Infant and child Nutrition

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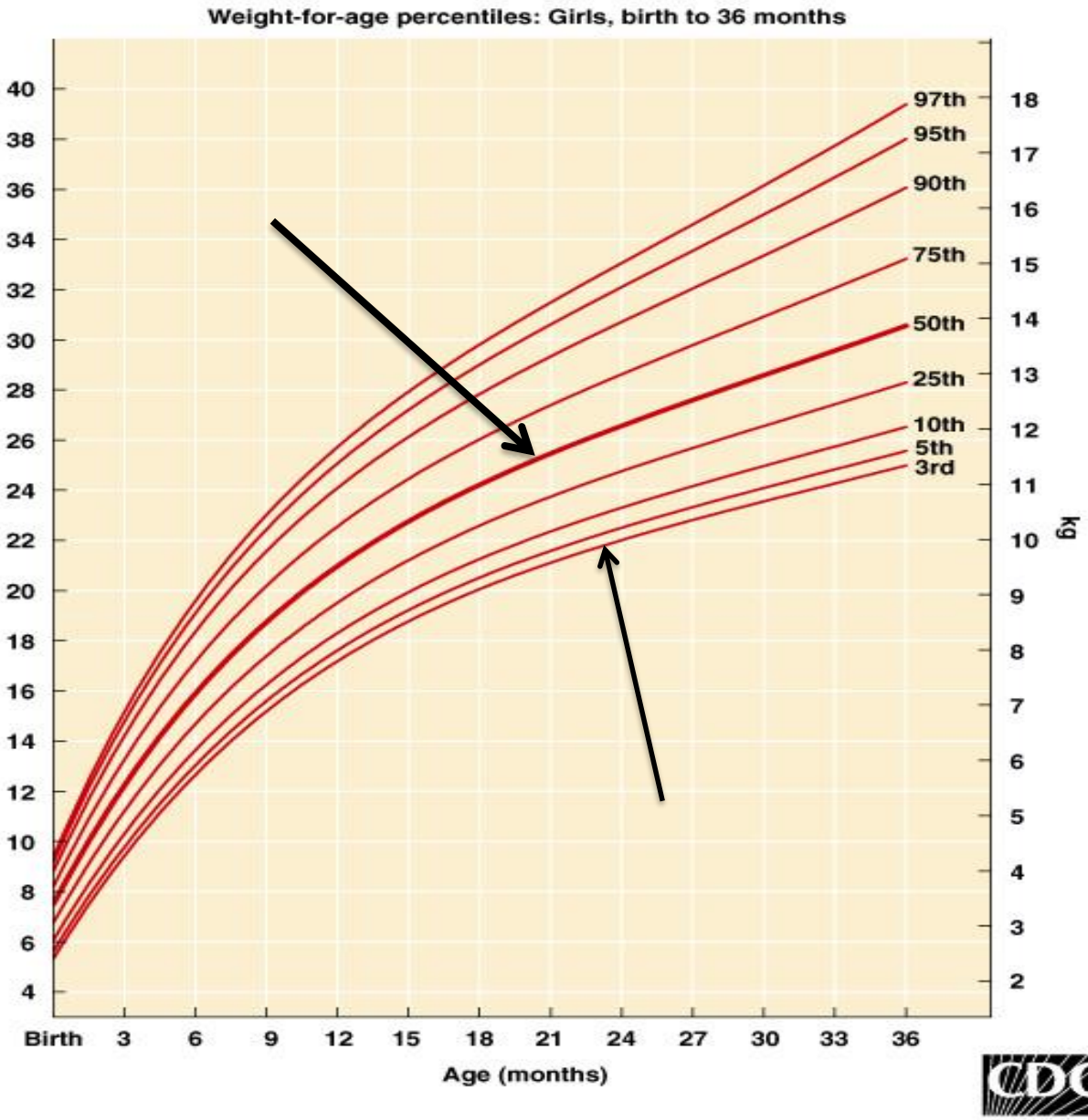
INFANT NUTRITION

Optimal nutrition is critical in the first year because

- **The baby's organs are developing**
- **The nervous system continues to develop**
- **Babies typically grow 10 inches in length and triple their weight in the 1st year**

Growth in Infants

- **Rapid body growth and brain development during the first year:**
  - **Weight increases 200%**
  - **Body length increases 55%**
  - **Head circumference increases 40%**
  - **Brain weight doubles**



Infants' nutritional needs are unique because:

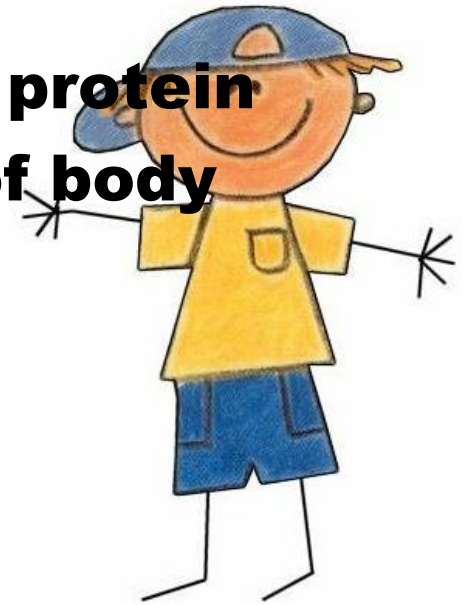
- **Their energy needs are high to support rapid growth**
- **Their digestive tracts and kidneys are still immature**
- **They are small in size**

Major Determinants of Caloric Needs

- **Basal metabolic rate (BMR)**
- **Growth (2x BMR during first year)**
- **Stress (infection, illness)**

Infants need

- **50 kcal per pound(450g) of body weight /day**
- **At least 40% of calories from fat**
- **No more than 20% of calories from protein**
- **2 ounces(60ml) of fluid per pound of body weight**



The WHO, suggested that infant receive [108Cal/kg/day] for the 1st 6months; and [98Cal/kg/day] from 6months till the 1st birthday, which is relatively large during childhood.

Babies should not have restricted fat intake, human milk in fact is high in cholesterol& fat content , 45 g of fat / liter .

Omega-3fatty acids are plentiful in human milk, particularly if the mother includes fish in her diet on regular basis, these fatty acids have been found to be essential for proper brain & nervous system development.

Protein

The requirement is highest during the first 4 months of life, when growth is the most rapid [2.2g/kg/day] from birth to 6 months of age and [1.6g/kg/day] for the second half of the year.

Fat is a backup energy source and also supplies Linoleic acid , which necessary for growth.

Infants should not eat

- Foods they could choke on
- Corn syrup or honey
- Goat's milk
- Cow's milk
- Large quantities of fruit juice
- Too much salt or sugar
- Too much breast milk or formula

Nutrition-related concerns for infants include

- Allergies
- Dehydration
- Colic
- Anemia
- Nursing bottle syndrome
- Lead poisoning

Allergies

- Solid food should be introduced one at a time for a week to watch for allergies

Dehydration

- Extremely dangerous for infants
- Caused by diarrhea, vomiting, inadequate fluid intake
- Pediatric electrolyte solution may be used

Colic

- Uncontrollable crying that can last for hours
- Precise cause is unknown

Anemia

- Infants are born with enough iron for only 6 months
- Anemia can develop after that

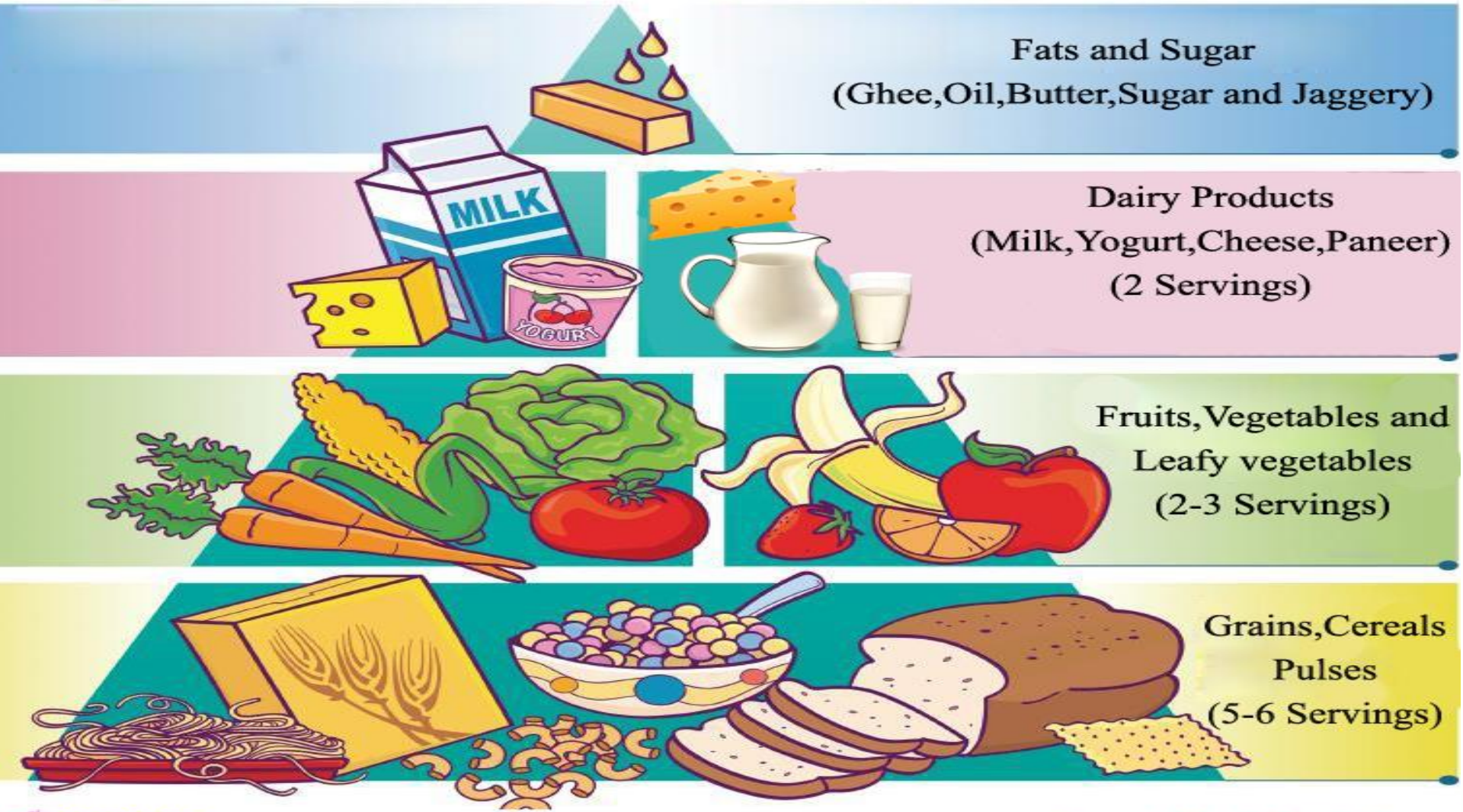
Nursing Bottle Syndrome

- Leaving an infant alone with a bottle can lead to cavities and tooth decay
- Rather than a bottle, begin using a cup by 8 months and no bottle after 18 months

Lead poisoning

- Especially toxic to infants since the brain and nervous system are still developing
- Results in reduced mental capacity, behavioral problems, impaired growth
- Remove old lead-based paint???
- Allow tap water to run a minute before use to discard lead leached from pipes???

Food Pyramid For Healthy Toddlers



The Food Pyramid for Children

Ages approx. 4 - 8

Fats n' Sugars sparingly

Dairy 2 1/2 cups (20oz.)

Meats 4 oz.

Veggies 1 1/2 cups

Fruits 1 to 1 1/2 cups

Grains 5 oz.

THE FOOD PYRAMID ACCORDING TO Kids

GROSS GROUP
Eat sparingly, preferably with witnesses

BREATH & GAS GROUP
Eat as needed for desired effect

PORTABLE GROUP
2-3 servings

BEVERAGE GROUP
6-8 servings

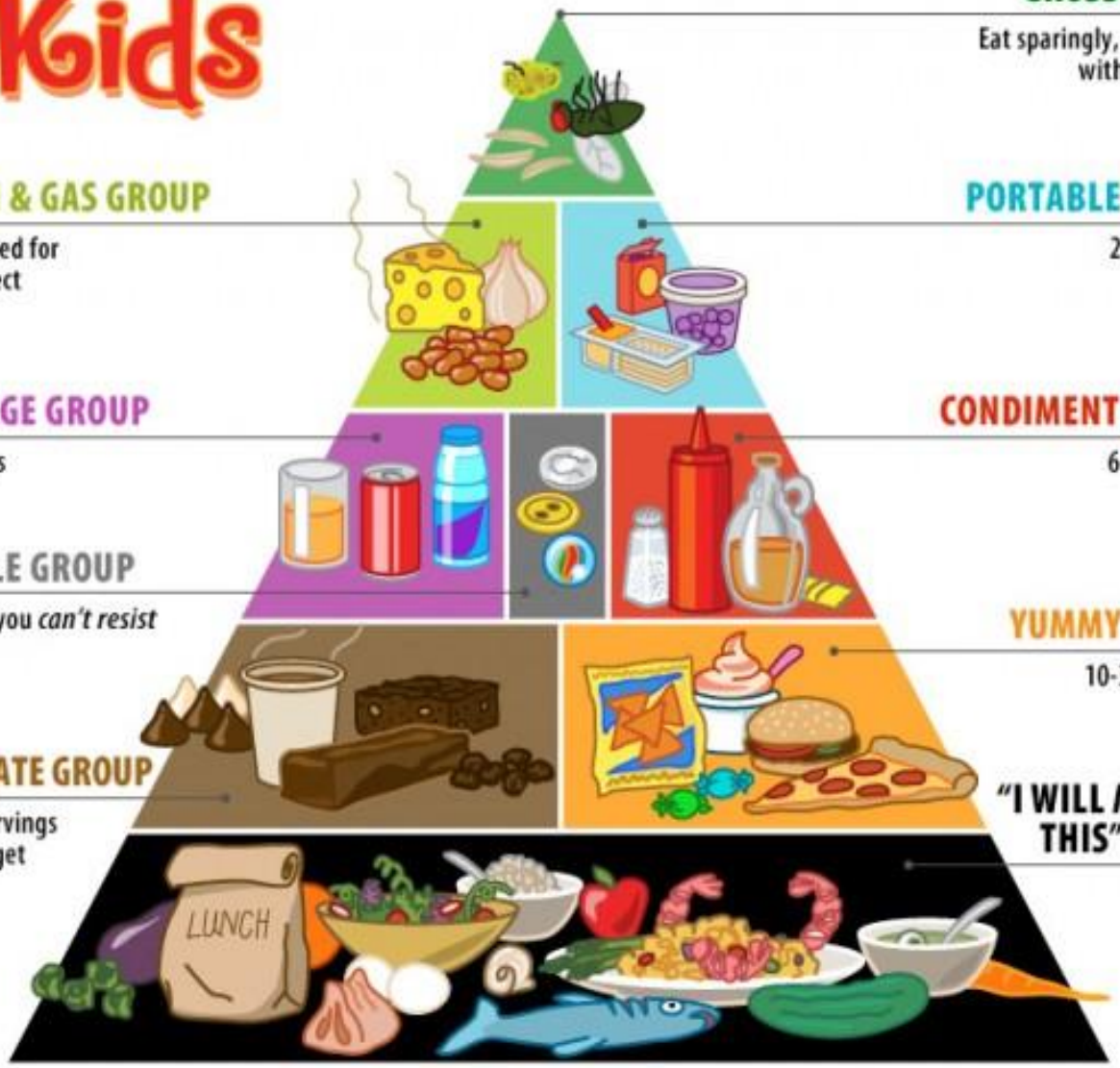
CONDIMENT GROUP
6-8 servings

INEDIBLE GROUP
Only when you *can't resist*

YUMMY GROUP
10-30 servings

CHOCOLATE GROUP
As many servings as you can get

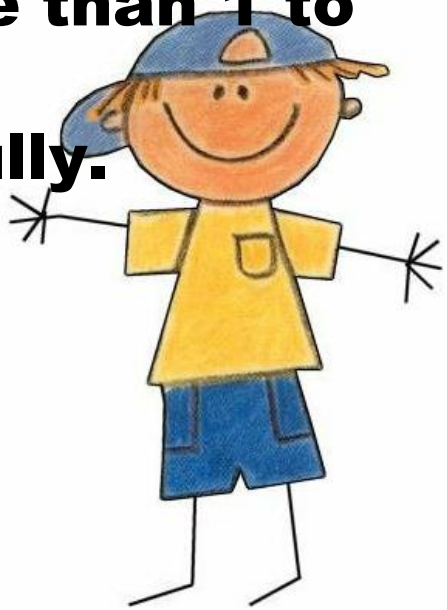
"I WILL *NOT* EAT THIS" GROUP
0 servings



howtobeadad.com

Developing Healthy Habits

- **Offer a variety of healthy foods and snacks.**
- **Encourage fruit and vegetable intake.**
- **No junk food snacking.**
- **Limit intake of juices (4 oz. per day).**
- **Increase intake of water (no soda).**
- **Encourage low fat dairy products (3-4 servings/ day).**
- **Make fun physical activity a habit.**
- **Limit online games and TV to no more than 1 to 2 hours per day.**
- **Track growth and development carefully.**
- **Be a good role model.**



School-age Nutrition Needs

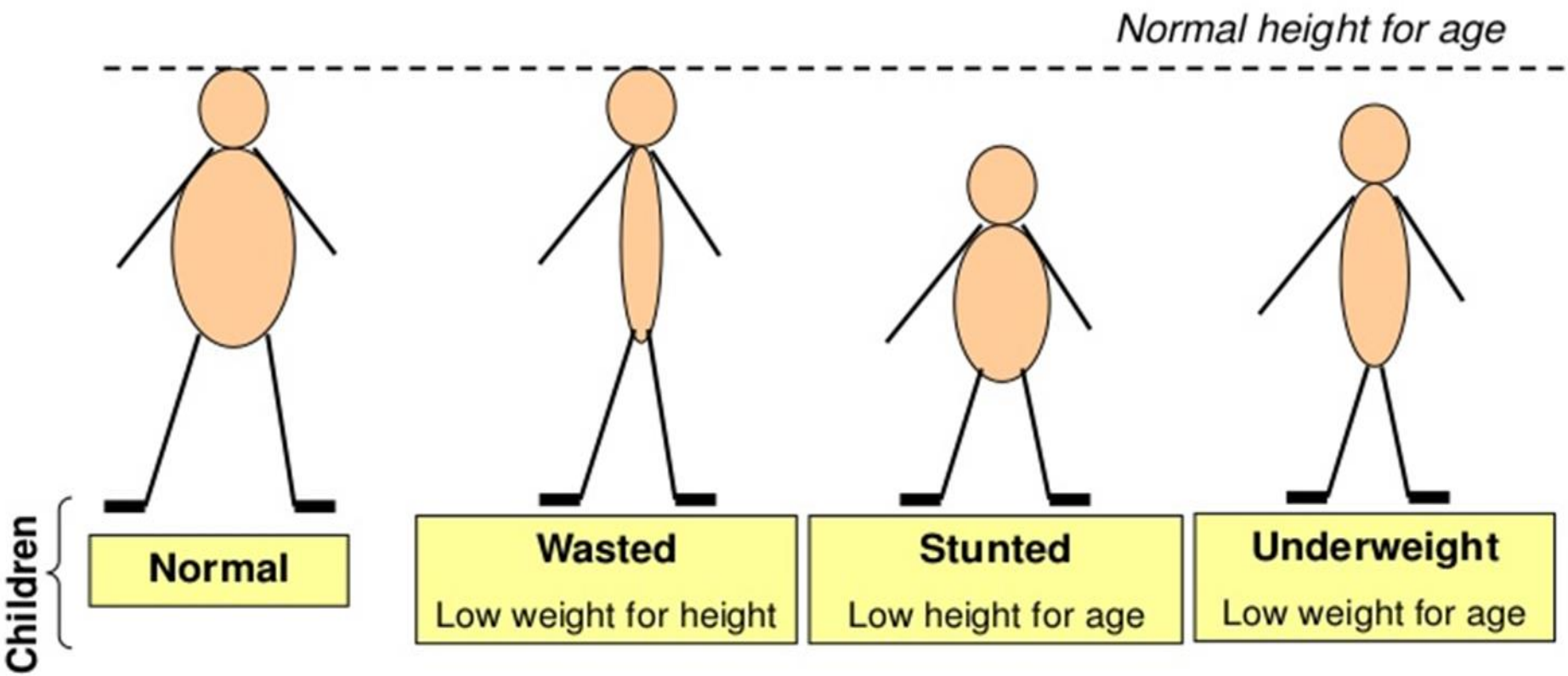
- **Follow Food Pyramid.**
- **6-11-year olds need 1,200 to 2,200 calories depending on age, gender and activity level.**
  - **In general, boys require slightly more than girls and active kids require more than inactive kids.**

- **Children need to make their own food decisions**
- **Breakfast**
  - **A well-nourished child is ready to learn.**
  - **Regular breakfast skipping is linked to less school achievement and performance.**
  - **Kids who eat breakfast are less likely to be overweight and more likely to get enough calcium.**
- **Beating the time barrier**
  - **Keep quick-to-fix healthy foods on hand: ready-to-eat whole-grain cereals, breads; yogurt, fresh fruit, low-fat milk and cheeses, peanut butter.**

Snacks

- Important part of a balanced diet for a child .
- Growing kids need extra energy during the day to support growth and development .
- Planning can help ensure that snacks eaten will be healthier ones .
- Can cut down on feelings of hunger and less likelihood of overeating at mealtimes .
- Keep serving sizes in mind as well as nutrient density .
- Keep in mind to choose those that are low in fat, added sugars and calories .

Different Types of Childhood Malnutrition



Globally, almost 200 million children under5 suffer from stunting, wasting, or both and at least 340 million from the hidden hunger of vitamin and mineral deficiencies.

At the same time, 40 million children under 5 are overweight and the toll from overweight and obesity keeps rising, even in lower-income countries.

These patterns reflect a profound triple burden of malnutrition that threatens the survival, growth and development of children and of nations .

Definitions of anthropometric indicators

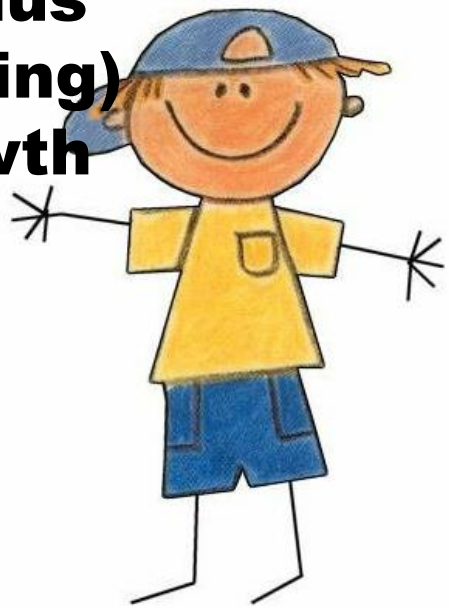
Stunting reflects chronic undernutrition during the most critical periods of growth and development in early life.

It is defined as the percentage of children aged 0 to 59 months whose height for age is below minus two standard deviations (moderate and severe stunting) and minus three standard deviations severe stunting) from the median of the WHO Child Growth Standards

Stunting has been described as not just the best overall indicators of children's well-being, but also an "accurate reflection" of inequality in societies

Wasting describes a child who is too thin for his or her height. With important exceptions, it often reflects a recent loss of weight arising from severely poor nutrient intake, illness or both.

Wasting reflects acute undernutrition. It is defined as the percentage of children aged 0 to 59 months whose **weight for height** is below minus two standard deviations (moderate and severe wasting) and minus three standard deviations (severe wasting) from the median of the WHO Child Growth Standards



Wasting – the more widespread form of acute malnutrition – can be devastating for children, particularly in its most serious forms.

Left untreated, children with severe acute malnutrition (SAM) are nearly 12 times more likely to die than a healthy child.

SAM often results from a rapid deterioration in nutritional status, and is typically characterized by wasting, extreme thinness, or the swelling that is typical of nutritional edema.

Underweight is a combined form of undernutrition that includes elements of stunting and wasting.
It is defined as the percentage of children aged 0 to 59 months whose **weight for age** is below minus two standard deviations (moderate and severe underweight) and minus three standard deviations (severe underweight) from the median of the WHO Child Growth Standards.

Undernutrition: stunting and wasting can lead to:

- **Poor growth, infection and death**
- **Poor cognition, school-readiness and school performance**
- **Poor earning potential later in life**

Nutrition-specific interventions are actions that have a direct impact on the prevention and treatment of undernutrition, during the 1,000 days covering pregnancy and the child's first two years

nutrition-specific interventions. Taking a life-cycle approach, the activities fall broadly into the following categories:

- **Maternal nutrition and prevention of low birthweight**

- **Infant and young child feeding (IYCF) Breastfeeding, with early initiation (within one hour of birth) and continued exclusive breastfeeding for the first six months followed by continued breastfeeding up to 2 years**

- **Safe, timely, adequate and appropriate complementary feeding from 6 months onwards**
- **Prevention and treatment of micronutrient deficiencies**

- **Prevention and treatment of severe acute malnutrition**

- **Promotion of good sanitation practices and access to clean drinking water**

- **Promotion of healthy practices and appropriate use of health services**

Overweight is defined as the percentage of children aged 0 to 59 months whose **weight for height** is above two standard deviations (overweight and obese) or above three standard deviations (obese) from the median of the WHO Child Growth Standards.

Preventing Overweight in Infants and Toddlers

- Avoid overfeeding.
- Do not force infants to eat.
- Wait until 4-6 months before adding solid foods.
- Limit juice to 3-4 ounces.
- Do not use food as a reward.
- Encourage physical activity.