فَبِاَیِّ اٰلَآءِ رَبِّکُمَا تُکَذِّبٰنِ

پھر کیا کیا نعمتیں اپنے رب کی جھٹلاؤ گے ؟

FOOD COMPOSITION TABLE FOR PAKISTAN

(REVISED 2001)

Department of Agricultural Chemistry
NWFP Agricultural University
Peshawar

UNICEF
Islamabad

Ministry of Planning and Development
Government of Pakistan
Islamabad

PREFACE

Access to adequate food is a fundamental right of all people. If any right can be called the most fundamental right, it is the right to life, and proper nutrition is essential in fulfilling this right. Hence, the long-term goals of the Government of Pakistan for Vision 2025 with support from international development agencies, including UNICEF have been developed with a view to fulfil this fundamental human right to food and nutrition in Pakistan, with the premises that:

- Food is a fundamental human right, and that;
- Everyone should have access to food, which is:
  - sufficient, balanced, and safe to satisfy nutritional requirements;
  - culturally acceptable; and
  - accessible in a manner which does not destroy one's dignity as human.

Unfortunately, despite increased recognition about the need to fulfil human right to nutrition and greater understanding of the role of nutrition especially on child and maternal survival and health, the nutrition status of a majority of women and children in Pakistan has remained at alarmingly poor levels. Basic indices of prevalence of malnutrition have changed very little over the last 20 years or more. The extent of the problem has further increased, as number of malnourished children is estimated at 8 million at the on set of the new century 2000. One-third of pregnant women are malnourished, and on an average, one-fourth of newborns is Low Birth Weight (LBW). Maternal malnutrition affects 34 percent of pregnant women who are severely underweight and 48 percent of lactating women have a caloric intake of less than 70 percent of the recommended level. Vitamin A Deficiency is a significant public health problem affecting 30 percent children, according to a recent micronutrient survey done for NWFP. Iron Deficiency Anemia (IDA) among children and women of reproductive age is another problem of serious public health significance. Recent data on Iodine Deficiency indicate that over 70 percent of the population in the Northern Areas suffer from Iodine Deficiency Disorders (IDD) and as many as 40 million people in the country as a whole might be affected.

Malnutrition is an impediment to human development, and it represents a major constraint in the national development effort. Attempts to overcome this serious problem have been in the last two decades fragmented and low in profile, thus these efforts were not able to show any change in the nutritional status of the nation. Malnutrition thus continues to be a major problem in Pakistan, with devastating impact on health and survival of women and children. Inadequate food intake contributes substantially to childhood death and diseases, but generally goes unrecognized as such. Intensive nutrition education campaign is, therefore, required targeting all the major stakeholders including general public and key actors across all sectors – including Planning, Health, Population and Welfare, Agriculture, Education, and Industry, the Private Sector and Non-Government Organizations (NGOs) working in the field of health and nutrition.

The desirable dietary pattern according to FAO recommendations and for comparison, national dietary intake pattern, is shown in the table below. The recommendations do vary according to activity levels and physiological needs (e.g. during pregnancy and lactation, the requirements are higher). But, in the overall, it is shown that dietary Intake pattern for Pakistan is below the recommended level. Increasing the overall national dietary pattern is highly beneficial as adequate dietary intake can ensure good health by strengthening the body defense mechanism against infections, and by contributing to mental and physical growth and development. So this becomes critical for maintenance of economically vibrant and productive, as well as socially and physically active population.

Table 1: Desirable Dietary Pattern

Food Items	FAO[1]		1999 Dietary Intake Pattern[2]		2000 Bench Mark[3]	
	% share calories	Converted in grams	% share calories	Converted in grams	% share calories	Converted in grams
Cereals	40.0	240	58.4	348	52.0	314
Pulses	6.0	38	2.4	14	5.0	31
Animals Products	20.0	200	8.3	80	15.0	148
Added Fats	10.0	23	15.4	37	10.0	23
Sugar	12.0	65	11.6	66	12.0	67
Vegetables and Fruits	10.0	350	3.1	108	6.0	220
Others	1.0	30	-	2	-	-
Calories/Protein	Calories: 2100 Protein: 71.5 grams		Calories: 1900 Protein: 53.2 grams		Calories: 2150 Protein: 66.8 grams	

1. FAO (1988) Report of the Regional Expert Consultation on the Asian Network for Food & Nutrition, Bangkok.
2. FBS (1990). Household Integrated Survey.
3. Adopted for Pakistan.

Three basic steps to developing a desirable consumption pattern or habit for the Pakistani population should involve:

- Consideration of the recommended desirable consumption patterns, taking these as a basis of requirement;
- Review of the prevailing consumption pattern of the population, based on the market basket or consumption/nutrition surveys etc; and
- Projection of demand at the individual and national level for the target year based on the food requirement and population growth

On the basis of the above principles, a Pakistani food basket based on 2100 calories, shown below can help ensure good health and nutrition.

Table 2: Pakistani Food Basket Based on (2100 calories)

SI	Food Item	Quantity (grams
1	Wheat (atta)	300
2	Rice	60
3	Other Cereals	15
4	Pulses	30
5	Meat products	40
6	Dairy products	150
7	Fats Sugar	30
8	Sugar	50
9	Fruits and Vegetables	100

Food and Dietary requirements vary by age, sex, physical activity and physiological needs. Energy needs are higher, for instance during pregnancy, lactation, infections and convalescence While, increased level of activity will mean also higher energy requirements. Nevertheless approximate daily energy and nutrient requirements by sex

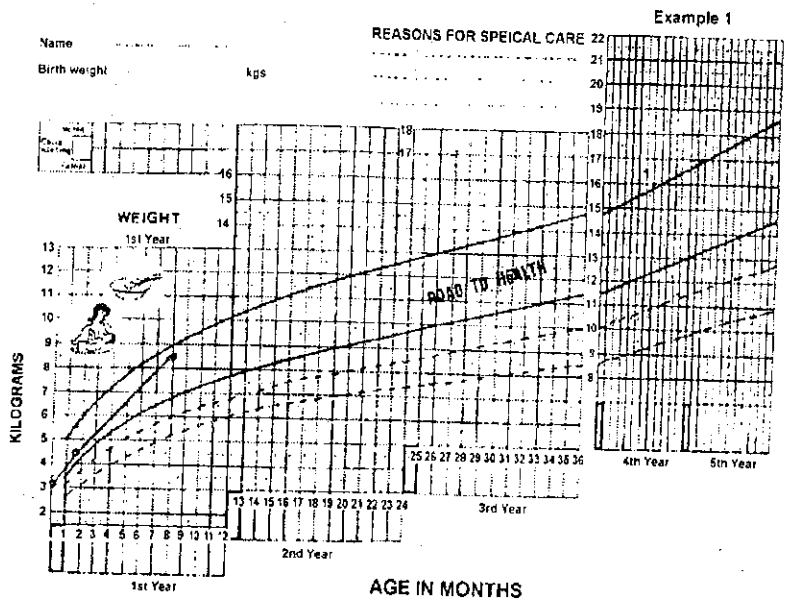
and ago-groups can serve as useful guides for nutritional and food scientists, meal planners and households to ensure that individuals or population groups are meeting their daily requirements. The table below shows daily requirements for energy and some selected major nutrients by age, sex and body weight for Pakistani population.

Table 3: Recommended Daily Allowances for Pakistani Population for Selected Major Nutrients

Age (years)	Weight (kg)	Energy (kg)	Protein (g)	Vitamin A (RE)	Vitamin D (ug)	Iron (mg)	Iodine (ug)	Zinc (mg)
Children both sexes								
0-1	7.3	820	12	350	10	15	50	15
1-3	11.9	1250	23	400	10	20	90	15
3-5	15.9	1510	26	400	8.3	20	90	15
5-7	19.6	1710	30	400	4.2	20	90	15
7-10	25.9	1880	38	400	2.5	25	120	15
Children boys								
1042	34.0	2170	50	500	2.5	35	120	15
12-14	43.2	2360	64	600	2.5	35	150	15
14-16	54.5	2620	75	600	2.5	30	150	15
16-19	63.6	2820	84	600	2.5	30	150	15
Children girls								
10-12	35.4	1925	52	500	2.5	30	120	15
12-14	44.2	2040	62	600	2.5	30	150	15
14-16	51.5	2135	69	550	2.5	20	150	15
[6-19	54.6	2150	66	500	2.5	20	150	15
Men moderately active Average 25 years	55.0	2550	.57g/kg	750	2.5	20	150	15
Women — moderately active								
Childbearing age	46.0	2160	.52g/kg	750	2.5	30	150	20
Pregnant		+350	+10	750	10.0	40	200	20
Lactating		+350	+26	1200	10.0	30	200	25

Source: Extracted from Nutrition in Growth and Health by Mushtaq Khan and Mushtaq Khan, Islamabd, Pakistan (1980).

Figure-1: Growth Chart: A Tool for Promoting Healthy Rate of Child Growth



Source: Khan and Khan (1980)

Growth chart is an important tool to use by nutritionist and health workers to assess child's performance with regards to growth. But, it can be a powerful tool not only for monitoring child growth but also for promoting healthy rate of growth in children among communities and families. The growth chart has been adopted for the Pakistani children; the upper line reference curve being the WHO recommended standard of the median for boys and the lower line is the 3rd centile for girls (European data). Figure 1 shows an example of a child growing satisfactorily, the growth rate is similar to the reference curve.

As such, the updated food composition table can play an important role as reference material for health and nutrition policy makers, researchers, programme planners and managers, meal planners, dietary counselors, communicators as well as households. It includes analysis of about 200 food commodities as well as traditional food recipes. The nutrients analyzed include all major micronutrients, such as Iron, Iodine Vitamin A, and Zinc, in addition to some key essential nutrients, including protein, energy, fat, and fibre. Beside this the table also includes Formulation and Nutrient Composition of a few home prepared weaning and supplementary food mixes for infants & children and nutrient and composition of some important traditional food. Therefore, this represents valuable information, which can be the basis for future food-based nutrition planning and education activities. It is our hope that this document will be useful to all concerned to make a positive impact on the health and well being of the Pakistani population, especially of the most vulnerable, women and children.

Dr. Mushtaq A. Khan,
Member and Senior Chief,
Health and Nutrition, Planning and Development Division,
Islamabad

Dr. Saba Mebrahtu,
Nutrition Project Officer,
UNICEF, Islamabad.

Dr. Thaneoke Kyaw-Myint,
Chief, PHEC,
UNICEF, Islamabad

ACKNOWLEDGEMENTS

The author would like to express his sincere thanks to the following persons, who initiated this study and for their help and continued interest during the course of this investigation.

Dr. Mushtaq A. Khan, Senior Chief, Health and Nutrition, Planning and Development Division, Government of Pakistan for overall supervision.

Dr. Saba Mebrahatu, Nutrition Project Officer, UNICEF, Islamabad for useful suggestions and monitoring of study.

Ms. Farzana Yasmeen and Mr. Javaid Iqbal, Lecturers, NWFP Agricultural University, Peshawar for analytical work and data analysis.

Mr. Anwar Ali Shad, Ms. Samia Ikram, Miss Momina Batool and Miss Afsheen, graduate students, Department of Agricultural Chemistry, NWFP Agricultural University, Peshawar for their assistance in analytical work and collection of reference materials.

Financial assistance for this study received from UNICEF Islamabad is gratefully acknowledged.

(Prof. Dr. Tajammal Hussain)

TABLE OF CONTENTS

INTRODUCTION

Food is a major component of man's environment. Man has used food primarily to satisfy his hunger but satisfaction of hunger is not a safe criteria for sustaining a healthy and active life. It is now established that for keeping a good health, an individual needs to eat a diet which is balanced in terms of quantity and quality. The quality of food refers to the nutrients presents in the food and data on what is actually in food has been important for keeping an individual healthy. Since the composition of food has become immensely important to issues of human health, food consumption surveys, meal planning, food processing, health assessment, dietary counseling, epidemiological research, food safety, food assistance, national and international trade in food and consumers' demand for selecting food consistent with healthy diet, a number of countries have developed food composition tables containing the analytical data on the nutrients in foods consumed in those countries. As various cultural and economic factors are involved in selection of foods, therefore food composition tables also vary from country to country.

Since independence different organizations of the country were using food composition tables of USA or FAO. In 1985, we developed a food composition table for Pakistan in which we presented the nutrient content of various foods available in Pakistan. The personals in health and agriculture, faculties and students in the academic institutions and dieticians in the country used this table. Because of the high demand for this table, it was necessary to reprint it in 1991. As many changes in the food habit have occurred in the last fifteen years and latest analytical instruments have become available which has resulted in the production of more analytical data on foods, it was considered necessary to revise the food composition table for Pakistan. Because of the importance of micronutrients in the well being of humans, a number of micronutrients like zinc, iodine, vitamin-A, β-carotene as well as cholesterol have been included in this food composition table.

We have also given recipes and nutrient data of the weaning and supplementary food mixes prepared from locally available foodstuffs for infants and children of the low-income families. Besides we have also determined the nutrient composition of seventeen (17) popular traditional dishes commonly consumed in Pakistan.

SOURCES OF DATA AND METHODOLOGY

The data on food composition has been compiled from the results of analysis carried out by various laboratories in Pakistan and elsewhere. The variation of results obtained from different laboratories were checked. Formulated weaning and supplementary food mixes and traditional dishes were analyzed at the laboratories of the NWFP Agricultural University, Peshawar. In addition to the previously reported nutrients (proximate composition, Ca, P, Fe, Bi, B2, niacin ant ascorbic acid) the foods were also analysed for zinc, iodine, b-carotene, vitamin-A and cholesterol content.

Sampling

Samples of each commodity were purchased from various markets. They were mixed manually to prepare a composite sample. Solid samples were powdered in dry mill and stored in airtight bottles with name and date of purchase written on it. Liquid samples were homogenised and stored. Weaning, supplementary food mixes and traditional dishes were prepared in the laboratories of the NWFP Agricultural University, Peshawar. Recipes for the dishes were adopted from the local methods used in majority of homes. Prepared food samples were then mixed in a moulinex blender and stored. Perishable commodities were kept in a freezer and analysed as early as possible. The samples were analysed by the standard methods of analysis of the AOAC (1994).

Energy

The calorific value of the food sample was determined by an adiabatic bomb calorimeter.

Moisture

Moisture in food samples was determined by direct heating at 110 °C in a precision oven

Protein

Protein content was estimated using kjeltec autoanalyser. Nitrogen content obtained was multiplied by an appropriate conversion factor to get the value of crude protein

Crude fat (ether extract)

Crude fat in the food samples was determined by labconco soxtec apparatus using petroleum ether (BP 40-60 °C). Fat was extracted by repeated syphoning.

Crude Fiber

Crude fiber of the food sample was determined by a tecator fibertec system

Ash

Samples were ignited at 550-600 °C in a thermoline 1500 furnace till white gray ash resulted.

Carbohydrate

Percent carbohydrates were determined by difference subtracting the sum of percentage of moisture, crude protein, fat, ash and crude fiber from 100.

Phosphorus

Food samples were first digested with acid and aliquots were used for the determination of phosphorus with a spectronic-20 colorimeter.

Calcium, Iron and Zinc

These trace elements were analysed by Perkin Elmer atomic absorption spectrophotometer after wet digestion with nitric and perchloric acid. Calcium was determined at wavelength of 422.7, iron at 248.3 and zinc at 274.5 nm.

Iodine

Iodine in the food samples was determined by spectrophotometric and ion selective electrode method.

Thiamin and Riboflavin

Thiamin was determined by measuring the flourescence of thiochrome and riboflavin the flourescence of lumichrome with a Turner 450 flourometer using the method of AOAC (1994).

Niacin

Niacin was extracted from food material by basic hydrolysis with calcium hydroxide. It was then treated with cyanogen bromide to give pyridium compound. The colour intensity which was proportional to the amount of niacin, was measured by a Gallenkamp colorimeter at 470 nm

Ascorbic acid (Vitamin-C)

Vitamin-C in the food samples was determined by 2,6-dichlorophenol-indophenol dye method.

Vitamin-A and B-carotene

Standard vitamin-A (all trans retinol) and B-carotene were obtained from sigma chemical company (St. Louis, Mo, USA).

Vitamin-A and B-carotene were extracted from the food samples using ethanol. Potassium hydroxide, ascorbic acid, and then with petroleum ether. Extracts were analysed by high performance liquid chromatography (HPLC) in a perkin Elmer HPLC system consisting of a 250 isocratic LC Pump with a 20 ul injector model 7125-075 Rheodyne value (Perkin Elmer) equipped with a continuously variable wavelength model LC-290. Computer integrator model PEL Nelson and a printer Epson 1050 was used for computing the results.

Cholesterol

Cholesterol content in food samples was determined by gas liquid chromatography at column temperature of 220-250 °C.

Statistical Analysis

Statistical analysis of food composition table for Pakistan 2001 and its comparison with that of 1985 is given in Appendix 18.

PROXIMATE COMPOSITION, MINERAL AND VITAMIN CONTENT OF FOODS

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
A) CEREAL AND CEREAL PRODUCTS										
1.	Barley Whole grain flour	Jou	Hordeum Vulgare	339	12.9	9.6	2.5	72.6	5.3	3.2
2.	Corn Whole grain flour	Makai	Zea Mays-L	276	13.1	9.6	3.2	70.0	1.8	1.1
3.	Corn Flakes	Makai	Zea Mays-L	375	3.7	7.4	0.4	78.6	1.5	2.5
4.	Corn Bread	Makai	Zea Mays-L	203	51.5	5.4	2.5	38.8	1.2	0.7
5.	Millet Pearl Whole grain flour	Bajra	Pennisetum Typhoides	345	11.6	10.5	4.0	69.0	1.7	2.2
6.	Oat Whole grain flour	Jei	Avena Sativa	354	10.9	12.6	5.9	63.2	9.5	2.9
7.	Rye Whole grain flour	Rei	Secale Cereale	334	12.1	12.1	2.2	71.1	1.9	1.7
8.	Rice Polished	Chaval	Oryza Sativa	360	12.1	6.7	0.9	79.5	0.4	0.5
9.	Rice Polished Boiled	Chaval	Oryza Sativa	163	67.6	3.2	0.3	28.8	0.1	0.2
10.	Rice Polished Fried	Chaval	Oryza Sativa	268	52.3	4.4	12.4	33.7	0.6	0.9
11.	Rice Flakes	Chaval	Oryza Sativa	346	12.2	6.6	1.2	77.2	0.7	2.0
12.	Sorghum whole grain flour	Cheri	Sorghum vulgare	341	11.4	10.2	3.9	72.2	2.0	1.8

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
A) CEREAL AND CEREAL PRODUCTS												
1.	48	235	4.4	2.0	-	0.35	0.17	5.5	0	10	0	0
2.	12	223	2.2	1.7	45	0.38	0.11	1.9	0	198	47	0
3.	13	45	2.0	0.3	-	0.41	0.10	2.1	0	0	140	0
4.	13	157	2.2	0.2	-	0.21	0.11	2.1	0	270	0	0
5.	26	274	6.5	1.7	-	0.36	0.15	3.3	0	32	0	0
6.	46	372	4.2	3.9	16	0.35	0.09	1.6	0	0	0	0
7.	36	340	3.0	5.6	-	0.42	0.22	1.6	0	0	0	0
8.	18	128	1.5	1.2	-	0.13	0.04	2.0	0	0	0	0
9.	4	68	0.6	1.7	-	0.03	0.01	0.3	0	0	0	0
10.	16	65	0.8	1.5	-	0.02	0.00	0.5	0	0	0	0
11.	20	238	20.2	1.2	-	0.21	0.05	4.0	0	0	0	0
12.	31	293	4.5	1.0	-	0.40	0.15	3.5	0	47	0	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
A)	CEREAL AND CEREAL PRODUCTS									
13.	Sorghum Bread	Cheri	Sorghum vulgare	267	29.0	5.3	3.4	56.8	3.4	2.0
14.	Vermicelli	Savian	Sorghum vulgare	345	12.6	9.6	0.6	74.6	0.2	0.7
15.	Wheat Whole grain flour	Atta	Triticum aestivum	357	12.7	10.0	1.2	75.1	1.0	0.9
16.	Wheat flour refined	Maida	"	350	12.7	10.8	1.4	75.8	0.8	0.9
17.	Wheat flour granular	Suji	"	370	9.5	10.2	2.0	77.3	0.5	0.5
18.	Wheat Bread	Nan	"	369	10.9	10.3	1.7	75.5	1.0	1.1
19.	Wheat Bread	Chapati	"	259	30.9	8.8	1.2	57.0	0.8	1.6
20.	Wheat Bread	Parata	"	364	27.4	8.6	21.4	39.8	1.9	1.8
21.	Wheat Bread	Puri	"	293	37.2	8.6	9.1	44.3	0.0	0.8
22.	Wheat Bread	Double Roti	"	263	35.4	8.4	1.3	54.8	1.5	1.3
23.	Wheat Flour	Biscuit	"	440	9.2	9.1	7.2	73.7	0.5	0.7

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
A)	CEREAL AND CEREAL PRODUCTS											
13.	38	227	7.5	6.0	-	0.37	0.12	3.1	0	0	0	0
14.	35	106	1.9	2.3	-	0.19	0.05	1.9	0	0	0	0
15.	32	108	4.5	2.9	-	0.30	0.06	1.8	0	0	0	0
16.	27	261	2.6	2.0	8	0.24	0.08	2.4	0	0	0	0
17.	20	45	3.2	2.7	8	0.28	0.12	2.6	0	0	0	0
18.	34	300	3.3	2.2	-	0.28	0.09	0	0	0	0	0
19.	81	56	5.6	2.0	-	0.00	0.00	0	0	0	0	0
20.	43	274	4.6	1.8	-	0.00	0.00	0	0	0	0	0
21.	17	70	2.7	1.6	-	0.00	0.00	0	0	0	0	0
22.	26	186	1.9	1.8	-	0.17	0.06	0.9	0	0	0	0
23.	22	69	1.3	1.8	6	1.11	0.06	0.5	0	0	0	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
B) LEGUMES										
24.	Broad Bean Raw	Lobia	Vicia Faba	341	11.9	25.8	1.4	53.2	5.8	3.1
25.	Broad Bean Cooked	Lobia	Vicia Faba	175	58.5	14.2	1.2	20.9	2.7	2.5
26.	Chickpea Raw	Channa	Cicer arietinum	360	9.8	20.5	3.8	60.7	3.9	2.9
27.	Chickpea Cooked	Channa	Cicer arietinum	187	51.9	12.4	3.8	28.8	3.7	1.3
28.	Cow Pea Raw	Rawan	Vigna unguiculat	346	9.5	22.1	1.4	62.2	4.2	3.2
29.	Cow Pea Cooked	Rawan	"	116	67.3	9.5	0.9	20.3	1.6	1.1
30.	Kidney Bean Raw	Moth	Phaseolus vulgaris	339	10.4	22.0	1.6	59.6	4.5	3.5
31.	Kidney Bean Cooked	Moth	"	154	59.2	11.4	1.0	25.7	1.9	1.8
32.	Lentil raw	Masur	Lens culinaris	348	10.0	24.8	1.1	59.7	3.6	3.0
33.	Lentil cooked	Masur	"	178	68.3	11.2	1.4	16.6	2.0	2.0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
B) LEGUMES												
24.	111	411	5.7	3.1	-	0.50	0.26	2.5	6	78	8	0
25.	43	170	1.7	2.6	-	0.46	0.28	2.3	2	54	12	0
26.	128	330	5.8	3.4	-	0.44	0.19	1.8	8	0	7	0
27.	111	194	3.1	2.8	-	0.16	0.19	1.6	0	0	0	0
28.	125	433	7.1	3.4	-	0.75	0.18	2.1	0	12	5	0
29.	59	157	2.3	2.8	-	0.53	0.20	2.1	0	12	-	0
30.	154	439	7.0	2.8	-	0.59	0.17	2.0	4	0	1	0
31.	46	169	3.6	2.1	-	0.54	0.16	2.0	5	0	-	0
32.	128	348	10.9	3.9	-	0.37	0.26	2.2	3	0	6	0
33.	69	121	2.2	3.0	-	0.14	0.20	2.4	0	0	-	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
B) LEGUMES										
34.	Mung Bean raw	Mung	Vigna Radiata	337	6.8	22.5	1.4	63.8	3.5	3.4
35.	Mung Bean cooked	Mung	Vigna Radiata	120	66.5	9.2	0.7	23.4	1.0	1.4
36.	Mash Bean Raw	Mash	Phaseolus Radiatus	363	7.5	23.4	1.5	62.2	2.2	3.2
37.	Mash Bean Cooked	Mash	"	158	62.5	10.6	1.0	22.5	1.7	1.7
38.	Pigeon Pea Raw	Arhar	Cajanus cajan	345	9.7	21.0	1.6	64.6	1.3	3.6
39.	Pigeon Pea Cooked	"	"	135	70.2	8.8	0.8	17.1	1.9	1.2
40.	Pea Garden Raw	Matter	Pisum Sativum	336	12.0	23.1	1.2	58.2	4.8	2.2
41.	Pea Garden Cooked	"	Pisum Sativum	84	73.7	8.8	0.6	15.5	0.5	0.9
42.	Soybean Seed		Glycine Max-L	411	9.5	36.0	18.3	28.9	4.3	4.8
43.	Sunflower Seed		Helianthus annus	236	6.3	24.1	28.5	33.3	5.4	2.4

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
B)	LEGUMES											
34.	133	315	6.1	2.7	-	0.44	0.25	2.0	10	82	11	0
35.	57	176	2.3	2.2	-	0.15	0.19	1.6	2	53	12	0
36.	140	227	6.0	2.6	-	0.43	0.22	3.4	10	75	114	0
37.	65	84	3.3	2.0	-	0.38	0.20	3.4	18	70	0	0
38.	130	272	4.6	2.8	-	0.43	0.19	2.0	3	20	3	0
39.	65	137	2.0	2.2	-	0.41	0.19	1.1	0	0	0	0
40.	165	363	5.2	1.2	13	0.56	0.18	2.0	2	70	64	0
41.	74	200	3.5	0.7	-	0.50	0.16	1.8	25	60	0	0
42.	229	545	7.6	4.9	-	1.00	0.30	2.3	0	21	2	0
43.	77	506	6.1	5.1	-	1.20	0.19	2.9	0	0	5	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
C)	VEGETABLES									
44.	Bath Sponge	Tori	Luffa segyptice	18	94.0	1.0	0.2	4.0	0.7	0.4
45.	Bottle Gourd	Kaddu	Legenaria vulgaris	15	94.8	1.1	0.2	3.6	0.7	0.5
46.	Bitter Gourd	Karela	Momordica charentia	19	93.0	1.1	0.2	4.4	1.1	0.7
47.	Bringal	Baingan	Solanum melongena	26	88.7	1.2	0.3	5.8	0.7	0.4
48.	Cauliflower	Phool Gobhi	Brassica oleracea botrytis	27	92.7	1.8	0.2	4.8	0.7	0.6
49.	Cucumber	Khira	Cucumis sativus	16	95.1	0.8	0.1	3.2	0.5	0.5
50.	Cabbage	Band Gobhi	Bressica oleracea capitata	23	92.0	1.5	0.2	4.8	0.9	0.6
51.	Kulfa	Sag kulfa	Portulaca Oleracea	23	92.0	1.7	0.3	3.4	0.7	1.5
52.	Lady Finger	Bhindi	Hibiscus esculentus	35	88.4	2.1	0.2	7.9	1.1	1.0
53.	Lettuce	Salad	Lactuca sativum	18	94.1	1.3	0.2	3.1	0.6	0.8
54.	Mountain ebony	Kutchnar	Bauhinia variegata	56	82.1	2.2	0.5	13.0	1.3	1.1

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
C) VEGETABLES												
44.	7	54	0.8	-	-	0.03	0.04	0.3	10	28	100	0
45.	12	38	0.8	-	-	0.02	0.02	0.6	9	10	21	0
46.	21	41	2.0	-	-	0.06	0.04	0.3	64	108	55	0
47.	21	39	1.0	0.6	-	0.08	0.05	0.3	6	53	8	0
48.	25	43	0.8	0.3	-	0.07	0.07	0.4	48	55	2	0
49.	18	24	0.5	0.2	-	0.03	0.04	0.3	24	26	7	0
50.	52	45	0.5	0.2	-	0.06	0.05	0.3	57	240	13	0
51.	109	35	5.0	-	-	0.08	0.14	0.6	32	660	719	0
52.	74	58	1.2	-	4	0.07	0.08	0.8	19	52	70830	0
53.	49	33	1.5	0.3	-	0.06	0.11	0.4	12	919	190	0
54.	56	54	5.3	-	-	0.02	0.10	1.4	9	0	437	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
C)	VEGETABLES									
55.	Mustard leaves	Sag Sarson	Brassica compest ris-var Sarson	55	86.8	3.7	0.4	7.3	1.1	1.2
56.	Moongra	Mongra	Raphus sativus	25	90.5	2.0	0.2	4.6	0.6	1.0
57.	Mint Leaves	Podina	Mentha viridis	38	87.3	3.2	0.6	6.6	1.5	1.8
58.	Mushroom	Khumbi	Agaricus campestris	16	91.7	2.8	0.2	3.3	0.8	0.8
59.	Pepper Sweet	Mirch	Capsicum annum	25	92.3	1.3	0.3	4.8	1.3	0.6
60.	Pepper Hot	Mirch suruk	Capsicum frutescens	35	89.3	1.8	0.3	9.3	2.1	0.6
61.	Pumpkin	Halva Kaddu	cucrubita maxima	44	86.8	1.2	0.2	10.3	0.9	0.8
62.	Spinach	Palak	Spinacia oleracea	27	92.7	2.1	0.4	4.2	0.6	1.1
63.	Tomato	Tamatar	Lycopersicum esculentum	21	93.5	1.1	0.2	4.1	0.5	0.7
64.	Tinda	Tinda	Citrulus fistulosus	23	93.5	1.9	0.1	3.6	0.7	0.6

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
C) VEGETABLES												
55.	172	54	8.9	-	-	0.06	0.15	0.5	40	1620	1056	0
56.	122	45	4.3	-	-	0.08	0.25	1.1	57	0	0	0
57.	184	59	9.0	-	-	0.15	0.39	1.1	27	2388	1090	0
58.	9	108	0.7	0.2	-	0.10	0.37	4.6	4	0	26	0
59.	12	31	0.9	0.1	-	0.07	0.06	1.0	134	660	63	0
60.	13	28	0.6	0.1	-	0.09	0.12	0.7	191	400	42	0
61.	27	30	0.6	0.3	-	0.05	0.09	0.6	13	1500	160	0
62.	76	84	4.3	0.5	7	0.13	0.40	0.6	57	4991	672	0
63.	14	27	0.7	0.1	10	0.07	0.04	0.5	23	424	62	0
64.	20	36	1.1	-	-	0.07	0.01	0.4	31	192	0	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
D)	ROOTS AND TUBERS									
65.	Beet Root	Chakunder	Beta vulgaris	45	81.0	1.6	0.2	9.9	0.8	0.9
66.	Carrots	Gajor	Daucus carota	37	82.5	0.9	0.2	9.2	0.9	0.7
67.	Colocasia	Arvi	Colocasia antiquorum	89	69.7	1.9	0.2	21.2	0.8	1.3
68.	Garlic Bulb	Lahsen	Allium sativum	121	61.0	3.7	0.3	25.7	0.8	1.2
69.	Ginger	Adrak	Zingiber officinale	53	78.1	1.7	0.7	11.3	1.7	1.1
70.	Onion	Piaz	Allium	44	83.1	1.4	0.2	9.8	0.7	0.6
71.	Potato	Alu	Solanum tuberosum	83	77.1	1.9	0.2	19.3	0.4	0.8
72.	Reddish	Mooli	Raphanus sativus	23	92.8	1.2	0.1	4.6	0.7	0.8
73.	Turnip	Shalgum	Brassica rapa	26	80.4	1.1	0.2	5.9	1.0	0.6

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
D)	ROOTS AND TUBERS											
65.	31	39	0.7	-	-	0.02	0.04	0.3	7	20	678	0
66.	42	24	1.5	0.2	8	0.05	0.05	0.7	10	8836	2813	0
67.	29	73	1.1	-	-	0.12	0.03	0.6	3	24	0	0
68.	26	122	1.4	1.2	-	0.21	0.06	0.3	9	0	0	0
69.	17	59	1.7	0.3	-	0.01	0.03	1.5	3	46	0	0
70.	29	47	0.7	0.2	82	0.05	0.03	0.3	10	9	0	0
71.	9	47	0.8	0.4	9	0.10	0.04	1.3	15	24	0	0
72.	33	28	1.1	0.3	-	0.03	0.03	0.3	26	4	912	0
73.	33	30	0.46	0.3	-	0.04	0.05	0.5	25	15	0	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
E)	SPICES AND CONDIMENTS									
74.	Caraway	Ajvain	Carum capticum	377	6.4	19.1	17.5	43.8	11.9	6.5
75.	Cardamon	Lachi	Elettana Cardamomum	326	10.1	12.5	5.1	60.3	9.5	5.4
76.	Cinnamon	Dal Chenee	Cinnamonum Zeylanicum	259	8.8	6.1	1.9	64.6	26.5	4.2
77.	Cumin Seed	Zera	Cuminum Cyminum	336	12.8	17.6	9.6	34.2	18.7	7.1
78.	Liquorice root	Molut	Glycerrhiza glabra	212	9.2	6.3	1.7	43.6	31.5	7.7
79.	Clove	Loung	Syzygium Aromaticum	304	9.1	8.1	8.1	63.4	9.1	6.4
80.	Turmeric	Haldi	Curcuma domestica	365	11.0	8.5	6.6	67.6	3.2	5.3
81.	Coriander	Dhania	Coriandrum sativum	327	11.6	14.6	13.5	27.8	31.9	4.7
82.	Pepper Black	Siah Mirch	Piper Nigrum	268	6.4	16.1	2.9	56.9	1.0	17.2

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
E) SPICES AND CONDIMENTS												
74.	1147	483	15.5	5.5	-	0.00	0.00	0.0	0	0	36	0
75.	75	182	19.7	0.15	-	0.87	0.70	1.2	0	0	0	0
76.	415	69	15.0	2.0	-	0.10	0.40	2.4	0	0	26	0
77.	970	431	25.3	4.8	-	0.55	0.36	2.6	3	522	127	0
78.	578	264	49.8	-	-	0.00	0.00	0.0	0	0	0	0
79.	705	132	5.5	1.1	-	0.10	0.18	2.1	0	253	53	0
80.	145	268	16.8	4.4	-	16.8	0.05	0.1	3	80	0	0
81	590	380	16.7	4.7	-	0.22	0.35	1.1	0	942	0	0
82.	280	277	20.8	1.4	-	0.00	0.00	0.0	0	0	19	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
F)	FRUITS									
83.	Apple	Seb	Malus Sylvestris	57	84.7	0.4	0.3	13.9	0.8	0.3
84.	Apricot	Khubani	Prunus armeniaca	53	85.2	0.8	0.3	12.5	0.8	0.6
85.	Banana Ripe	Kela	Musa Paradisiaca	96	73.5	1.3	0.4	23.6	0.5	0.8
86.	Black Berry	Gurguray	Rubus fruticusus	64	83.0	1.1	0.5	13.0	2.5	0.6
87.	Dates Dried	Khajur	Phoenix dectylifera	293	17.7	2.9	0.5	77.3	3.3	1.8
88.	Dates Fresh	Khajur	"	131	64.3	1.2	0.4	31.6	2.3	1.0
89.	Fig Fresh	Angeer	Ficus Carica	76	80.1	1.2	0.3	17.3	1.7	0.6
90.	Grapes	Angoor	Vitis vinifera blue	74	82.0	0.5	0.3	16.2	1.0	0.5
91.	Grapes	Angoor	Vitis vinifera green	71	83.0	0.5	0.3	15.0	1.0	0.6
92.	Guava whole	Amrud	Psidium guajava	73	79.9	1.0	0.4	15.3	5.6	0.6
93.	Jaman	Jaman	Eugenia Jumbus	82	85.0	1.0	0.2	13.3	0.3	0.5
94.	Lemon	Limu	Citrus limon c.v.Lisbon	30	89.4	0.7	0.7	8.5	0.7	0.4
95.	Lichi	Lichi	Nephelium Litchi	62	82.8	0.9	0.2	15.3	0.2	0.5
96.	Lime	Lime	C.aurantifolia	36	89.4	0.6	0.1	7.3	0.6	0.6
97.	Lime Sweet	Mitta	C.aurantifolia c.v.Khazi	29	90.2	0.6	0.6	8.0	0.5	0.4
98.	Loquat	Khajur	Eriobotrya japonica c.v.Mitta	45	87.7	0.5	0.2	10.8	0.5	0.4
99.	Mango Ripe	Aam	Mangifera indica	64	81.6	0.7	0.3	15.5	0.7	0.5
100.	Melon Musk	Sarda	Cucumis melo	29	92.0	0.7	0.2	5.4	0.4	0.6

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
F) FRUITS												
83.	11	10	0.6	0.1	8	0.03	0.03	0.2	8	39	5	0
84.	23	24	0.9	0.3	-	0.04	0.05	0.7	10	1667	261	0
85.	12	30	0.7	0.2	-	0.03	0.05	0.6	10	98	8	0
86.	20	27	2.8	0.3	-	0.10	0.01	12.5	9	7	16	0
87.	46	68	3.0	0.2	-	0.04	0.07	1.2	2	0	2	0
88.	37	35	0.8	0.3	-	0.07	0.05	0.6	12	0	5	0
89.	82	32	2.1	0.2	-	0.06	0.05	0.5	2	82	14	0
90.	23	22	0.9	0.1	-	0.10	0.03	0.2	6	30	7	0
91.	20	28	0.7	0.1	-	0.10	0.06	0.2	4	50	7	0
92.	20	26	0.9	0.2	-	0.05	0.07	1.0	217	160	79	0
93.	6	19	1.0	-	-	0.00	0.01	0.2	21	0	0	0
94.	36	19	0.4	0.1	-	0.04	0.02	0.1	52	14	3	0
95.	10	29	0.3	0.1	-	0.04	0.05	0.5	40	0	0	0
96.	15	15	0.3	0.1	-	0.02	0.02	0.1	30	12	1	0
97.	29	16	0.3	0.1	-	0.04	0.03	0.2	47	9	2	0
98.	23	15	0.9	0.1	-	0.03	0.04	0.2	5	854	153	0
99.	12	15	0.5	0.1	-	0.06	0.05	0.6	37	1280	389	0
100.	20	16	0.9	0.1	-	0.04	0.03	0.6	30	1500	322	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
F) FRUITS										
101.	Melon water	Tarbuz	Citrullus vulgaris	23	93.3	0.4	0.1	5.5	0.2	0.3
102.	Mulberry black	Shehtut	Morus nigra	76	80.8	1.4	1.0	15.4	0.9	0.7
103.	Mandarin	Kinno	C.reticulata c.v. Kinno	44	86.7	0.7	0.2	11.6	0.6	0.4
104.	Mandarin	Narangi	C.reticulata c.v. Narangi	46	87.5	0.8	0.2	10.0	0.4	0.3
105.	Orange Sweet	Malta	C.sinesis c.v. Malta	43	87.8	0.8	0.2	10.0	0.8	0.4
106.	Peach	Aru	Prunus Persica	47	86.9	0.7	0.2	11.4	0.9	0.5
107.	Pear	Nashpati	Pyrus communis	58	84.8	0.6	0.2	13.4	1.3	0.3
108.	Persimmon	Amlok	Diospyros Kaki	68	80.7	0.8	0.3	17.0	1.1	0.5
109.	Pineapple	Ananos	Ananas Comosus	45	87.4	0.7	0.2	11.0	0.5	0.4
110.	Plum	Alucha	Prunus domestica	51	84.9	0.7	0.3	13.4	0.5	0.3
111.	Pomegranate	Anar	Punica granatum	66	81.1	1.0	0.4	16.4	2.3	0.5
112.	Papaya ripe	Papita	Carica Papaya	43	87.4	0.4	0.3	11.2	0.6	0.3
113.	Phalsa	Falsa	Grewia asiatic	78	77.8	1.6	0.5	17.9	1.2	1.1
114.	Straw-berry		Fragaria Spp.	35	90.2	0.7	0.4	7.8	1.4	0.4
115.	Zizyphus	Desi Ber	Zizyphus jujuba	79	74.8	1.6	0.4	22.4	1.1	0.7
116.	Zizyphus	Sova Ber	"	67	82.2	1.2	0.3	15.3	0.5	0.6

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
F) FRUITS												
101.	6	9	0.2	0.1	-	0.03	0.03	0.2	6	180	37	0
102.	52	32	2.7	0.1	-	0.04	0.08	0.7	29	0	3	0
103.	23	20	0.5	0.2	18	0.63	0.05	0.3	25	800	98	0
104.	28	19	0.4	0.3	18	0.06	0.03	0.3	35	1000	92	0
105.	18	18	0.5	0.1	18	0.07	0.03	0.4	43	300	21	0
106.	11	24	1.0	0.1	-	0.02	0.04	0.7	9	59	54	0
107.	14	21	0.6	0.1	4	0.03	0.03	0.4	6	55	2	0
108.	17	22	0.4	0.1	-	0.04	0.05	0.4	21	2604	217	0
109.	15	16	0.7	0.1	-	0.06	0.03	0.3	25	18	2	0
110.	12	16	0.6	0.1	-	0.03	0.04	0.4	10	126	32	0
111.	15	28	0.8	0.1	-	0.06	0.05	0.4	13	19	0	0
112.	20	18	0.4	0.1	-	0.03	0.04	0.3	59	666	28	0
113.	45	39	3.2	-	-	0.06	0.00	0.3	22	418	0	0
114.	26	32	0.9	0.13	-	0.04	0.04	0.3	46	40	533	0
115.	28	31	2.4	0.2	-	0.02	0.04	0.7	66	20	15	0
116.	12	11	2.5	0.1	-	0.02	0.04	0.7	76	21	0	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
G)	NUTS AND DRY FRUITS									
117.	Almond	Badam	Prunus amygdalus	613	4.3	18.3	55.0	19.3	2.6	2.8
118.	Anise	Sonf	Foeniculum vulgare	345	2.1	17.4	3.5	59.6	13.6	3.8
119.	Walnut	Akhrot	Juglans regia	654	3.3	17.5	63.4	13.2	1.9	1.9
120.	Betal Nut	Sipari	Areca catechu	390	11.2	4.8	10.4	65.9	13.3	1.4
121.	Cashew Nut	Kaju	Anacardium occidentale	528	4.7	20.3	43.7	28.4	1.3	2.5
122.	Coconut	Kopra	Cocos nucifera	321	49.9	3.1	29.2	16.4	3.0	0.9
123.	Chilgoza roasted	Chilgoza	Pinus gerardiana	572	4.7	17.3	40.0	35.2	1.0	2.4
124.	Pistachio	Pista	Pistacia vera	590	4.2	22.5	55.7	14.1	1.7	2.6
125.	Popy seed	Khash-khash	Papaver somniferum	452	4.7	14.2	2.0	76.8	1.8	5.7
126.	Peanut	Mongphali	Pyrus communis	552	4.5	25.0	44.1	23.1	2.5	2.5
127.	Sesame seed	Till	Sesamum indicum	580	5.9	19.2	51.6	17.0	3.5	3.1
128.	Raisin	Kish Mish	Vitis Vinifera	312	16.8	3.1	0.8	77.1	0.7	2.0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
G) NUTS AND DRY FRUITS												
117.	263	467	4.5	3.4	17	0.25	0.60	4.5	0	0	1	0
118.	1180	330	3.6	5.3	-	0	0	0	0	0	31	0
119.	94	334	2.5	3.1	-	0.45	0.09	2.4	4	0	4	0
120.	293	103	4.2	-	-	0.21	0.40	1.3	0	0	0	0
121.	37	442	3.3	5.6	-	0.46	0.24	1.9	1	40	0	0
122.	24	129	2.0	1.1	-	0.07	0.03	0.6	3	0	0	0
123.	100	375	3.1	-	-	0.32	0.30	3.6	0	0	0	0
124.	130	420	6.0	2.2	-	0.70	0.19	1.6	0	26	55	0
125.	969	638	5.8	6.2	-	0.88	0.00	0.9	0	0	0	0
126.	70	362	2.6	1.8	-	0.82	0.21	14.8	0	37	0	0
127.	694	429	16.9	7.8	-	0.77	0.41	5.3	0	60	1	0
128.	41	78	4.1	0.3	-	-	0.08	0.5	1	0	1	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
H)	DAIRY PRODUCTS									
129.	Butter Milk	Lassi		31	93.9	0.8	1.2	0.6	0	0.2
130.	Curd	Dahi		52	90.1	2.9	3.1	3.3	0	0.7
131.	Cheese	Paneer		35	42.4	22.4	26.7	4.2	0	4.3
132.	Cream	Balai		361	56.4	2.3	38.9	2.2	0	0.6
133.	Milk Buffalo Fluid whole			105	82.6	4.5	7.8	4.4	0	0.8
134.	Milk Cow fluid whole			66	87.4	3.3	3.9	4.6	0	0.7
135.	Milk Goat fluid whole			70	86.6	3.4	3.8	7.1	0	0.7
136.	Milk Human fluid whole			62	86.9	1.3	3.9	7.2	0	0.2
137.	Milk Cow Dried skimmed			331	3.4	36.4	1.1	52.0	0	6.9
138.	Milk cow Dried whole			466	3.7	25.2	25.1	37.2	0	5.9
139.	Yogurt			71	83.5	3.5	1.2	5.3	0	0.9
140.	Ice Cream			148	67.3	3.9	4.5	22.0	0	0.8

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
H) DAIRY PRODUCTS												
129.	30	30	0.8	0.4	-	0.04	0	0	0	0	8	4
130.	130	95	0.3	-	-	0.05	0.16	0.1	0	0	0	0
131.	545	300	2.0	3.1	27	0.05	0.40	0.3	0	400	278	105
132.	60	50	0.1	-	7	0.03	0.14	0.1	1	144	252	37
133.	173	103	0.2	0.2	-	0.05	0.12	0.1	1	26	53	19
134.	120	87	0.3	0.2	11	0.04	0.16	0.2	1	28	44	14
135.	150	120	0.1	0.4	-	0.04	0.12	0.3	1	0	56	11
136.	32	19	0.2	0.2	-	0.02	0.05	0.2	5	0	64	14
137.	1272	1017	1.4	4.1	7	0.37	1.80	1.0	7	0	8	20
138.	938	739	0.6	3.3	-	0.28	1.36	0.9	7	0	280	97
139.	166	142	0.4	0.6	-	0.03	0.14	0.1	0	5	30	13
140.	122	105	0.1	0.7	-	0.04	0.19	0.1	1	23	117	59

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
I) MEAT AND MEAT PRODUCTS										
141.	Beef	Gai Ka Ghost	Bos-taurus	244	62.9	17.6	18.6	0	0	0.9
142.	Beef Liver	Kalajee	"	136	70.5	19.1	3.4	5.3	0	1.3
143.	Beef Kidney	Gurday	"	125	77.2	14.8	5.3	1.5	0	1.2
144.	Beef heart	Dil	"	112	77.6	15.9	4.4	1.3	0	1.1
145.	Buffalo meat	Bains ka Ghost	Babalus Buffelus	123	76.4	19.0	3.2	2.0	0	1.1
146.	Chicken meat	Murghi Ghost	Gallus domesticus	187	68.7	18.8	17.6	0	0	1.1
147.	Duck Meat	Batak Ghost	Anas-boschas domesticus	326	56.3	16.0	27.7	0	0	0.9
148.	Goat meat	Bakri Ghost	Capra hirsus	164	71.5	19.6	11.2	0.1	0	1.3
149.	Goat Liver	Kalajee	"	152	69.7	19.2	8.3	3.4	0	1.4
150.	Goat Kidney	Gurday	"	104	77.6	18.0	2.8	0.2	0	1.2
151.	Goat Heart	Dil	"	126	78.8	11.0	8.3	1.8	0	0.6
152.	Sheep meat	Domba Ghost		175	69.5	17.5	7.7	1.0	0	1.2
153.	Pigeon meat	Kabootar Ghost	Clumba domesticus	171	66.8	23.2	8.5	0	0	1.2
154.	Crab	Kaikra	Portunus Pelagicus	88	77.7	16.7	1.7	1.4	0	2.1

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
I) MEAT AND MEAT PRODUCTS												
141.	12	161	2.4	1.0	-	0.06	0.23	4.4	0	621	0	99
142.	6	322	7.4	3.9	150	0.31	1.59	12.1	32	2600	12301	354
143.	13	206	6.7	1.9	-	0.32	1.90	6.3	14	0	264	285
144.	6	164	4.3	2.4	-	0.41	0.32	6.7	3	8	0	140
145.	12	188	3	1.9	-	0.07	0.35	4.1	0	0	0	46
146.	15	187	1.9	1.5	67	0.08	0.16	7.6	0	42	16	70
147.	14	181	1.6	1.9	-	0.09	0.22	5.5	0	0	24	77
148.	10	163	2.2	4.5	-	0.16	0.18	4.5	0	0	0	84
149.	8	395	5.8	-	-	0.42	3.30	18	47	2850	4091	350
150.	18	264	6.4	-	-	0.45	1.60	8	7	0	0	0
151.	10	100	4.2	-	-	1.50	2.01	22.7	8	0	0	0
152.	7	171	2.2	-	-	0.13	0.19	4.5	0	0	0	98
153.	12	290	3.4	2.7	-	0.11	0.28	5.3	0	0	28	90
154.	116	168	1.8	3.5	33	0.08	0.03	0.2	0	45	2	78

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
J) FISH										
155.	Fish (Roa)	Muchli	Labeo rohita	101	75.8	19.0	2.2	2.9	0	2
156.	Fish (Promfret)	Muchli	"	87	77.9	18.9	1.4	1.8	0	1.5
157.	Fish (Khaga)	Muchli	"	104	76.1	19.7	1.8	1.1	0	1.3
158.	Fish (Shanghara)	Muchli	"	132	72.4	21.2	3.4	1.8	0	1
159.	Fish (Soal)	Muchli	Ophiocephalus-striatus	117	74.5	20.1	2.9	2.2	0	1.5
160.	Fish(Surmai)	Muchli	Cybiuom Commersonii	103	74.4	21.0	2.2	1.8	0	1.5
161.	Lobster	Jhenga	Palaemon Spp	91	78.2	18.5	1.3	0.9	0	1.5
162.	Prawn	Jhenga	Penaeus Spp	96	79.5	16.5	1.3	1.1	1.1	1.5
163.	Shrimp	Jhenga	Palaemonidae	102	78.1	17.0	1.0	0	0	1.5

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
D) FISH												
155.	105	90	1.1	1.3	-	0.05	0.07	0.7	0	22	0	60
156.	150	225	0.9	1.2	-	0.10	0.15	2.6	0	20	0	0
157.	40	80	0.2	1.1	-	0.04	0.10	2.2	0	30	0	0
158.	36	75	0.9	1.0	-	0.08	0.12	1.8	0	40	0	0
159.	88	120	0.7	1.3	24	0.12	0.08	2.0	0	20	0	50
160.	92	165	1.8	1.2	-	0.13	0.20	0.8	3	30	26	0
161.	60	214	1.0	3.0	9	0.01	0.80	3.0	2	0	28	95
162.	120	217	1.0	1.3	-	0.03	0.80	3.0	0	0	11	0
163.	257	267	1.6	1.2	-	0.85	0.12	2.2	1	0	18	147

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
K)	EGGS									
164.	Chicken egg white (Raw)			50	87.8	10.5	0.1	1.4	0	0.6
165.	Chicken egg Yolk (Raw)			350	51.4	16.1	31.0	0.5	0	1.8
166.	Chicken egg whole (Raw)			155	72.2	12.2	11.2	0.8	0	1.0
167.	Chicken egg Boiled			163	74.3	12.8	11.7	0.8	0	0.0
168.	Duck egg white Raw			53	87.1	10.5	0.1	1.6	0	0.7
169.	Duck egg yolk raw			365	47.9	13.4	32.1	4.8	0	1.8
170.	Duck egg whole (Raw)			183	68.0	12.8	13.5	4.3	0	1.2
171.	Duck egg boiled			193	71.3	13.2	14.2	0.7	0	0.0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
K) EGGS												
164.	09	11	0.4	0.01	-	0.01	0.30	0.1	0	0	0	0
165.	150	538	6.5	3.1	-	0.23	0.42	0.1	0	626	584	1281
166.	54	210	2.7	1.1	-	0.10	0.29	0.1	0	224	191	425
167.	63	227	3.2	1.1	-	0.10	0.37	0.1	0	0	168	424
168.	05	07	0.0	1.4	-	0.00	0.00	0.2	0	0	0	0
169.	145	326	5.0	3.2	-	0.51	0.91	0.2	0	695	1992	0
170.	56	204	2.9	1.4	-	0.15	0.35	0.2	0	198	420	884
171.	63	220	3.6	1.2	-	0.13	0.34	0.2	0	0	467	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
L)	FATS AND OILS									
172.	Butter			721	16.5	0.8	80.6	1.1	0	0.5
173.	Ghee			874	0.5	0.3	99.1	0.0	0	0.1
174.	Ghee (buffalo)			900	0.2	0.2	99.5	0.0	0	0.1
175.	Lard (Raw)			899	0.0	0.2	99.9	0.0	0	0
176.	Dalda (Hydrogenated oil)			892	0.0	0.0	100.0	0.0	0	0
177.	Corn Oil			900	0.0	0.0	100.0	0.0	0	0
178.	Soybean oil			887	0.1	0.0	99.9	0.0	0	0
179.	Sunflower oil			900	0.0	0.0	100.0	0.0	0	0
180.	Coconut oil			884	0.0	0.0	99.9	0.0	0	0
181.	Cotton oil			882	0.0	0.0	100.0	0.0	0	0
182.	Olive Oil			900	0.0	0.0	99.9	0.0	0	0
183.	Groundnut oil			882	0.0	0.0	100.0	0.0	0	0
184.	Sesame oil			886	0.1	0.2	99.9	0.1	0	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
L) FATS AND OILS												
172.	25	22	0.2	0.1	26	0.01	0.12	0.1	0	480	754	219
173.	2	3	0.0	-	-	0.00	0.00	0.0	0	450	576	0
174.	0	0	0.0	-	-	0.00	0.00	0.0	0	570	590	80
175.	0	0	0.0	0.1	-	0.00	0.00	0.0	0	0	0	95
176.	0	0	0.0	-	-	0.00	0.00	0.0	0	0	0	0
177.	0	0	0.0	0.0	-	0.00	0.00	0.0	0	0	0	0
178.	0	0	0	0.02	-	0	0	0.0	0	0	0	0
179.	0	0	0	-	-	0	0	0.0	0	0	0	0
180.	2	3	0	0	-	0	0	0.0	0	0	0	0
181.	0	0	0	0	-	0	0	0.0	0	0	0	0
182.	0	0	0	0.1	-	0	0	0.0	0	0	0	0
183.	0	0	0	0	-	0	0	0.0	0	0	0	0
184.	10	5	0.1	0	-	0.01	0.07	0.1	0	0	0	0

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Name of Food			Food Energy K.cal	Moisture g	Protein g	Lipid (Fat) g	Carbohy-drate g	Fibre g	Ash g
	English	Urdu	Scientific							
0	1	2	3	4	5	6	7	8	9	10
M)	SUGARS, SWEETS AND BAVERAGES									
185.	Sugar white			390	0.4	0.0	0.0	99.5	0.0	0.1
186.	Sugar Brown			371	2.7	0.0	0.0	95.8	0.0	1.5
187.	Gur			310	5.9	0.2	0.0	90.1	0.0	3.6
188.	Honey			310	14.8	0.3	0.2	81.5	0.1	0.2
189.	Barfi			384	3.4	1.5	0.8	92.2	2.5	0.9
190.	Jaleebe			395	10.8	0.8	9.8	77.6	1.2	0.4
191.	Koa (whole buffalo milk)			401	35.6	14.6	31.2	15.5	0.0	3.1
192.	Halwa Sohen			481	2.4	0.3	19.9	76.3	7.9	0.1
193.	Carbonated beverages Pepsi, Coke, 7-UP			39	90.2	0.0	0.0	9.8	0.0	0.0
194.	Lemon Juice			43	89.4	0.3	0.0	10.0	0.0	0.3
195.	Mango Juice			74	85.5	0.4	0.4	12.8	0.5	0.4
196.	Cofee Instant (Dry powder)			134	2.6	0.0	0.0	35.0	0.0	9.7
197.	Black Tea leaves dried			292	8.5	22.4	2.4	59.0	8.4	5.0
198.	Green Tea Leaves dried			300	7.6	26.3	4.8	52.1	8.9	4.7

COMPOSITION OF FOOD

Amount in 100 g of edible portion

Sr. No.	Calcium mg	Phosphorus mg	Iron mg	Zn mg	Iodine ppm	Thiamin mg	Riboflavin mg	Niacin mg	Vit.C mg	β-Carotene mcg	Vit.A R.E	Cholesterol mg
0	11	12	13	14	15	16	17	18	19	20	21	22
M)	SUGARS, SWEETS AND BAVERAGES											
185.	6	1	0.6	0.0	2	0	0	0	0	0	0	0
186.	80	30	2.8	2.9	2	0.01	0.03	0.2	0	0	0	0
187.	45	40	3.1	0.0	2	0	0	0	3	0	0	0
188.	6	11	0.9	0.4	-	0.01	0.04	0.2	0	0	0	0
189.	76	15	1.7	0.2	-	0	0	0	0	0	0	0
190.	70	14	1.6	0.0	-	0	0	0	0	0	0	0
191.	650	420	5.8	-	-	0	0	0	0	0	0	0
192.	8	7	1.0	-	-	0	0	0	0	0	0	0
193.	0	0	0.0	0.01	3	0	0	0.0	0	0	0	0
194.	6	18	0.1	0.1	-	0.02	0	0.1	5	0	2	0
195.	14	16	1.3	0.2	-	0.08	0.06	0.5	0	0	0	0
196.	179	383	5.6	0.4	-	0.00	0.21	30.6	0	0	0	0
197.	319	327	24.3	3.2	-	0.06	0.78	7.3	9	2700	0	0
198.	243	413	18.9	0.03	-	0.37	1.30	4.9	230	8400	0	0

WEANING AND SUPPLEMENTARY FOOD MIXES

WEANING AND SUPPLEMENTARY FOOD MIXES

Malnutrition is one of the major nutritional problems faced by most of the developing countries. In Pakistan protein energy malnutrition is widely prevalent (56%) among children mainly due to inadequate food supplies, illiteracy, poverty, lack of clean drinking water and sanitation, poor weaning and feeding practices (WHO, 1995, NIH, 1988, Hussain, 1983). The most vulnerable groups are infants and pre-school children.

Children in Pakistan suffer from both PEM and micronutrient deficiencies including vit. A, iodine and iron. PEM impairs resistance to infection which not only results in high rate of child mortality but also leads to permanent retardation of physical and mental growth of those who survive (WHO, 1993).

The best time to introduce solid food to infants is 4-6 months, but in Pakistan mothers often do not give solid food to the babies until the age of 1 - 1½ years (Hussain, 1983). This practice has been one of the important factor contributing to PEM and high incidence of child mortality. It is recommended that at about 4-6 months, weaning food should be introduced and mothers should also continue to breast feed their babies for upto 2 years.

The high cost of weaning and supplementary food in the market is another reason of withholding solid foods to infant and children. It was, therefore, considered appropriate to investigate the formulation of protein, energy rich weaning and supplementary food mixes for infants about 6 months to 1 year and children 2 years to 6 years from locally available plant protein sources which are least expensive to prepare and the mothers are also familiar with the ingredients. In most cases cereal was supplemented with milk or different legumes to enhance its protein quality. We have formulated a few weaning and supplementary food mixes. The ingredients used, methods of preparation and nutrient compositions of these food mixes is being shown in the following pages.

WEANING FOODS

1. *Kitchri*

Ingredients	Amount
Rice	60 g
Dal Mung	30 g
Iodized salt (Iodized)	To taste
Fat/Oil (fortified with Vit.A)	5 g

Method of preparation

Clean and wash rice and dal mung. Soak for 1/2 hour. Take one cup of water, rice, dal mung and iodized iodized salt in a deep saucepan. Cook on medium flame for 20-25 minutes, till rice and dal becomes soft. Mash these and add one teaspoon of hot oil/fat, remove from the flame and serve warm.

Nutrient composition	Amount in 100 g of edible portion
Energy	300 Kcal
Protein	11.4 g
Fat/Oil	5.2 g
Calcium	120 mg
Phosphorus	500 mg
Iron	6 mg

2. Rice Kheer

Ingredient	Amount
Rice	30 g
Milk	120 ml
Sugar	5 g

Method of Preparation

Clean and wash rice and soak for ½ an hour. Add ½ cup of water and rice in a deep sauce pan. Cook on medium flame for 20-25 minutes till rice becomes soft. Mash rice with spoon or electric blender. Mix sugar and milk to it and again cook on medium flame for 10 minutes till it becomes soft and creamy in consistency serve warm.

Nutrient composition	Amount in 100 g of edible portion
Energy	220 Kcal
Protein	5.2 g
Fat	3.0 g
Calcium	150 mg
Phosphorus	180 mg
Iron	3 mg

3. Feerni

Ingredient	Amount
Wheat flour-suji (Samolina)	20 g
Milk	120 ml
Sugar	5 g

Method of Preparation

Fry suji without oil in a deep saucepan, till it becomes brown. Add milk and sugar to it and cook on medium flame for 10-15 minutes till it becomes soft and creamy in consistency. Turn off the flame and serve warm.

Nutrient composition	Amount in 100 g of edible portion
Energy	200 Kcal
Protein	5.2 g
Fat	3.0 g
Calcium	150 mg
Phosphorus	250 mg
Iron	3 mg

4. Wheat Dalia

Ingredient	Amount
Dalia (Shredded wheat)	20 g
Milk	120 ml
Sugar	5 g
Water	200 ml

Method of Preparation

Thoroughly clean Dalia and then soak for ½ an hour. Add 1 cup of water and dalia in a deep sauce pan. Cook on low flame for 15-20 minutes till it becomes tender. Turn off the flame. Add milk and sugar and serve warm.

Nutrient composition	Amount in 100 g of edible portion
Energy	400 Kcal
Protein	8.4 g
Fat	6.0 g
Calcium	300 mg
Phosphorus	380 mg
Iron	2 mg

5. Banana Kheer

Ingredient	Amount
Banana	80 g
Milk	120 ml
Sugar	5 g

Method of preparation

Mash the peeled banana with spoon add boild milk and sugar. Mix to creamy consistency and serve.

Nutrient composition	Amount in 100 g of edible portion
Energy	200 Kcal
Protein	3.0 g
Fat	2.8 g
Calcium	160 mg
Phosphorus	140 mg
Iron	1.5 mg

SUPPLEMENTARY FOOD MIXES

Recipe-1

Ingredient	Amount
Wheat Flour	30 g
Roasted Channa	30 g
Fat/Oil	10 g
Gur, Raw sugar or refined sugar	30 g

Method of Preparation

Fry wheat flour with oil/fat in a deep saucepan till brown. Grind channa and sugar in a grinder. Mix these with fried wheat flour and serve.

Nutrient composition	Amount in 100 g of edible portion
Energy	460 Kcal
Protein	10.4 g
Fat	12.0 g
Calcium	52 mg
Phosphorus	160 mg
Iron	4 mg

Recipe-2

Ingredient	Amount
Wheat Flour	40 g
Groundnuts	40 g
Gur, Raw sugar or refined sugar	20 g

Method of preparation

Fry wheat flour in a deep saucepan. Grind roasted groundnuts and sugar in a grinder. Mix these with fried wheat flour and serve.

Nutrient composition	Amount in 100 g of edible portion
Energy	520 Kcal
Protein	13.8 g
Fat/Oil	12.2 g
Calcium	60 mg
Phosphorous	260 mg
Iron	3 mg

Recipe 3

Ingredient	Amount
Dal Channa	35 g
Groundnut	35 g
Gur, Raw sugar or refined sugar	30 g

Method of Preparation

Grind roasted dal channa, roasted groundnut and gur/refined sugar in a grinder. Mix these and serve.

Nutrient composition	Amount in 100 g of edible portion
Energy	610 Kcal
Protein	16.4 g
Fat/Oil	15.8 g
Calcium	100 mg
Phosphorus	200 mg
Iron	4 mg

Recipe 4

Ingredient	Amount
Wheat flour	30 g
Groundnut	20 g
Dal Mung	20 g
Gur, raw sugar or refined sugar	30 g

Method of Preparation

Fry wheat flour in a pan till it becomes brown. Roast dal mung and groundnuts in a separate sauce pan. Grind roasted dal mung, groundnuts and sugar in a grinder and mix with the fried wheat flour and serve.

Nutrient composition	Amount in 100 g of edible portion
Energy	440 Kcal
Protein	14.1 g
Fat/Oil	11.7 g
Calcium	65 mg
Phosphorus	170 mg
Iron	3 mg

TRADITIONAL FOODS

Traditional foods have greatly contributed to the health and nutrition of population in many parts of the world. These traditional dishes are popular among the masses because of their taste, cooking methods, low cost and easy availability. These are available in local restaurants catering to the needs of millions of people of low-income group and are also prepared at home. Besides the cultural and nutritional aspects, people eat traditional food, because their forefathers have been eating these for centuries. Though this is the era of fast food, young people from high income families in Pakistan prefer to eat burgers, pizzas, but still for a majority of population, 70-80%, these traditional food form a part of their daily diets (Messer and Kuhnlein, 1986).

Our traditional dishes are popular not only in Pakistan but also in Gulf and other countries. The reason is that when Pakistani migrate to foreign countries, they prefer and prepare their own traditional dishes, which because of their good taste also become popular with the local population (Musaiger, 1996).

The traditional dishes commonly consumed in Pakistan are meat/vegetable curry, lentil curry, kofta, shami kabab, chapal kabab, biryani and haleem and sweets like zarda, kheer and halwa. All these are not only good in taste but also important from nutritional point of view.

As very limited nutrient information is available about these dishes. We have determined and following is the nutrient composition of 17 traditional dishes commonly consumed in Pakistan showing also the ingredients used and methods of their preparation.

NUTRIENT COMPOSITION

1. Chapati

Nutrient composition	Amount in 100 g of edible portion
Energy	282. Kcal
Moisture	31.0 g
Protein	9.7 g
Fat	2.0 g
Carbohydrates	54.7 g
Fibre	1.0 g
Ash	1.6 g
Calcium	0.5 mg
Iron	0.2 mg
Vitamin-C	0.9 mg

Ingredients and Method of Preparation (Appendix-1)

2. Daal Masoor Curry

Nutrient composition	Amount in 100 g of edible portion
Energy	96. Kcal
Moisture	75.1 g
Protein	5.2 g
Fat	2.5 g
Carbohydrates	12.6 g
Fibre	1.0 g
Ash	1.2 g
Calcium	0.8 mg
Iron	1.1 mg
Vitamin-C	3.0 mg

Ingredients and Method of Preparation (Appendix-2)

3. Alu Ghosht (Potato Meat Curry)

Nutrient composition	Amount in 100 g of edible portion
Energy	120. Kcal
Moisture	73.0 g
Protein	7.0 g
Fat	4.0 g
Carbohydrates	13.0 g
Fibre	2.0 g
Ash	1.0 g
Calcium	1.1 mg
Iron	0.5 mg
Vitamin-C	1.4 mg

Ingredients and Method of Preparation (Appendix-3)

4. Kalool (Kidney Bean Curry)

Nutrient composition	Amount in 100 g of edible portion
Energy	162. Kcal
Moisture	58.0 g
Protein	11.7 g
Fat	1.5 g
Carbohydrates	24.3 g
Fibre	2.5 g
Ash	2.0 g
Calcium	1.0 mg
Iron	0.8 mg
Vitamin-C	2.1 mg

Ingredients and Method of Preparation (Appendix-4)

5. Kofta (Meat balls)

Nutrient composition	Amount in 100 g of edible portion
Energy	152. Kcal
Moisture	65.0 g
Protein	13.5 g
Fat	4.0 g
Carbohydrates	14.5 g
Fibre	0.0 g
Ash	3.0 g
Calcium	1.1 mg
Iron	1.0 mg
Vitamin-C	0.3 mg

Ingredients and Method of Preparation (Appendix-5)

6. Pulao Gosht (Rice with Beef)

Nutrient composition	Amount in 100 g of edible portion
Energy	179. Kcal
Moisture	62.0 g
Protein	11.0 g
Fat	6.0 g
Carbohydrates	18.9 g
Fibre	1.1 g
Ash	1.0 g
Calcium	1.0 mg
Iron	0.3 mg
Vitamin-C	0.0 mg

Ingredients and Method of Preparation (Appendix-6)

7. Shami Kabab

Nutrient composition	Amount in 100 g of edible portion
Energy	137. Kcal
Moisture	68.0 g
Protein	10.2 g
Fat	3.0 g
Carbohydrates	16.3 g
Fibre	0.0 g
Ash	2.5 g
Calcium	1.0 mg
Iron	0.9 mg
Vitamin-C	0.4 mg

Ingredients and Method of Preparation (Appendix-7)

8. Chapal Kabab

Nutrient composition	Amount in 100 g of edible portion
Energy	134. Kcal
Moisture	74.0 g
Protein	5.0 g
Fat	6.5 g
Carbohydrates	12.8 g
Fibre	1.5 g
Ash	1.3 g
Calcium	0.3 mg
Iron	1.5 mg
Vitamin-C	0.2 mg

Ingredients and Method of Preparation (Appendix-8)

9. Chicken Curry

Nutrient composition	Amount in 100 g of edible portion
Energy	167. Kcal
Moisture	68.0 g
Protein	9.8 g
Fat	8.5 g
Carbohydrates	11.7 g
Fibre	0.0 g
Ash	1.0 g
Calcium	3.0 mg
Iron	0.5 mg
Vitamin-C	0.0 mg

Ingredients and Method of Preparation (Appendix-9)

10. Haleem

Nutrient composition	Amount in 100 g of edible portion
Energy	156. Kcal
Moisture	62.4 g
Protein	10.2 g
Fat	2.0 g
Carbohydrates	23.2 g
Fibre	1.0 g
Ash	1.0 g
Calcium	31.0 mg
Iron	1.2 mg
Vitamin-C	8.6 mg

Ingredients and Method of Preparation (Appendix-10)

11. Machli (Fried Fish)

Nutrient composition	Amount in 100 g of edible portion
Energy	237. Kcal
Moisture	58.0 g
Protein	23.7 g
Fat	14.2 g
Carbohydrates	1.8 g
Fibre	0.3 g
Ash	1.1 g
Calcium	42.0 mg
Iron	1.5 mg
Vitamin-C	0.2 mg

Ingredients and Method of Preparation (Appendix-11)

12. Sajji (Roasted Meat)

Nutrient composition	Amount in 100 g of edible portion
Energy	157. Kcal
Moisture	60.5 g
Protein	17.2 g
Fat	6.6 g
Carbohydrates	1.5 g
Fibre	0.0 g
Ash	1.2 g
Calcium	15.0 mg
Iron	1.8 mg
Vitamin-C	0.0 mg

Ingredients and Method of Preparation (Appendix-12)

13. Biryani (Rice with Meat)

Nutrient composition	Amount in 100 g of edible portion
Energy	197. Kcal
Moisture	57.6 g
Protein	9.1 g
Fat	6.7 g
Carbohydrates	23.8 g
Fibre	0.8 g
Ash	1.2 g
Calcium	52.0 mg
Iron	0.9 mg
Vitamin-C	3.6 mg

Ingredients and Method of Preparation (Appendix-13)

14. Halwa Suji

Nutrient composition	Amount in 100 g of edible portion
Energy	337. Kcal
Moisture	21.0 g
Protein	2.9 g
Fat	12.0 g
Carbohydrates	52.1 g
Fibre	12.0 g
Ash	0.2 g
Calcium	0.7 mg
Iron	0.1 mg
Vitamin-C	0.0 mg

Ingredients and Method of Preparation (Appendix-14)

15. Zarda (Sweet Rice)

Nutrient composition	Amount in 100 g of edible portion
Energy	246. Kcal
Moisture	43.0 g
Protein	4.5 g
Fat	4.0 g
Carbohydrates	46.5 g
Fibre	0.5 g
Ash	1.5 g
Calcium	0.4 mg
Iron	0.5 mg
Vitamin-C	0.3 mg

Ingredients and Method of Preparation (Appendix-15)

16. Kheer (Rice Pudding)

Nutrient composition	Amount in 100 g of edible portion
Energy	125. Kcal
Moisture	72.2 g
Protein	3.6 g
Fat	2.7 g
Carbohydrates	18.2 g
Fibre	0.2 g
Ash	1.1 g
Calcium	137 mg
Iron	0.2 mg
Vitamin-C	1.7 mg

Ingredients and Method of Preparation (Appendix-16)

17. Halwa Gajjar

Nutrient composition	Amount in 100 g of edible portion
Energy	410. Kcal
Moisture	22.6 g
Protein	5.1 g
Fat	24.2 g
Carbohydrates	42.0 g
Fibre	2.1 g
Ash	1.8 g
Calcium	150 mg
Iron	1.1 mg
Vitamin-C	2.0 mg

Ingredients and Method of Preparation (Appendix-17)

TRADITIONAL FOODS
INGREDIENTS AND METHODS OF PREPARATION

INGREDIENTS AND MEHTODS OF PREPARATION

1. Chapati

(Appendix-1)

Ingredients		Amount
Flour (wheat)	(1 cup)	200 g
iodized Iodized salt	(½ teaspoon)	12 g
Water	As needed to make a dough	

Method of Preparation

- Add iodized salt in flour and knead by adding water till dough becomes soft.
- Leave it for 5 to 10 minutes
- Make small round balls of it. Press these balls to make chapaties (round flat bread).
- Bake on an iron plate at medium flame.

2. Daal Masur Curry

(Appendix-2)

Ingredients		Amount
Lentil (daal masur)	(1 cup)	250 g
Ghee/oil	(4 tablespoon)	40 g
Garlic (crushed)	(3 cloves)	3 g
Spices		
Iodized Iodized salt	(1 teaspoon)	4 g
Red chilli powder	(½ teaspoon)	2 g
Turmeric powder	(1/4 teaspoon)	1 g
Cumin seeds	(½ teaspoon)	2 g
Water	(4-5 cups)	1000-1200 ml

Method of Preparation

- Soak lentil in 2 cups of water for one hour.
- Add all the spices and rest of the water cook until tender. Mix well with spoon.
- Brown garlic in oil. Add cumin seeds to it.
- Pour it over the prepared lentil.
- Serve hot with rice or chapati.

3. Alu Gosht (Potato with Meat)

(Appendix-3)

Ingredients		Amount
Meat (Beef)		250 g
Ghee/Oil	(5 tablespoon)	50 g
Potatoes (cut into pieces)	(2 medium size)	200 g
Onion (chopped)	(1 medium size)	100 g
Tomato (chopped)	(1 medium size)	100 g
Garlic (crushed)	(5 cloves)	5 g
Ginger (Paste)	(1 piece)	2 g
Coriander leaves	(2 teaspoon)	2 g
Spices		
Iodized Iodized salt	(1 teaspoon)	4 g
Red chilli powder	(½ teaspoon)	2 g
Coriander powder	(1 teaspoon)	4 g
Garam masala powder	(½ teaspoon)	2 g
Water	(5-6 cups)	1200-1500 ml

Method of Preparation

- Fry onions, garlic and ginger in oil.
- Add meat, tomatoes and all the spices with 2 cups of water.
- Cook untill meat becomes almost tender.
- Add potatoes and remaining water.
- Cook till potatoes become tender and gravey thickens.
- Sprinkle garam masala and coriander leaves on curry and serve hot.

4. Kalool (Kidney beans Curry)

(Appendix-4)

Ingredients		Amount
Red kidney beans	(2 cups)	500 g
Onion (chopped)	(1 medium size)	100 g
Garlic (crushed)	(5 cloves)	5 g
Tomatoes (chopped)	(2 medium size)	150 g
Ghee/Oil	(4 tablespoon)	40 g
Spices		
Coriander leaves	(2 teaspoon)	4 g
Iodized salt	(1 teaspoon)	4 g
Red chilli powder	(1 teaspoon)	4 g
Coriander powder	(1 teaspoon)	4 g
Baking soda	(1 teaspoon)	4 g
Water	(5-6 cups)	1200-1500 ml

Method of Preparation

- Soak beans in water with soda for 2 hours.
- Boil until beans become tender.
- Fry onions and garlic in oil.
- Mix tomatoes and all the spices.
- Cook until tomatoes become tender.
- Mix boiled beans, cook for 5-10 minutes.
- Sprinkle coriander leaves and serve hot.

5. Kofta (Meat Balls)

(Appendix-5)

Ingredients		Amount
For Kofta		
Minced meat (beef)		250 g
Onion	(1 medium size)	100 g
Chillies green	(2 No.)	15 g
Ginger	(1 piece)	2 g
Spices		
Iodized salt	(½ teaspoon)	2 g
Chilli powder	(½ teaspoon)	2 g
Garam masala	(½ teaspoon)	2 g
Chickpea powder	(2 teaspoon)	8 g
Poppy seed (powder)	(½ teaspoon)	2 g
For curry		
Ghee/oil	(5 tablespoon)	50 g
Onion (chopped)	(1 medium size)	100 g
Tomato (chopped)	(1 medium size)	100 g
Garlic (crushed)	(5 cloves)	5 g
Ginger (paste)	(1 piece)	2 g
Coriander	(2 teaspoon)	2 g
Spices		
Iodized salt	(½ teaspoon)	2 g
Red chilli powder	(½ teaspoon)	2 g
Turmeric powder	(1/4 teaspoon)	1 g
Coriander	(1 teaspoon)	4 g
Garam masala	(½ teaspoon)	2 g
Water	(4-5 cups)	1000-1200 ml

Method of Preparation

- Chop all the ingredients of kofta in electric chopper for 4-5 minutes.
- Make small meat balls and keep aside.
- For curry, fry onions, garlic, ginger in oil.
- Add all the spices and tomatoes with ½ cup of water.
- Cook till onion and tomatoes becomes tender.
- Add meet balls and cook for ½ an hour.
- Sprinkle garam masala and coriander leaves on it, serve hot.

6. Pulao Ghosht (Rice with Beef) (Appendix-6)

Ingredients		Amount
Beef		250 g
Rice	(3 cups)	400 g
Ghee/oil	(5 tablespoon)	50 g
Onion (chopped)	(1 medium size)	100 g
Garlic (crushed)	(5 cloves)	5 g
Ginger (paste)	(1 piece)	2 g
Tomato (chopped)	(1 medium)	100 g
Spices		
Iodized salt	(1 teaspoon)	4 g
Red chili powder	(½ teaspoon)	2 g
Garam masla powder	(½ teaspoon)	2 g
Water	(9-10 cups)	1500-2000 ml

Method of Preparation

- Boil meat with water, iodized salt and garlic until meat is nearly tender. Take it out of the soup and set aside.
- Brown onions in oil. Add ginger, tomatoes, meat and all the spices. Fry meat well.
- Add rice and soup.
- Cook until all the water is absorbed and the rice becomes well done.
- Serve hot.

7. Shami Kabab (Appendix-7)

Ingredients		Amount
Minced Meat (Beef)		500 g
Daal channa	(1 cup)	250 g
Onion	(1 medium size)	100 g
Garlic	(8 cloves)	8 g
Ginger	(1 large piece)	10 g
Ghee/oil	(4 tablespoon)	40 g
Eggs	(2 No.)	-
Spices		
Iodized salt	(2 teaspoon)	8 g
Red chilli powder	(1½ teaspoon)	6 g
Coriander powder	(2 teaspoon)	8 g
Garam masala powder	(1 teaspoon)	4 g
Water	(4 cups)	1000 ml

Method of Preparation

- Boil minced meat, daal channa, onion, ginger, garlic with water and all the spices till meat and daal becomes tender and water dries.
- Chop them in electric chopper for 4-5 minutes.
- Make small round cakes.
- Dip in beaten egg and fry in oil till brown.
- Serve hot.

8. Chapal Kabab

(Appendix-8)

Ingredients		Amount
Minced meat (beef)		250 g
Onion (chopped)	(2 medium size)	150 g
Greeh chillies (chopped)	(2 No.)	20 g
Ghee/oil	(4 tablespoon)	40 g
Eggs	(2 No.)	-
Spices		
Iodized salt	(1 teaspoon)	4 g
Red chilli powder	(1 teaspoon)	4 g
Coriander powder	(1 teaspoon)	4 g
Garam masala powder	(½ teaspoon)	2 g

Method of Preparation

- Add all the ingredients in minced meat and mix well.
- Make medium size round cakes and fry them well in oil.
- Serve hot.

9. Chicken Curry

(Appendix-9)

Ingredients		Amount
Chicken		500 g
Ghee/oil	(10 tablespoon)	100 g
Onion (chopped)	(2 medium size)	200 g
Tomatoes (chopped)	(2 medium size)	200 g
Garlic (crushed)	(10 cloves)	10 g
Ginger (crushed)	(1 piece)	5 g
Spices		
Iodized salt	(1 teaspoon)	4 g
Red chilli powder	(1 teaspoon)	4 g
Coriander powder	(1 teaspoon)	4 g
Turmeric powder	(1/4 teaspoon)	1 g
Garam masala powder	(½ teaspoon)	2 g
Water	(2 cup)	500 ml

Method of Preparation

- Fry chicken pieces in oil and keep aside.
- In the same oil fry onions, ginger & garlic.
- Add spices and tomatoes. Fry well so it resembles a paste.
- Add chicken pieces and cook until chicken is almost tender.
- Add water & simmer for 10 minutes.
- Add garam masala & coriander leaves and serve hot.

10. Haleem

(Appendix-10)

Ingredients		Amount
Beef (boneless)		1000 g
Mung daal	(1 cup)	125 g
Masur daal	(1 cup)	125 g
Channa daal	(1 cup)	125 g
Mash daal	(1 cup)	125 g
Wheat grains (crushed) dalia	(1 cup)	125 g
Oat grains (crushed)	(1 cup)	125 g
Rice	(½ cup)	50 g
Ghee/oil	(8 tablespoon)	80 g
Onion (chopped)	(3 medium size)	150 g
Tomatoes (chopped)	(3 medium size)	150 g
Garlic	(10 cloves)	10 g
Ginger (crushed)	(2 piece)	10 g
Mint leaves		8 g
Lemon	(2 No)	-
Spices		
Iodized salt	(2 teaspoon)	8 g
Red chilli powder	(1½ teaspoon)	6 g
Coriander powder	(2 teaspoon)	8 g
Turmeric powder	(½ teaspoon)	2 g
Garam masala	(½ teaspoon)	4 g
Water	(2 cup)	500 ml

Method of Preparation

- Boil all daals till tender.
- Mash them and keep aside.
- Fry 1 onion and garlic in half of oil.
- Add meat, tomatoes rest of the water and all the spices.
- Cook till meat become tender.
- Add mashed daals and mash again with meat.
- Fry rest of the onions in oil.
- Pour over prepared haleem.
- Garnish with mint leaves and lemon and serve hot.

11. Machlee (Fried Fish)

(Appendix-11)

Ingredients		Amount
Fish cleaned (cut into pieces)	(1 medium)	500 g
Ghee/Oil	(8 tablespoon)	80 g
Garlic (crushed)	(15 cloves)	15 g
Spices		
Iodized salt	(1 teaspoon)	4 g
Red chilli powder	(½ teaspoon)	2 g
Coriander powder	(1 teaspoon)	4 g
Garam masala	(½ teaspoon)	2 g
Ajwain	(1/4 teaspoon)	1 g
Vinegar	(4 tablespoon)	40 ml

Method of Preparation

- Iodized salt the fish, let stand for one hour and then wash thoroughly.
- Mix all spices with crushed garlic and vinegar.
- Add spices to fish and mix well.
- Fry in hot oil untill brown.
- Serve hot.

12. Sajji (Roasted Meat)

(Appendix-12)

Ingredients		Amount
Lamb's leg	(1 piece)	500 g
Iodized salt	(3 teaspoon)	12 g
Ghee/oil	(4 tablespoon)	40 g

Method of Preparation

- Iodized salt lamb's leg and pierce a rod in it.
- Light the coal fire.
- Arrange lamb's leg around it.
- Rub oil on lamb's leg time to time.
- When the meat is well done. Take out of the rod and serve hot.

13. Biryani (Rice with Meat)

(Appendix-13)

Ingredients		Amount
Chicken meat		250 g
Rice	(2 cups)	200 g
Onion (Chopped)	(1 medium)	100 g
Tomato (Chopped)	(1 medium)	100 g
Garlic (crushed)	(5 cloves)	5 g
Potato (cut into pieces)	(1 small)	80 g
Ghee/oil	(5 tablespoon)	50 g
Spices		
Iodized salt	(1 teaspoon)	4 g
Red chilli powder	(½ teaspoon)	2 g
Coriander powder	(1 teaspoon)	4 g
Turmeric powder	(1/4 teaspoon)	1 g
Garam masala powder	(1 teaspoon)	4 g
Water	(8 cups)	2000 ml

Method of Preparation

- Fry onion and garlic in oil.
- Add all the spices, meat and tomatoes.
- Cook well.
- Add two cups of water and potatoes cook until meat and potatoes becomes tender. Set aside.
- Cook rice with water until rice become half done. Strain and set aside.
- Mix rice and meat.
- Cook over low heat for 30 minutes and serve hot.

SWEET DISHES

14. Halwa Suji

Appendix-14

Ingredients		Amount
Semolina (Suji)		150 g
Ghee	(10 tablespoon)	100 g
Sugar	(12 tablespoon)	120 g
Cardamon	(1 teaspoon)	4 g
Water	(2 cups)	500 ml

Method of Preparation

- Fry cardamon in ghee.
- Add semolina and fry well till it becomes golden brown in colour.
- Add sugar and fry well.
- Add hot water and let simmer for 15-20 minutes till it is cooked.
- Serve hot.

15. Zarda (Sweet Rice)

(Appendix-15)

Ingredients		Amount
Rice	(2 cups)	250 g
Sugar	(1½ cups)	200 g
Ghee/oil	(5 tablespoon)	50 g
Cardamon	(½ teaspoon)	2 g
Almonds and Pistachio	(5 tablespoon)	50 g
Orange food Colour		1 g
Water	(4 cups)	1000 ml

Method of Preparation

- Boil rice with fruit colour in 8 glasses of water till half done.
- Strain rice and set aside.
- Fry cardamon in oil. Add sugar and little water.
- Add rice and simmer on low flame for 10-15 minutes.
- Add almonds and pistachio on top.
- Serve hot.

16. Kheer (Rice Pudding) (Appendix-16)

Ingredients		Amount
Whole milk	(2 cups)	500 ml
Cream	(½ cup)	125 g
Sugar	(½ cup)	125 g
Rice	(1 cup)	100 g
Cardamon	(½ teaspoon)	2 g
Almond and Pistichio	(2 tablespoon)	20 g
Water	(2 cups)	500 ml

Method of Preparation

- Boil rice in water.
- Mash rice and add milk and cream.
- Cook till it becomes creamy.
- Add sugar and cook well.
- Add cardamon, almonds and pistachio.
- Chill and serve.

17. Halwa Gajjar (Appendix-17)

Ingredients		Amount
Red carrots (shredded)	(3-4 No)	500 gm
Sugar	(1 cup)	250 g
Ghee	(1½ cup)	250 g
Milk	(4 cups)	1000 ml
Cardamon	(½ teaspoon)	2 g
Almond and Pistichio	(2 tablespoon)	20 g

Method of Preparation

- Boil carrots with milk, till milk becomes dry and carrots tender.
- Add sugar and cook well.
- Add ghee and cardamons and cook till mixture leaves ghee.
- Add almonds and pistachio and serve hot.

STATISTICAL ANALYSIS OF *FOOD COMPOSITION TABLE FOR PAKISTAN 2001* AND ITS COMPARISON WITH THAT OF 1985

The statistical analysis of the different food constituents in various food commodities were carried out in SPSS statistical software and excel spreadsheet with main emphasis on determining the mean values, standard deviations, coefficient of variations, means differences and testing their significance using paired comparison T test. Results indicated some changes (both positive as well as negative) in year 2001compared to the base period 1985. The results are briefly summarized as follows:

I. PROXIMATE COMPOSITION:

As far as cereal and cereal products are concerned, mean value of food energy in Kcal decreased from 324.52 in 1985 to 320.91 in 2001; however, the change of 3.61 is statistically insignificant as indicated by a small t value of just 0.89. The coefficient of Variation (C.V) of *19.45* in year 2001 is a little higher than that of 1985 (17.94) showing a bit higher variability in the year under study compared to the base period. In other food commodities, we observed the same pattern with the exception of legumes and nuts & dry fruits where the change in the mean values appeared to be statistically significant a 5% and 10% respectively.

Moisture contents have highly significantly changed in roots & tubers and dairy products while insignificant changes have occurred in all other commodities. As far as proteins are concerned, there has been significant changes occurred in two food commodities namely nuts & dry fruits and eggs. Lipids & fats and carbohydrates contents both have changed significantly in fruits and condiments while sweets also showed significant difference in fats contents. No significant change has occurred in majority of the food commodities in terms of fibre and ash contents with the exception of cereal & cereal products and condiments that showed significant difference in fibre contents while ash contents also significantly differed in case of nuts and dry fruits.

II. MINERALS AND VITAMINS COMPOSITION:

Our results also indicated that calcium contents have changed significantly in vegetables and meat and meat products. Phosphorus was found to have changes significantly in condiments, nuts & dry fruits and meat & meat products. Fruits in iron contents, legumes in thiamin content; vegetables in riboflavin and vegetables, meat & meat products in niacin contents were found to have significant mean differences. Nuts & dry fruits, dairy products and fish showed significant difference in Vitamin C. contents No significant difference in means for β-Carotene was observed in any of the food commodities. The means paired comparison T tests have not been performed in case of Zn, Iodine, Vitamin A and cholesterol for they have not been reported for the year 1985.

III. CONCLUSIONS:

Some of the significant statistical differences found in proximate and minerals & vitamins compositions may be due to the varietal differences of the samples used for analysis in 2001 as compared to that of 1985. Different methods of analysis and errors during the estimation process might have also contributed to these significant differences. Additionally, the time period i.e.16 years is also large enough during which different changes to the food commodities and its surroundings might have taken place resulting in the significant differences we have observed in our analysis.

BIBLIOGRAPHY

BIBLIOGRAPHY

A.O.A.C. Methods of Analysis, Association of Official Analytical Chemists. Eleventh Edition Washington D.C. (1994).

Abd El Raheem, A.A. Study on the nutritive value of mullet (Mugil cephalus). Egypt. Med. Asso. J. 41 (3/4): 174-179 (1958).

Abd El-Salam, M.H. The chemical composition of buffalo milk. III. Copper, iron and zinc contents of buffalo milk. Indian J. Dairy Sci. 22: 168-170 (1968).

Abd El-Salam, M.H., and El-Shibiny, S. The chemical composition of buffalo milk. I. General composition. Indian J. Dairy Sci. 19: 151-154 (1966).

Abdulnabi, M., et al. The nutritional values of some Iraqi foodstuffs. J. Fac. Med., Baghdad, Iraq. 1 (4): 173-177 (1959).

Ahmad, B. Indigenous Bread; Certain aspect of its nutritive value. Pak. J. Sci. 1: 8-13 (1949).

Ahmad, M.N. Some essential oil sources of West Pakisan. Pak. J. Sci. 14 (1): 12-15 (1962).

Akbar, S. and Khan, N.A. Amino Acid composition and nutritive value of Arhar (Cajanus indicus) grown in NWFP. Pak. J. Sci. Ind. Res. 16 (3-4) (1973).

Ali, M., and Hafizullah. Some studies on oil content of commercial varieties in Multan region. W. Pak. J. Agric. Res. 2: 23-29 (1964).

Asfour, R.Y., et al. Protein rich food mixtures for feeding infants and young children in the Middle East. II. Preliminary clinical evaluation with laubina mixtures. Am. J. Clin. Nutr. 17: 148-151 (1965).

Badawi, H.K. On the chemical composition of the red crab Portunus pelagicus. Mar. Biol. II: 198-200 (1971).

Baker, B.E., et al. Protein and lipid constitution of some Pak.i pulses. J. sci. Fd. Agric. 12: 205-207 (1961).

Baloch, A.K., and Hujjatullah, S. Nutritive value of edible wild plants in the frontier region of West Paksitan. Pak. J. Sci. Ind. Res. 9: 87-90 (1966).

Barkat, M.Z, et al. The ascorbic acid content of edible raw foodstuffs. Acad. Pol. Bull. 18 (1): 1-5, (1970).

Beatriznielsen, et al. Study on the complementation of two proteins of low quality: black bean (Phaseolus vulgaris) and seasame (Seamun indicum L.). J. of Food Sci. 48. 1804-1806 (1983).

Boutros, J.Z. Sudan food composition tables. volume I. The chemical laboratories, Ministry of Health, Khartoum, Sudan. (1977).

Chaudhry, T.M., and Farooqui, M.A.R. Chemical composition of guava and banana fruits grown in Hyderabad region. Pak. J. Sci. Ind. Res. 13 (1/2): 111-113 (1970).

Chaudhry, T.M., and Farooqui, M.A.R. Chemical composition of mango fruit. W. Pak. J. Agric. Res. 7 (5): 103-107 (1969).

Chaudry, R.A. Comparative study of different brand of Banaspati Ghee. M.Sc. (Hons) Thesis, Peshawar University.

Chughtai, M.I.D. and Khan, A.W. Nutritive value of common vegetables. Pak. J. Sci. Res. 6: 54, (1950).

Chughtai, M.I.D. and Khan, A.W. Nutritive value of food stuff and planning of satisfactory diets in Pakistan. Composition of raw food stuff. Division of Biochemistry, Institute of Chemistry Punjab University, Lahore (1960).

Chughtai, M.I.D. Essential Amino acid content of gram (Cicer Arietinum) protein. Punjab University Lahore, Pak. (1976).

Darwish, N.M., et al. Effect of preparation and cooking on the nutritive value of broad beans. Qualitas Pl. - Pl. Fds. Hum. Nutr. 25 (3/4): 331-341 (1976).

Davies, N.T. and S. Warington. The phytic acid, mineral trace element, protein and moisture content of UK Asian Immigrant Foods. Hum. Nutr. 40 (1): 49-59 (1986).

Edrissi, M., and Kooshkabadi, H. Determination of vitamin C in Iranian citrus fruits. Iran. J. Agric. Res. 3 (2): 81-85 (1975).

El-Nahry, F.I., et al. Effect of preparation and cooking on the nutritive value of local kidney bean. Qualitas Pl. - Pl. Fds. Hum. Nutr. 27 (2): 141-150 (1977).

El-Nahry, F.I., et al. Nutritive value of local varieties of fresh and sundried okra (Hibiscus esculentus) pods and seeds. Qualitas Pl. - Pl. Fds. Hum. Nutr. 28 (3): 227-231 (1978).

El-Sokkary, A.M. and Hassan, H.A. The composition of the milk of Egyptian cows and buffaloes. J. Dairy Res. 16: 217-226 (1949).

F.A.O. Annual Report, 1995. Pakistan unpublished report. Office of the FAO Representative, Islamabad, Pakistan. (1996)

F.A.O. Food Composition Table for the near east. Serial no. (26). FAO Rome (1982).

Farhatullah and Bhatti, M.B. Effect of Milling and baking on the retention of thiamine and Riboflavin in some new wheat varieties of Pak., Agri. Pak. 26 (1): 1-14 (1975).

Farmanullah. Nutritive value of sunflower seed. M.Sc. (Hons) Thesis. NWFP. Agri. University (1983).

Gopalan, C., et al. Nutririve value of Indian foods. Nat. Inst. Nutr., Indian Counc. Med. Res. Hyderabad, India (1971).

Gormican, A. Inorganic elements in foods used in hospital menues. J. Am. Diet Assoc. 56: 397-403, (1970).

Habib, F.G.K., et al. Phytochemical and nutritional studies on pigeonpea and kidney bean cultivated in Egypt. J. Nutr. Sci. 15 (2): 224-230 (1976).

Hamed, A.S. A study on the composition of cows' and buffaloes' milk in Egypt. II. Minerals and carotene content. Thesis submitted to Fac. of Agric., Univ. A'in Shams, Cairo, Egypt. (1955).

Hassan, N.A. The composition of the milk of cows and baffaloes. Thesis submitted to Fac. of Agric., Fouad Univ., Cairo, Egypt. 1944.

Hilditch, T.P. The chemical constitution of natural fats. 3rd ed., rev. John Wiley. New York. 1956.

Holak, W., Analysis of food for lead, cadmium, copper, zinc, arsenic and selenium using closed system sample digestion: Collaborative study, J. Assoc. Off. Anal. Chem. 63(3): 485-495, 1980.

Hussain, T. and Baker, B.E. Constitution of Corn grown in Pakistan. Amino acid composition of protein fraction. Pak. J. Bio. V (I) 1-4 (1972).

Hussain, T. and Baker, B.E. Constitution of Corn, grown in Pakistan. The fatty acid and mineral composition. Pak. J. Bio. VII (I): (1974).

Hussain, T. and Tontisirin, K. Effect of formulation of supplementary food for pregnant women on Birth Weight of Newborns. J. Nut. Sci. Vitaminol., 34, 151-157, (1988).

Hussain, T. Country Report, Pakistan. Proceeding of workshop on home and village prepared supplementary food practices in Asia. 28-30 Oct. (1983).

Hussain, T. Food Composition Table for Pak.. Ministry of Planning and Development, Planning and Development Division, GOP, Islamabad (1990).

Iqbal, P., et al. Nutritive value of soyresidue in supplementation with maize. J. Sci. Tech. 4 (1-2) 1-4 (1980).

Jabbar, A. and Hajjatullah S. Analytical survey on vegetable of Peshawar region. Pak. J. Sci. Res. 17: 169 (1965).

Jones, D.B. Factors for converting percentage of nitrogen in foods and feeds into percentages of protein. U.S. Dept. Agric. Circ. 183. 22 PP Washington, D.C. (1931).

Khan, A. W. et al. Nutritive value of food stuffs-III. Cereals and Pulses. Pak. J. Sci. Res. 7 (3): 115-117 (1955).

Khan, A.H. Oil content of cotton seeds. Agric. Pak. 7 (2): 128-138 (1956).

Khan, A.W et al. Nutritive value of foodstuffs. III. Cereals and pulses. Pak. J. Sci. Res. 7(3): 115-117 (1955).

Khan, A.W., and Chughtai, M.I.D. Nutritive value of foodstuffs. I. Common vegetables. Pak. J. Sci. Res. 6(2): 54-57. (1954).

Khan, A.W., and Chughtai, M.I.D. Nutritive value of foodstuffs. II.Studies in ascorbic acid content of common vegetbales. Pak. J. Sci. Res. 7(2): 46-50. (1954).

Khan, A.W.,and Chughtai, M.I.D. Nutritive value of foodstuffs. IV. Fruits. Pkaistan J. Sci. Res. 8(2) 73-79. (1956).

Khan, A.W.,and Chughtai, M.I.D. Nutritive value of foodstuffs. V. Miscellaneous foodstuffs. Pak. J. Sci. Res. 8(4): 155-160. (1956).

Khan, A.W.,and Chughtai, M.I.D. Nutritive value of foodstuffs.VI. Effect of cooking on nutrients in indigeno diets and nutrtive value of "Chapaties" and cooked Cereals. Pak. J. Sci. Res. 10 (1): 20-24. (1958).

Khan, M. A. and Eggum, B.O. Effect of home and industrial processing on protein quality of baby food and breakfast cereals. J. Sci. Fd. Agr. 30: 369-376 (1979).

Khan, M.A and Eggum, B.O. Effect of baking on the nutritive value of Pak.i bread. Nat'1 Institute of Animal Sci., Copenhagen, Denmark (1978).

Khan, M.A and Eggum, B.O. The nutritional quality of some Pakistani wheat varieties. Nat'1 Institute of Animal Science., Copenhagen, Denmark (1978).

Khan, M.A., et al. Nutritive value of some improved varieties of Legumes. Nat'1 Institute of Animal Sci., Copenhagen, Denmark (1978).

Khattak, N.K. et al. The distribution of Ascorbic acid in the fruits of Peshawar area. Pak. J. Sci. Res. 26: 8-14 (1974).

Kim, I.H. Food composition Table. Applied Nut. Project, Korea. Office of Rural Development (1977).

Kochler, H.H. and Hard, M.M. Protein, fat and amino acid conetent and protein quality of selected pre-prepared food. J. Am. Diet. Assoc. 82 (3): 241-245, (1983).

Labib , A.I. A study on some of the mineral content and fat of baffaloe's milk. Thesis submitted to Fac. of Agric., Cairo Uni. Cairo, Egypt. (1956).

Memon, A.M., et al. Oil content studies on some of the commercial cotton varieites of West paksitan. Pak. Cott. 6: 160-166. (1962).

Messer, E and Kuhnlein, H. Traditional Food. Chapter-5 in Training Manual in Nutritional Anthropology. American Anthropological Association, Series No.20, (1986).

Musaiger, A.R., Traditional Dishes of Arabian Gulf. Faculty of Agriculture Sciences, United Arab Emirates. Al-Ain, UAE. (1996).

NIH (National Institute of Health). National Nutritional Survey 1985-87. Govt. of Pak. Islamabad, (1988).

Pellett, P.L, et al. Studies on the protein value of local breads. American Univ. of Beirut, Lebanon, Undated.

Pellett, P.L., and Shadarevian, S. Food composition table for use in the Middle East. American Univ. of Beirut, Labanon. (1970).

Pennington, J.A.T. Bowes and Church's Food Values of Portions commonly used . Harper and Row Publisher, Newyork (1987).

Primary Nutrition Data, USDA. Human Nutrition Information Service, Nutrition Monitoring Division. In Modern Nutrition in Health and disease. M.E. Shils and V.R. Young. 7th Ed. Lea and Febriger. USA (1988).

Rahman, A., and Chughtai, M.I.D. Nutritive value of foodstuffs. VII. Pak.i Sweets. Pak. J. Sci. Res. 13 (4): 177-185 (1961).

Riaz, M., et al. Evaluation of proteins of some marine edible fish found around Karachi coast. Pak. J. Sci. Ind. Res. 15 (4/5): 272-274 (1972).

Sarkissian, N.T., et al. Food composition table of Iran. Vol. I Raw material. Institute Nutr. Sci. and Food tech. Publ. No.131. Tehran, Iran (1980).

Shah, M.A. et al. Carotenoid content of some green plants. Pak. J. sci. Ind. Res. 12: 43-46 (1969).

Shehab, S.K., et al. The nutritive value and cholesterol content of brain of local meat productive animals. Effect of age, sex and species. Univ. A'in Shams,

College of Women, Nutrition Institute, Cairo, Egypt, (Undated).

Shokrail, E.H. Chemical composition of the pistachio nuts (Pistacia vera L.) of Kerman, Iran. J. Fd. sci. 42 (1): 244-245 (1977).

Siddiki, M.M. et al. Soybean and rapeseed grown in the Hyderabad region, West Pak.. The oil content and its quality in different varieties. Pak. J. Sci. Ind. Res. 12: 227-228 (1970).

Shils, .M. and Young, V.R. Modern Nutrition in health and disease. 7th Ed. Lea and Febiger USA, (1984).

Tannous, R.I., and Merat, A. Chemical, physical and biological properties of butter and ghee. Am. Diet. Ass. J. 55: 267-272 (1968).

Tirmizi, S.A. and Siddique, I.H. A study on the dehydration of certain improved varieties of peas. Pak. J. Sci. Res. 18: 5-8 (1966).

U.S. Dept. of Agriculture. Composition of Foods. Dairy and egg products: raw, processed prepared. Agri. Hand Book No.8-I Washington, D.C. (1976).

U.S. Dept. of Agriculture. Composition of Foods. Fat and Oils, raw, processed and prepared. Agri. Hand book No.8-4. Washington, D.C. (1979).

U.S. Dept. of Agriculture. Composition of Foods, Poultry products, raw, processed and prepared. Agri. Hand Book No. 8-5 Washington D.C. (1979).

Wahid, M. and Hussain, T. Amino acid composition and nutritive value of rice varieties. Basmati-370 and IR-6 grown in Peshawar region. Pak. J. Sci. Ind. Res. 18: No.1-2, 51-53 (1975).

WHO. Global Prevelance of Iodine deficiency disorders. Micronutrient deficiency system (MDIS). Working paper No.1. WHO, UNICEF and ICCIDD. (1993).

WHO. Physical Status. The use and implementation of anthropometry. Technical Report Series 854. WHO, Geneva (1995).