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REDEFINING CARE everyday in every way

# Ready Reckoner for PAEDIATRIC PRACTICAL EXAM

## Module 4: NUTRITION


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# NUTRITION

## ASSESSMENT OF NUTRITION FROM HISTORY

### Dietetic History

- Put to breast soon after birth/--- hours/---days.
- Exclusive breast fed for 1st 6months of life / Not
- Prelacteal feed given / not?
- Complimentary feeding started at---months with---
- Family pot diet by 1 year /---
- Any history of food allergy
- Ask about junk food intake / physical activity
- Ask about excess sugar / salt intake
- Diet history taken by 24hr dietary recall method (Diet of a normal day, not during illness)

### Diet Chart

| Time | Item | Quantity | Total Energy (Kcal) | Total Protein (g) |
|---|---|---|---|---|
| 8am | X | 200g | 2 x 110 =220 Kcal | 2 x 2 =4g |
| | Y | 1cup | | |
| 12 pm | Z | | | |
| | | | | |
| Total | | | | |

- Expected Kcal and Protein according to ICMR 2020

--------Kcal (Check ICMR 2020 chart*)
--------Protein (Check ICMR 2020 chart*)
(Can also use Holiday Segar Formula** for calculating Expected Kcal)

- The child is getting ---Kcal, and there is a gap of -----Kcal.
- The child is getting ---g proteins, and there is a gap/ excess of –-–g.
- Diet is rich / deficient in fruits and vegetables/ iron/ vit A containing foods.
- Recommended dietary modification ----------------.

### Common Measurements

- 1 Teaspoon – 5ml or 5mg
- 1tablespoon – 15ml or 15mg
- 1cup – 240-250ml
- 1 glass (standard size) – 200- 250ml. (small) -- 100-150 ml.
- 1 ounce - 30ml
- 1 katori (small bowl)- 100-150 ml (150 g food)

## * ICMR 2020 chart
### Recommended Dietary allowance for Children (ICMR 2020)

These are for the ideal/expected weight.

| | Age | Net energy Kcal/day | Protein g/kg/day |
|---|---|---|---|
| **Infants** | 0 - 6 Months | 530 | 1.40/kg |
| | 6 – 12 Months | 660 | 1.23/kg |
| | | Kcal/day | g/day |
| **Children** | 1 – 3 years | 1070 | 12.5 |
| | 4 - 6 years | 1360 | 15.9 |
| | 7 - 9 years | 1700 | 23.3 |
| **10 - 12yrs** | | | |
| Boys | | 2220 | 31.8 |
| Girls | | 2060 | 32.8 |
| **13 - 15yrs** | | | |
| Boys | | 2860 | 44.9 |
| Girls | | 2400 | 43.2 |
| **16 -18yrs** | | | |
| Boys | | 3320 | 55.4 |
| Girls | | 2500 | 46.2 |
| **Pregnancy** | | + 350 | +9.5(2nd trimester)<br>+ 22(3rd trimester) |
| **Lactation** | First 6 months | + 600 | + 16.9 |
| | 6-12 months | + 520 | +13.2 |

** **Holliday and Segar Formula**-for calculation of maintenance fluids and calorie requirement.

Up to 10Kg – **100** kcal or ml / Kg
10 – 20 Kg – **1000 + 50** kcal or ml / each Kg >10Kg
20 – 30 Kg – **1500 + 20** kcal or ml / each Kg >20Kg
For **Calorie** requirement the expected weight for the age (not the present weight) is used.
For **Fluid** requirement the present weight is used instead of the expected weight.

**Bedside calculation of required calories (based on age)**
1000kcal for 1 year
After 1 year – add 100kcal/year up to 12 years
Eg-for a 4-year-old, 1000 + (3x100) = 1300kcal

## Calorie utilization in a child (Total Daily Energy Expenditure)

**Basal Metabolic Rate:** 50-60% of total calorie intake. (higher in infants & younger children).
**Growth: Infants:** 25-35%; young children-10-20%; Older children & adoloscents-5-10%
**Physical activity:** 20-30%
**Specific dynamic action** (Energy spent in digestion, absorption & metabolism of food): 5-10%.

## To calculate calorie in breastfeeding child

● Up to 6months- ask how many times(2ndhourly) child is fed, duration of each feed, any feeding difficulties. If weight gain is adequate, urine output 6 to 8 times a day, and child is sleeping well, the breast feeding is adequate.

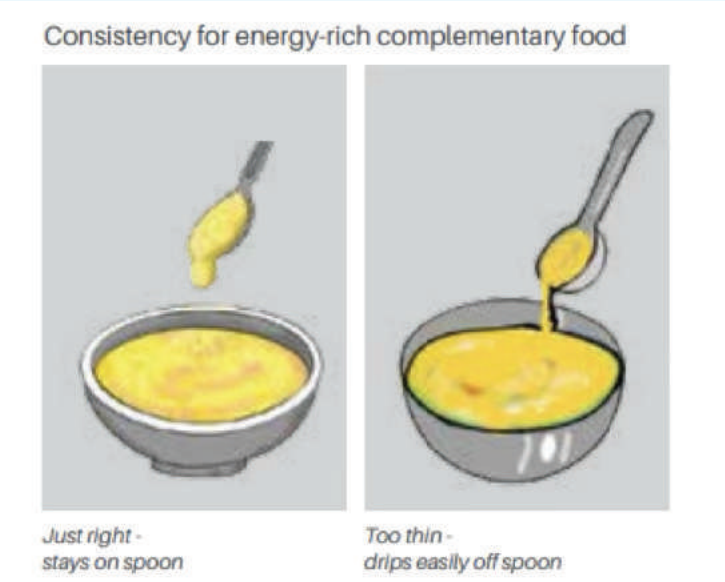
● Amount of milk secretion.

- 1 -6 months -600ml – 700ml
- 6months – 1 year – 400ml-600ml

● If giving formula /cow`s milk ask how much ml each time and how it is diluted. For formula ,30ml water + 1 scoop powder is the usual dilution. Check for over dilution.

● Infant > 6months there is energy gap to be filled by complementary foods. The energy needed in addition to breast milk is about

- 200Kcal/ day in infants 6-8 months
- 300Kcal /day in 9-11 months
- 550Kcal /day in 1 to 2 years




**How often should complementary foods be given?**
6m to 8m – meals 2-3 times /day
9-11m- meals 3-4 times/day + snacks 1-2 times/day.
12-24 months- meals 3-4 times/day + snacks 1-2 times/day

**How much to give each time?**
6m – 1year – ½ to 1 Katori(50 – 75ml)
After 1 year – 1 to 1 ½ Katori(150 – 250ml)

- In school going child ask if the child is a beneficiary of midday meal program. (it provides at least 25% of calorie needs and 50% of protein needs.)

- The deficit in calorie / protein intake will be reflected in the anthropometry.

## Counseling for optimal feeding of infants and children

| AGE (months) | FOODS |
|---|---|
| Up to 6 months | Breastfeed as often as the child wants, day and night, at least 8times/ day. Do not give any other foods/feeds, not even water. Breastfeeding by a wet nurse, feeding of expressed breast milk, and feeding of donor human milk all count as being fed breast milk.<br><br>Prescribed medicines, oral rehydration solution, vitamins and minerals are not counted as fluids or foods.<br><br>Continue breastfeeding even if the child is sick. |
| 6-8 months | Breastfeed as often as the child wants.<br><br>Complementary feeds -Eg: mashed rice kanji gradually add dal/ vegetables and ghee or oil; porridge -ragi, amrutham podi.Vegetable purees-carrot, pumpkin, beetroot cooked and well mashed. Introduce one new food at a time and watch for allergies.<br><br>Snacks- Boiled mashed potato or sweet potato/banana/mango/papaya. |
| 9months- 12 months | Breastfeed as often as the child wants.<br><br>Idli/dosa/appam, sambhar, rice with lentils, cooked vegetables, curd, well cooked and mashed egg yolk, fish, amrutham podi, cereal porridges, seasonal fruits. |
| 12months-24 months | Modified family pot diet.<br><br>Family meals- rice with lentils, mashed curry, spinach, idli/dosa, sambhar, chutney, appam, chappathi, puttu and well- cooked kadala curry, milk and dairy products, egg, fish, chicken. Emphasize variety from various foods. |

How to increase energy density of foods given to infants and young children without increasing the bulk?

- Add oil/ghee/sugar/jaggery
- Thicken the gruel-medium thickness gruel or dal with added ghee/oil.
- Amylase rich foods- adding amylase rich foods to the food item.

## Common food items with calories and protein content

| Item | Quantity | Calories | Protein (g) |
|---|---|---|---|
| Cooked rice | 1cup | 170 | 4 |
| Dosa | 1 | 70 | 2 |
| Chappathi | 1 | 70 | 2 |
| Bread | 1 | 70 | 2 |
| Appam | 1 | 70 | 1 |
| Idli | 1 | 50 | 2 |
| Puttu | 1 | 50 | 2 |
| Puri | 1 | 35 | 1 |
| biscuit | 1 | 20 | 0.5 |
| Uppuma | 1cup | 250 | 6 |
| Cooked Dal | 1 tablespoon | 10 | 0.5 |
| Sambar | 1 00g | 50 | 2.5 |
| Banana | 1 | 100 | 1.5 |
| Plantain | 1 | 50 | 0.5 |
| Other fruits | 1 unit | 60 | 0.5 |
| Coconut | 1 tablespoon | 444 | 4.5 |
| Tapioca | 100gms | 157 | 0.7 |
| Green Vegetables | 100gms | 50 | 1 |
| Egg | 1 | 80 | 6 |
| Mutton/beef/fish | 1 serving | 80 | 6 |
| Cows milk | 100ml | 70 | 3.5 |
| Breast milk | 100ml | 70 | 1.5 |
| Ragi Flour (uncooked) | 6 teaspoons-100g | 100 | 2 |
| Mashed Potato | 50g | 40 | - |
| Pappad | 1 | 20 | 0.5 |
| Vada/Bonda | 1 | 50 | 1 |
| Sugar/ jiggery | 1 teaspoon | 20 | - |
| Ghee/ Butter / Oil | 1 teaspoon | 45 | - |
| Ground nuts | 25g/one handful | 130 | 6 |
| Tea | Made with 1/2 glass milk | 90 | 3.5 |
| Lactogen (Formula) | 100ml(3 scoops) | 67 | 1.48 |
| Dexolac (Formula) | 100ml | 66 | 1.43 |
| Aptamil (Formula) | 100ml | 66 | 1.49 |

## IYCF guidelines WHO 2021 – main recommendations

1. WHO Global Strategy for Infant and Young Child Feeding
recommends that infants be exclusively breastfed until they turn six months of age.

2. **Mixed milk feeding under 6 months of age-**MMF refers to the practice of feeding formula and/or animal milk in addition to breast milk among infants less than six months of age. This is associated with increased risks of early cessation of breastfeeding, reduced breast milk production and altered gut microflora.

3. WHO Global Strategy for Infant and Young Child Feeding recommend that solid, semi-solid and soft foods be introduced at six months of age.

4. M**inimum dietary diversity (MDD) 6-23 months:** WHO guiding principles for feeding the breastfed child and non- breastfed child recommend that children aged 6–23 months be fed a variety of foods to ensure that nutrient needs are met. Food group diversity is associated with improved linear growth in young children. A diet lacking in diversity can increase the risk of micronutrient deficiencies, which may have a damaging effect on children's physical and cognitive development. Food from at least 5 out of 8 food groups below should be included in the diet of a child aged 6-23 months daily:
1. breast milk;
2. grains, roots, tubers and plantains;
3. pulses (beans, peas, lentils), nuts and seeds;
4. dairy products (milk, infant formula, yogurt, cheese);
5. flesh foods (meat, fish, poultry, organ meats);
6. eggs;
7. vitamin-A rich fruits and vegetables; and
8. other fruits and vegetables.

5. **Minimum meal frequency (MMF) 6-23 months:** It is recommended that breastfed infants aged 6–8 months be provided complementary foods 2–3 times per day
and breastfed children aged 9–23 months be provided complementary foods 3–4 times per day with additional nutritious snacks offered 1–2 times per day. The minimum number of times is defined as:
a) two feedings of solid, semi-solid or soft foods for breastfed infants aged 6–8 months;
b) three feedings of solid, semi-solid or soft foods for breastfed children aged 9–23 months; and
c) four feedings of solid, semi-solid or soft foods or milk feeds for non-breastfed children aged 6–23 months whereby at least one of the four feeds must be a solid, semi-solid or soft feed.

6. **Minimum acceptable diet (MAD) 6-23 months:** It is recommended that children aged 6–23 months be fed meals at an appropriate frequency and in a sufficient variety to ensure, respectively, that energy and nutrient needs are met. The minimum acceptable diet is defined as:
a) for breastfed children: receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day;
b) for non-breastfed children: receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day as well as at least two milk feeds.

7. **Egg and/ flesh food consumption 6-23 months of age:** WHO guiding principles for feeding breastfed and non-breastfed children state that "meat, poultry, fish or eggs should be eaten daily, or as often as possible." Consuming eggs is associated with increased intakes of energy, protein, essential fatty acids, vitamin B 12, vitamin D, phosphorus and selenium, and with higher recumbent length. Introduction of meat as an early complementary food for breastfed infants was associated with improved protein and zinc intake.

8. **Sweet beverage consumption 6-23 months:** WHO guiding principles for complementary feeding advise against giving sweet drinks, such as soft drinks, as they contribute no nutrients other than energy, may displace more nutritious foods and lead to increased obesity among children of all ages.

9. **Unhealthy food consumption 6-23 months:** Commercially prepared food products are often energy-dense, nutrient-poor and high in salt, sugar, saturated and/or trans fatty acids and should be avoided in children.

10. **Zero vegetable or fruit consumption 6-23 months:** low vegetable and fruit consumption is associated with increased risk of noncommunicable diseases and should be avoided.

# Nutrition VIVA

## Cereals/grains

Cereals form the staple diet in India mainly supply calories
Eg: Rice, Ragi (millet), Wheat, Maize. Oats, Barley
Cereals give 66 to 78 grams of carbohydrate, 7 to 11 gram of protein, and 2 to 9 grams of fat

- Cereals deficient in Lysine, Threonine. does not contain vit A and C.
- Calorie –(100g) 320-340kcal, 7-11g protein.
- Cooked Rice- 170kcal/4g protein, uncooked 350kcal.
- Ragi – 100g - 350kcal ,7g protein.

## Rice

Brown rice – Parboiled rice White Rice – Polished Rice
Parboiling Process

- Cleaning > soaking in warm water(8-24hrs) > steaming > Drying > milling
- Increases shelf life and resistance to insect attack.
- Nutritionally rich (nutrients from aleurone layer to endosperm layer)
- Polished rice deficient in Vit B (Thiamine) –Beriberi
- 100gm of uncooked rice give 7 grams of Protein 78gm carbohydrate 0.5g fat 350 calories
- 100gm of Cooked Rice- 170kcal/4g protein

## Ragi

- Ideal complementary food to start in babies in our region.
- Culturally acceptable
- Physiologically suitable
- Easily prepared
- Adequate to provide all nutrition- rich in protein, iron, iodine and calcium.
- 100g(uncooked) - 350kcal ,7g protein, 340mg Ca, 3.9mg iron

## Legumes (pulses)

- Deficient in Methionine, Cysteine, Vit C, Vitamin A
- Germinated pulses – Vit C, Selenium
- 100g (uncooked)-340 -350kcal, 20 -25g protein

Eg: Bengal gram, green gram. Black gram, red gram, horsegram, soybean

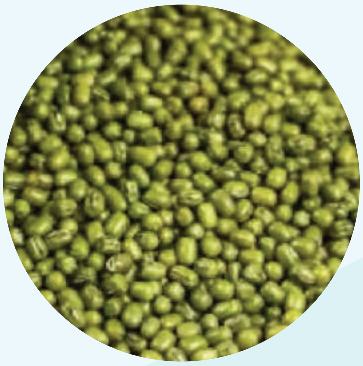
Ragi

Horse Gram

Bengal Gram

Toor dal

Black Gram/Urad dal



Green gram

Soybean has the having highest protein content among pulses. It contains 43 grams of protein with 430 calories and 10.4 mg of Fe.

Germinated legumes contain Vitamin C
Cereal- pulse combination leads to supplementary effects of protein. 2:1 proportion

## Egg

- 1 egg 80kcal energy/6g protein, 6g fat,30mg ca, 1.5mg iron, 250mg cholestrol
- Deficient in carbohydrates, vit C
- Protein causing allergy – Avidin
- NPU -1, known as reference protein
- Yolk yellow color is due to beta carotene

## Milk & Milk products

Good source of proteins, Ca and vitamins
Deficient in Fe and Vitamin C.
**Human milk has high lactose content 7 gm% (sweetest milk)**
**Buffalo milk has high fat (high fatty milk)**

- Cow`s milk- 100ml -70kcal,3.3g protein
- Breast milk- 100ml – 70kcal, 1.1g protein

**Goats milk deficient in folic acid leads to megaloblastic anemia**

## Comparison of human milk and cow`s milk (100ml)

| Component | Breast milk | Cow`s milk |
|---|---|---|
| Protein | 1.1g<br>Whey protein rich<br>Casein: whey (40:60)<br>Contains Lactalbumin & lactoferrin (bacteriostatic and increases Iron,Zn,Mg absorption) | 3g (3 times)<br>Casein rich<br>Casein: whey (80:20)<br>Lactoglobulin |
| Lactose | 7g | 4.5 |
| Fat | 3.8g | 3.7g |
| Calcium | Ca P ratio>2:1<br>more Ca available<br>Ca 33mg | Ca P ratio <2:1<br>Ca 125mg |
| Iron | 0.05-0.15mg<br>More bioavailability for iron | 0.1mg<br>Less bioavailability |
| Anti-infective factors | More anti -infective factors (IgA, Lactoferrin, Lysozyme), milk lipases | Less |
| Renal solute load | Less | 3 times higher |
| Allergy | No protein allergy associated | Chance of cow milk protein allergy |

# Green leafy vegetables (GLV), greens

### Main supply of vitamins, minerals, fibre

Eg: coriander leaves, spinach, amaranth, cabbage, cauliflower, drumstick leaves, curry leaves
Rich source of iron, calcium, vitamins especially vitamin C and vitamin B complex.
Cheap and about 50 grams should be consumed everyday
Green, yellow, orange vegetables are good sources of beta carotene.

### Fruits

Generally rich source of vitamins and fiber.
Vitamin C rich fruits are amla, guava and citrus fruits.
100 g banana: 116 cal. ,27 g cho,1.2 g protein
Green, yellow, orange fruits are good source of beta carotene
Dried fruits like dates supply iron.
Plantain and jackfruit supply energy.

### Sugars

Sugar, jaggery, honey
Are energy concentrates.
Jaggery is good source of iron
1 tsp gives 20 cal. (sugar also gives 20 cal.)

### Roots and tubers

Eg: tapioca, sweet potato, potato, carrot, beetroot, yam.
Generally rich in carbohydrate and are good sources of energy and Ca.
Carrots contain beta carotene and Potatoes contain Vitamin C
100 g Potatoes: 100 cal., 22 g carbohydrate, 1.6 g protein and 0.1 fat
100 g Carrot: 50 cal. 10 g carbohydrate, 0.9 g protein and 0.2 g fat
Energy rich roots tapioca, potato, arrowroot

### Nuts and oils

Eg; groundnuts, almond, dry coconut, fresh coconut, cashew nut
Good source of protein, vitamins and fat.
(Fats are rich conc. of energy, improve palatability and supply EFA and fat-soluble vitamins)
Ground nut
100 g groundnut: 560 cal., 26 g carbohydrate, 25 g protein. and 40 g fat
10 groundnut gives 1 g protein and 20 cal.
Coconut oil is deficient in EFA but contains medium chain triglycerides.MCT is absorbed well
Therefore is good for malnourished children and preterms.

### Following food items give 6 g protein:
Cow's milk 1 glass (200ml)
1 egg
Fish 1 ounce
Mutton 1 ounce
Uppuma 1 cup

### Vitamin A rich foods:
Green, yellow and orange vegetables and fruits
Milk and milk products
Egg yolk
Fish liver oil

### Vitamin D rich foods:
Egg yolk
Fish
Liver
Red meat
Cheese

### Calcium rich foods:
Milk and milk products
Leafy vegetables
Roots
Gingelly sweets
Millets (Ragi)
Oysters, Crabs, Fish, Mutton

### Iron rich food:
Fish, Meat group
Cereals (Ragi)
Legumes(greens)
Jaggery
Turmeric
Dates
Watermelon
Asafoetida
Tamarind

### Potassium rich foods:
Banana
Tender coconut water
Potatoes, sweet potatoes
Spinach
Kidney beans, lentils
Guava, pomegranate
Dried apricots, raisins

### To improve calorie density of diet
Small frequent energy dense diet. More cereals (small frequent amount) enriched with oil, ghee, butter. sugar, jaggery are good source of energy.

### To improve protein content of diet
Veg. source- green gram, Bengal gram, Toor dal, soya been, milk etc.
Animal source- egg, chicken, mutton, fish etc.

### To improve minerals & vitamins
Add green leafy vegetables, other vegetables and seasonal fruits to the diet.

### Ground nut roasted (per 100g)
E 520kcal
P 26.2gm, CHO 26.7gm, Fat 39.8gm

### Banana (per 100g)
E 116kcal
P 1.2gm, CHO 27.2gm, Fat 0.3gm

### Jaggery
E 383kcal
P 0.4gm, CHO 95gm, Fat 0.1gm

### Amrutham podi (6mo to 3yrs)
Contents: wheat, ground nut, soya, Bengal gram, sugar.
E 395.06 kcal/100gm
P 35.68gm, Fe 5.33mg, Ca 1.4mg/100gm

### SAT MIX
Rice: Wheat: Black Gram: Sugar = 1:1:1:1

| Low osmolarity ORS | |
|---|---|
| Glucose | 75mmol/L |
| Na | 75 mmol/L |
| Cl | 65 mmol/L |
| K | 20 mmol/L |
| Citrate | 10 mmol/L |
| Osmolarity | 245 mmol/L |

### Navadhanyam podi
Contents Ragi, Maize, Cardamom etc
E 416cal
P 13gm, F 6gm, CHO 70gm
Ca 79mg, Mg 92mg, Na 22, K 331

## Required Daily Allowance

| | |
|---|---|
| Vit A | Under 1 year-1000-1500 IU |
| | 1-3 year – 2000 IU |
| | 4-6 years – 2500IU |
| | 7-9 years -3500IU |
| | 10-12 years – 4500IU |
| Vit D | Preschool – 400 IU |
| | Older Children 200IU |
| Vit C | Infants 35mg |
| | Children 40-45mg |

## Essential B vitamins and deficiencies

| Vitamin | Deficiency |
|---|---|
| B1(Thiamine) | Beriberi: Peripheral neuritis, irritability, paralysis, heart failure, Wernicke encephalopathy |
| B2 (Riboflavin) | Photophobia, glossitis, cheilosis, angular stomatitis, seborrhea, corneal vascularization |
| B3 (Niacin) | Pellagra |
| B6(Pyridoxine) | Peripheral neuropathy, refractive seizures, dermatitis, microcytic anemia |
| B12 (Cobalamin) | Megaloblastic anemia, Subacute Combined Degeneration of Cord, Infantile tremor syndrome |
| Folate | Megaloblastic anemia |

## Classsification of Xerophthalmia

X1A- Conjunctival xerosis
X1B- Bitots spots
X2- Corneal Xerosis
X3A- Corneal ulceration (<1/3 of cornea)
X3B- Corneal ulceration (>1/3 of cornea)

XN- Night blindness
XF- Fundal changes
XS- Corneal scarring

## Definitions / Terms

**First 1000 days nutrition**

Conception to birth of the child (270 days) + birth to 2nd birthday (365+ 365)-These 1000days are very crucial in shaping the future health.

**Amylase Rich food-** flours of germinated cereals which are rich in the enzyme alpha amylase. Even small amounts of this reduce bulk of cereals. Increases energy density of weaning gruels. Increased digestibility. Prepared by germinating whole grain/ pulse, drying and then grinding

**Ready to use Therapeutic food (RUTF)-** Nutrient dense, energy-rich paste designed for treating severe acute malnutrition (SAM) in children requiring no cooking or water. It is made from powdered milk, peanut paste, vegetable oils, sugar and a mix of vitamins and minerals. Can be consumed directly from sachet.
Advantages: Requires no cooking or added water, eliminating the risk of contamination from unsafe water, long shelf life of 2 years, requires no refrigeration.
Eg. Plumpy Nut, Eazypaste.
100g- 500 kcals & 15 g protein.
20g=100 ml of F100.

**Ready to use supplementary food (RUSF):** RUSF is indigenously prepared high energy protein food but may not match RUTF in nutrient content. Homogenized mixture of lipid rich, water-soluble food mainly used in MAM and also SAM, if RUTF is not available.
SAT mix= precooked ready to use powdered rice: wheat: blackgram: sugar-1:1:1:1.
SAT mix + skimmed milk powder+ coconut oil in the ratio 3:1:1 supply approximately 500 kcal & 15g protein.

**RESOMAL-** Rehydration solution for Malnourished children -1packet standard Low osmolarity WHO ORS is diluted in 2 liters of water + 50g glucose + 45 ml syrup potassium chloride or 30ml potassium chloride injection (Contents in mmol/l-Glucose -125, Na 45, Cl- 70, K 40, Citrate 7, Mg 3, Zn 0.3, Copper 0.045, Osmolarity 300mmol/L).

**Responsive feeding-**responsive feeding is a two way process where the child signals hunger or fullness, and the caregiver recognizes, interprets, and responds appropriately.

**JUNCS-**Junk foods, Ultra processed foods, Nutritionally inappropriate foods, Caffeinated, colored, Carbonated foods, Sugar sweetened beverages

**Obesity and overweight in >5 years of age**

Overweight - >85th to 95th percentile of age (>23rd adult equivalent)
Obesity - >95th percentile of age (>27th adult equivalent)

My Plate – Cereals 45%, Pulses 17 %, Milk and curd 10%, vegetables 5 %, Fruits 3%, Nuts and seeds 8%, Fats and oils 12%.

## Sample Questions:

1. At what age is complementary feeding started?
2. What are the initial complementary foods introduced?
3. How many times in a day will you give complementary food to a baby aged 9 months?
4. By what age should a child take part in family pot diet?
5. How can we increase energy density of complementary foods?
6. Definition of MAM, SAM?
7. Cardinal features of Marasmus and Kwashiorkor?
8. Differences between Marasmus and Kwashiorkor?
9. 10 steps in initial management of SAM?
10. Definition of hypoglycemia, hypothermia in SAM Management?
11. Classification of Kwarshiorkor and Marasmus
12. What is complicated SAM?
13. When will you discharge a SAM patient?
14. What is RUTF/ RUSF?
15. What are the contents of SAT mix?
16. What is ReSoMal? How do you prepare ReSoMal from WHO ORS? How does it differ from low osmolarity WHO ORS?
17. What are the clinical features of Vit D deficiency? What are the X ray Findings?
18. Differences between cow's milk and breast milk?
19. How do you assess whether breast milk is adequate or not?
20. Classification of Vitamin A deficiency / Night blindness?

## References:


1. Ghai OP.Ghai Essential Pedaiatrics.New Delhi, India: CBS Publishers and distributers; 2023
2. K E Elizabeth-Nutrition and child development 7th edition. Paras Publishers; 2025.
3. Infant and Young Child Feeding module by MoHFW, Govt of India
4. WHO Guidelines for complementary feeding of Infants and Young Children 6-23 months of age-Oct 2023

## NOTES

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# Dept. of Paediatrics

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