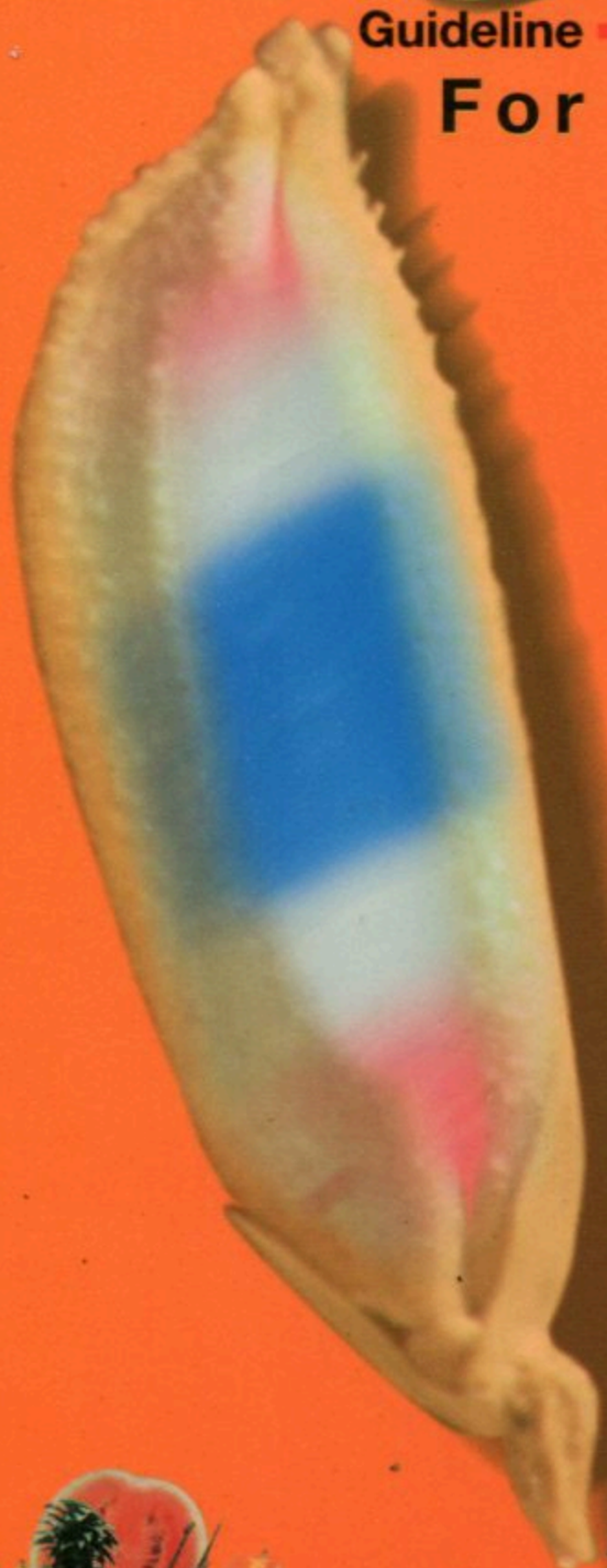


# Food Based Dietary

Guideline

For

THAI





# Food Based Dietary

## Guideline For **THAI**

**1**

Eat a variety of foods from each of the 5 food groups and maintain proper weight

**2**

Eat adequate amount of rice or alternative carbohydrate sources

**3**

Eat plenty of vegetables and fruits regularly

**4**

Eat fish, lean meat, eggs, legumers and pulses regularly

**5**

Drink milk in appropriate quality and quantity for one's age

**6**

Eat a diet containing appropriate amounts of fat

**7**

Avoid sweet and salty foods

**8**

Eat clean and safe food

**9**

Avoid or reduce the consumption of alcoholic beverages



## PREFACE

“Food-based Dietary Guidelines for Good Health” or “Rules of Dietary-Intake” was designed to help answer the question: What should the Thai people eat to stay healthy? The guidelines were developed with Thai food habits and culinary culture in mind and backed by scientific evidence.

This book describes in detail each aspect of the guidelines, and how and why they should be adopted to achieve a nutritionally balanced diet and healthy lifestyle. This current publication is meant to create public awareness about these “Guidelines” and offer suggestions for improving one’s diet. In a subsequent publication, specific quantitative guidelines for each food group will be given in a simple and explicit manner, and appropriate to the Thai population.

Through this book, readers will be able to evaluate their food intake patterns and cooking practices/methods, make suitable modifications, and then continually monitor their diet. We sincerely hope that this book will contribute in leading Thai society towards better nutrition and health in the near future.

The English language version of this book was made possible through generous support from the Food and Agriculture Organization of the United Nations.



## PROLOGUE

The old adage “we are what we eat” is well known the world over, but very rarely is it considered seriously. Yet the growth and development of our bodies are largely dependent on food and the nutrients obtained from various food sources. Beginning during the early weeks of life and carrying on through infancy, childhood, adulthood and old age, people require energy and certain other nutrients to help build and maintain the body’s organs and systems. These nutrients are essential because the body cannot make them and must obtain them from food. Nutritional problems arise when the foods we eat do not contain adequate nutrients.

Presently, the Thai people still face the age-old problem of under-nutrition, especially in terms of protein-energy malnutrition, iodine deficiency disorders, anemia arising from iron deficiency, and vitamin A deficiency. These conditions hinder children’s survival, growth and development, and contribute to the frequency and severity of illness. In addition to under-nutrition, over-nutrition is a new problem that appears to be rising, and it contributes to many diet-related disorders such as obesity, heart disease, cancer, diabetes mellitus and hypertension. These are among the major causes of illness and death in Thailand.

Many factors aggravate Thailand’s nutritional problems. One of the most significant factors is the lack of correct knowledge and attitudes about food, which leads to undesirable eating habits in some population groups. In order to promote correct eating behaviors and food habits, the Division of Nutrition, Department of Health, Ministry of Public Health and Institute of Nutrition Mahidol University (INMU), in co-operation with other related food and nutrition institutions, have formulated and mapped out “Food-based Dietary Guidelines for Good Health.” These guidelines consist of a total of nine rules and serve to widely educate all Thai people about the requirements for correct eating according to key nutrition principles.

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# 1

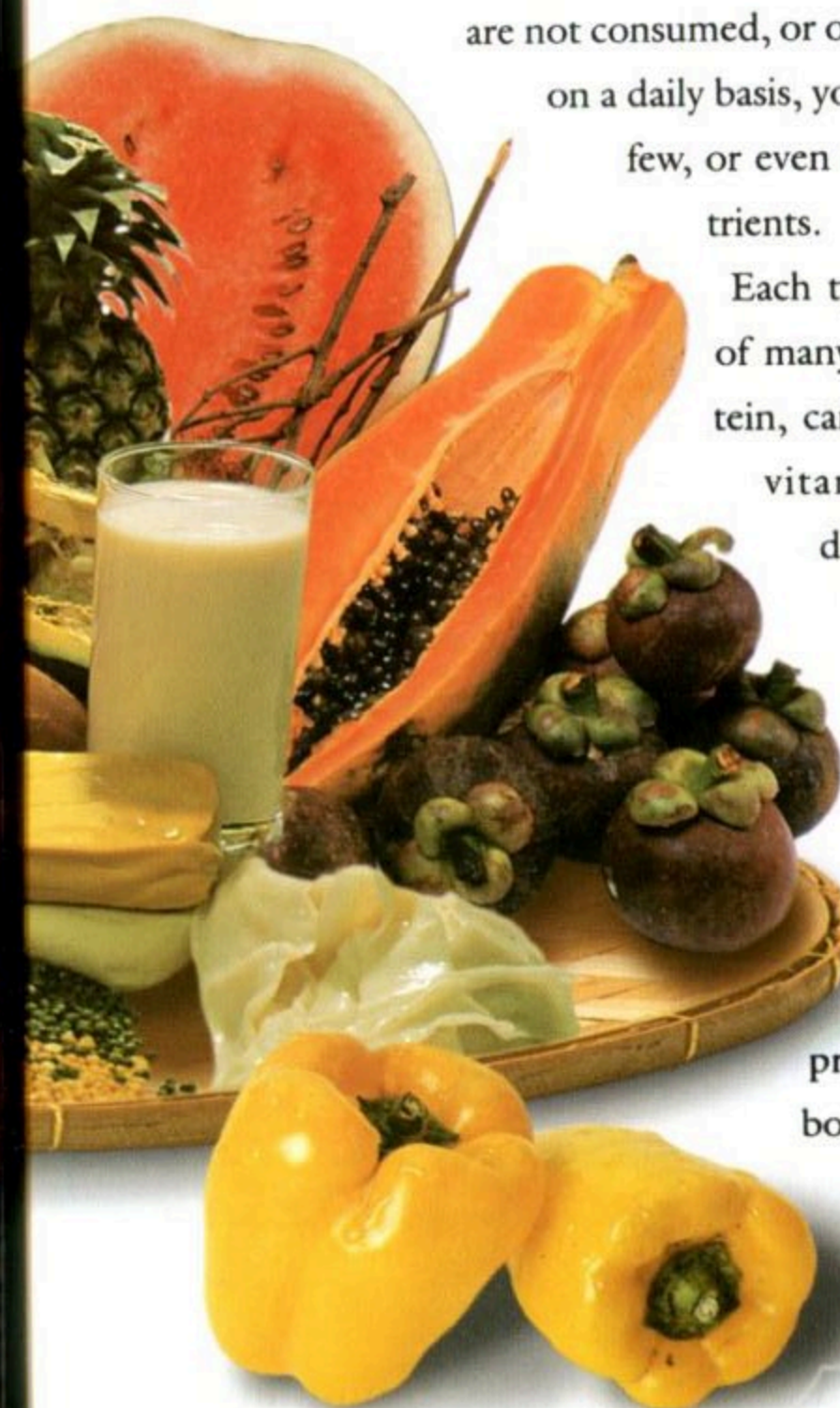
## Eat a variety of foods from each of the 5 food groups and maintain proper weight

### 1.1 EAT A VARIETY OF FOOD FROM EACH OF THE 5 FOOD GROUPS

To obtain all of the essential nutrients in adequate quantities as required by your body, you need to eat a variety of foods from each of the five main food groups. If some of these foods are not consumed, or others are eaten repeatedly on a daily basis, you are likely to receive too few, or even too much of, certain nutrients.

Each type of food is composed of many nutrients such as protein, carbohydrate, fat, minerals, vitamins, water as well as dietary fiber, which helps the body function properly. The nutrient content in different types of foods often varies. Hence, no single food can supply all of the nutrients in their proper amounts that your body requires.

The 5 major food







groups include:

**Group 1** : Milk, eggs, meat, legumes and sesame seeds for contributing to growth and maintenance of body tissues.

**Group 2** : Rice, cereals, starchy foods, sugar for providing energy.

**Group 3** : Vegetables for assisting regular body functions.

**Group 4** : Fruits, same function as group 3

**Group 5** : Oils and fats from plants and animals for providing energy and body warmth.

We should therefore eat a variety of foods from each of the 5 food groups, and in appropriate amounts, in order to obtain all the nutrients that the body needs and eventually achieve good nutrition status.

## 1.2 MAINTAIN A PROPER WEIGHT

“Body weight” is an important indicator of each person’s health status. Each individual should maintain a proper weight for age and height, and it is necessary that we maintain our proper weight by eating good food along with regular and appropriate exercise.

In general, underweight persons tend to be weak, they become sick easily, and they cannot perform efficiently while working or studying. In contrast, overweight persons are at risk of coronary heart disease (which is the leading cause of death in the country), diabetes mellitus, hypertension, and certain types of cancer.

In order to have a healthy and long life, a good dietary intake and appropriate exercise should be adopted.

You can determine your correct body weight in several different ways. The easiest and best methods are as follows.

**CHILDREN** : using weight for age or weight for height as

compared to the reference standard.

**ADULT** : using Body Mass Index (BMI)

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m}^2\text{)}}$$

A person with a desirable weight should have BMI between 18.5-24.9 kg/m<sup>2</sup>

under weight      BMI less than 18.5 kg/m<sup>2</sup>

over weight      BMI range 25-29.9 kg/m<sup>2</sup>

obesity      BMI more than 30 kg/m<sup>2</sup>

To maintain a proper body weight, appropriate exercise should be carried out regularly, at least 3 to 5 times per week. Each exercise workout should last for 20-30 minutes in order to strengthen the body and heart muscles as well as improve blood circulation. More importantly, tension and stress will also be alleviated.

Everyone should maintain his or her own proper weight. It is suggested that each person should check his or her weight once a month. If one’s weight is low, he/she should eat higher quantities of nutritious foods. If one gains weight, he/she should reduce the quantity of certain foods especially, fat and sugar. Moreover, he/she should undertake a regular exercise program.





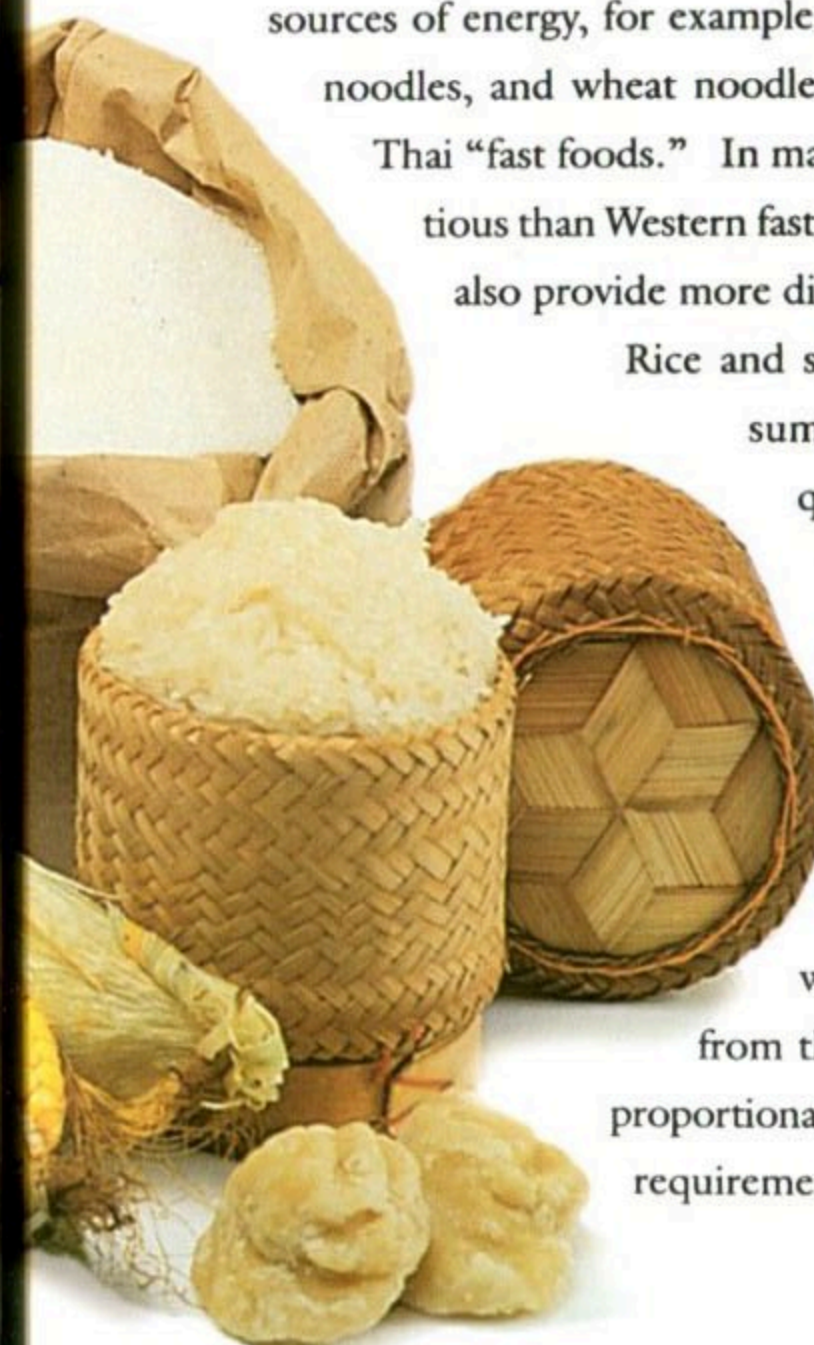


## 2 Eat adequate amount of rice or alternative carbohydrate sources

Rice, a source of energy, is the staple food of the Thai people. The main nutrients in rice are carbohydrate and protein. Unpolished rice or home pounded rice is more nutritious than highly milled rice (polished rice) because it contains substantial nutrients such as, protein, fat, dietary fiber, minerals and vitamins.

There are several rice and cereal products which can also be sources of energy, for example, rice noodles, fermented rice noodles, and wheat noodles. These are often served as Thai "fast foods." In many cases, they are more nutritious than Western fast foods, because Thai fast foods also provide more dietary fiber from vegetables.

Rice and starchy foods should be consumed daily and in appropriate quantities. If they are eaten in excess of what the body requires, they can transform into fat that is deposited in the body's internal organs, thus leading to obesity. They should be eaten along with a variety of other foods from the 5 food groups in amounts proportionate and adequate to your body's requirements.



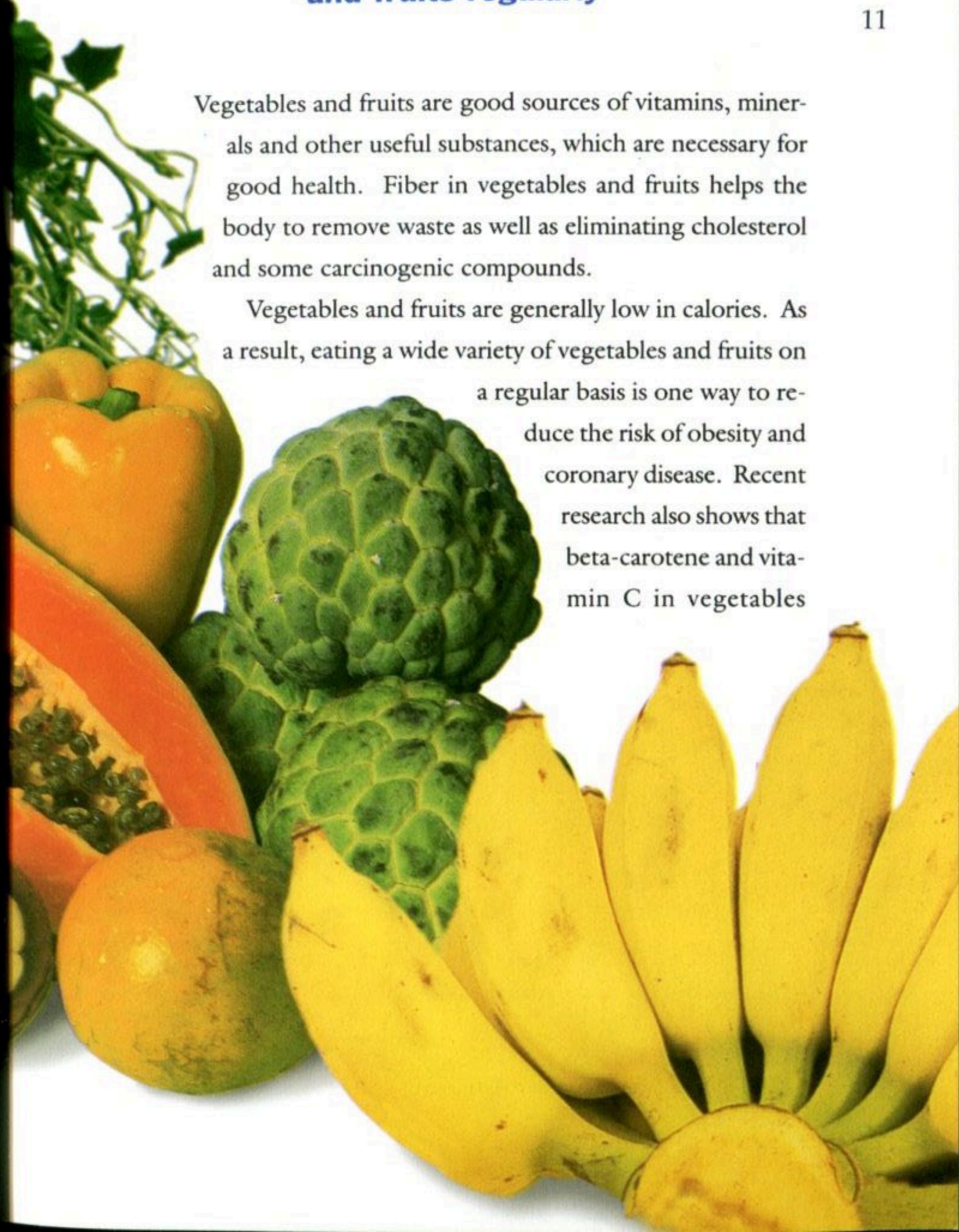




### 3 Eat plenty of vegetables and fruits regularly

Vegetables and fruits are good sources of vitamins, minerals and other useful substances, which are necessary for good health. Fiber in vegetables and fruits helps the body to remove waste as well as eliminating cholesterol and some carcinogenic compounds.

Vegetables and fruits are generally low in calories. As a result, eating a wide variety of vegetables and fruits on a regular basis is one way to reduce the risk of obesity and coronary disease. Recent research also shows that beta-carotene and vitamin C in vegetables



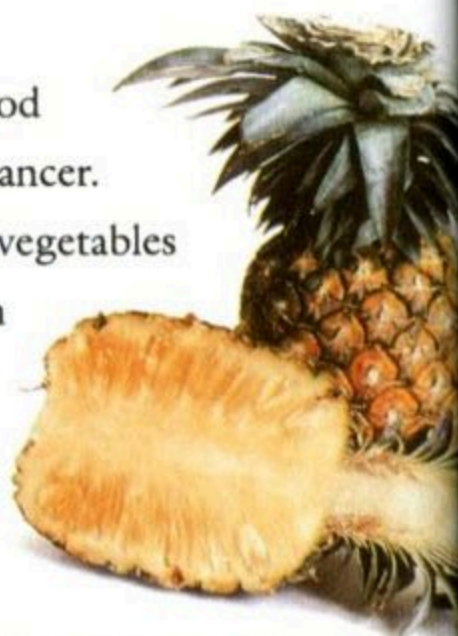


and fruits can prevent fat from depositing in blood vessels and also reduce the risk of some types of cancer. Thailand is fortunate in having a wide selection of vegetables and fruits available throughout the year. They can therefore become a regular part of the Thai diet, and especially the diets of school children and adolescents in order to keep them growing strong and healthy.

There are numerous kinds of vegetables. They are classified according to the parts of the plant which are edible, such as leaves and stems (swamp cabbage, ivy gourd, collard, lotus stem, bracken, water fern); flowers (cauliflower, sesbania flower); fruits (pumpkin, spongegourd, yard-long bean, egg plants); and roots (radish, carrot, ginger, turmeric). Green-leafy vegetables contain vitamin C, beta-carotene, minerals and dietary fiber.

Fruits can be eaten both ripe and unripe, giving either sweet or sour taste. Fresh fruits are rich sources of vitamin C (e.g., guava, green mango, rose apple, banana, pineapple, orange, and pampelo). Some fruits are eaten ripe and are rich sources of beta-carotene (e.g., papaya, ripe mango). An overweight person should avoid and/or limit fruits that are very sweet and high in sugar content such as durian, sapodilla, longan and jackfruit.

Therefore, it is suggested that everyone eats a variety of vegetables during every meal, take fruits regularly, and especially after meals or as a snack. In addition, they should be eaten according to their seasonal availability.







## 4

**Eat fish, lean meat, eggs,  
legumes and pulses regularly**

Fish, lean meat, eggs, legumes and pulses are good sources of protein. We need good quality protein in sufficient amounts for the growth, function and maintenance of the body. Protein is also needed to improve immune response and supply energy. Some important sources of protein include the following.

**Fish** contains good quality protein, is easily digested and low in fat. Eating fish, instead of red meat, regularly helps reduce cholesterol. Fish also contains high amount of phosphorus. Small fish canned fish which can be eaten whole are good sources of calcium for strong bones and teeth. In addition, marine fish are good sources of iodine for the prevention of iodine deficiency disorders.

**Lean meat** of all types is a good source of protein. Eating lean meat on a regular basis not only provides a sufficient source of protein, but also reduces fat accumulation in blood vessels and the body as a whole. Frequent consumption of meat that has visible fat should be avoided. Moreover, there is substantial invisible fat in meat, especially pork, which has more fat than any other meat.

**Eggs** are a major source of protein. They contain several essential





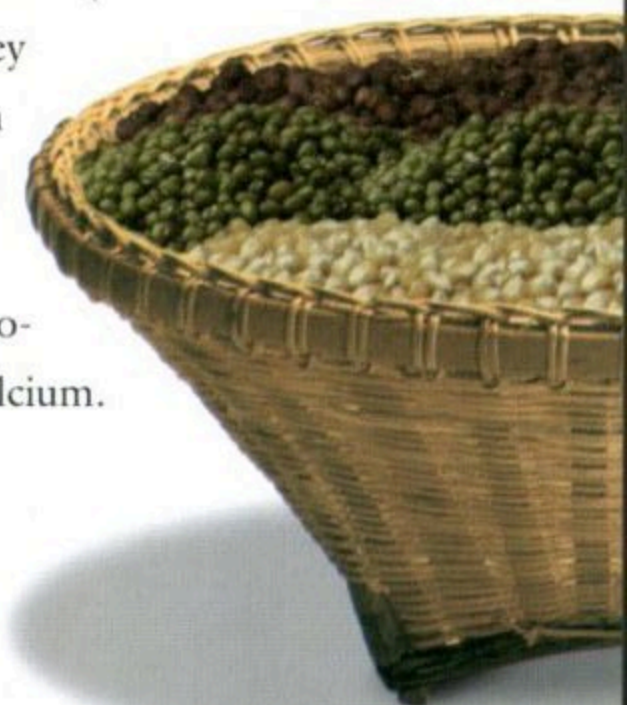


minerals and vitamins which are useful to the body. Moreover, eggs are economical, can easily be cooked and eaten. Children should eat one egg a day while normal adults should eat 2 to 3 eggs per week. Most importantly, eggs must be well cooked. Eggs from both ducks and chickens are equal in terms of their nutritive value.



**Legumes and Pulses** are good sources of protein. They are inexpensive and commonly available. There is a variety of legumes and pulses, for example, soybean, mung bean, black bean, rice bean, and peanut, including their products such as bean curd (tofu), fermented soybeans, soybean milk and food items (such as desserts) made from legumes and pulses. They can be regularly eaten as an alternative protein source to meat. Furthermore, they are also a source of energy.

**Sesame seeds** are a useful food, containing protein, fat, vitamins (especially vitamin E) and calcium. They can therefore be eaten regularly.





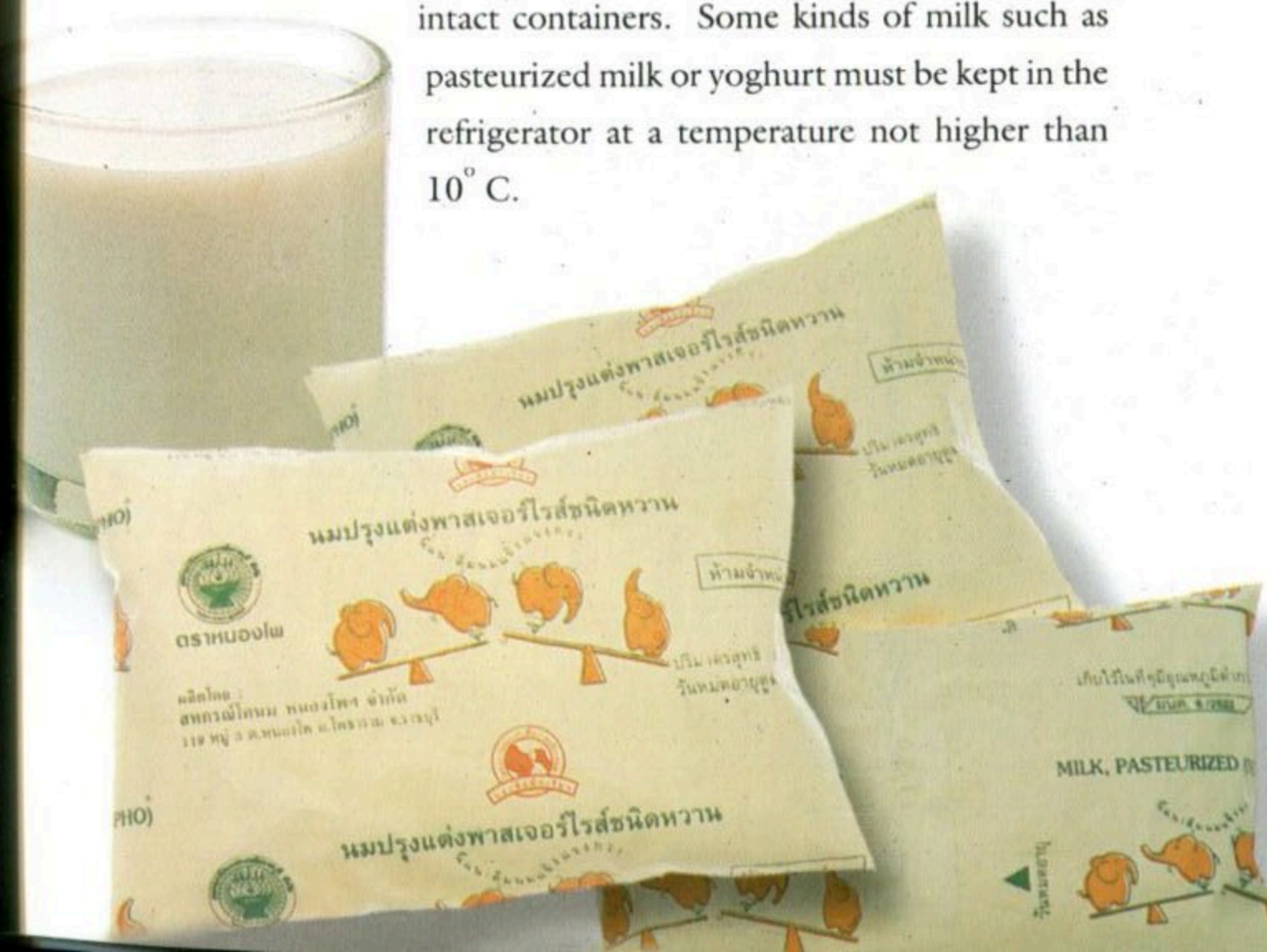


## 5 Drink milk in appropriate quality and quantity for one's age

Milk is good for everyone. It is rich in calcium and phosphorus which are essential for building strong bones and teeth. Moreover, milk contains protein, lactose, and vitamins (especially vitamin B2), which promotes growth and proper functioning of body tissues. There are many kinds of milk—fresh milk and flavored milk—which are of similar nutritional value.

Pregnant women, school children, adolescents, adults and the elderly should drink 1 to 2 glasses of milk each day. They should drink milk along with adequate exercise in order to strengthen the bones and decrease bone resorption.

Before buying milk, check the expiry date and choose only intact containers. Some kinds of milk such as pasteurized milk or yoghurt must be kept in the refrigerator at a temperature not higher than 10° C.







**Milk that should be avoided** includes expired milk, milk that has not been through any heat treatments to destroy microorganisms, milk kept in damaged containers, or pasteurized milk that is not kept in the refrigerator. Once the container is opened, the milk should



be consumed immediately. If not, keep it in a clean and closed container under refrigeration.

For drinking yoghurt, read the label and choose the brand that is rich in fresh milk in order to get a nutritive value similar to that of fresh milk. Those who are lactose maldigester and intolerance which may have gastrointestinal symptoms diarrhea or abdominal bloating. They should start drinking milk in small amounts (e.g., 1/4 glass) and thereafter gradually increase the serving, drink milk after a meal or switch to soy milk or cream yoghurt. Yoghurt contains bacteria that are beneficial to human and can help digest the lactose in milk.

Soy milk is a soybean product that provides protein, vitamins and minerals which are useful to the body. Regular intake of soy milk is also advised.







## 6

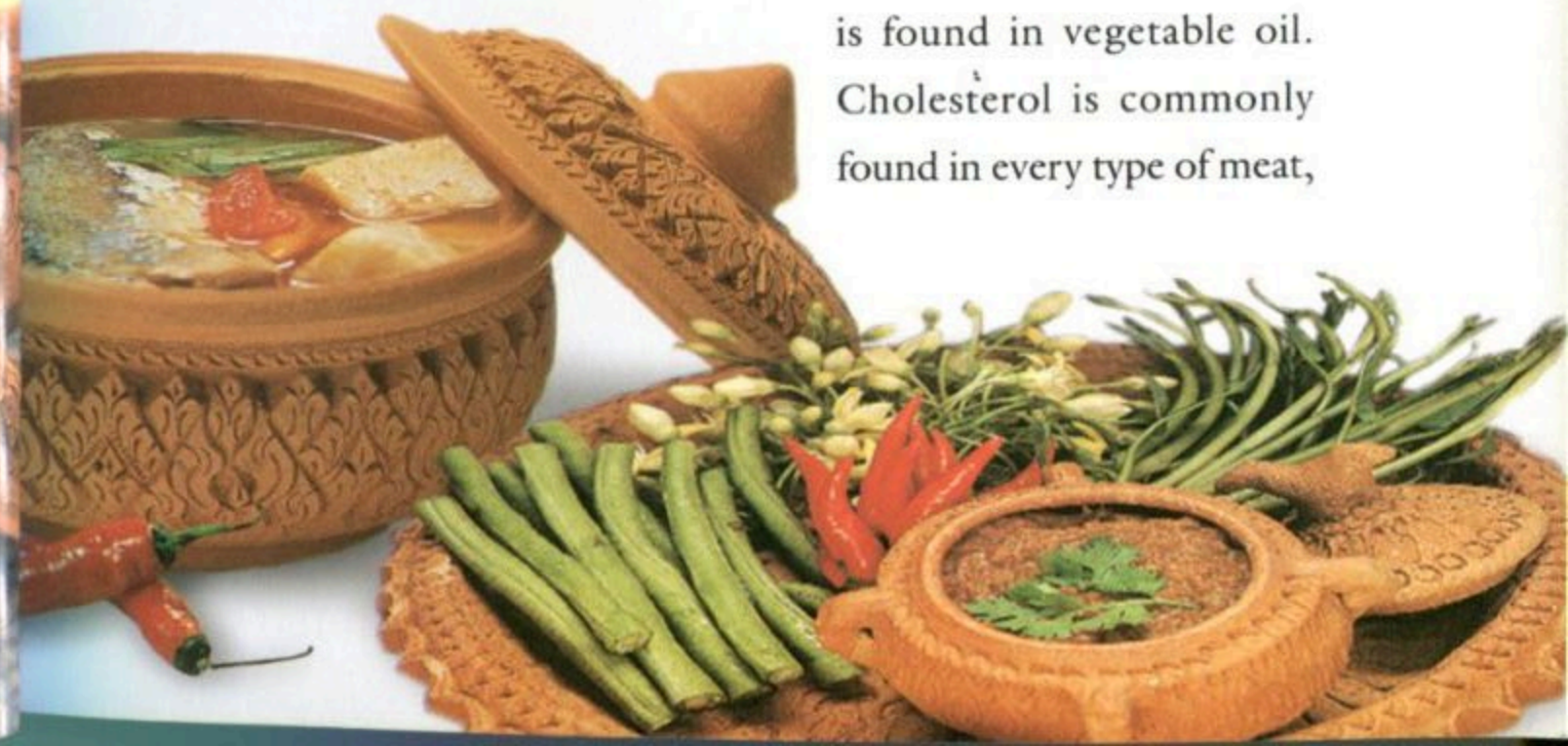
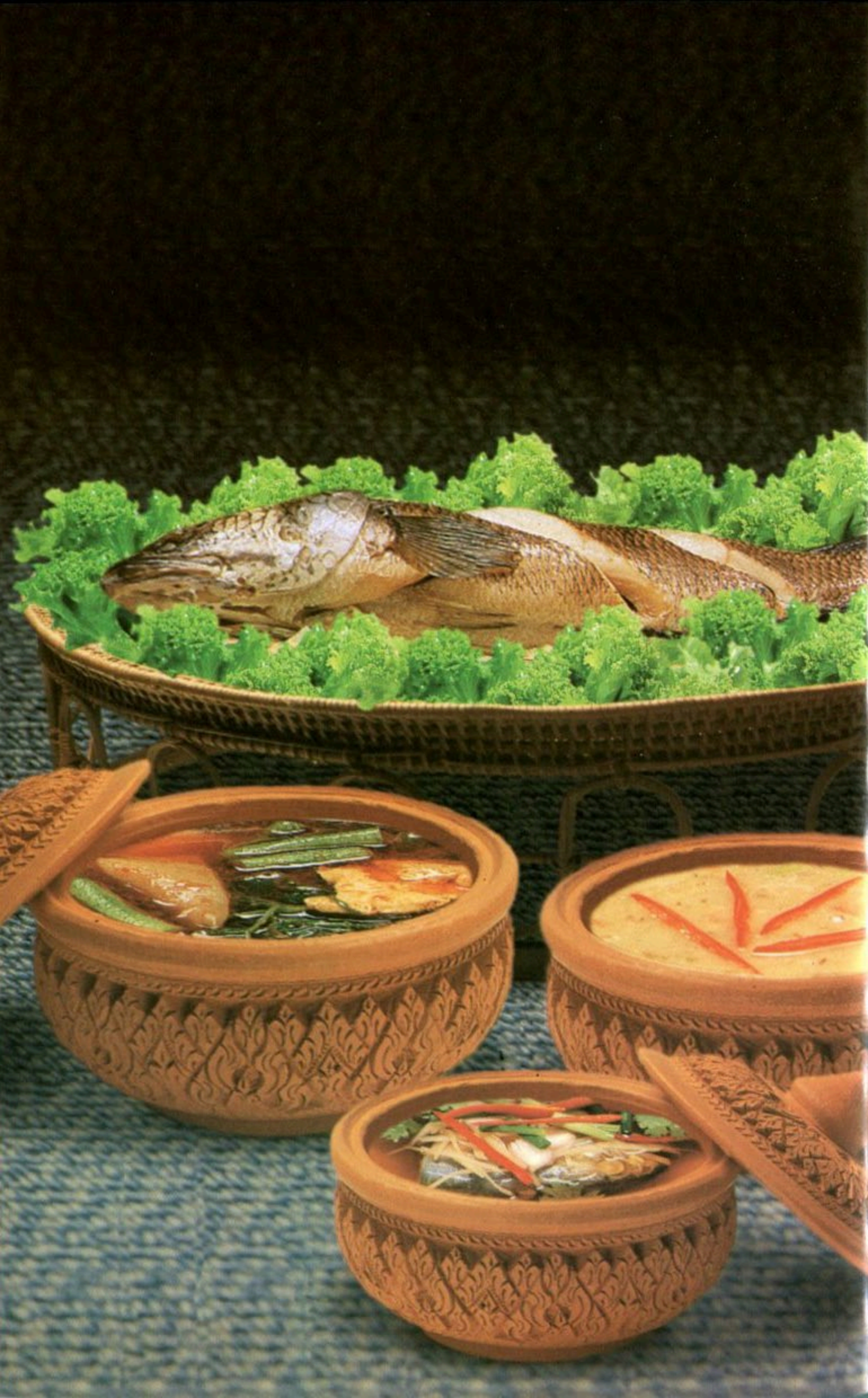
**Eat a diet containing appropriate amounts of fat**

Fats are essential foods for health, supplying energy and warmth. Almost every kind of food contains fat in different amounts. Oils and fats from plants and animals are concentrated energy sources. Moreover, fat provides essential fatty acids and is a carrier for fat soluble vitamins A, D, E and K.

Thai people are consuming more fat today than they did in the past, and there is a growing tendency that they will consume even more fat as time passes. People are thus likely to gain weight, become obese and place themselves at risk of degenerative diseases. One strong recommendation is to limit energy from fat to not more than 30% of total energy intake per day.

There are two kinds of fat: saturated fat and unsaturated fat. Consuming too much saturated fat and cholesterol will increase cholesterol levels in blood leading to a greater risk of cardiovascular disease. To prevent this, saturated fat and cholesterol should be limited.

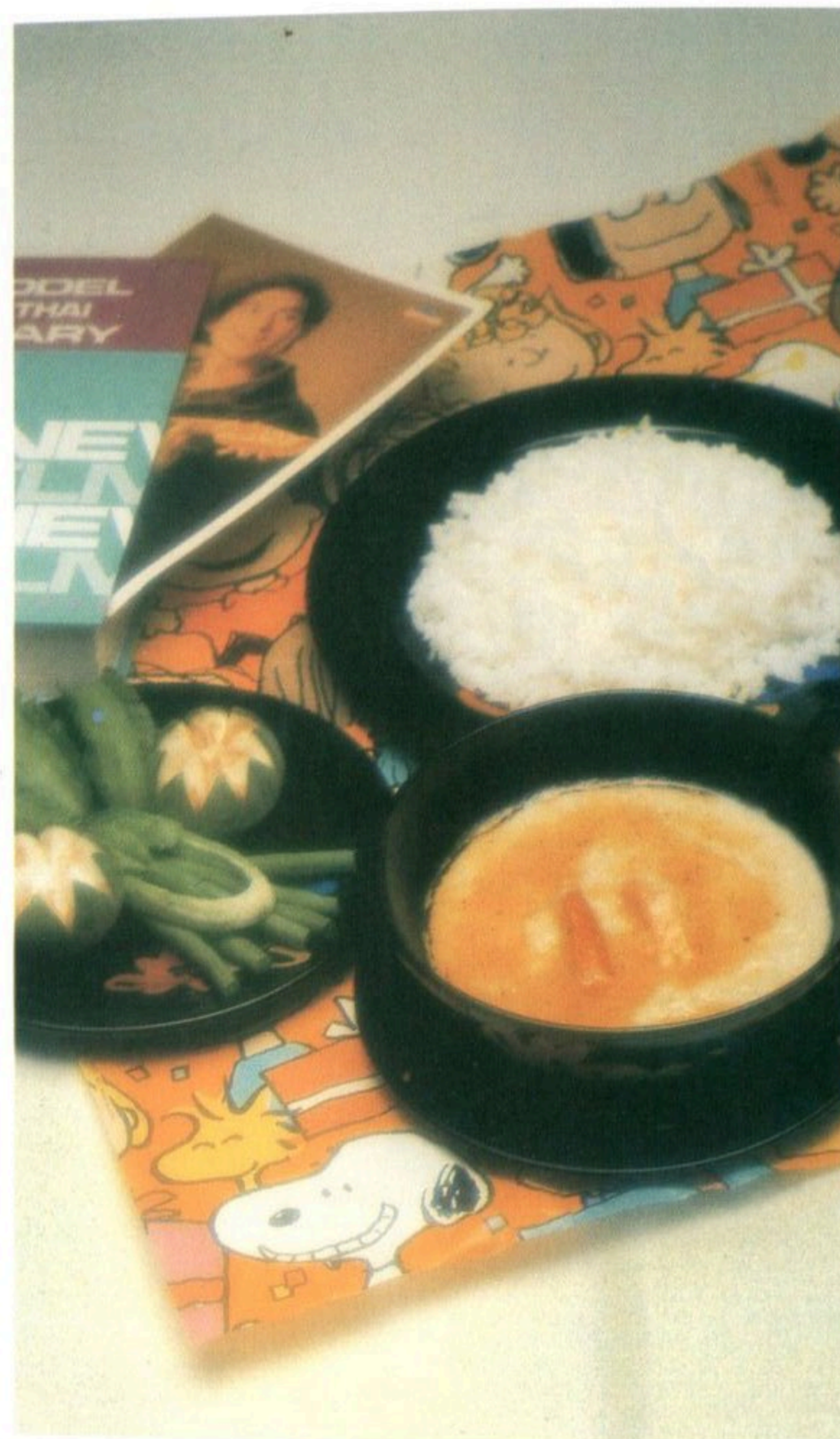
Saturated fat comes from meat and animal skin, whereas less is found in vegetable oil. Cholesterol is commonly found in every type of meat,





egg yolks, visceral organs (especially in liver), and some types of seafood such as squid and oyster.

The cooking process plays an integral role in adding more fat to foods, especially in the case of deep-frying or stir-frying. Foods with coconut milk are also considered high-fat foods. Oily snacks such as potato chips contain a large amount of fat along with few other nutrients and should be consumed in moderation. Neither an excessive fat intake nor absolute avoidance is suggested. It is advisable to cook foods by boiling, steaming, or grilling which yield less fat. Consequently, it is essential to know not only the types of food that are high in fat, saturated fat and cholesterol, but also the methods of cooking in order to reduce fat content.







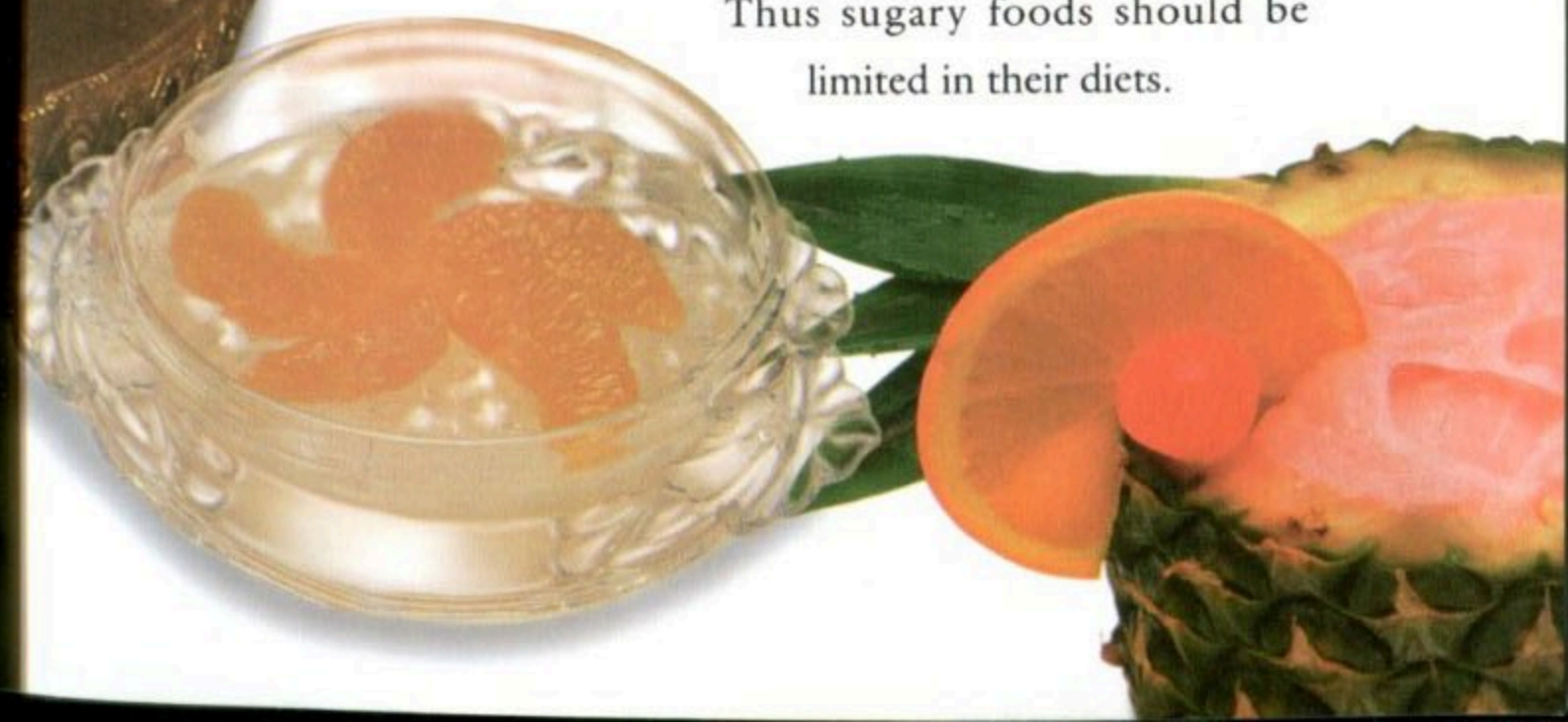
## 7 Avoid sweet and salty foods

Thai people tend to favor spicy foods more than any other nationalities. In an effort to make foods more delicious, flavorings and additives are added in order to satisfy consumer tastes. Eating foods with sharp and strong tastes can have fewer health benefits, especially if they include salty and sweet foods.

Generally speaking, people tend to eat sweetened foods. Even for a main dish, additional sugar is almost always added, although sweet taste can be obtained from naturally sweet fruits or a wide selection of desserts.

Most foods that are eaten on a daily basis, either as a main dish or dessert, contain sugar. We also take additional sugar from soft drinks, candy, toffee, jelly, syrup and sugar added to tea, coffee and other beverages. Therefore, we often add excessive amounts of energy to our regular diet. Children who eat sugary foods often have a lower appetite and are prone to tooth decay.

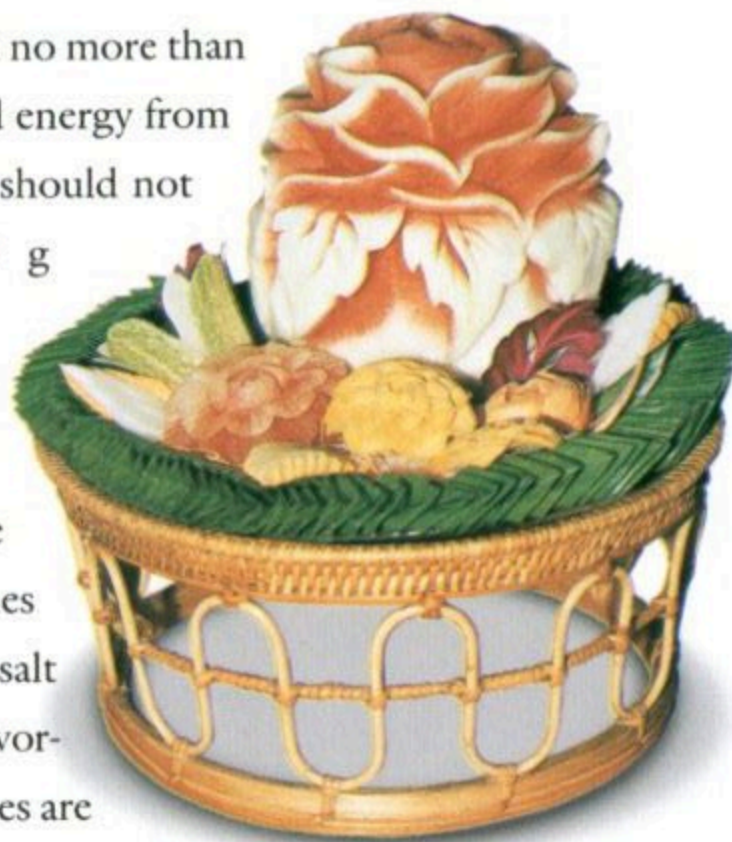
Thus sugary foods should be limited in their diets.





One should obtain no more than 10% of his/her total food energy from sugar. The daily intake should not be more than 40-55 g or 3-4 tablespoons per day.

It is widely known that the salty taste of Thai foods often comes from added fish sauce or salt (sodium chloride). The favorite salt-containing additives are fish sauce, soybean sauce, black soybean sauce and soybean paste. These are also used as preservatives in fermented foods such as pickled vegetables, pickled fruits, salted egg, fermented fish, salted fish, salted meat, soybean paste, etc.



Apart from this, sodium salt is also found in other foods like bakery products, snack foods, and monosodium glutamate (MSG). Salt intake of more than 6 grams per day or more than 1 teaspoonful places a person at risk of hypertension. In older persons, the incidence is likely to be higher,



especially for those who do not like to eat vegetables and fruits. They are also more prone to stomach cancer. A diet containing overly salty foods, therefore, is not beneficial to health. As an alternative, and

in line with the traditional Thai cuisine, reduce unnecessary addition of condiments and use a combination of herbal vegetables and main dishes composed of balanced food ingredients which are not harmful to health.







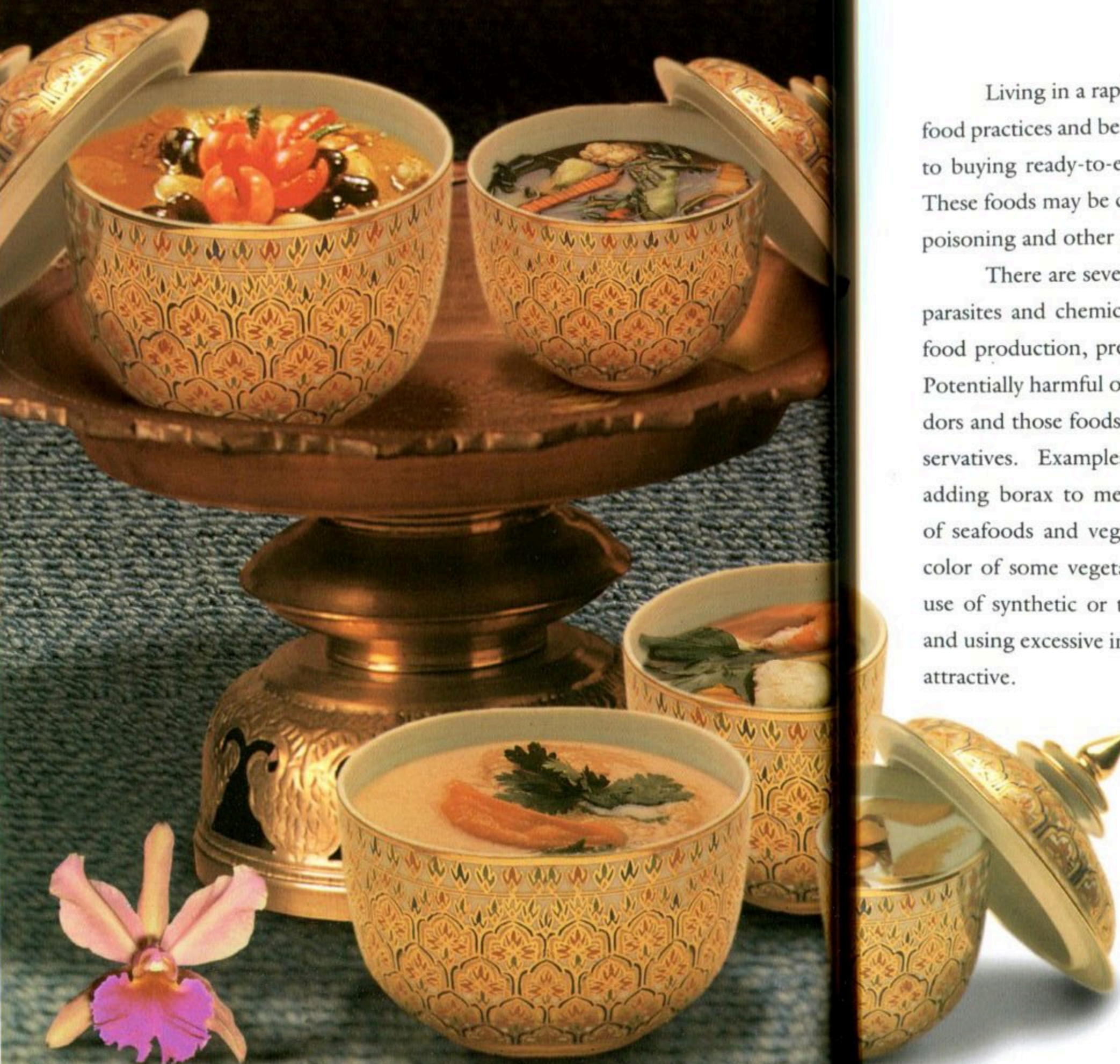
## 8

**Eat clean and safe foods**

Living in a rapidly changing society brings about changes in food practices and behaviors from cooking the family meal at home to buying ready-to-eat, already cooked or ready-to-cook foods. These foods may be contaminated or unclean and can lead to food poisoning and other gastrointestinal diseases.

There are several sources of contamination such as bacteria, parasites and chemicals especially heavy metals in the process of food production, preparation, cooking and unhygienic handling. Potentially harmful ones are foods prepared and sold by street vendors and those foods containing non-permitted additives and preservatives. Examples of the use of dangerous chemicals include adding borax to meat balls, using formalin in the preservation of seafoods and vegetables or bleaching agents to preserve the color of some vegetables (bean sprouts, sliced ginger), excessive use of synthetic or textile dyes in preparing foods and desserts, and using excessive insecticides to make fruits and vegetables more attractive.

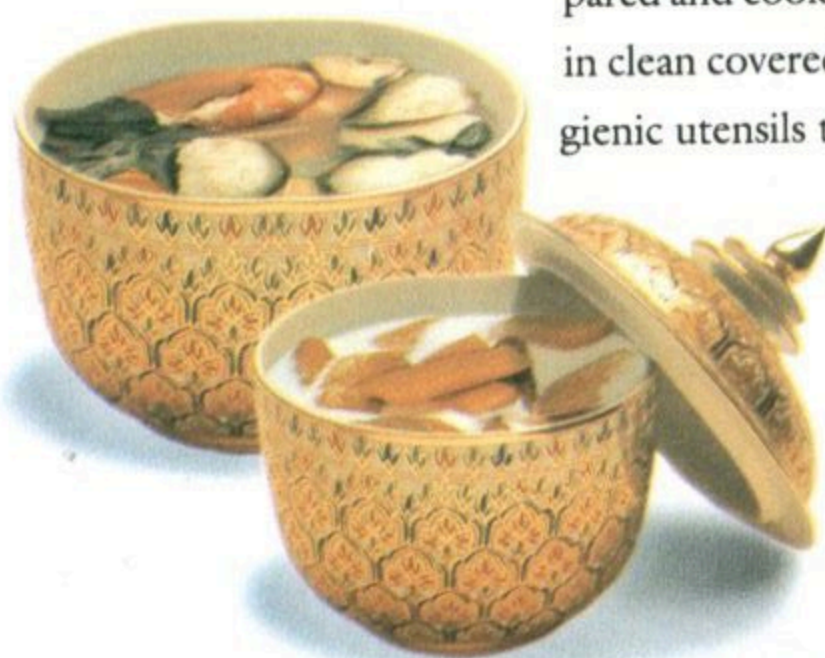
Criteria for selection of non-contaminated foods include: a clean appearance, freshly prepared foods, foods produced from reputable institutions, and food products having the Thai FDA logo. Foods should have a natural smell, taste and color. Eat foods that have been thoroughly cooked, espe-





cially those containing meat. Fruits and vegetables should be washed thoroughly before eating.

While cooking at home, one should use clean, fresh ingredients. Prior to cooking, all foods should be washed and cleaned using hygienic handling practices. Appropriate personal hygiene, such as washing hands with soap before eating and after using the toilets should be maintained. If the same food is being shared with others, do not use a person's spoon to take food from the dish but use the spoon provided for that particular food.



In selecting foods, buy only ready-to-eat foods from clean shops and hygienic outlets. The foods should also be freshly prepared and cooked. Food should be kept in clean covered containers, and use hygienic utensils to handle food.

In the case of ready-to-cook foods, canned foods and food additives, pay attention to the label. The name of the food, its main in-

gredients, production place, date of production and date of expiry should be clearly specified.

To be in a good health, one should know how to select, prepare and cook foods in a hygienic manner and retaining their nutritional value as much as possible.





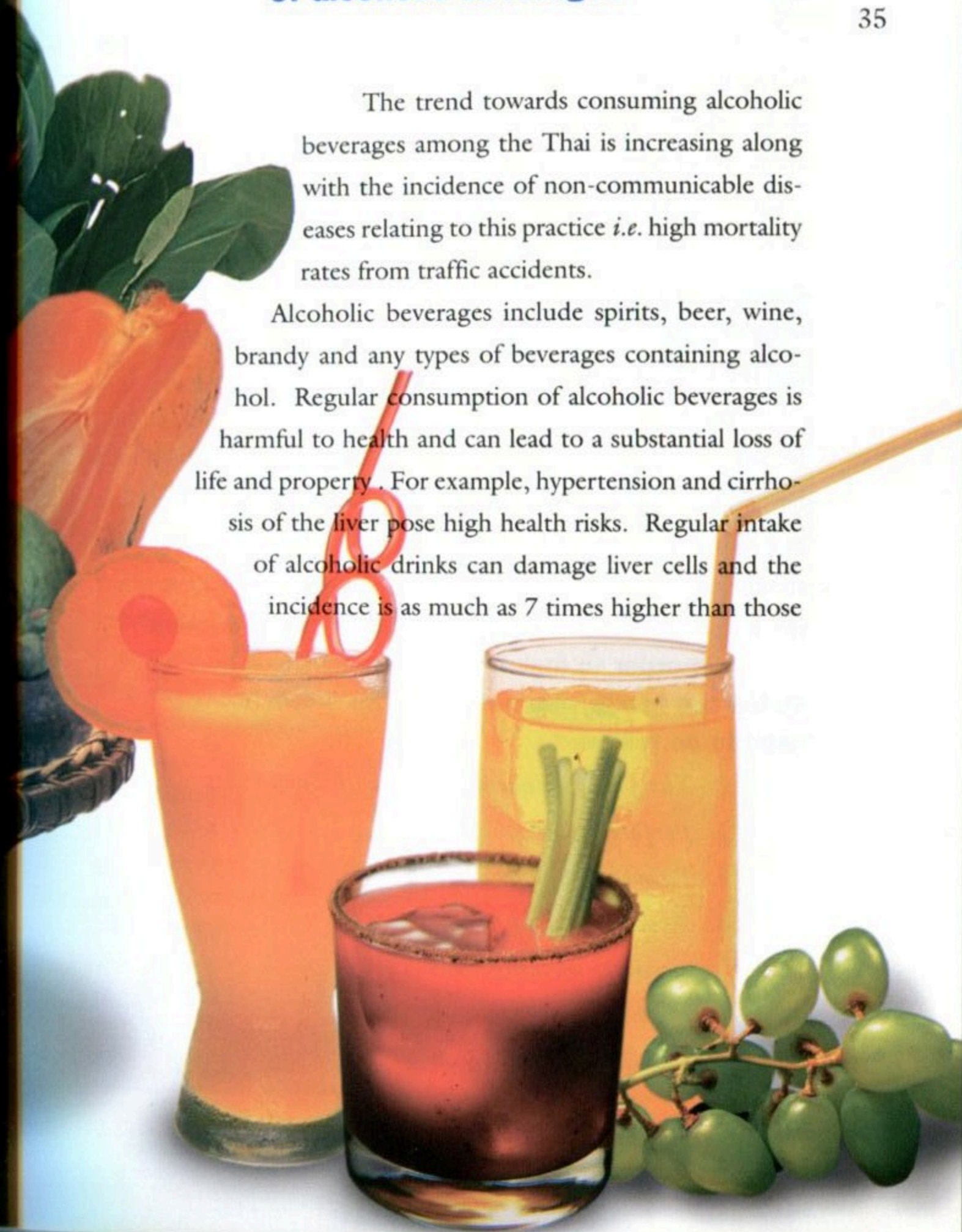


## 9

**Avoid or reduce the consumption  
of alcoholic beverages**

The trend towards consuming alcoholic beverages among the Thai is increasing along with the incidence of non-communicable diseases relating to this practice *i.e.* high mortality rates from traffic accidents.

Alcoholic beverages include spirits, beer, wine, brandy and any types of beverages containing alcohol. Regular consumption of alcoholic beverages is harmful to health and can lead to a substantial loss of life and property. For example, hypertension and cirrhosis of the liver pose high health risks. Regular intake of alcoholic drinks can damage liver cells and the incidence is as much as 7 times higher than those





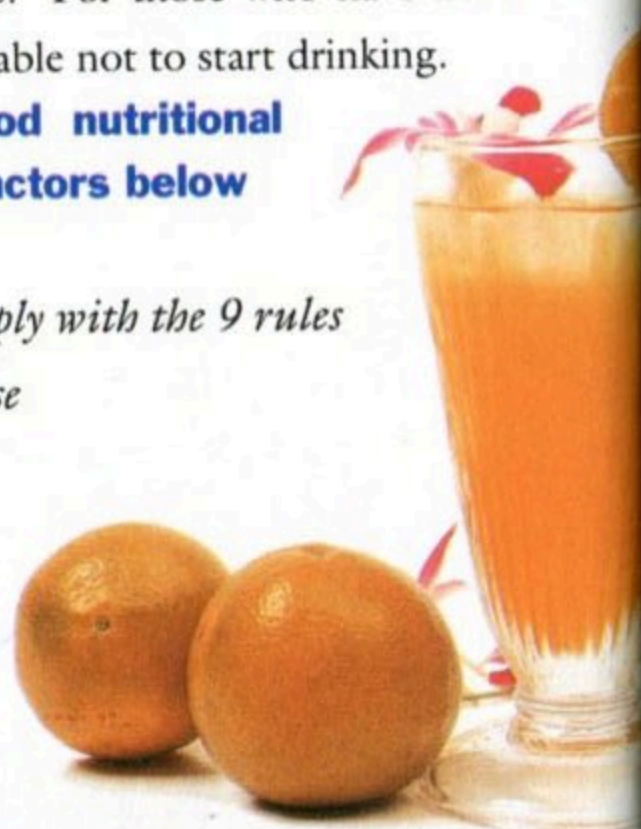


who do not drink. Peptic or duodenal and esophageal cancer are also additional health risks. Most alcoholics are likely to get cirrhosis of liver and infectious diseases such as pneumonia and tuberculosis. Those who drink only alcohol and take no food are at risk of nutritional deficiencies. In contrast, those who drink and consume food rich in protein and fat, are likely to become obese and are at risk of developing other related diseases. Alcohol affects the central nervous system (CNS) and depresses the brain centers that control the heart and consciousness. It leads to impaired judgment, a disturbed sense of balance and decreased work capacity resulting in carelessness. Finally, money is spent unwisely with alcoholic drinks and the family as a whole will become discontent.

As a result, the regular consumption of alcoholic drinks should be reduced, if not avoided altogether. Those who drink alcoholic beverages occasionally or are beginners should avoid alcoholic drinks as much as possible. Most importantly, under no circumstances should one drink alcohol and drive. For those who have never taken alcoholic beverages, it is advisable not to start drinking.

**In order to maintain good nutritional status and health, the major factors below need to be followed :**

1. *Eat good foods and comply with the 9 rules*
2. *Perform regular exercise*
3. *Relax, and*
4. *Avoid intoxicants, e.g., cigarette smoking, alcoholic beverage and toxic environment.*



## Self-evaluation of Thai Food Based Dietary Guidelines

Keeping in mind the 9 rules or dietary guidelines for good health of Thai people, it is now time to evaluate your own eating behaviors and other related practices. The following self-evaluation is intended first for consumers and second for cooks or those who prepare foods.

### I. SELF-EVALUATION FOR CONSUMERS

Please place a check mark for your answers in the space provided in accordance with your past eating behavior.

Eating behavior and related behavior	Frequency of eating		
	Regular	Occasionally	Never
1. Eat 5 food groups			
2. Eat a variety of food, no frequent repetition			
3. Eat unpolished rice			
4. Eat fruits			
5. Eat fish			
6. Eat lean meat			
7. Drink milk			
8. Eat fresh, well prepared foods			
9. Always wash hands before meals			
10. Have your body height and weight measured			
11. Perform exercise			
12. Undertake clinical check-up at least once a year			
13. Take rest and enough sleep			
14. Eat vegetables			
15. Eat foods containing fat and oils			
16. Eat fried and stir-fried foods			
17. Eat sweetened foods			
18. Drink carbonated beverages			



Eating behavior and related behavior	Frequency of eating		
	Regular	Occasionally	Never
19. Add sugar at every meal			
20. Eat salty food			
21. Add fish sauce and salt at every meal			
22. Eat unnaturally colored foods			
23. Drink alcoholic sprits, beer and alcoholic beverages			
24. Being drunk while driving			
25. Have stress			
26. Smoke cigarettes			

### CONCLUSION

The frequency of your food behavior can be summarized as follows.

**1. Food behavior item nos.1-14 are good and appropriate practices.**

If you have a frequency of practice

..... **Regularly**, please continue these good practices.

..... **Occasionally**, please be advised to adopt it on a regular basis.

..... **Never**, please consider the reasons that cause you not to do these.

Focus your initial approach on a step-by-step basis, first to be practiced on an occasional basis, then put into regular practice.

**2. Food behavior item nos.15-26, need to be improved if you practice frequently.**

..... **Regularly**, please consider the major factors that cause you to undertake these behaviors. First, try to practice on an occasional basis, then it will be beneficial to your health if the practice can be avoided.

..... **Occasionally**, continue to do so, but if it can be avoided, it will be beneficial to your health.

..... **Never**, please continue to do so.

### II. SELF-EVALUATION BY COOK/THOSE WHO PREPARE FOOD

If you are the one who prepares and cooks food, place a check mark for your answers in the space provided in accordance with your most usual behavior.

Cooking food preparation	Frequency of cooking		
	Regular	Occasionally	Never
1. Cook and prepare 5 food groups daily			
2. Each meal contains vegetables as its ingredients			
3. Prepare fruits as a family snack			
4. Prepare fish instead of meat			
5. Select lean meat in cooking			
6. Promote milk consumption for family members			
7. Food must be cooked well			
8. A habit of cleanliness is a priority in cooking			
9. Cook by frying and stirred frying			
10. Cook very sweet food			
11. Cook very salty food			

### CONCLUSION

The frequency of your cooking behavior can be summarized as follows:

**1. Food cooking behavior item nos.1-8 imply good behavior and appropriate practices.**

If you have a frequency of practice:

..... **Regularly**, please continue these good practice.

..... **Occasionally**, please be advised to do it on a regular basis.

..... **Never**, please consider your reasons for not having those habits.

Focus your initial approach on a step-by-step basis, first to be practiced on an occasional basis, then put into regular practice.

Food cooking behavior item nos .9-11 needs to be improved.

If you have a frequency of practice :

..... **Regularly**, please consider the major factors that cause you to undertake these behaviors. First, try to practice on an occasional basis, then it will be beneficial to your health if the practice can be avoided.

..... **Occasionally**, continue to do so, if it can be avoided, it will be beneficial to your health

..... **Never**, please continue to do so.





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40

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**Prepared by :**

working Group on Food Based Dietary Guideline For Thai

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