**Nutrition Problem**

1. **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.

|  |  |  |  |
| --- | --- | --- | --- |
| **Food groups** | **Requirement for sedentary women (in gm)** | **Additional requirement (in gm.)** | **Balanced diet for sedentary pregnant women ( in gm)** |
| Cereals and millets | 410 | +35 | 445 |
| Pulses | 40 | +15 | 55 |
| Green leafy vegetables | 100 |  | 100 |
| Other Vegetables | 40 |  | 40 |
| Roots and tubes | 50 |  | 50 |
| Milk | 100 | +100 | 200 |
| Oils and fats | 20 |  | 20 |
| Sugar and Jaggery | 20 | +10 | 30 |

**Protein and energy requirement**

Energy consumption unit (CU) for sedentary women 0.8 energy requirement for sedentary women is 1875 Kcal additional requirement for this pregnant women 2175Kcal ( 1875 +300 ) protein requirement ( 50+15) 65gm / day

1. **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)

|  |  |  |  |
| --- | --- | --- | --- |
| **Food groups** | **Requirement for sedentary women (in gm)** | **Additional requirement for lactation (in gm)** | **Balanced diet for sedentary lactating women (in gm)** |
| Cereals and millets | 410 | +60 | 470 |
| Pulses | 40 | +30 | 70 |
| Green leafy vegetables | 100 |  | 100 |
| Other Vegetables | 40 |  | 40 |
| Roots and tubes | 50 |  | 50 |
| Milk | 100 | +100 | 200 |
| Oils and fats | 20 | +10 | 30 |
| Sugar and Jaggery | 20 | +10 | 30 |

**Protein and energy requirement**

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

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

1. **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

Allocation of energy to nutrients

|  |  |  |
| --- | --- | --- |
| **Total energy allocation % of nutrients** | **Calculation of energy distribution** | * **Nutrients ( gm) (required)** |
| Protein15% | 1200\*15 = 1800 Kcal  100 | 1800 = 450  4 |
| Fat 20% | 1200\*20 = 2400Kcal  100 | 2400 = 266  9 |
| Carbohydrate 65% | 1200\*65 = 7800Kcal  100 | 7800 =1950  4 |

\*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

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

**Data regarding mean daily intake food items is given below**

|  |  |
| --- | --- |
| **Food Items** | **Mean in take ( Gram)** |
| **Cereals** | **600** |
| **Pulses** | **50** |
| **Green leafy vegetables** | **40** |
| **Other Vegetables** | **60** |
| **Roots & Tubers** | **60** |
| **Milk** | **50** |
| **Oil** | **50** |
| **Sugar&Jaggery** | **55** |

**Find our weather 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**

|  |  |  |
| --- | --- | --- |
| **Food in take ( in gm)** | **Energy provide/ gm of food** | **Energy intake by stone cutter** |
| Cereals 600 | \*3.5 | 2100 |
| Pulse 50 | \*3.5 | 175 |
| Leafy Vegetables 40 | \*0.5 | 20 |
| Other Vegetables 60 | \*0.5 | 30 |
| Roots and tubers 60 | \*0.8 | 48 |
| Milk 50 | \*0.7 | 35 |
| Oil 50 | \*0.9 | 450 |
| Sugar/ Jaggery 55 | \*4.0 | 220 |
| **Total** |  | **3078** |

Inference: Energy requirement for stone cutters – 3800Kcal

In the given example actual energy intake – 3078 Kcal

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

1. **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:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Consumption of food items** | **Quantity ( In gm)** | **Nutrients available** | |
| **Protein(gm)** | **Calories ( Kcal)** |
| Rice | 300gm | 21 | 1050 |
| Red gram | 10gm | 2.5 | 35 |
| Bengal gram | 10gm | 2.5 | 35 |
| Egg | 1 | 6 | 90 |
| Banana | 1 | 1 | 100 |
| Milk | 100ml | 3 | 70 |
| Brinjal | 70gm | 1 | 6 |
| Oil | 10gm | - | 90 |
| Sugar | 20 | - | 40 |
| **Total** |  | **37gm** | **1516Kcal** |

**Nutritional requirement of the pregnant women**

|  |  |  |
| --- | --- | --- |
| **Particulars** | **Protein** | **Energy** |
| Requirement of sedentary women | 50 | 1875 |
| Additional requirements for pregnancy | +15 | +300 |
| Total requirements | 65gm | 2175 ( 2200)Kcal |

**Difference between intake and requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Nutrient** | **Requirement** | **Actual intake** | **Difference** |
| Protein | 65gm | 37gm(57%) | 28gm ( - 43%) |
| Energy | 2200Kcal | 1516Kcal( 69%) | 684Kcal(31%) |

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**

|  |  |  |  |
| --- | --- | --- | --- |
| **Additional food items** | **Additional requirement ( in gm)** | **Nutrients available** | |
| **Protein(gm)** | **Energy(Kcal)** |
| Rice | 150gm | 12 | 425 |
| Pulses | 30gm | 8 | 105 |
| Milk | 100ml | 3 | 70 |
| Green leafy vegetable | 100gm | 3 | 25 |
| Oil | 5ml | - | 45 |
| **Total** |  | **26** | **670** |

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

1. **Prescribe a balanced diet for yourself**.

**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**

|  |  |
| --- | --- |
| **Food group** | **Intake/ day** |
| Cereals and millets | 460gm |
| Pulses | 40gm |
| Green leafy vegetable | 40gm |

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**

|  |  |
| --- | --- |
| **Food group** | **Intake/ day** |
| Cereals and millets | 410gm |
| Pulses | 40gm |
| Green leafy vegetable | 100gm |
| Other vegetable | 40gm |
| Root and tubers | 50gm |
| Milk | 100ml |
| Oil and fats | 20gm |
| Sugar and Jaggery | 20gm |

|  |  |
| --- | --- |
| Other vegetable | 60gm |
| Root and tubers | 50gm |
| Milk | 150ml |
| Oil and fats | 40gm |
| Sugar and Jaggery | 30gm |

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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1. **Prescribe a balanced diet for yourself**.