Nutrition Problems – Corrected & MBBS Teaching Version

These questions and answers are corrected, structured, and formatted for MBBS-level Community Medicine teaching.

Nutrition Problem

Prescribe the balance Diet and mention protein and energy requirements for a pregnant women doing sedentary work.

Solution:

Diet schedule (balance diet) prescription in gm.

Protein and energy requirement

Energy consumption unit (CU) for sedentary women = 0.8. Energy requirement for sedentary women = 1875 Kcal/day. Additional requirement during pregnancy = +300 Kcal. Thus, total = 2175 Kcal/day. Protein requirement = 50 g + 15 g = 65 g/day.

Prescribe the balance diet and mention protein and energy requirements for a sedentary lactating mother who is breast feeding for a 5 month infant.

Solution:

Balanced diet for lactating mother ( ingm)

Protein and energy requirement

Energy consumption unit (CU) for sedentary women 0.8 energy requirement for sedentary women is 1875 Kcal additional requirement

During first 6month of lactation is : 550 Kcal Energy requirement for this lactating mother (o-6) month : 2420 Kcal Protein requirement ( 50+25):75gm.

Energy consumption unit of family is 5. Compute the proximate required for the family.

Solution:

Energy consumption unit ( CU) of the family =5 1 dietary

= 2400 Kcal 5 dietary

= 2400 \* 5 = 12000 Kcal Family requires

= 12000 Kcal / day

## Energy Distribution among Nutrients

Total family requirement = 12,000 Kcal/day (for 5 CU).  
  
Recommended distribution:  
- Protein: 15% = 1,800 Kcal ÷ 4 = 450 g  
- Fat: 20% = 2,400 Kcal ÷ 9 = 266 g  
- Carbohydrate: 65% = 7,800 Kcal ÷ 4 = 1950 g  
  
Thus, the balanced family diet should provide approximately: 450 g protein, 266 g fat, and 1950 g carbohydrate.

\*Protein and carbohydrate provide 4 Kcal/gm Fat provides 9 Kcal/gm

Calculation

Protein: To get 4Kcal- 1gm of protein is required

To get 1800 Kcal – How much protein is required ?

= ( ¼ ) \* 1800= 450gm

Fat: To get 9Kcal – 1gm of carbohydrate is required

To get 7800 Kcal – How much protein is required ?

= ( ¼ ) \* 2400 = 266gm

Carbohydrate: To get 4Kcal – 1gm of carbohydrate is required.

To get 7800Kcal – How much carbohydrate is required ?

= ( ¼ ) \* 7800 = 1950GM

Thus, for this family having 5CU, we recommend

Protein 450gm

Fat 266gm

Carbohydrate 1950gm

Energy 1200Kcal

A diet survey conducted on 40 male stone cutters by oral questionnaire method.

Data regarding mean daily intake food items is given below

Find out whether stone cutters are taking sufficient calories

Solution:

Stone cutter are heavy workers 1CU = 2400Kcal

Energy consumption unit – 1.6 1.6 CU = 2400\*1.6 = 3840Kcal

Energy requirement – 3800 Kcal/ person/day Round up = 3800 kcal

Calculation of energy in take

## Inference

Energy requirement for heavy work (stone cutters) = 3800 Kcal/day.  
Actual energy intake = 3078 Kcal/day.  
Deficit = 722 Kcal (≈19%).  
Hence, their diet is inadequate and should be supplemented with cereals, pulses, and fats.

In the given example actual energy intake – 3078 Kcal

Hence, the diet is deficient by – 722Kcal( 19%)

A diet survey conducted by using oral questionnaire method a sedentary pregnant woman of third trimester weighing 50kg was taking the following food items in 24 hours.

Rice – 300gm , Red gram-10gm, Bengal gram-10gm, Egg-1, Banana-1, Milk- 100ml, Brinjal-70gm, Oil-10gm, Sugar- 20gm.

What is your opinion regarding her nutritional adequacy is terms of proteins and energy suggest for improvement of food intake if necessary.

Solution:

## Nutritional Requirement of Pregnant Woman (Sedentary, 50 kg)

Requirement: 65 g protein, 2175 Kcal/day.  
Actual intake: 37 g protein, 1516 Kcal/day.  
Deficit: 28 g protein (43%), 684 Kcal (31%).  
  
Suggested additions:  
- 150 g rice (+12 g protein, +425 Kcal)  
- 30 g pulses (+8 g protein, +105 Kcal)  
- 100 ml milk (+3 g protein, +70 Kcal)  
- 100 g green leafy vegetables (+3 g protein, +25 Kcal)  
- 5 ml oil (+45 Kcal)  
  
Thus, revised intake will meet requirements.

Difference between intake and requirements

Woman is taking only 57% protein and 72% energy requirement.

Her food is deficient of 43% protein and 31% energy

To provide adequate protein and energy , women is advised to take additional food suggested below:

Suggestion: Women is advised to add the following food items to make her food balanced and sufficient in protein and energy.

Addition of food items suggested

Thus, pregnant women has to take ( usual intake plus additional food suggested)

Rice -450 gm, green leafy vegetable- 100gm, other vegetable-70gm, milk-200ml , Oil-15ml, Sugar – 20gm, Banana -1

## Balanced Diet for Self

Reference man (adult, sedentary): 2400 Kcal/day.  
Reference woman (adult, sedentary): 1875 Kcal/day.  
  
Typical daily balanced diet (approximate values):  
- Cereals & millets: 410–460 g  
- Pulses: 40 g (can be exchanged with eggs/meat as protein source)  
- Green leafy vegetables: 100 g  
- Other vegetables: 40–60 g  
- Roots & tubers: 50 g  
- Milk: 100–150 ml  
- Oils & fats: 20–40 g  
- Sugar & jaggery: 20–30 g  
  
Pulse exchange options:  
- 50% pulses = 1 egg or 30 g meat + 5 g oil  
- 100% pulses = 2 eggs or 50 g meat + 10 g oil.

Solution: For male

I am an adult male, aged \_\_\_\_\_\_\_Years weighting \_\_\_\_\_\_\_\_ Kg, An Indian reference man. Activity is sedentary (medical student) Recommended energy consumption unit ( CU) for me 1.0 Energy requirement is = 2400 Kcal per day ( ICU = 2400 Kcal)

Diet schedule (balanced diet) prescription

50% pulse can be exchange with one egg or 30gm meat + 5gm of fat 100% pulse can be exchange with two egg or 50gm meat + 10gm oil or fat

Solution: For female

I am an adult female, agenda \_\_\_\_\_ year’s weighing \_\_\_\_\_\_\_\_ Kg, An Indian reference woman. Activity is sedentary (medical student) Recommended energy consumption unit (CU) for me is 0.8 Energy requirement is = 1875 Kcal per day ( CU = 2400Kcal)

Diet schedule (balance diet) prescription

50% pulse can be exchanged with one egg or 30gm of meat + 5gm oil or fat,

100% pulse can be exchanged with two egg or 50gm meat + 10 gm oil or fat.

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