronic human disease that has been investigated, including osteoporosis and non-insulin dependent diabetes mellitus. This may be related to its high content in the monounsaturated oleic acid and to the abundance of antioxidant compounds, which are mainly present in the virgin olive oil.
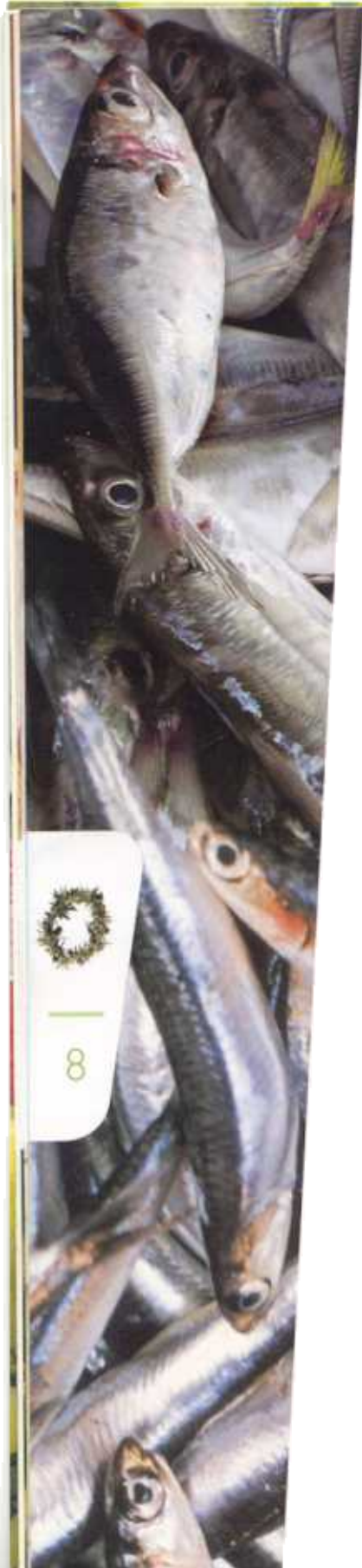
Lipids, irrespectively of type are presumed to facilitate weight gain, but the human evidence is inconclusive.

• **Water** does not generate energy, but it is crucial for life and can also be an important source of essential elements like iodine and fluoride. Availability of chemically and microbiologically safe water is a crucial for good health and its intake is adequately regulated by thirst, except occasionally among the elderly. Non alcoholic beverages, including sodas, have not been conclusively linked to health effects. Fruit juices are likely to share some of the benefits of fruits, whereas other beverages have been criticized for their high content in simple carbohydrates.

• **Ethanol** consumption increases the risk for cancer of the upper gastrointestinal track, particularly among smokers, is an important cause of liver cirrhosis and chronic pancreatitis, and may even contribute to the causation of breast cancer and possibly colon cancer. Moreover, alcoholism can be a major social problem. Nevertheless, the strong protective effect of ethanol and perhaps, other constituents of some alcoholic beverages against cardiovascular diseases has made the formulation of recommendations by health authorities particularly difficult. A consensus is now being formed that moderate alcohol consumption, particularly in the form of wine and especially during meals, is beneficial for the average person. Guidelines, however, should be adjusted to take into account family history of alcoholism, liver disease, smoking habits and even gender (the benefit-to-risk ratio is more favorable for men than for women).

• Sound epidemiological evidence can only exist for added substances under individual control, notably salt and other condiments. Salt contributes to the development of hypertension among predisposed individuals. It is also likely that it contributes to the development of stomach cancer. For other condiments widely consumed in Greece no conclusive evidence about their health effects exists. It is obvious that the concentration of all contaminants should be minimized to the extent this is possible.

The need to establish food-based dietary guidelines for the Greek population
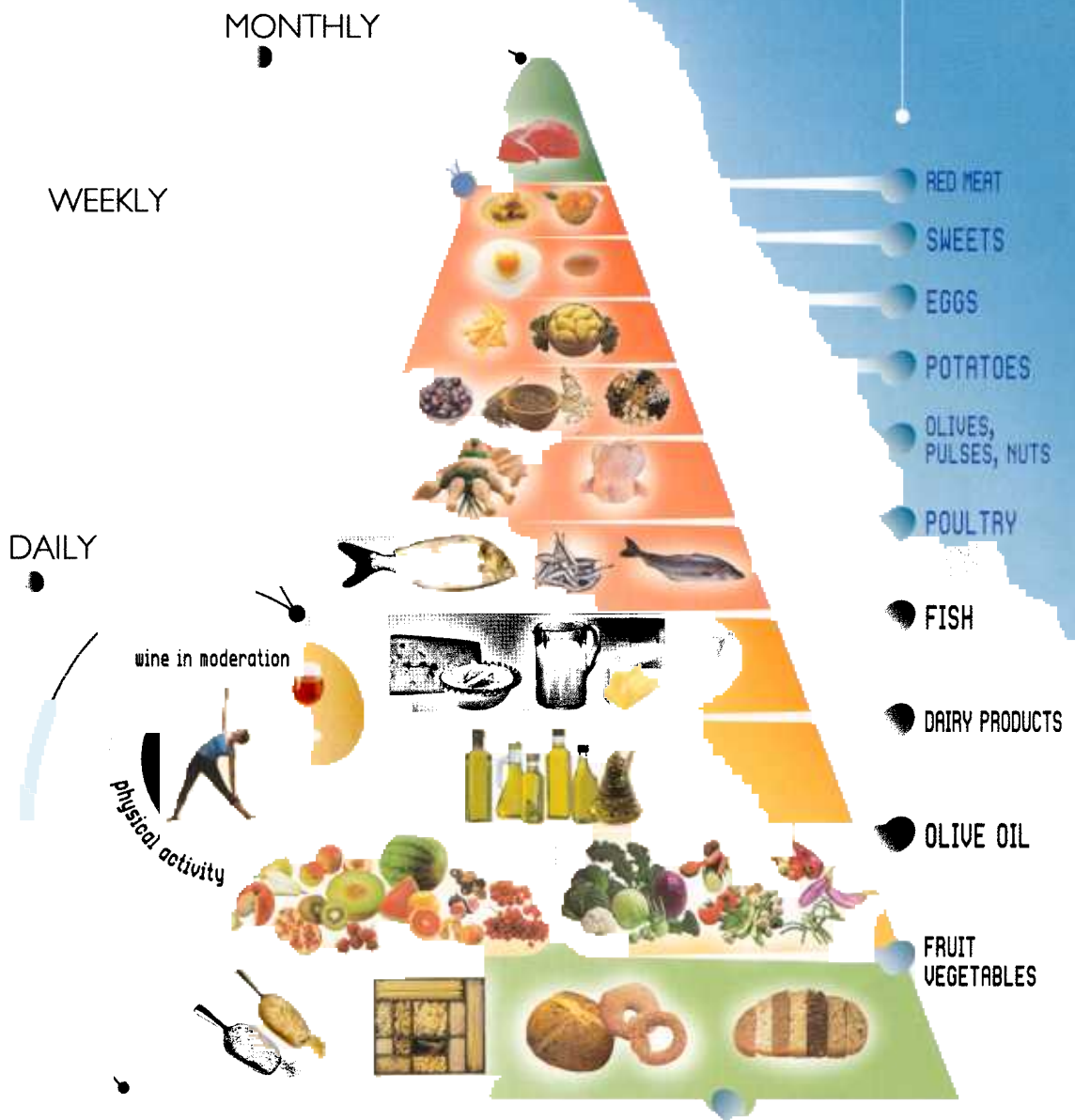
Several countries have formulated their own national food-dietary guidelines (FBNG) (World Health Organisation, 1998). The United States FBNG (US Department of Agriculture - US Department of Health and Human Services, 1995), depicted in the form of a food pyramid, have been widely publicized and can be accessed through the internet (http://www.pueblo.gsa.gov/cic_text/food/dietgd/html). A Harvard-led group, with substantial input from Greek scientists, has also developed an alternative pyramid based on the principles of the traditional Mediterranean diet (Willett et al, 1995). Within Europe, several countries have developed their own FBNG. A report to the European Parliament (Trichopoulou

MINISTRY OF RURAL DEVELOPMENT AND FOOD

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Greek Traditional Diet

HEALTH AND W

NIS

UNCIL, HELLENIC

OURCE SUPREME SCIENTIFIC HEALTH

MONTHLY

WEEKLY

DAILY

wine in moderation

physical activity

RED MEAT

SWEETS

EGGS

POTATOES

OLIVES, PULSES, NUTS

POULTRY

FISH

DAIRY PRODUCTS

OLIVE OIL

FRUIT VEGETABLES

NON-REFINED CEREALS AND PRODUCTS
(WHOLE GRAIN BREAD - WHOLE GRAIN PASTA, BROWN RICE, ETC)

ALSO REMEMBER TO:
* drink plenty of water
* avoid salt and replace it with herbs
  (e.g origan, basil, thyme, etc)

A, ed., 1997) pointed out that the traditional Mediterranean diet has several advantages over other traditional healthy dietary patterns. The development of FBNG for Europe is currently the objective of a large European Union funded project. In Greece, the Ministry of Health has issued a poster depicting a Greek version of the Harvard developed Mediterranean diet pyramid, acknowledging the importance of this pattern for the health of the Greek population (Greek Ministry of Health, Division of Health Education, Mediterranean Diet Pyramid poster. Source: National Nutrition Center). Moreover, the Hellenic Supreme Scientific Health Council has recently called for the development of a document summarizing FBNG for the Greek population, taking into account evidence from studies in this population. The reasons dictating the development of FBNG specifically for the Greek population are the following:

• In the late '60s, Greece enjoyed low mortality rates from coronary heart disease and several forms of cancer, conditions that appear to have strong nutritional etiological components. Increasing mortality from these diseases over the last three decades has followed the westernization of the dietary patterns of a large segment of the Greek population. This can be considered as evidence that the model diet for the Greek population closely approximates the traditional Greek diet in the late '50s.

• A series of case-control studies, undertaken in Greece during the last two decades, have provided evidence that several forms of cancer, coronary heart disease and other chronic diseases (Manousos et al, 1985; Trichopoulos et al, 1985; Katsouyanni et al, 1991; Trichopoulou et al, 1995a; Tzonou et al, 1999; Lagiou et al, 1999) have powerful inverse relations with critical components of the traditional Greek diet. These findings were compatible with those previously of subsequently reported from other major studies.

• There has been a successful attempt to operationalize the critical components of the traditional Greek diet and translate them into a uni-dimensional score (Trichopoulou et al, 1995b). This score has been found to predict total mortality in the Greek (Trichopoulou et al, 1995c), as well as in other populations (Osler and Schroll, 1997; Kouris-Blazos et al, 1999). Essentially, these data confirm, at the proper individual level, the ecological evidence generated by the classical Keys study (Keys, 1980; Keys et al, 1986).

• Several studies in Greece have pointed out critical dietary changes (Trichopoulou and Eftathiadis, 1989; Kafatos et al, 1993, Trichopoulou et al, 1993; Kafatos et al, 1997; Roma-Giannikou et al, 1997) in the Greek population. These changes could be targeted for reversal. Moreover, changes in nutrition-related parameters, such as obesity and blood lipids, have been identified and could represent important intermediate objectives in any strategy for nutritional changes.

• There is a wealth of information from the Food and Agriculture Organization (FAO) food balance sheets, household budget surveys (Trichopoulou, 1992a), surveys of healthy individuals (Kafatos et al, 1993), case-control studies (Trichopoulos et al, 1991) and the large prospective European study EPIC (Gnardellis et al, 1998) concerning the contemporary

Greek diet and its variation across socioeconomic strata. This information facilitates the establishment of critical categories targeted for preservation or change.

• The Greek population, like other Mediterranean populations, is unusual in its accessibility to olive oil, a food which is both important in itself and also facilitates the adoption of a versatile dietary pattern rich in fresh vegetables, as well as cooked vegetables, pulses and even cereals.

• The existence of food composition tables for Greek foods and recipes (Trichopoulou, 1992b) allows the translation of dietary intakes into nutritional intakes.

• The proximity of the traditional Greek diet to an optimal diet resolves the conflict between two schools of thought, the one arguing that guidelines should focus on optimal consumption and the other stating that guidelines should target realistic changes.

• **Dietary guidelines for the Greek population should be as simple as possible.**

Experience with tobacco smoking indicates that Greeks are highly resistant to health messages. People should not be given the excuse that guidelines are, or appear to be, too sophisticated to allow general adherence to. Even simple guidelines, as those of the Unites States, require more attention than the average healthy Greek is ready to dedicate to the scientific rational for dietary guidelines.

Dietary guidelines for the Greek population

It has become customary to represent FBDG in the form of a triangle ("pyramid"), the base of which refers to food which are to be consumed most frequently and the top to those to be consumed rarely, with the remaining foods occupying intermediate positions. In the food pyramid, frequencies rather than exact quantities in grams are indicated, because most consumers think in this way about the foods they consume. Consideration of frequencies, however, implies a standardized portion size, multiples of which are to be consumed. These portions have been variously termed "servings" or, when foods of similar origin or composition are considered, "equivalents". A total of about 22 to 23 servings are to be consumed daily, in three or four meals. In a rough approximation, a serving equals one half of the portions as defined in the Greek market regulations (approximately half the quantity served in a Greek restaurant). So, one serving is equal to:

• one slice of bread (25g)
• 100 g potatoes
• half a cup (i.e. 50-60 g) of cooked rice or pasta
• a cup of raw leafy vegetables or half a cup of other vegetables, cooked or chopped (i.e. ~ 100 g of most vegetables)

- one apple (80 g), one banana (60 g), one orange (100 g), 200 g of melon or watermelon, 30 g of pages
- one cup of milk or yogurt
- 30 g of cheese
- 1 egg
- ~ 60 g of cooked lean meat or fish
- one cup (i.e. 100 g) of cooked dry beans

Energy intake and expenditure

For adults, the maintenance of a body mass index (BMI) of no more than 25 kg/m2 is a primary objective (World Health Organisation, 1985, World Health Organisation, 1990). BMI is defined as body weight in kilograms divided by the square of height in meters. BMI does not exceed 25 kg/m2 when, for instance, an individual of 1.80 m height weights less than 75 kilograms, an individual of 1.70 m weight less than 65 kilograms, or an individual of 1.60 weights less than 55 kilograms. A BMI below 25 kg/m2 is not associated with excess mortality and, in fact, may be an advantage, unless the BMI value fails below 20. There are several tables of recommended values for energy intake, but nobody should be expected to count daily caloric intake. In fact, increasing BMI should be interpreted primarily as a need to increase physical activity, whereas reduction of energy intake is the second and less desirable option. Even when BMI remains constant below 25 kg/m2, daily plysical activity equivalent to walking briskly, swimming, dancing, climbing stairs or gardening for fifteen to thirty minutes per day, preferably every day, is highly recommended.

Food variability

A wide variety of foods in diet minimizes the possibility that a particular nutrient, the biological properties of which may have not yet been recognized, will not be grossly deficient in the diet. Even foods that are currently considered as rather unhealthy, do not have to be completely excluded from the diet, because they may contribute one or more essential nutrients (e.g. meat as a source of B12 vitamin). Moreover, no food in a usual diet should be considered as a poison to be avoided by all means, except when particular individuals have a genetic or otherwise induced susceptibility to certain foods (e.g. faba beans and G6PD deficiency).

Food groups

Cereals

Every day, on the average, should include about eight servings of cereals

and cereal products, preferably non refined ones, including bread. This guideline is not difficult to accommodate, even in the contemporary Greek diet, since Greeks still consume a lot of bread. Non refined cereals and their products provde a considerable amount of fiber, which is a desirable attribute.

Potatoes

Though some classify potatoes under vegetables, they nutritionally fit better under the category of cereals, particulary refined ones. Like white bread, potatoes have been found to have a high glycaemic index and current nutrition advice is that they should not exceed 3 servings per week.

Sugars

Simple sugars are plentiful in deserts, and also exist, or are added, in beverages, like coffee, tea, fruit juices, soft drinks and colas. They are also naturally found in many fruits. Simple sugars have glycaemic effects mainly comparable to or less than those of starch from cooked foods. Reduction of sugar intake can be accomplished through training during the early years of life. The use of sugar substitutes, such as saccharine and aspartame, has not been linked to human risk, but avoidance of excess consumption may be prudent. Although many Greek deserts are prepared with olive oil, a multitude of nuts, fruits and flour, rather than fresh cream or butter, the average daily intake should not exceed half a serving per day, or a serving every other day.

Vegetables and fruits

Every day, on the average, should include about six servings of vegetables and three servings of fruits. There is no risk in the excess intake of vegetables or fruits, so long as energy expenditure balances energy intake. Vegetables and fruits provide a considerable amount of fiber, several micronutrients (potassium, calcium, vitamin C, vitamin B6, carotenoids vitamin E, folate), as well as other compounds with antioxidant potential. The wild greens traditionally consumed in Greece are of particular interest, since they represent a rich source of antioxidants. Vegetables can be consumed either cooked in olive oil, or raw in the form of salads.

Pulses

Pulses are rarely consumed and rarely independently considered in FBDG of most countries. In Greece, however, olive oil allows the preparation of delightful dishes with pulses that share some of the health attributes of vegetables and also provide protein, albeit of moderate quality. Consumption of an average of one serving every other day is advised.

Herbs

Origan, basil, thyme and other herbs grown in Greece are a good source of antioxidant compounds and can be a tasteful substitute for salt in the preparation of various dishes.

Meat and eggs

Consumption of poultry, eggs and red meat should not exceed on the average one serving per day, and further reduction does not appear to compromise good health among adults. Poultry is much preferred over red meat, and eggs, including those used for cooking or baking, should not exceed 4 per week. So a person may consume 3 eggs and two servings of poultry per week.

Fish and seafood

Fish and seafood could physiologically substitute meat and eggs, but culinary, practical and economic constrains dictate a recommendation of about one serving per day.

Dairy products

Consumption of an average of two servings per day of dairy products, in the form of cheese, traditional yogurt and milk appears compatible to good health and culinary traditions of the Greek population.

Added lipids

Olive oil should be preferred over other added lipids, in salads, fried or cooked foods. When BMI kept below 25, there is no scientific reason to limit olive oil intake, notwithstanding its high energy content. In a weight reducing diet, increasing physical activity and reducing caloric intake are priorities. Foods do not affect BMI in ways beyond those determined by their energy content. Specifically, reducing olive oil intake may not be the preferred option if this is to be accompanied by the reduction of vegetable and pulses intake, which are usually prepared with olive oil.

Water

Thirst adequately regulates water intake, except among the elderly and in some pathological conditions. In general terms, the higher the energy consumption and expenditure, the higher the quantity of water needed. Substitution of water with non-alcoholic beverages offers no advantage.

Ethanol

Consumption of alcoholic beverages equivalent to about 30 g of ethanol (three servings of most alcoholic beverages) per day among men and 15 g of ethanol (one and a half servings of most alcoholic beverages) per day among women have beneficial overall effects on health. There is evidence that consumption of wine during meals is more beneficial than consumption of spirits or beer outside meals, and some suggestion that red wine is more beneficial than white wine.

Added substances

As previously indicated, sound epidemiological evidence can only exist for added substances under individual control, notably salt and other condiments. Consumption of salt should be reduced to the culinary

acceptable minimum. Most processed food already contain more salt than needed for physiological purposes.

Food-based dietary guidelines and nutrient recommendations

Food-based dietary guidelines must cover, at least, the average requirement (AR) of each nutrient (Commission of the European Communities, 1993). In order to assure that this prerequisite is respected if one adheres to the present FBDG, we have calculated the weighted mean nutrient content of each food group. The weighting was based on the relative frequency of consumption of the foods categorized under each food group. The relative frequency of consumption was assessed based on data on the food habits of healthy adult Greeks, who participated as controls in a series of epidemiological studies on the nutritional etiology of chronic diseases (Trichopoulos et al, 1991). The food-based dietary guidelines for Greek adults were found to be in accordance with the nutrient recommendations of the European Scientific Committee for Foods (Commission of the European Communities, 1993).
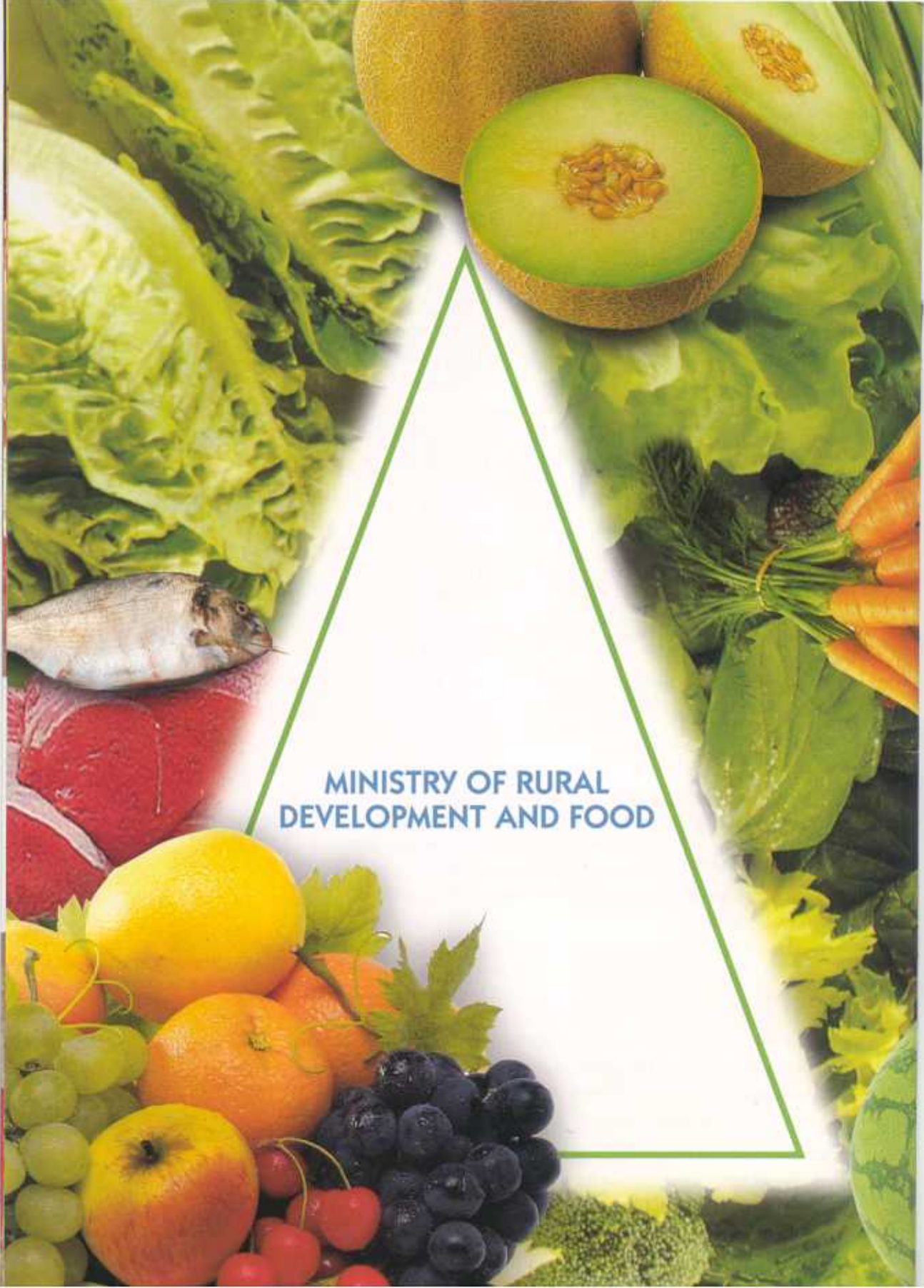
Pictorial presentation of the food-based dietary guidelines
The pictorial presentation of the FBDG outlined in this document is generally compatible with the one suggested by Willett et al (1995). There are, however, some minor adjustments to accommodate the evidence from recent studies. Furthermore, the guidelines in this document are of semi-quantitative nature.

The guidelines should be complemented with simple, common sense advice:

• **Do not exceed the optimal body weight for your height**
• **Eat slowly, preferably at regular times during the day and in a pleasant environment**
• **Prefer fruits and nuts as snacks, instead of sweets or candy bars**
• **Prefer whole grain bread or pasta**
• **Always prefer water over soft drinks**
• **Healthy adults, with the exception of pregnant woman, do not need dietary supplements (vitamins, minerals, etc.) when they follow a balanced diet**
• **Light foods are not a substitute for physical activity when it comes to controlling excess body weight; furthermore, their consumption in high quantities has been shown to promote obesity**
•**Although the indicated mobel diet is the ultimate goal, gradual adoption may be more realistic for some people**

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