GROWTH AND DEVELOPMENT :

Most people use the terms „growth‟ and „development‟ interchangeably and accept them as synonymous. But in reality, the meanings of these two terms are different.

GROWTH: CONCEPT AND DEFINITION Growth refers to physical increase in some quantity over time. It includes changes in terms of height, weight, body proportions and general physical appearance.

In Encyclopedia Britannica, growth is defined as “an increase in size or the amount of an entity”. It means growth involves all those structural and physiological changes that take place within individual during the process of maturation. For example, growth of a child means the increase in weight, height and different organs of the child‟s body.

Hurlock has defined Growth as “change in size, in proportion, disappearance of old features and acquisition of new ones”.

Growth refers to structural and physiological changes (Crow and Crow, 1962). Thus, growth refers to an increase in physical size of whole or any of its part and can be measured.

DEVELOPMENT: CONCEPT AND DEFINITION:

Development refers to the qualitative changes in the organism as whole. Development is a continuous process through which physical, emotional and intellectual changes occur. It is a more wider and comprehensive term than growth. It is also possible without growth.

In Webster's dictionary development is defined as "the series of changes which an organism undergoes in passing from an embryonic stage to maturity."

In Encyclopedia Britannica is the term development defined as "the progressive change in size, shape and function during the life of an organism by which its genetic potential are translated into functioning adult system." So, development includes all those psychological changes that take in the functions and activities of different organs of an organism.

Development is continuous and gradual process (Skinner). According to Crow and Crow (1965) development is concerned with growth as well as those changes in behavior which results from environmental situation."

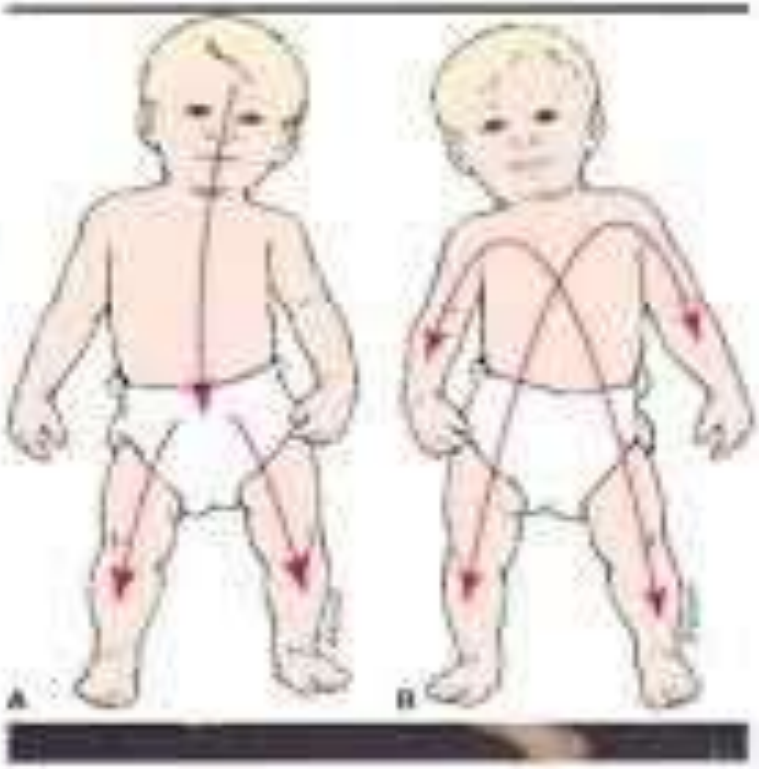
Thus, development is a process of change in growth and capability over time due to function of both maturation and interaction with the environment.

Comparison of Growth and Development

Growth refers to physiological changes.	**Development refers to overall changes in the individual. It involves changes in an orderly and coherent type towards the goal of maturity.**
Changes in the quantitative respect is termed as growth.	Development changes in the quality along with quantitative aspect.
Growth does not continue throughout life.	Development continues throughout life.
Growth stops after maturation.	Development is progressive.
Growth occurs due to the multiplication of cells.	Development occurs due to both maturation and interaction with the environment.
Growth is cellular	Development is organizational.
Growth is one of the part of the developmental process.	Development is a wider and comprehensive term.
Growth may be referred to describe the changes in particular aspects of the body and behavior of the organism.	Development describes the changes in the organism as a whole.
The changes produced by growth are subjects of measurements. They may be quantified and observable in nature.	Development brings qualitative changes which are difficult to measure directly. They are assessed through keen observation of behavior in different situations.
Growth may or may not bring development.	Development is possible without growth.

Cephalocaudal direction

- The process of **cephalocaudal** direction from **head** down to **tail**. This means that improvement in structure and function come first in the head region, then in the trunk, and last in the leg region.



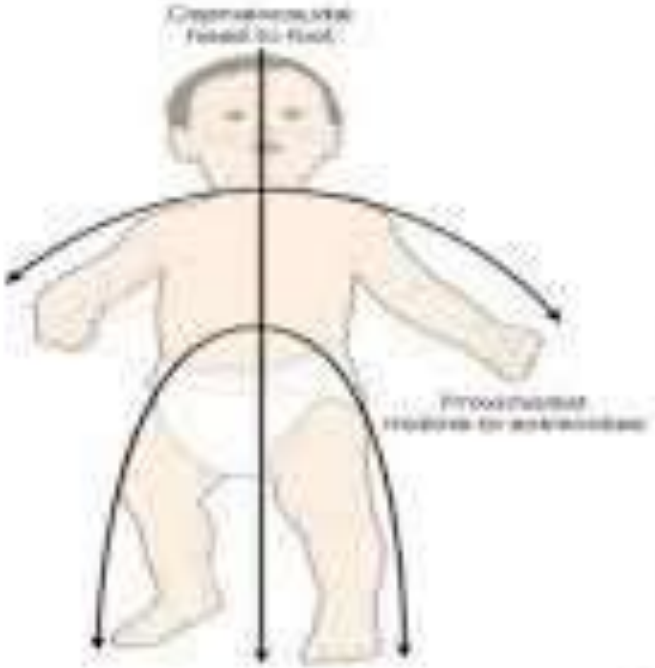
Development proceeds from the head downward.
This is called the cephalocaudal principle. This principle describes the direction of growth and development. According to this principle, the child gains control of the head first, then the arms, and then the legs. Infants develop control of the head and face movements within the first two months after birth. In the next few months, they are able to lift themselves up by using their arms. By 6 to 12 months of age, infants start to gain leg control and may be able to crawl, stand, or walk. Coordination of arms always precedes coordination of legs.

Cephalocaudal development refers to growth and **development** that occurs from the head down. An infant will gain control over their neck muscles first, which allows them to hold their head steady. **Proximodistal development** occurs from the centre or core of the body in an outward direction.

Definition. The **cephalocaudal principle** refers to the general pattern of physical and motoric development followed from infancy into toddlerhood and even early childhood whereby development follows a head-to-toe progression.

Proximodistal direction

The process in proximodistal from center or midline to periphery direction. development proceeds from near to far – outward from central axis of the body toward the extremities



Development proceeds from the center of the body outward.
This is the principle of proximodistal development that also describes the direction of development. This means that the spinal cord develops before outer parts of the body. The child's arms develop before the hands and the hands and feet develop before the fingers and toes. Finger and toe muscles (used in fine motor dexterity) are the last to develop in physical development.
The **proximodistal** pattern of **development** is where growth starts at the centre of the body and moves towards the extremities. An **example** of such a pattern is the early **development** of muscular control of the trunk and arms relative to the hands and fingers.
Proximal-Distal development means "from near to far", with "near" referring to the very center of your baby's body. In other words, **development** starts at the center, with increasing control gradually spreading from the center, outward, further and further.
The **proximodistal trend** is the tendency for more general functions of limbs to develop before more specific or fine motor skills. It comes from the Latin words *proxim-* which means "close" and "-dis-" meaning "away from", because the trend essentially describes a path from the center outward.

The **cephalocaudal trend**, or **cephalocaudal gradient of growth**, refers to the pattern of changing spatial proportions over time during growth. One example of this is the gradual change in head size relative to body size during human growth. During prenatal growth, from conception to 5 months, the head grows more than the body. In humans, the head comprises almost 50% of total body length at approximately the third month of intrauterine development. By the time of birth the head has decreased to approximately 30% of total body length as a result of the limbs and trunk growing faster than the head. This trend continues postnatally along an axis of increased growth from the head to the feet. Finally, in adults, the head represents approximately 6% of the body length. The cephalocaudal trend is also the trend of infants learning to use their upper limbs before their lower limbs. The proximodistal trend, on the other hand, 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.

References:

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