

# DIET THERAPY - 1

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# UNIT I

## **Nutrition Throughout Life Cycle I**

- ❖ Principles of Menu Planning
- ❖ Nutritional requirements of pregnancy
- ❖ Nutrition during lactation

# NUTRIENTS

- **Two classification**

## **Macro and Micro Nutrients**

**Macro Nutrients** – carbohydrate, protein, fat

- 1gm of carbohydrate gives 4 kcal
- 1gm of protein gives 4kcal
- 1gm of fat gives 9kcal



**Micro Nutrients** - Vitamins (A,B,C,D,E,K),  
Minerals(calcium, iron, phosphorous, sodium, zinc,  
iodine, selenium, copper )

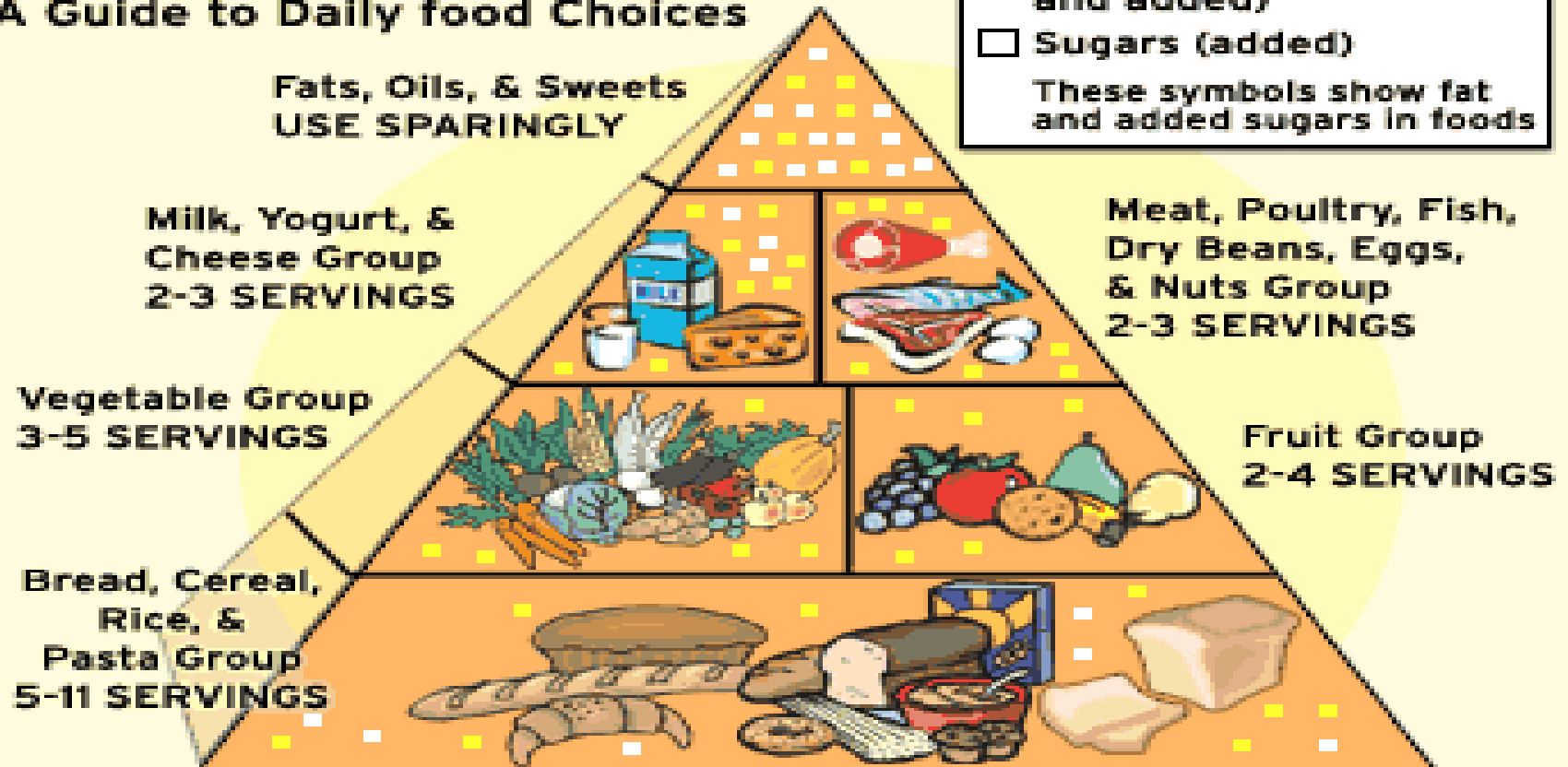
## **Basic Food Group by ICMR**

- Cereals, millets and pulses
- Milk and Animal products
- Vegetables and Fruits
- Oils , Fats and Nuts

# FOOD GROUP IMAGE

## The Food Guide Pyramid A Guide to Daily Food Choices

 Fat (naturally occurring and added)  
 Sugars (added)  
These symbols show fat and added sugars in foods




USDA PYRAMID

HARVARD PYRAMID

# Principles of Menu Planning

- Meeting nutritional requirement
- Menu should fulfill family needs
- Meal planning depends upon everyone likes and dislikes
- Meal plan should give maximum nutrients
- Meal plan should provide variety

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- Meal planning should save time and energy
  - Meal planning should be economical
  - Meal plan should include locally available foods
  - Menu should have healthy foods
  - Meal plan should have regular intervals



# **NUTRITIONAL REQUIREMENTS OF PREGNANCY**



# Nutrition During Pregnancy

<b>Nutrient</b>	<b>Pregnant sedentary women</b>
Energy (kcal)	2250
Protein (gm)	82.2
Fat (gm)	30
Calcium (mg)	1200
Iron (mg)	35
Zinc (mg)	12
Thiamine(mg) or vitamin B <sub>1</sub> (mg)	1.2
Riboflavin (mg) or vitamin B <sub>2</sub> (mg)	1.4
Niacin (mg) or vitamin B <sub>3</sub> (mg)	14
Pyridoxine (mg) or vitamin B <sub>6</sub> (mg)	2.5
Ascorbic acid(mg) or vitamin C(mg)	60
Dietary folate(mg)or folic acid (mg)	500
Vitamin A (mcg)	800

# Nutritional Requirements of Pregnancy

**Energy** : ICMR recommended energy requirement for pregnant women

- **Sedentary worker** :  $1900 + 350 = 2250$  kcal
- **Moderate worker** :  $2230 + 350 = 2580$  kcal
- **Heavy worker** :  $2850 + 350 = 3200$  kcal

**BMR** increases during 1<sup>st</sup> and 2<sup>nd</sup> trimester and 12% during 3<sup>rd</sup> trimester

- Total weight gain during pregnancy may range from 10 – 14 kg

## **Protein :**

- the normal protein requirement for pregnant women 82.2 gm/day

**Protein rich foods :** milk, fish, egg, meat, pulses, legumes, whole grains

## **Fat :**

- ICMR recommends fat for pregnant women 30gm/day

**EFA rich foods:** corn, cotton seed, safflower, soyabean oils, green leaf vegetables, flax seeds, walnuts

## **Calcium :**

- requirement of calcium during pregnancy is  
1200mg/day

**calcium rich foods:** milk and milk products, agathi  
leaves, gingelly seeds

## **Iron:**

- requirement of iron during pregnancy is  
35mg/day

**Iron rich foods:** rice flakes, egg yolk, green leaf  
vegetables, jaggery, liver, dried beans, dried fruits, ragi,  
jowar, bajra

## **Sodium:**

- helps to maintain blood pressure
- when sodium level reduces kidney produces rennin hormone to maintain sodium level

## **Iodine :**

- iodine deficiency leads to abortion, still births, cretinism, psychomotor defects

## **Zinc:**

- low zinc during pregnancy results in low birth weight infants

## **Vitamin A:**

- requirement of vitamin A during pregnancy is 800mcg/day
- vitamin A is needed for proper vision
- deficiency of vitamin A leads to night blindness

**Vitamin A rich foods:** liver, egg yolk, butter, green leaf vegetables, yellow and orange vegetables

## **Vitamin D:**

- vitamin D increases the calcium absorption
- deficiency of vitamin D leads to neonatal hypocalcaemia

## **Vitamin E:**

- it plays an important role in reproductive process and reduces abortion and still births

## **Vitamin K:**

- it is essential for synthesis of prothrombin

## **Vitamin B:**

- vitamin B<sub>1</sub> prevent nausea in pregnancy
- vitamin B<sub>2</sub> increase maternal body size and growth of foetus

## **Folic Acid:**

- requirement of folic acid during pregnancy is 400mcg/day

**Folic acid rich foods:** green leaf vegetables, legumes, orange juice, soya, almonds and peanuts

## **Vitamin C :**

- Requirement of vitamin C during pregnancy is 60 mg/day

- It helps in iron absorption



# General Dietary Problems during Pregnancy

- Nausea and vomiting
- Leg cramps
- Heart burn
- Weight gain during pregnancy

# Complications during pregnancy

- Anaemia
- Constipation
- Oedema
- Hypertension
- Gestational diabetes mellitus



# **NUTRITION DURING LACTATION**

# Nutritional requirements of lactating mother

- Lactating mother's nutritional requirement should meet
- -her daily needs
- -provide enough nutrients in milk for growing infant
- -for the mechanism of milk production .

Nutrients	0-6 months	7-12 months
Energy (kcal)	2500	2420
Protein (gm)	77.9	70.2
Fat (gm)	30	30
Calcium (mg)	1200	1200
Iron (mg)	25	25
Zinc (mg)	12	12
Thiamine(mg) or vitamin B1 (mg)	1.3	1.2
Riboflavin (mg) or vitamin B2(mg)	1.5	1.4
Niacin (mg) or vitamin B3(mg)	16	15
Pyridoxine (mg) or vitamin B6 (mg)	2.5	2.5
Ascorbic acid(mg) or vitamin C(mg)	80	80
Dietary folate(mg)or folic acid (mg)	300	300
Vitamin A (mcg)	950	950

- Energy: ICMR recommends 2500 calorie for lactating mother for first 6 months and 2420 kilo calories for lactating mother for the next remaining months. Energy is needed for the mechanism of milk production.
- Protein: ICMR recommends 77.9 gm for 0 to 6 months and 70.2 gm for 6 to 12 months lactating mother. If energy and protein is lacking, there will be reduction in milk volume. Protein rich food –milk, fish, egg, meat, pulses, legumes, whole grains.

- Fat : ICMR recommends 30 gm for lactating mother. Lactating mother should consume 200 mgs per day DHA for infant development. Fat in diet provide adequate energy for their needs.
- Calcium : ICMR recommends 1200 mg for lactating mother. Calcium is needed for mothers skeleton and foetal bone development. Calcium rich foods milk and Milk products, agathi leaves, gingelly seeds, Ragi.

- Iron : the iron requirement during lactation is 25 mg per day and requirements during lactation is to make up the iron lost during breast milk. Iron rich foods- rice flakes,, egg yolk green leafy vegetables, jaggery, liver, dried beans, dried fruits, Ragi, Jowar, Bajra.
- Vitamin A : ICMR recommends 950 microgm for lactating mother Vitamin A requirement is fulfilled by including liver, fish liver oil, egg yolk, and green leafy vegetables in diet



- Vitamin B : ICMR recommends thiamin or Vitamin B<sub>1</sub> is 1.3 mgs riboflavin 1.5 mgs niacin 16 mg Folic acid 30 microgm. Vitamin B deficiency leads to low milk output.
- Vitamin C vitamin ICMR recommends 80 mg of Vitamin C for lactating mother
- Fluids: Increased intake of food is needed for adequate milk production. A lactating mother should take 2 to 3 litres per day. Water, Juices, soups buttermilk, milk should be included in their diet.