

Growth and Development : Factors and Difference

GROWTH:

Growth is an increase in the size of the body as a whole or the size attained by different parts of the body by multiplication of cells during the period starting from fertilization to physical maturity. It is a fundamental characteristic of all living organisms. The physical size is measured in terms of centimeters and kilograms or metabolic balance that is retention of hydrogen and calcium in the body

Stages of Growth:

The stages or phases of growth have been classified differently by different researchers.

1. Prenatal Period: The prenatal period comprises, on the average, about 9 months or 40 weeks. A fertilized egg of a multi-cellular animal is transformed into an embryo by cell division, growth and differentiation. This formation into the embryo is called prenatal growth. In the prenatal period (before birth) the embryo is formed with rudiments of all organs and systems.

Prenatal growth has three distinct stages:

- The fertilized ovum (egg) (first 2 weeks)
- The embryo (from 2 to 8 weeks) and the
- The foetus (from 2 to 10 lunar months)

2. Postnatal Period

Postnatal growth is commonly divided into the following age periods.

(a) Infancy: Infancy comprises the first year of life. This is a period of rapid growth in most bodily system and dimensions and rapid development of the neuromuscular system.

The growth is mostly by addition of more cells or increase in the protoplasm. The rate of growth increases after birth and there is an increase in size, shape and weight. In case of weight, the peak is reached at two months after birth. The cells become larger in size. The cervical and lumber curvatures of the spine show up as the baby starts to straighten the head the tries to sit up and stand.

(b) Childhood: Childhood spans from the end of infancy (the first birthday) to the start of adolescence. This period is often divided into early childhood, middle childhood and late childhood. The early childhood is the period of eruption of milk teeth. The middle childhood (7 to 10 years) is the period of eruption of permanent teeth, though not all erupt. The late childhood starts from the pre-pubertal period and continues up to the time of puberty. Childhood is a period of relatively steady progress in growth and maturation and rapid progress in neuromuscular or development.

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(c) Adolescence: Adolescence follows childhood. In this period the hormonal influences play a leading role in order to attain sexual maturity. During this period there is a marked acceleration of the adolescence growth spurt. The adolescence spurt is a constant phenomenon and occurs in all children, though it varies in intensity and duration from one child to another. In boys it takes place, on an average from age 12 to 15. In girls the spurt begins about two years earlier than in boys. Differentiation in primary and secondary sexual characteristics marks the adolescence period. There are changes in the reproductive organs, in body size and shape, in the relative proportions of muscle, fat and bone and in a variety of physiological functions.

(d) Maturity or Adulthood: The endocrine glands under the direction of pituitary hormones prepare the body for adulthood. An important sign of maturity is reproductive maturity. During adolescence, reproductive maturity begins but not completed. The active reproductive period extends up to 40 or 45 years of age in the human beings. The end of growth of height is also regarded as a sign of maturity.

Development: The term development refers to certain changes that occur in human beings between birth and death. The term is not applied to all changes but rather to those that remain for a reasonably long period of time. A temporary change caused by a brief illness, for example, is not considered a part of development. Some developmental psychologists prefer to restrict the notion of development only to changes which lead to qualitative changes in the structure of behaviour, skill or ability.

Integration refers to the idea that development consists of the integration of more basic, previously acquired behaviours into new, higher level structures. For example, according to Piaget, the baby who learns to successfully reach for objects that learned to coordinate a variety of skills such as keeping an upright posture, moving the arm, visually coordinating the position of the hand and the object and grasping the object under an integrated structure called a scheme. New developments build on and incorporate what has come before.

Human development can be divided into a number of different domains:

1. Physical Domain: Physical domain consists of development of body structure including muscles, bones and organ systems. It includes:

- (a) Gross motor development using large muscles for example legs and arms.
- (b) Fine motor development or precise use of muscles, for example hands and fingers.
- (c) Sensory development which is development of vision, hearing taste, smell and touch.

Physical domain also includes:

(a) Cephalo-caudal development which means that a child starts with development form head to toe. According to this principle, the child first gains control of the head, then the arms, then the legs. Infants gain control of head and face movements within the first two months after birth.

(b) Proximo-distal starts in the centre (like our chests) then moves to periphery. Accordingly, the spinal cord develops before other parts of the body. The child's arms develop before the hands, and the hands and feet develop before the fingers and toes. Fingers and toes are the last to develop.

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2. Cognitive Domain: Referred to as intellectual or mental development includes thinking, perception, memory, reasoning, concept development, problem-solving and abstract thinking. Language is one of the most important and complicated cognitive activities. Understanding and formulating language is a complex cognitive activity. Speaking, however, is a motor activity. Language and speech are controlled by different parts of the brain. Jean Piaget was a significant influence in this domain because of his 'theory of cognitive development'.

3. Moral Domain: Moral domain consists of development of character, right attitudes and behaviour towards other people in society, based on social and cultural norms, rules and laws. Understanding the difference between right and wrong is the essence of moral development. Piaget believed in two basic principles relating to moral education:

- Children develop moral ideas in stages and
- Children create their conceptions of the world.

4. Social and Emotional Domain: Social development includes the child's interactions with other people and the child's involvement in social groups. It includes

- Relationships with adults and peers,
- Social roles,
- Adoption of group values and norms,
- Adoption of a moral system, and
- Productive role in society

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FACTORS INFLUENCING GROWTH AND DEVELOPMENT:

1. Hereditary Factors: Human beings have a common genetic structure that determines the course of their development. This means there are basic similarities in the structure and functions of their bodies and differences between humans and other species. Many traits are inherited, including eye color, hair color, body type, height, and skin color. These are genetically determined.

Infants in all cultures are biologically ready to walk somewhere between age 9-15 months, however, environment can influence when a child actually begins to walk. A child carried on his mother's back for the first three years of life will not walk at a year. However, if that same child is allowed to roam freely on the ground, he would likely have walked around age one, abilities that result from maturation do not have to be taught in the same way we teach a child to hold a paintbrush or to ride a bicycle. The child will have to practice a maturation skill to be proficient; however, the emergence of the skill is not dependent upon environmental factors.

2. Environmental Factors: While children are born with different potentials, the capacity for each child to develop healthily is dependent on a nurturing and supportive environment provided to that child. Multiple environments can positively influence the potential for healthy development.

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- **Social and cultural environment:** This comprises the norms, belief system, values, and standards of behaviour that positively regulate a child's life. These codes a conduct regulate more or less all aspect of social life including parenting, family, life, interacting with outsiders and authority figures and expectations regarding children's development and conduct.
- **Emotional Environment:** The emotional environment comprises of the child's interpersonal relationships and the extent of nurturance provided to them. Human relationships are the buildings blocks of healthy development. Children grow and thrive in close and dependable relationships that provide love and nurturance, developmentally appropriate discipline, security and encouragement for exploration. The emotional environment shapes personality and affects self-esteem, trust, social responsibility, and resilience.

Difference:

GROWTH	DEVELOPMENT
1) Growth is a physical change	Development is overall development of the organism
2) Growth is change of physical aspects of the organism	Development is overall changes and progressive changes of the organism
3) Growth is cellular	Development is organizational
4) Growth is the change in shape, form, structure, size of the body	Development is structural change and functional progress of the body
5) Growth stops at maturation	Development continues till death of the organism
6) Growth is a part of development	Development also includes growth
7) Growth is the joint product of heredity and environment	Development is also the joint product of heredity and environment
8) Growth is quantitative in nature	Development is qualitative in nature
9) Growth can be measured accurately	Development is subjective interpretation of one's change

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