

Problems and some solutions: Turkey

By O. KÖKSAL, *Human Nutrition Research Unit, National Institute for Medical Research, The Ridgeway, Mill Hill, London, N.W.7*

Turkey can be divided into seven main geographical regions: (1) the European region, (2) Marmara and Aegean Sea region, (3) Black Sea coastlands, (4) Mediterranean coastlands, (5) the central plateau, (6) south-eastern region and (7) eastern region. Topographical situation, climate, rainfall and agricultural production vary considerably from one region to another. The first three regions generally have a mild climate and sufficient rainfall. The central plateau and the south-eastern region have cold winters and hot, dry summers; in these regions the rainfall is very variable and irregular. The Mediterranean coastlands have hot summers and warm, wet winters. The eastern region has bitterly cold, snowy winters. The population of Turkey is 27 million, of which 70% live in villages. More than 60% of the population is illiterate. There are more than 40 000 villages, many of which are very small. The development of these villages is handicapped by illiteracy, poor sanitation, and lack of transport and communications.

Food production and consumption

Cereals, mainly wheat, are cultivated in many areas and are the staple food. In some parts of all regions barley, rye and rice are grown. Rice is generally consumed in urban areas. Maize is cultivated in the Black Sea coastlands and consumed locally. Many kinds of vegetable and fruit are grown in the western and Mediterranean regions and Black Sea coastlands. In the central plateau and the eastern region there is a shortage of vegetables and fruit. Legumes, especially beans, lentils and chickpeas, are cultivated in suitable parts of all regions. Some nuts and oilseeds (sesame and sunflower) are grown in the Black Sea and the Marmara and Aegean Sea coastlands. Cotton and olives are cultivated in the Marmara and Aegean and Mediterranean Sea coastlands.

During the last 10 years the agricultural policy has been directed towards increased production of cereals and sugar beet, and, as a result, much pasture has been tilled. Because of the shortage of suitable pastures and fodder, the incidence of disease and the cold winters, livestock production has not increased during this period. In spite of the country's long coast-line, fish landings are small and depend on weather conditions and market prices. The fish is mainly eaten locally because of lack of facilities for preservation and transport. At present wheat is the staple of Turkish diets; bread provides 50–60% of the total calories. Table 1 shows the total daily food supplies/head in Turkey (FAO, 1958).

Protein value of diets and meals

Table 2 shows the protein value of the usual Turkish diet and of some Turkish meals. The N.D-p. Cals % (Platt, Miller & Payne, 1961) of many of the meals are adequate for all age groups. There are seasonal dietary variations, both qualitative

Table 1. *Amount and calorie content per head daily of foods consumed in Turkey (FAO, 1958)*

Food	Amount (g)	Calorie content (kcal)	Percentage contribution to total calories
Cereals	541	1893	71
Potatoes	87	61	2
Sugar	35	129	5
Pulses and nuts	34	126	5
Vegetables and fruits	450	168	6
Dairy products	86	71	3
Meat, fish and eggs	54	78	3
Fats	15	134	5
Total		2660	100
Total protein: 85.0 g			
Animal protein: 12.0 g			

Table 2. *Protein value of the Turkish diet and of some meals*

Food mixture	No. of meals assayed	Protein Cals %	N.P.U. _(op) %	N.D-p. Cals %
National diet	—	13.4	46	6.1
Winter meals	4	8.2-13.1	43-61	5.5-6.2
Summer meals	5	12.3-16.3	55-60	7.3-8.9
All-season meals	4	14.2-15.5	44-56	7.2-7.9
<i>Tarhana</i>	1	14.4	50	7.3

and quantitative, in many parts of the country and the N.D-p. Cals % of summer meals are higher than those of winter meals. Many Turkish villagers prepare and store traditional foods at the end of summer for use in winter, for example (1) fried meat (*kavurma*), (2) salted and air-dried meat and fish (*sucuk*, *pastirma*, *ciroz*), (3) fermented and air-dried wheat flour and yogurt mixture (*tarhana*), (4) air-dried vegetables and fruits, and (5) pickles and jams.

Shortage of these valuable products often occurs among many peasant families towards the end of the long winters, and the diet then consists of nothing but cereals and a small amount of pulses. Such restricted diets are inadequate, particularly in protein, for toddlers, adolescents and pregnant and lactating women.

The distribution of food between members of the family determines the N.D-p. Cals % of the diet of each member. Adult males are likely to consume the largest and most nutritious portions of the meal. In many villages meals are eaten from one dish by all members of the family. Those who eat fastest eat the most. The slower eaters must satisfy their hunger with bread which has a relatively low protein value.

Infant feeding

In Turkey it is customary to continue breast feeding beyond the 1st year of life. Peasant mothers, particularly, give some breast milk to their children up to 2-3 years of age. When the infant reaches about 6 months of age the mother's milk yield often becomes inadequate and mixed feeding is introduced with a cereal gruel made with or without a little cow's milk. If the child has diarrhoea, the milk is omitted and only

rice-water or a starch and water mixture or sweetened tea is given (Dogramaci & Wray, 1959; Thomson, 1956).

Table 3 shows the protein value of a proprietary infant food, based largely on starch, which is used in Turkey. According to the manufacturer's instructions, milk should be added in quantities corresponding to 15% of whole-milk powder. Values for an infant's diet of gruel based on wheat of high extraction rate are also included.

Table 3. *Protein value of Turkish infant foods and effect of supplementation of wheat gruel*

Food	Protein Cals %	N.P.U.(op) %	N.D-p. Cals %
A proprietary infant food + 15% whole-milk powder	5.1	78	4.0
Wheat gruel: alone	15.2	31	4.8
+ 15% yogurt (freeze-dried)	16.5	42	7.4
+ 10% egg (freeze-dried)	17.5	42	7.9
+ 10% air-dried meat	17.9	47	8.2

It will be seen that these diets do not meet the protein requirements of infants and young children. Unfortunately infant foods, such as the proprietary product investigated, are manufactured and, boosted by advertising, widely sold.

Malnutrition in children

As a result of a diet unsatisfactory both quantitatively and qualitatively, the marasmic type of protein malnutrition, rickets, anaemia and various vitamin-deficiency states occur among children. Dogramaci & Wray (1959) reported that 43% of children examined in the Hacettepe Hospital in Ankara under the age of 2 years showed evidence of malnutrition. The infant and toddler mortality rates are high in Turkey: for infants about 205, and for children aged 1-4 years about 100, per 1000 live births (Erzin, 1956).

Solutions

The solution of the problem is to provide more and better food for children and to educate parents in improved methods of child feeding. Ignorance of the nutritional needs of young children, of food values and of effective methods of improving the diets of children, is as important a cause of malnutrition as poverty and low agricultural productivity.

Improving the diets of infants and children. Table 3 also shows the effects of introducing some high-protein foods into the traditional infant food, wheat gruel. The addition of 15% dried yogurt (about 225 g yogurt/1000 kcal), 10% dried egg (1½ eggs/1000 kcal) or 10% air-dried meat (60 g fresh meat/1000 kcal) increased the N.D-p. Cals % from 4.8 to 7.4, 7.9 or 8.2 respectively. A mixture of wheat flour, pulses and sesame, foods easily available in Turkey, has been reported to have an N.D-p. Cals % of about 8 (Platt, Miller & Payne, 1961).

Improvement and extension of food technology. The development of food technology on an industrial scale is desirable, but, at the present time, the economic, social and industrial situation in Turkey makes it difficult. The improvement and expansion of traditional methods of processing is, however, practicable and should receive increasing attention. The modification of methods of sun-drying so as to reduce losses of riboflavin should be studied. The traditional methods of air-drying of meat, fish, *tarhana* and vegetables could easily be extended and modified to provide a simple and cheap means of increasing supplies of protein of good quality.

Education in nutrition. Essentially, in applied nutrition work in predominantly rural communities, there are two objectives to be achieved: (a) good housewifery and (b) good husbandry. Mothers must be taught to feed themselves and their children properly and food producers must do all they can to increase supplies. Such education should be planned at the village level in fulfilment of a well-considered national food and nutrition policy.

REFERENCES

- Dogramaci, I. & Wray, J. D. (1959). *Turk. J. Pediat.* **1**, 128.
 Erzin, N. (1956). *Turk. Bull. Hyg. exp. Biol.* **16**, no. 2, p. 137.
 FAO (1958). *Food Balance Sheets (1954-56 Average)*. Rome: Food and Agriculture Organization of the United Nations.
 Platt, B. S., Miller, D. S. & Payne, P. R. (1961). In *Recent Advances in Human Nutrition*. [J. F. Brock, editor.] London: Churchill.
 Thomson, J. C. (1956). *Report on a Nutrition Survey in Turkey*. Geneva: World Health Organization.

Problems and some solutions: Iraq

By W. FRANKUL, *Human Nutrition Research Unit, National Institute for Medical Research, The Ridgeway, Mill Hill, London, N.W.7*

Iraq is one of the countries of the Near East, which also includes Egypt, Syria, Lebanon, Palestine and Saudi Arabia. These countries have similar dietary, socio-economic and cultural patterns. Iraq has a total area of nearly half a million km². Most of the country is a semi-arid plateau. The better agricultural land is found along the rivers Euphrates and Tigris. Rainfall, generally confined to the period November-April, is heavy in the north but scanty in other parts of the country. Iraq has a population of about 7 million, 70% rural, 10% nomadic and the rest urban; 90% of the population is illiterate.

Over half of the national income is derived from agricultural products; the rest comes from the mineral-oil industry and some minor industries. Three-quarters of the population are fellaheen (peasants and farmers). The annual income is between £35 and £45 per person. The main agricultural products are dates, wheat, maize, barley, cotton and grain legumes. Adolph (1954) estimated the areas of land in the Near East (expressed as percentages of the total arable land) under various crops as: wheat 30, barley 12, maize 11, rice 8, grain legumes 5, sorghum 4.