NUTRITIONAL IMPORTANCE OF CARBOHYDRATES

Dietary carbohydrates are the chief source of energy .

They contribute to 60 to 70 % of total caloric requirement of the body .
Carbohydrates utilized by the body
starch , glycogen ,sucrose , lactose , glucose , fructose .

Carbohydrates not utilized by the body

Cellulose , hemicellulose , pectin .

- Major source of energy .
- Protein sparing action .
- Absolute requirement by brain .
- Required for oxidation of fat .
- Fats burn in a fuel of carbohydrate .
- Synthesis of pentosis .

- Synthesis of fat .
- Importance of non digestable carbohydrates

- **GLYCEMIC INDEX**
- Variations in blood glucose level after consumption of different kinds of food is assessed by glycemic index
- It measures post prandial glucose concentration from a graph .
- Glycemic index may be defined as the area under the blood glucose curve after the ingestion of a food compared with the area under the blood glucose curve after taking the same amount of carbohydrate as glucose .

- **GLYCEMIC INDEX**
- Is Area under the blood glucose curve after ingestion of a test meal by
- Area under the curve after ingestion of glucose
- Multiply with 100 .
- The glycemic index of a complex is lower than a refined carbohydrate .

- Foods with higher fiber content and low glycemic index are preferred for consumption .

- **DIETARY FIBER**
- The indigestible carbohydrate in the diet is called dietary fiber .
- FUNCTIONS OF FIBER
- PREVENTS CONSTIPATION
- Fiber adsorb water increases bowel motility
- ELIMINATES BACTERIAL TOXINS

- DECREASES GIT CANCERS

- IMPROVES GLUCOSE TOLERENCE
- REDUCES PLASMA CHOLESTROL LEVEL
- SATIETY VALUE

- **NUTRITIONAL IMPORTANCE OF LIPIDS**
- Fats provide a concentrated source of energy .
- A minimum intake of lipids is essential since the requirement of fat soluble vitamins and essential fatty acids are to be met .
- ESSENTIAL FATTY ACIDS

- **FUNCTIONS OF ESSENTIAL FATTY ACIDS**

- **IMPORTANCE OF PROTEINS**
- Proteins form the building blocks for the body .
- FUNCTIONS OF PROTEINS

- **NITROGEN BALANCE**
- Proteins in diet are the only source of nitrogen in the body .
- Nitrogen balance represents , protein utilization and its loss from the body .
- POSITIVE NITROGEN BALANCE
- In which

- Nitrogen intake is higher than the output .

- Positive nitrogen balance is observed in growing children ,pregnant women ,during recovery from illness .
- **NEGATIVE NITROGEN BALANCE**
- In which the output is higher than input .

- ASSESSMENT OF NUTRITIVE VALUE OF PROTEIN
- **PROTEIN EFFICIENCY RATIO**
- PER = gain in body wt (g)
- by
- protein ingested (g)
- PER for egg protein is 4.5 , for milk protein is 3.0 for rice protein is 2.2

- **BIOLOGICAL VALUE**
- Is defined as the percentage of absorbed nitrogen retained by the body .
- BV = Nitrogen retained
- by x 100
- Nitrogen absorbed

- **NET PROTEIN UTILIZATION**
- NPU = Nitrogen retained
- by x 100
- Nitrogen ingested

- **CHEMICAL SCORE**
- This is based on the chemical analysis of protein for the composition of essential amino acids which is then compared with reference protein .
- The chemical score is defined as the ratio between the quantity of the most limiting amino acid in the test protein to the quantity of the same amino acid in the egg prorein expressed as percentage .