# Overview of normal growth and development

**Prof.Dr. Norhan Zeki Shaker**

**Humen Growth and development**

**2nd Grad**

**1 week**

- **Outline**
- **Overview of normal growth and development**
- Definition of growth, development, and maturation.
- Patterns of growth and development.
- Stages of growth and development.
- Types of growth and development

- **Objectives**

**1.At the end of this part , the student should be able to:**

2.1. Define concepts(Growth ,development, Differentiation and maturation).
2. Identify the patterns of growth and development.
3. List the stages of growth and development.
4. Describe the following periods of growth and development.
    1. – Prenatal period (embryonic stage).
    2. – Infancy period.
    3. – Early childhood period.
    4. – Middle child hood (school age) period.
    5. – Adolescence period.

# FOUNDATIONS OF GROWTH AND DEVELOPMENT

**Growth**—an increase in number and size of cells as they divide and synthesize new proteins; results in increased size and weight of the whole or any of its parts .


# FOUNDATIONS OF GROWTH AND DEVELOPMENT

**Development—**

a gradual change and expansion;

advancement from

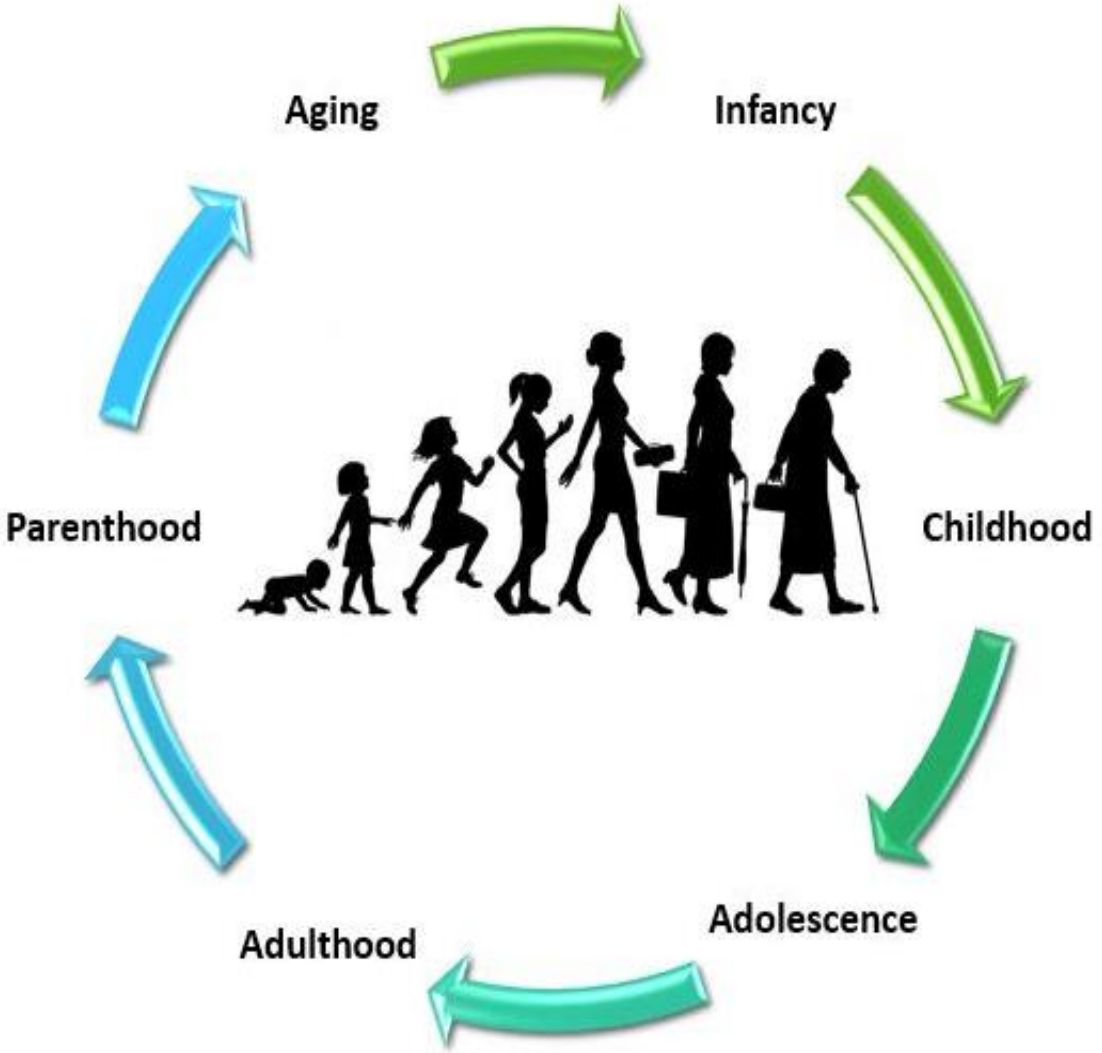
lower to more advanced stages of

complexity; the emerging and

expanding of the individual's capacities

through growth, maturation, and

learning



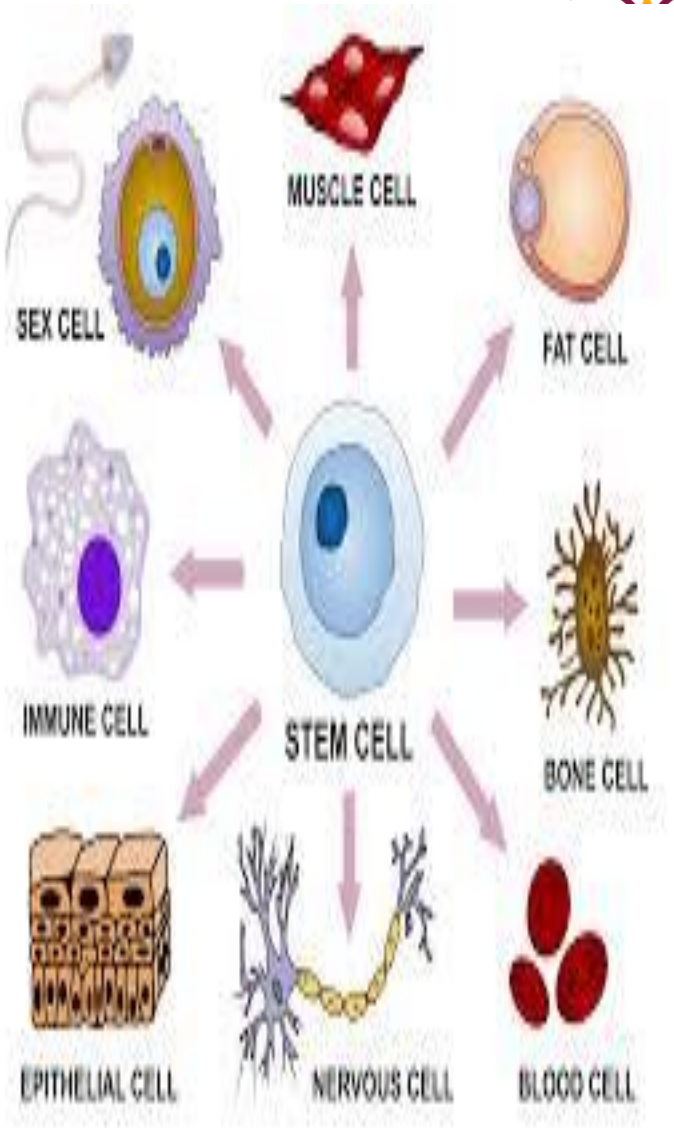
- **Continue: FOUNDATIONS OF GROWTH AND DEVELOPMENT**

- **Maturation**—an increase in competence and adaptability; aging; usually used to describe a qualitative change; a change in the complexity of a structure that makes it possible for that structure to begin functioning; to function at a higher level .

## Continue: FOUNDATIONS OF GROWTH AND DEVELOPMENT

**Differentiation**—processes by which early cells and structures are systematically modified and altered to achieve specific and characteristic physical and chemical properties.

Some times used to describe the trend of mass to specific; development from simple to more complex activities and functions.



- **Continue: FOUNDATIONS OF GROWTH AND DEVELOPMENT**

- *All of these processes are interrelated, simultaneous, and ongoing; none occurs apart from the others.

- The processes depend on a sequence of endocrine, genetic, constitutional, environmental, and nutritional influences .

- The child's body becomes larger and more complex; the personality simultaneously expands in scope and complexity.

- Very simply, growth can be viewed as a **quantitative** change and development as a **qualitative** change.

# •Developmental Age Periods (stages)

## •Prenatal Period—Conception to Birth

- •**Germinal**—Conception to ≈2 weeks
- •**Embryonic**—2 to 8 weeks
- •**Fetal**—8 to 40 weeks (birth)

## •Infancy Period—Birth to 12 Months

- •**Neonatal**—Birth to 27 or 28 days **Infancy**—1 to ≈12 month

## •Early Childhood—1 to 6 Years

- •**Toddler**—1 to 3 years **Preschool**—3 to 6 years

## •Middle Childhood—6 to 11 or 12 Years

- •**Later Childhood—11 to 19 Years**
- •**Prepubertal**—10 to 13 years

## •Adolescence—13 to 18 years

## Patterns of Growth and Development

- There are definite and predictable patterns in growth and development that are continuous, orderly, and progressive.
- These patterns, or trends, are universal and basic to all human beings, but each human being accomplishes these in a **manner and time unique** to that individual.

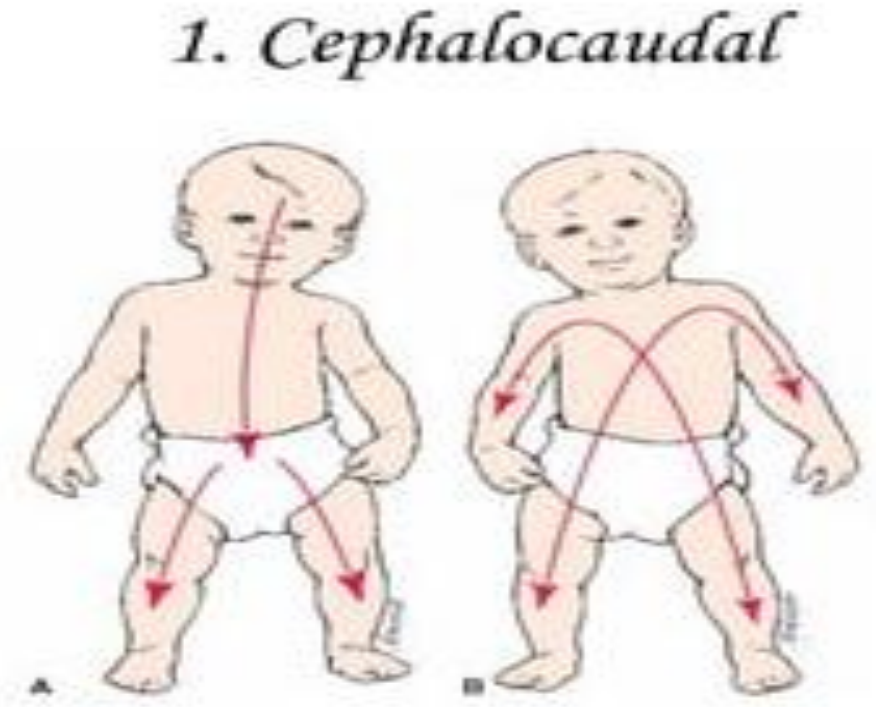
## ❖ Directional Trends

Growth and development proceed in regular, related directions or gradients and reflect the physical development and maturation of neuromuscular functions.

**1st trend is cephalocaudal**,

or **head-to-tail**,

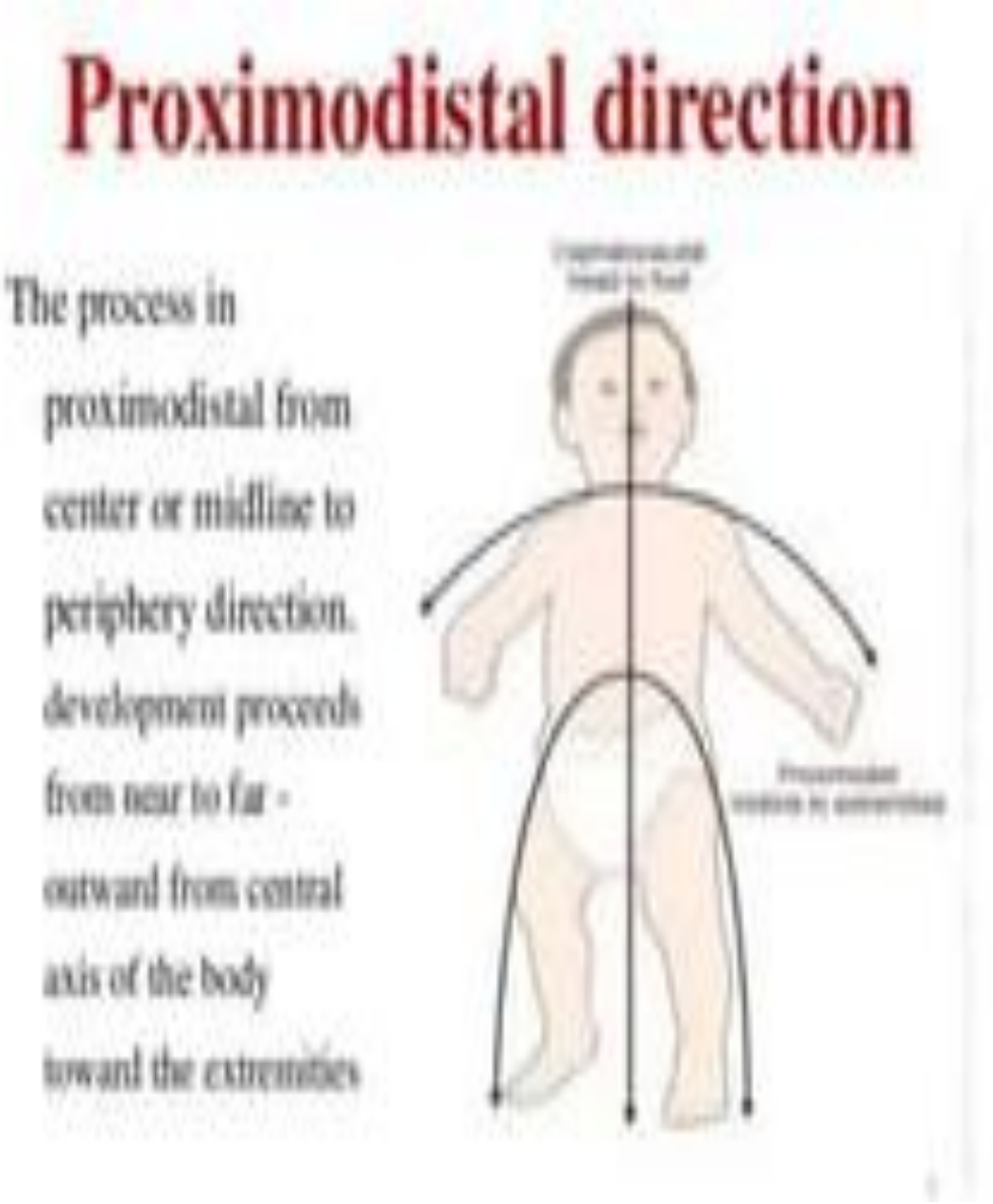
direction.



❖ **Directional Trends**

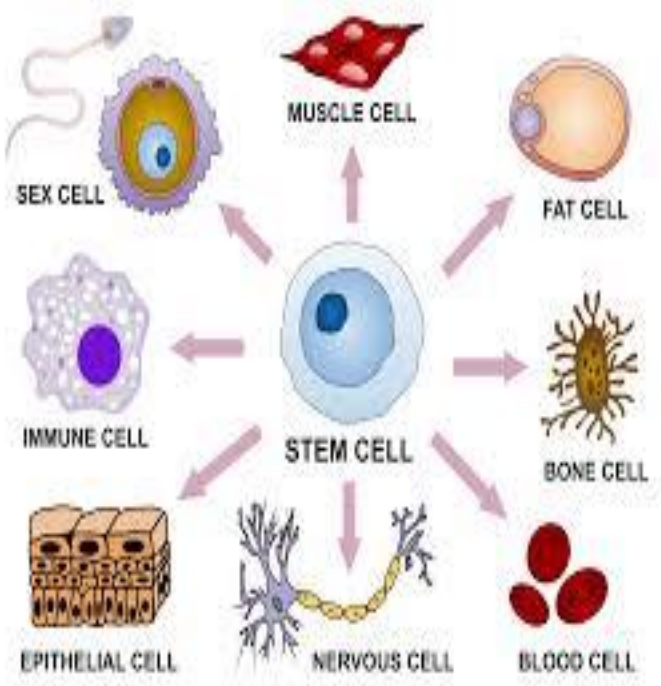
2nd trend is **proximodistal**,

or **near-to-far**.



## ❖ Directional Trends

**3rd** trend, **differentiation**. describes development from simple operations to more complex activities and functions.



## ❖Sequential Trends

- In all dimensions of growth and development, there is a definite, predictable sequence, with each child normally passing through every stage.

- Children crawl before they creep, creep before they stand, and stand before they walk. Later facets of the personality are built on the early foundation of trust.

- The child babbles, then forms words, and finally sentences; writing emerges from scribbling.

## ❖Developmental Pace

- Although development has a fixed, precise order, it does not progress at the same rate or pace.
- There are periods of accelerated* growth and periods of decelerated** growth in both total body growth and the growth of subsystems.
- When a spurt occurs in one area such as gross motor, minimal advances may take place in language, fine motor, or social skills.

- accelerated= faster
- Decelerated = slowerd down

## ❖Developmental Pace

- After the gross motor skill has been achieved, development focus will shift to another area.
- The rapid growth before and after birth gradually levels off throughout early childhood.
- Growth is relatively slow during middle childhood, markedly increases at the beginning of adolescence, and levels off in early adulthood.
- Each child grows at his or her own pace.

- **Sensitive Periods**
- There are limited times during the process of growth when the organism interacts with a particular environment in a specific manner.

- Periods termed **critical**, **sensitive**, **vulnerable**, and **optimal** are the times in the lifetime of an organism when it is more susceptible to positive or negative influences.

## Individual Differences

- Each child grows in his or her own unique and personal way.
- Great individual variation exists in the age at which developmental milestones are reached.
- The sequence is predictable; the exact timing is not.
- Rates of growth vary, and measurements are defined in terms of ranges to allow for individual differences.

## Individual Differences

- Some children are fast growers, others are moderate, and some are slower to reach maturity. Periods of fast growth, such as the pubescent growth spurt, may begin earlier or later in some children than in others.

- Children may grow fast or slowly during the spurt and may finish sooner or later than other children.

- Gender is an influential factor because girls seem to be more advanced in physiologic growth at all ages.

# Biologic Growth and Physical Development

- As children grow, their external dimensions change.
- These changes are accompanied by corresponding alterations in structure and function of internal organs and tissues that reflect the gradual gaining of physiologic competence.
- Each part has its own rate of growth, which may be directly related to alterations in the size of the child (**e.g., the heart rate**).

# Types of growth and development

**Types of growth:**

- Physical growth (Ht, Wt, head & chest circumference)
- Physiological growth (vital signs ...)

- **Types of development:**
- Motor development
- Cognitive development - Emotional development
- Social development
- Emotional development

- **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.

# Thanks