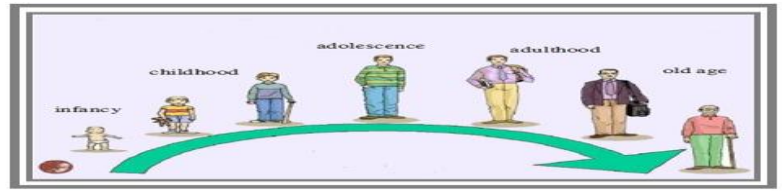


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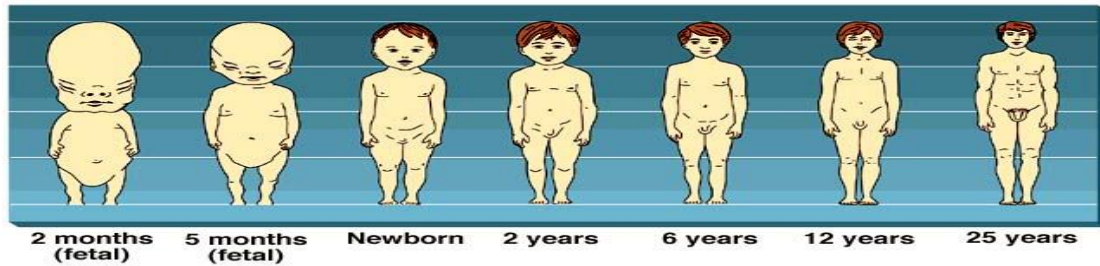
## Growth and Development of Children

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## **Changes in Body Form and Proportion**



### Changes in bodily proportions with age

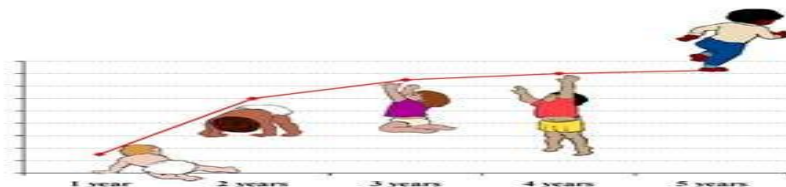
## Growth and Development of Children

Refers to the biological, psychological and emotional changes that occur in human beings between birth and the end of adolescence, as the individual progresses from dependency to increasing autonomy

### Growth

- Growth refers to an increase in physical size of the whole body or any of its parts.
- It is simply a quantitative change in the child's body.
- It can be measured in Kg, pounds, meters, inches, ..... etc

### **Child Growth (Image: WHO)**



### Development

- Development refers to a progressive increase in skill and capacity of function.
- It is a qualitative change in the child's functioning.
- It can be measured through observation.

By understanding what to expect during each stage of development ‘parents can easily capture the teachable moments in everyday life to enhance their child's language development, intellectual growth, social development and motor skills .

### **Maturation**

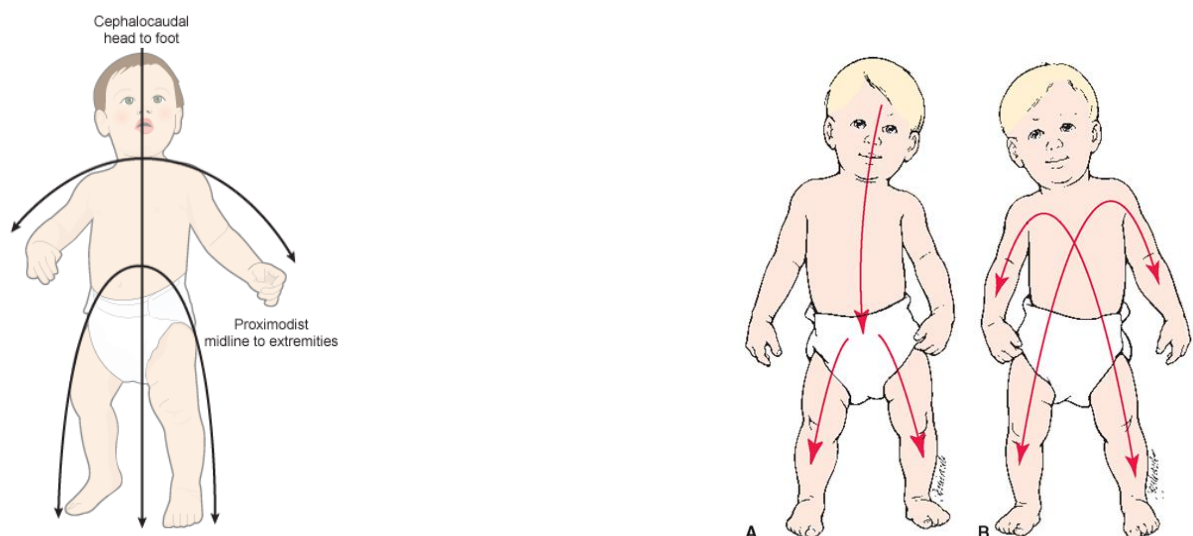
- Increase in child’s competence and adaptability.
- It is describing the qualitative change in a structure.
- The level of maturation depends on child’s heredity.

### **Importance of Growth and Development for Nurses:**

- Knowing what to expect of a particular child at any given age.
- Gaining better understanding of the reasons behind illnesses.
- Helping in formulating the plan of care.
- Helping in parents’ education in order to achieve optimal growth & development at each stage.

### **Growth Patterns**

The child’s pattern of growth is in a head-to-toe direction, or **cephalocaudal**, and in an inward to outward pattern called **proximodistal**.



**Cephalocaudal development** is the term that describes a form of neurological development. It is characterized by growth that proceeds from the head downwards.

**Proximodistal trend** is the prenatal growth from 5 months to birth when the fetus grows from the inside of the body outwards. When referring to motor development, the proximodistal trend refers to the development of motor skills from the center of the body outwards.

## Childhood

ONE YEAR (1)

ELEVEN YEARS (11)

Consists of:

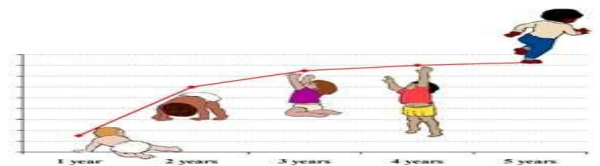
Early childhood

Mid-Childhood

Late Childhood

### Toddler and Preschooler (Early Childhood)

- One year to six years of age
- Gradual loss of “baby fat”
- Girls lose less fat than boys
- Rapid growth but not as rapid as infancy
- Quite flexible
- Muscle development while at play



### Normal growth and development

- ✓ An infant's birth weight triples at one year

growth velocity slows

- ✓ **Toddlers** gain (0.23 kg) and (1 cm) of height per month
- ✓ **Preschoolers** gain (2 kg) and (7 cm) per year.

This decrease in rate of growth is accompanied by a reduced appetite and food intake in toddlers and preschoolers. A common complaint of parents of children this age is that their children have a much lower appetite and a lower interest in food or eating compared to their appetite and food intake during infancy. Parents need to be reassured that a decrease in appetite is part of normal growth and development for children in this age group.

### Weight:

Formula to calculate normal weight of children over 1 year of age is:

**Age in years X 2+8 = ..... kg.**

e.g., The weight of a child aging 4 years

$$= 4 \times 2 + 8 = 16 \text{ kg}$$

## Height

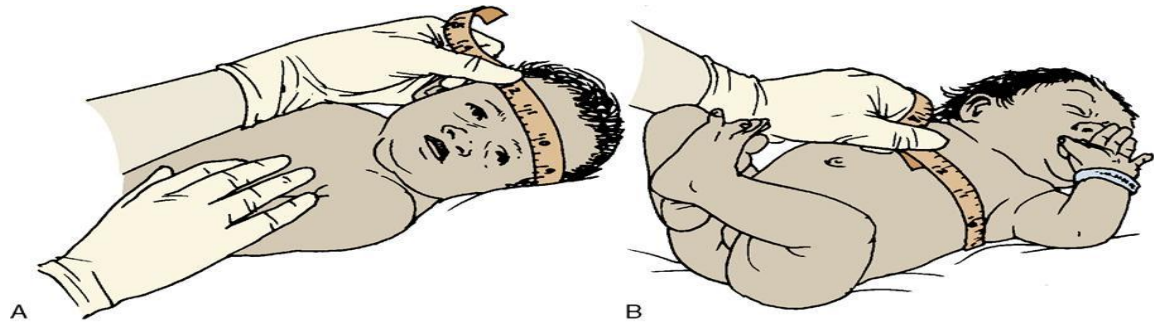
Formula to calculate normal height

$$\text{Age in years} \times 5 + 80 = \text{..... cm}$$

e.g., the length of 2 years old child

$$= 2 \times 5 + 80 = 90\text{cm}$$

## Head and chest circumference



The head increases 10 cm only from the age of 1 year to adult age.

During toddler years, chest circumference continues to increase in size and exceeds head circumference.

## Measuring Growth

In monitoring a child's physical growth, it is important for children to be accurately weighed and measured at periodic intervals.

➡ **Toddlers** less than 2 years of age should be weighed without clothing or a diaper. The ***recumbent length of toddlers should be measured on a length board*** with a fixed head board and moveable foot board.

***length board***



Proper measurement of recumbent length requires two adults— one at the child's head making sure the crown of the head is placed firmly against the head board, and the other making sure that the child's legs are fully extended and placing the foot board at the child's heels.

## Measuring Growth

**Preschool-age** children should be weighed and measured without shoes and in lightweight clothing. Calibrated scales should be used.



## Measuring Growth

Height board should be used for measuring stature.



It is important that both weight and height be plotted on the appropriate growth charts, such as the 2000 CDC Growth Charts

**Recumbent Length** Measurement of length while the child is lying down. Recumbent length is used to measure toddlers <24 months of age and those between 24 and 36 months who are unable to stand unassisted.

**Stature** Standing height.

## Dentition :

- ✓ Eruption of teeth starts by 5–6 months of age. It is called "Milky teeth" or "Deciduous teeth" or "Temporary teeth".
- ✓ By 2 years of age, the toddler has 16 temporary teeth.
- ✓ By the age of 30 months (2.5 years), the toddler has 20 teeth

PRIMARY DENTITION			
Upper Teeth		Erupt	Exfoliate
	Central incisor	8-12 months	6-7 years
	Lateral incisor	9-13 months	7-8 years
	Canine (cuspid)	16-22 months	10-12 years
	First molar	13-19 months	9-11 years
	Second molar	25-33 months	10-12 years
Lower Teeth		Erupt	Exfoliate
	Second molar	23-31 months	10-12 years
	First molar	14-18 months	9-11 years
	Canine (cuspid)	17-23 months	9-12 years
	Lateral incisor	10-16 months	7-8 years
	Central incisor	6-10 months	6-7 years

## Physiological growth:

- **Pulse:** 80–130 beats/min (average 110/min).
- **Respiration:** 20–30 breaths/min.
- **Bowel and bladder control:** Daytime control of bladder and bowel control by 24–30 months.

### **Fine Motor - toddler**

- ✓ 1 year old: transfer objects from hand to hand
- ✓ 2 year old: can hold a crayon and color vertical strokes
  - Turn the page of a book
  - Build a tower of six blocks
- ✓ 3 years old: copy a circle and a cross – build using small blocks

### **Gross - Motor of toddler**

**At 15 months:** the toddler can:

- Walk alone.
- Creep upstairs.
- Assume standing position without falling.
- Hold a cup with all fingers grasped around it.

**At 18 months:**

- Hold cup with both hands.
- Transfer objects hand-to hand at will.

**At 24 months:**

- Go up and down stairs alone with two feet on each step.
- Hold a cup with one hand.
- Remove most of own clothes.
- Drink well from a small glass held in one hand.

**At 30 months:** the toddler can:

- Jump with both feet.
- Jump from chair or step.
- Walk up and downstairs, one foot on a step.
- Drink without assistance.

### **Issues in parenting – toddler (emotional development)**

- Stranger anxiety – should dissipate by age 2 ½ to 3 years
- Temper tantrums: occur weekly in 50 to 80% of children – peak incidence 18 months – most disappear by age 3
- Sibling rivalry: aggressive behavior towards new infant: peak between 1 to 2 years but may be prolonged indefinitely
- Thumb sucking

- Toilet Training

### Development of brain

*As you can see, from birth until 4 years of age, the rate of your child's mental growth is at 50%. Progressively, this rate of growth will lessen to 30% at 8 years old and further drop to 20% at 18 years old.*



### Cognitive development:



**Cognitive development is the construction of thought processes, including remembering, problem solving, and decision-making, from childhood through adolescence to adulthood.**

Cognitive development refers to how a person perceives, thinks, and gains understanding of his or her world through the interaction of genetic and learned factors. Among the areas of cognitive development are information processing, intelligence, reasoning, language development, and memory.

He is still egocentric and cannot take the point of view of other people.

### Social development:

- The toddler is very social being but still egocentric.
- He imitates parents.
- Notice sex differences and know own sex.
- According to **Erikson**, The development of autonomy during this period is centered around toddlers increasing abilities to control their bodies, themselves and their environment i.e., "I can do it myself".

thank  
YOU