UNIT 13: HUMAN GROWTH AND DEVELOPMENT

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13.1 LEARNING OBJECTIVES

After going through this unit you will be able to understand

- the meaning of growth and development
- how growth and development is related

- the principles of growth and development.
- the developmental periods of early childhood, late childhood and adolescents

13.2 INTRODUCTION

A foetus inside a mother's womb is in constant interaction with her internal environment for its growth and development. After birth the child is in incessant struggle with the outer world which further nurtures the child's growth and development. Due to the systematic nature of the process of growth and development, understanding the subject is needed for parents and teachers so that they can apply appropriate intervention mechanisms for the child's effective growth and development. It is to be noted that the rate or speed of development varies at different ages of the child. For example, children grow very fast during the first three and then when they attain 6 - 12 years, their rate of growth is comparatively slow. It is accelerated again in their adolescent stage. This unit will make the students understand how children grow and develop at different stages, what types of different development both at physical, psychological and social occur in humans at those stages of development.

13.3 MEANING OF GROWTH AND DEVELOPMENT

Growth refers to the increase in the size or weight of any internal or external body parts. Development basically caters to the overall psychological as well as physical growth in humans throughout their life spans.

Though they are different constructs, 'Growth and Development' are inseparable processes. Generally at certain point of time in human span of life, the processes of Growth and Development go on simultaneously.

13.3.1 PRINCIPLES OF GROWTH AND DEVELOPMENT

It tries to explain the process of development and the various dimensions involved in it. The various aspects of growth and developmental

processes are as follows.

Growth differs across individuals: Due to certain unique hereditary characteristics, metabolism rate differences and other factors, growth rate is not constant in an individual and also differs from others noticeably during childhood. A proper counselling by parents to their children is needed to make them accept this normal facts of life which will help them to develop a sense of self acceptance.

Development is a continuous process: Unlike growth developmental process is continuous. It starts from an individual's birth and end in his tomb.

Development follows a pattern: Development occurs not in a haphazard way. There are successive stages of development and each has to be successfully passed to move on to the next. For example, a child has to learn how to sit without support before he learns how to stand up.



DEVELOPMENT is a product of Interaction between heredity and environment

Development proceeds from general to specific responses- The early responses of a child whether physical (e.g. hand movements) or emotional (anger, fear etc) are very general and random in nature and not specific towards a particular target. At early stages babies wave their arms on seeing a particular object shown before them and gradually learn how to hold that with their hands. Similarly, in early stages of language development the child may use a particular word to describe an object, animal or any eatable. Gradually, as his / her vocabulary increases, he/she will learn to use correct specific words. Thus, clumsy movements/ responses are gradually replaced by specific and co-ordinated ones.

Development is a product of interaction of heredity and environment

The changes in the development is contributed both by hereditary and environment. The influence of hereditary and social factors on an individual's personality development is already discussed in the previous chapters.

13.4 LIFE SPAN APPROACH TO THE UNDERSTANDING OF HUMAN GROWTH & BEHAVIOUR

Growth of a human being stops after a certain age but the development continues at a slow but gradual pace. The progress of development is divided into stages and each stage is dependent on the previous stage for its successful manifestation. Growth of an individual may hinder because of illness, malnutrition or other environmental factors in the child's life.

13.5 STAGES OF HUMAN DEVELOPMENT

According to Growth and Development, the life of an individual can be divided into the following major developmental periods:

Pre-natal period (conception to birth)
Neo-natal period (birth to 10-14 days)
Babyhood (2 weeks to 2 years)
Early childhood (2 years to 6 years)
Late childhood (6 years to 12-13 years)
Adolescence (12-13 years to 18-19 years)
Adulthood (18-19 years onwards)

Each stage has fundamental behavioural patterns and traits and not all human life goes through the stages as per the age limit specified. They are only approximations and it varies between individuals depending on culture, social pressures and achievement of developmental tasks.

13.5.1 PRENATAL STAGE

The miracle of human growth and development is so perfectly illustrated in the prenatal period of life. During this time, the organism changes from a comparatively simple single-cell structure to a complex structure consisting of billions of cells. What is remarkable is how these cells develop into the varied organs and perform an array of functions. The prenatal period is ten lunar months of 28 days each or nine calendar months, approximately 270

to 280 days.

Pregnancy, also known as gestation, is the time during which one or more offspring develops inside a woman. Amultiple pregnancy involves more than one offspring, such as with twins. Pregnancy can occur by sexual intercourse or assisted reproductive technology. It usually lasts around 40 weeks from the last menstrual period (LMP) and ends in childbirth. Symptoms of early pregnancy may include missed periods, tender breasts, nausea and vomiting, hunger, and frequent urination.Pregnancy may be confirmed with a pregnancy test. It is divided into three trimesters. The first trimester is from week one through 12 and includes conception. The first trimester carries the highest risk of miscarriage. The second trimester is from week 13 through 28. The third trimester is from 29 weeks through 40 weeks.

STAGES IN PRENATAL PERIOD

Zygote stage (first two weeks)

It is initiated at the time of conception when the nucleus of the male germ cell (spermatozoon) merges with the nucleus of the female germ cell (ovum). When several ova are released, multiple births occur. During sexual intercourse, spermatozoa are deposited at the mouth of the uterus which is drawn into the tubes by strong harmonic attraction. Conception takes place when the ovum is penetrated and fertilized by a single spermatozoon. The newly formed zygote normally passes down the Fallopian tube and into the uterus. Zygote implants itself in the uterine wall. It divides many times and separates into an outer and an inner layer. The outer layer later develops into the placenta, the amniotic sac, and the inner layer develops into a new human being. If the zygote fails to pass into the uterus, it may result in ectopic pregnancies (tube pregnancy) resulting in destruction of the organism as it occurs once in 500 conceptions.

Embryo Stage (2 weeks till 8 weeks)

Tremendous overall growth occurs and by end of the period, all major organs and systems ae developed. The organism has acquired a human

form. It is protected and nourished by the amniotic sac, the umbilical cord and the placenta. The nervous system, the brain, spinal cord, the eyes, heart, lungs, digestive system and other organs are formed and they are far from functional. At the end of this stage, it weighs about 11/4 ounces and is of 11/2 inches in length. A possibility of embryo being dislodged resulting in miscarriage is a hazard in this stage.

Foetal Stage (2 months till birth)

The foetal stage, the longest prenatal period is when the preparation of the organism to sustain life after birth usually takes place. Sex organs begin to appear during the third month of gestation. The foetus continues to grow in both weight and length, although the majority of the physical growth occurs in the later stages of pregnancy. Foetal heartbeat can be detected about the fifteenth week. Foetal movements like rolling, short or quick kicking appear by eighteen and twenty-one weeks and then increased rapidly upto the end of the ninth lunar month.Then they slow down because of crowding in the amniotic sac. The foetus is well developed to survive by end of seventh lunar month,if there is a premature birth. By the time the foetus is considered full-term at 38 weeks gestation, he or she may be20 inchesor 3.3 kilograms.

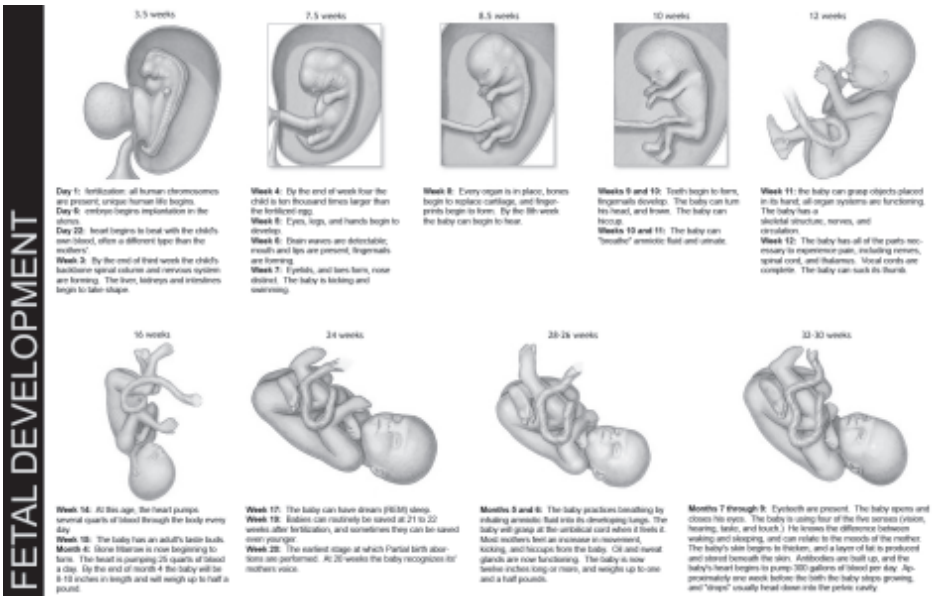


The Foctal stage is the longest pre-natal stage.

The foetus increases quite dramatically in size, increasing about six times in size. The brain and central nervous system also become responsive during the second trimester. Around 28 weeks, the brain starts to mature much faster with activity that greatly resembles that of a sleeping new-born. The lungs begin to expand and contract, preparing the muscles for breathing. Hazards of the foetus are that it may perish due to miscarriage or premature birth resulting in less chance for survival may occur. A healthy prenatal environment contributes to good adjustment of the infant. But, certain factors like malnutrition of the mother during pregnancy can result in still birth, premature birth or if the mother has been subjected to a lot of stress, this can contribute to complications during delivery and in some cases, leading to difficult behaviour in the infant such as irritability, sleep problems and many other conditions that make adjustment difficult.

The growth and changes that take place during the foetal stage is given

in the picture below.



Source: https://411something.files.wordpress.com/2009/03/fetaldevelopment-copy.jpg

Prenatal care needs intake of protein, calcium, iron and iodine, as well as vitamins A, B, and D to meet the demands of foetal growth. Complications of pregnancy may include high blood pressure, gestational diabetes, iron-deficiency, anaemia and severe nausea and vomiting.

Childbirth terminates prenatal development and introduced infancy. Three stages of labour occur during normal childbirth: uterine contractions and widening of the birth canal, rupturing of the amniotic sac and finally the expulsion of the placenta from the uterus. There are five kinds of birth (natural, breech, transverse, instrumental and caesarean).Most hazards are associated with instrument births and caesarean sections.



CHECK YOUR PROGRESS

Q 1: What is the difference between growth and development?

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Q 2: What are the principles of development?

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Q 3: What are the different types of development usually observed in late childhood?

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Q 4: What are the developmental tasks in adolescent period?

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ACTIVITY

Q 1: List down the important development tasks in each developmental stage which you think are most important

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Q 2: What are the possible factors that may hinder the development of ethical or moral consciousness among adolescents? Why do you think so?

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13.5.2 Post Natal Stage

INFANCY

Infancy is the beginning or the early period of existence when the new-

born becomes a separate individual outside the mother's body and no longer a parasite on the mother. Also known as the neonatal period, it is the first weeks of life, during which the new-born infant makes radical adjustments to the demands of the outside world. It is a stage of extreme helplessness and complete dependence on significant others.

CHARACTERISTICS OF INFANCY

Each developmental period has distinct characteristics to differentiate it from the other periods. Infancyalso has certain characteristics:

- **Shortest developmental period**

Infancy is from birth till about two weeks. In spite of being the shortest developmental period, there are two sub-stages: the period of partunate - which is from birth to fifteen or thirty minutes until the umbilical cord has been cut and tied and the period of neonate which is from the cutting of the umbilical cord to two weeks of postnatal life.

- **Stage of radical adjustments**

It is a sudden and complete change of locale which may be easy for some infants but difficult for others who even fail to make it up.They need to breathe on their own and inflate the lungs when the umbilical cord is cut and adapt to temperature outside the womb. Learning to suck and swallow (if they are unable to do this, they lose weight) and also elimination are adjustments to be made compared to the life inside the womb.

- **It is a plateau in development**

Owing to the radical adjustments to be made, there is a halt in the growth and development, resulting in a plateau. Parents are concerned due to weight loss for a week but later, the infant slowly begins to progress.

- It is a hazardous period

Physically and psychologically, infancy is a hazardous period. Physical hazard arises due to the radical adjustments the infant needs to make to the new environment which is indicative of the high mortality rate during this stage. Psychological hazards are dependent on the attitude of the

significant others towards the infant. It also depends on the birth conditions and the extent of adjustment between the parents and the infant.

INFLUENCE OF FAMILY

Attitude of parents and siblings toward the infant usually persist as the child grows older. So, it is important that the attitudes of significant persons be favourable as the adjustment of the infant to postnatal life is largely influenced by the attitude of parents. A relaxed mother for example produces more milk than one who is tensed. Maternal attitude matters a lot and so also the attitude of the father as it can directly or indirectly have an impact. The way fathers handle the new born infant, assisting in the care and also being present during delivery contributes a lot towards developing a favourable attitude towards the infant.



Attachment Theory states that a close relationship between the mother and the baby brings about a sense of security in the child.

Family relationships play a dominant role in determining the future patterns of the baby's attitudes and behaviour towards relationship with others. Families also lay the foundation for the baby's socialization that begins at home. The parent - child relationship is very important than any other relationship and research evidence has proven that babies who are neglected or deprived of this love grow up having emotional problems and they become unable to express love or respond to love in later stages of their life. As per Attachment Theory, a close, warm and satisfying relationship develops between the mother and the baby that makes the baby feel secure and also lays the foundation for them to trust and establish relationships with people other than the mother. Parents should create an environment that is intimate and nurturing for the baby. The toddler should be encouraged to explore their curiosity and allow them in their effort to become independent by letting them eat by themselves or dress up on their own. First year of the baby's life is the most happiest of the life span and they are appealing to all around because of their dependency. But after the completion of the first birthday, situations arise that cause discomfort or difficulty for both the baby and the parents. Teething starts, need to become independent, start rebelling, desire more attention on part of the baby and the parents also become disenchanted with their parental roles

bringing about a change in the attitude. Family should be able to adapt to the changes that take place in the baby and continue to provide them with the attention and affection they require at all stages of their growth and development. Parents need to accept that each child is unique and therefore understand them, respect and support the unique characteristics and abilities of each child.

Three aspects of postnatal care are essential to ensure that infants adjust to the environment without any hazards. The amount of attention they receive to ensure that their needs are met promptly is important as all that the infant can do is cry. During the prenatal period, they were used to a stable environment where all their physical needs were automatically met, but now they need to depend on people for fulfilling their needs. Secondly, infant's adjustment to postnatal life depends on the type and amount of stimulation given. Stimulation is rocking the baby, talking or singing to them as part of routing care. When they are stimulated in a loving manner, they regain their lost birth weight, become more alert and responsive to their new environment. The warmth and affection that a mother shows by cuddling the baby does not only imply her love but also stimulates the infant's neurological development. Early stimulation and having more objects to look at helps the infant overcome developmental lag in vision and hearing. Thirdly, the degree of confidence of parents, especially mothers have in performing their parental tasks satisfactorily aids the infant's adjustment to postnatal life. They should know how to interpret the different cries of infants, if it is hunger, wet diapers, lonely feeling or something else is wrong and accordingly handle the situation.

Parents should not be disappointed about the infant's sex and appearance, its excessive crying and extreme state of helplessness as it can affect the their attitude towards the infant. The mother must quickly recuperate after delivery, overcome the 'postpartumdepression' and confidentlyfulfil her maternal role. Parents can get worried about the expenses mounting up due to childbirth, any complications during birth, prematurity or any birth defects requiring prolonged medical care. This concern and anxiety relating to the child's survivalalso influence the attitude

of parents towards the infant.

BABYHOOD

Babyhood occupies the first two years of life following infancy. During this period, there is a gradual decrease in the helplessness and over a period of time, they develop into an independent individual who has achieved enough body control by the end of two years. Toddlers as they are commonly addressed are expected to meet certain standards of social expectation called developmental tasks or milestones such as: expected to walk, take sold foods, partial control of the organs of elimination, learn foundations of speech, able to put words into meaningful sentences and relate emotionally to parents during this stage.Babies are appealing because of their doll like appearance and being wrapped in pretty baby clothes and colourful blankets.

CHARACTERISTICS OF BABYHOOD

- Is the foundation age: At this time, many behaviour patterns, attitudes, and patterns of emotional expressions are established. Moreover, whatever children learn early in life persists forever. It is imperative that undesirable behaviour or attitude should be corrected during the foundation years to have a lasting effect on the child's personal and social adjustments.
- Age of rapid growth and change: Rapid physical and psychological changes occur not only in appearance but also in capacities. Proportionate changes in height and weight are observed especially during the first year. Intellectual growth also occurs and the baby is able to recognize and respond to people around. There is also development of nervous system, ossification of bones and strengthening of muscles.
- Age of decreasing dependency: Independence also increases as they can communicate their needs.With development of body control, they can sit, stand, walk and they are able to do things independently.
- Age of increased individuality: Each baby has their own interests

and abilities as individuals. Hence, sleep, eating pattern and child rearing techniques also need to be individualised.

- Is the beginning of socialization: Babies show the desire to be part of the social group beginning with the attachment and affection they have with their mothers that develops into a strong emotional bond.
- Is the beginning of creativity: Babies begin to learn and develop interests which needs to be encouraged and positively received by the parents so that it contributes to them becoming creative in future. Exploring world around them and being adventurous are other traits in babyhood.
- Is a hazardous age: Fatalities can occur due to illness or any accident. If they are not trained positively in life to develop healthy behaviour, interests and attitudes during this stage, it can result in psychological problems in later stages.



13.6 LET US SUM UP

- Development describes the growth of humans throughout the lifespan, from conception to death. This includes all aspects of human growth, physical, emotional, intellectual, social, perceptual, and personality development. Growth may be defined as a quantitative increase in size or mass
- The prenatal period is ten lunar months of 28 days each or nine calendar months, approximately 270 to 280 days. Divided into three important stages - zygote, embryo and foetal stage
- Zygote stage or period of the ovum - implantation of fertilized ovum (first two weeks)
- Embryo period - emergence of major body structures (2 weeks till 8 weeks)
- The foetal stage, the longest prenatal period
- Symptoms of early pregnancy: missed periods, tender breasts, nausea and vomiting, hunger, and frequent urination.Pregnancy

may be confirmed with a pregnancy test. It is divided into three trimesters.

- Infancy is the beginning or the early period of existence and stage of extreme helplessness, the shortest developmental period calling for radical adjustments to postnatal life.
- Three aspects of postnatal care are essential for infants: attention, stimulation and confident parents.
- Babyhood extends for two years following infancy. Rapid growth and change with decreasing dependency occurs. Babies learn to walk, take sold foods, learn foundations of speech, and relate emotionally to parents. It's the beginning of socialization and parents need to teach values and morality as this is the foundation age to be disciplined. Babies like to explore world around them and become adventurous.



13.7 FURTHER READING

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13.8 ANSWERS TO CHECK YOUR PROGRESS

1. Growth refers to the increase in the size or weight of any internal or external body parts. Development basically caters to the overall psychological as well as physical growth in humans throughout their life spans.
2. The principles of development are :

   Development is a continuous process

   Development follows a pattern

   Development proceeds from general to specific responses

   Development is a product of interaction of heredity and environment
3. The various developmental tasks in late childhood are:

   Physical development

   Social Development

   Emotional Development
4. The various developmental tasks in adolescent period are:

   Cognitive Development

   Emotional immaturity

Social Consciousness development

Moral Consciousness



13.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q1: What are the different stages of growth and development?

Q2: Write a brief note on the embryonic stage.

Q3: Why is infancy a period of hazards?

Q4: Briefly list the characteristics of babyhood.

Q5: How can parentsdiscipline a toddler?

B) Long questions

Q1: Trace the growth of the foetus in the prenatal period until childbirth.

Q2: Describe the major characteristics of infancy.

Q3: Why is babyhood an appealing age? Trace the developments that take place during babyhood.

Q4: How can parents contribute to the infant's postnatal adjustment to life?