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Diploma in Pharmacy 1st Year
Social Pharmacy
Experiment

To study about various charts on nutrition, sources of various nutrients from locally available foods, calculation of caloric needs of different groups (e.g child, mother, sedentary lifestyle, etc.) and chart of glycemic index of foods.

Aim:

To study about various charts on nutrition, sources of various nutrients from locally available foods, calculation of caloric needs of different groups (e.g child, mother, sedentary lifestyle, etc.) and chart of glycemic index of foods.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Dr. Sharma Anshu , " Practical Manual of Social Pharmacy " Published by Nirali Prakashan , Pg.No 91 - 95

Material Required

Carbohydrates protein, fats, vitamins, and mineral, fruits, vegetables, grains, protein foods, and dairy products,

Theory :

Nutrition includes drinking sufficient amount of clean water and eating foods regularly from each of six food groups: vegetables, grains, fruits, meat, milk products and beans, and oils. These foods contain six types of nutrients: proteins, carbohydrates, fats, minerals, vitamins, and water. Nutrition is balanced best by eating the correct amounts of a large variety of foods. This provides the carbohydrates protein, fats, vitamins, and minerals, needed for a healthy body. However, correct amounts of water and exercise are also critical to good health.

Table 6: Recommended Daily Nutritional Requirements for Different Age Groups

Category	age	protein	fat	calories	calcium	iron
Children	2-3	16.7	27	1060	600	9
Children	4-6	20.1	25	1350	600	13
Children	7-9	2.5	30	1690	600	16
Boys	10-12	39.9	35	2190	800	21
Boys	13-15	54.3	45	2750	800	32
Boys	16-17	61.5	50	3020	80	28
Adult (males)	Above 18	25	60	2320	600	17

Table 7: Recommended Daily Nutritional Requirements from Fruits, Vegetables, Grains, Protein Foods, Dairy Products for Different Age Groups

Food group	2 years old	3 years old	4-5 years old	What counts for?
Fruits	1 cup	1-1 1/2 cups	1-1 1/2 cups	½ medium banana, ½ cup 100% fruit juice
Vegetables	1 cup	1 1/2 cups	1 1/2- 2cups	½cup raw leafy greens, ½ cup vegetable juice, 1small ear corn
Grains	3 ounces	4-5 ounces	4-5 ounces	1 slice bread,1 tortilla, ½ cup cooked rice, pasta
Protein foods	2 ounces	3-4 ounces	3-5 ounces	1 egg. 1 tablespoon peanut butter, 1 ounce cooked meat, or seafood
Dairy	2 cups	2 cups	2 1/2 cups	½ cup milk, 1 string cheese, 4 ounce yogurt

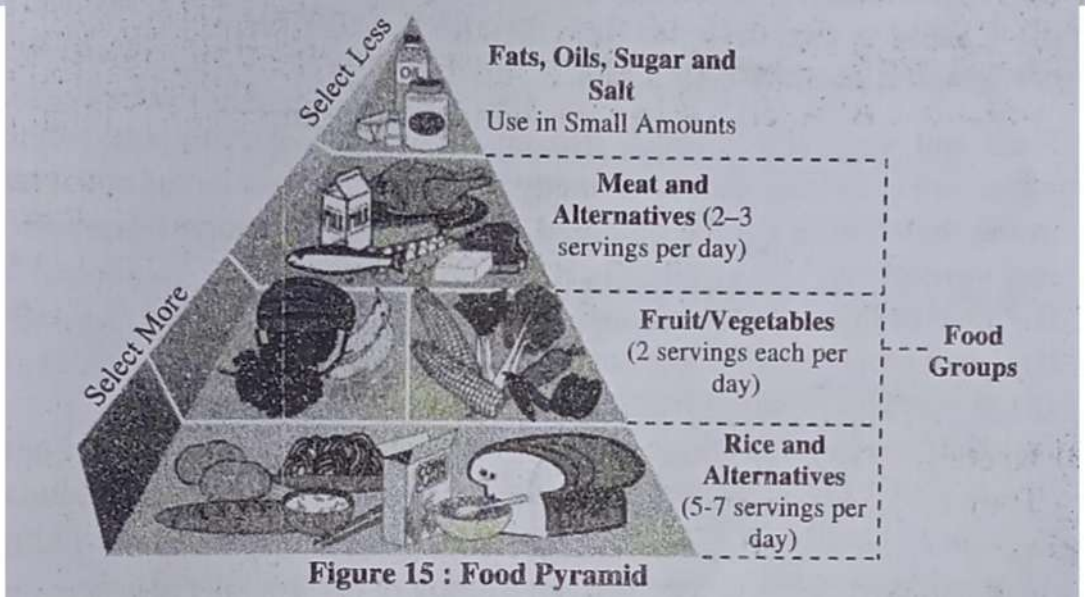

Figure 15 : Food Pyramid

Sources of Various Nutrients from Locally Available Foods

Sources of various nutrients from locally available foods include:

1) **Carbohydrates:** Carbohydrates are the sources of energy, calcium and B vitamins. These are obtained from oats, rice, pasta, sweet potatoes and potatoes or noodles, couscous, yam, bread, rye and barley. These can be obtained in daily food servings from following foods:Induct them into the Kitchen: Making them involved in making food items and healthy dishes themselves will enable them to taste new and healthy food.
   i) One slice of bread, one roll or half a pizza
   ii) Breakfast cereal or porridge- six tablespoons
   iii) Four whole wheat crisp breads
   iv) Pasta, rice, millet or couscous-six tablespoons
   v) Small new potatoes- two tablespoons.
   vi) Mashed sweet potato- two tablespoons.
2) **Protein:** Proteins are considered as body's building blocks which help it growth and repair of the body tissues. Protein is found in fish, meat and eggs, while vegetable proteins are available from beans, nuts, lentils, dahl, peas, Quom and soya. These can be obtained in daily food servings from following foods:
   i) Two slices of cold ham, turkey and chicken
   ii) Chicken breast-one medium
   iii) Sausages-two
   iv) Bacon rashers-three
   v) Beefburger-one
   vi) Fish or fish steak-one fillet
   vii) Tuna, salmon, mackerel, sardines-one small can
   viii) Fish fingers-four
   ix) Cooked lentils or beans -one cup
   x) Beans, chickpeas or lentils-half large can
   xi) Tofu or Quorn-100g portion
3) **Dairy products :** These products contain protein, calcium and vitamins like vitamins A, D and B12. These products keep our teeth and bones healthy. Our bodies easily absorb the calcium from these foods, like yoghurt, milk. cheese

and fromagefrais. These can be obtained in daily food servings from following foods:

i) Milk one glass
ii) Yoghurt or fromagefrais- one pot
iii) Cheese or two triangles one matchbox-sized piece
iv) Low fat custard- half a tin.

4) **Fruit and vegetables :** Fresh, frozen, tinned, dried fruit and vegetables and juices are excellent source of many vitamins, antioxidants. nutrients and fibre in the diet. These can be obtained in daily food servings from following fruit and vegetables:

i) One orange, apple, banana or pear or similar-sized fruit
ii) Two smaller fruits like satsumas, plums or kiwi fruit
iii) A handful of small fruits like cherries, berries or grapes
iv) Half to one tablespoon of dried fruits such as raisins, prunes or apricots
v) A slice of large fruit such as a piece of melon or a slice of pineapple
vi) A dessert salad bowl.
vii) Three heaped tablespoons of cooked, raw, canned or frozen vegetables

Calculation of Caloric Needs of Different Groups

A more accurate method for calculating the daily calorie intake is to determine Basal Metabolic Rate (BMR) using multiple factors, including weight, height, age and gender, and then after multiply the BMR by an activity factor for determining the total daily energy expenditure (calories).

Metabolic rate is the basic rate at which the body burn calories. Another calculation method is the Harris Benedict formula where firstly the BMR is determined and then multiplied by the activity factor.

1) **Women:** BMR = 655+ (9.6 x weight in kilos)+ (1.8 x height in cm) - (4.7 x age in years). For determining the total daily energy expenditure (calories). now multiply the BMR by the appropriate activity factor, as follows:

i. For Sedentary lifestyle - little or no exercise Calorie-Calculation BMR x 12
ii. For Lightly Active person (light exercise/sports 1-3 days/week) Calorie-Calculation = BMR x 1.375

iii. For Moderately Active individual (moderate exercise/sports 3-5 days/week) Calorie-Calculation = BMR x 1.55

iv. For very Active person= BMR x 1.725 (hard exercise/sports 6-7 days/week) Calorie-Calculation = BMR x 1.725

v. For extremely Active individual (very hard daily exercise/sports & physical job or 2x day Calorie-Calculation = BMR x 1.9 training)

2) Men: BMR = 66+ (13.7 x weight in kilos) + (5 x height in cm) - (6.8 x age in years). For determining the total daily energy expenditure (calories), now multiply the BMR by the appropriate activity factor, as follows:

i) For inactive individual - little or no exercise

ii) Calorie-Calculation = BMR x 12

iii) For Lightly Active person : (light exercise/sports 1-3 days/week)

iv) Calorie-Calculation = BMR x 1.375

v) For Moderately Active person-(moderate exercise/sports 3-5 days/week)

vi) Calorie Calculation = BMR x 155

vii) For very Active person = BMR x 1.725 (hard exercise/sports 6-7 days/week)

viii) Calorie-Calculation = BMR x 1.725

ix) For extremely Active individual: (very hard daily exercise/sports & physical job or 2x day training)

x) Calorie-Calculation = BMR X 1.9

Chart of Glycemic Index of Foods

Glycemic index (GI) is a relative carbohydrates ranking in foods according to how they affect the level of sugar in the blood. When a person suffers from type 2 diabetes, one of the best ways to control the level of glucose is to eat foods that do not cause major increase in the blood sugar (glucose) levels.

The Glycemic index is a rating system where foods are ranked on a scale of 1 to 100 based on how much they raise blood sugar.

Table 8:Glycemic Index and Carbohydrates Count of Common Foods

Food	Grams of Carbs	GI Range	Average GI
White potato (medium)	34	56-111	High 80s
Sweet potato (medium)	24	44-78	61
Carrots (1/2 cup)	6	16-92	47
Green peas (1/2 cup)	11	39-54	48
Chickpeas (1 cup)	54	31-36	34
Soy beans (1/2 cup)	13	15-20	17
Apple (medium)	15	28-44	40
Banana (medium)	27	46-70	58
White bread (1 slice)	14	64-83	72
Whole wheat bread (1 slice)	12	52-87	71
Bread w/cracked wheat kernels (1 slice)	12	48-58	53
Oatmeal, not instant (1/2 cup dry)	27	42-75	58
Brown rice (1 cup)	45	39-87	66
White rice (1 cup)	45	43-94	72
Pasta (1 cup)	43	40-60	50

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Result : Various charts on nutrition, sources of various nutrients from locally available foods, calculation of caloric needs of different groups (e.g., child, mother, sedentary lifestyle, etc.) and chart of glycaemic index of foods were studied.

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