

DOWNLOAD PDF HUMAN DEVELOPMENT FROM CONCEPTION TO DEATH

Chapter 1 : Human Physiology/Development: birth through death - Wikibooks, open books for an open world

Cognitive Development Schemas Piaget's Cognitive Stages Piaget's theory of cognitive development is a comprehensive theory about the nature and development of human intelligence first developed by Jean Piaget.

Between birth and death, the human organism is a person, equipped with the full measure of basic human rights. This much is not really controversial, and the debate primarily concerns the prenatal phase of development. Do human rights accrue to the unborn all at once, for instance at fertilization? Do they instead arise in a gradual manner, based on the various progressive steps through which the prenatal human organism acquires significant person-like properties? Besides personal rights, are there other ethically significant values and properties that would justify a respectful treatment of embryos and fetuses? An understanding of prenatal development is a necessary, albeit in no way sufficient, condition for addressing these issues successfully. To understand the basic biology of any sexually reproducing organism, one needs to grasp the primary concept of the life cycle. The life cycle of humans includes fertilization, cleavage, gastrulation, organogenesis, fetal development, birth, child development and puberty, gametogenesis and again fertilization. It is through the germ-line that the life cycle persists from generation to generation. On the other hand, the somatic cells which comprise all the cells of the fetus, child, and adult that are not directly involved in reproduction belong to an inherently mortal entity, the human organism, whose fate is senescence and death. One turn of the life cycle defines one generation. Fertilization and birth define the beginning and end of the prenatal phase of development, which is comprised of two stages: The embryonic phase initiates with fertilization, the meeting of the male sperm and female oocyte gametes, giving rise to the zygote. At fertilization, a new, diploid genome arises from the combination of the two haploid genomes included in the gametes. The zygote divides several times cleavage stage to form a blastocyst. The cells of the blastocyst, called blastomeres, are separated into two parts: About six days after fertilization, the blastocyst attaches to the endometrium the epithelial lining of the uterus. While the trophoblast invades the uterine wall, the inner cell mass undergoes further stepwise differentiation processes that lead to the formation of the embryonic epiblast the precursor of the actual human individual and several extraembryonic structures Figure 1. The embryo then undergoes gastrulation, the process that starts with the formation of the primitive streak. This is the crucial developmental step, common to all animals but the most primitive invertebrates, by which the three basic germ layers of the embryo are formed. These are called ectoderm, mesoderm, and endoderm. From the third to the eighth week, the process of organogenesis involves the differentiation of the three germ layers into specific tissues and primordial organs. The earliest stage in organogenesis is called neurulation and starts when a specific area of ectoderm turns into the primordium of the nervous system. During organogenesis, many genes that are crucial to development are activated, and complex cell-to-cell signals insure the proper differentiation of various cell types, as well as the movement and migration of cells to their proper places in the developing embryo. For some cell types, this involves long-range navigation. For instance, the gamete precursors must travel from their initial position near the yolk sac to the primordial gonads. At the end of the embryonic phase, many important organ systems are in place, at least in rudimentary form. The fetal phase is characterized by further differentiation and maturation of tissues and organs, as well as considerable growth, especially towards the end of pregnancy. In the late fetal phase, the nervous system undergoes an acceleration of synapse formation and maturation of the brain, which is increasingly sensitive to outside cues. This process continues well after birth. Specific Developmental Stages in Detail Especially in early development, specific developmental processes seem more meaningful than others in the ethical debate about the moral status of human prenatal life. These are described in more detail. The embryo is usually defined as coming into existence at fertilization and becoming a fetus when organogenesis is completed eight weeks after fertilization. These borders are not sharply defined. The definition of an embryo thus cannot avoid being operational and context-dependent. The term conceptus is useful to denote any entity resulting from

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fertilization, when no reference to a more specific stage is intended. An additional complication results from the significant overlap between the final stages of female gametogenesis, fertilization, and initial cleavage. Gametogenesis involves a special type of cell division called meiosis. When primordial germ cells which are diploid are in the first meiotic division, there are genetic exchanges within each group of homologous chromosomes, which then separate into diploid daughter cells. In the second meiotic division, there is no further round of DNA duplication. Each chromosome in a pair is allotted to a separate daughter cell, now haploid. Each primordial germ cell thus gives rise to four daughter haploid cells. In the male, all four cells resulting from meiosis ultimately become functional spermatozoa. In contrast, in the female, only one of the daughter cells becomes an oocyte, the other three cells are discarded as polar bodies. In addition, female meiosis is not completed until after fertilization has occurred. During each ovarian cycle of the sexually mature female, one oocyte progresses partially through meiosis but is arrested in the middle of the second meiotic division at the time it is discharged from the mature ovarian follicle into the oviduct. If the oocyte is fertilized, meiosis is completed. Within the newly fertilized egg, the male and female pronuclei undergo a protracted migration towards each other, while DNA is duplicated within both. Thereafter, both nuclear envelopes disappear and the chromosomes derived from the male and female gamete are involved in the first cleavage division. Thus the first genuine diploid nucleus is observed at the two-cell stage only 30 hours after initial contact of sperm and oocyte. While fertilization usually occurs close to the ovary, the conceptus is gently nudged towards the uterus, a voyage lasting about five days. Both through recombination of gene segments during the first meiotic division, and through random assortment of homologous chromosomes in gametes, genetic novelty is generated. In other words, gametes are genetically distinctive in relation to their diploid progenitors and do not simply reflect the genetic structure of their parent organism. In a sense, gametes are distinctive "individuals" in relation to the organism that produces them. Fertilization creates genetic novelty of a different sort, by combining two independent paternal genomes. The zygote is genetically distinctive because it represents the meeting of two independent parental lineages. Thus genetic novelty appears twice per turn of the human life cycle. During cleavage, the zygote divides into smaller embryonic cells. At the 16-cell stage, the embryo is called a morula and a first differentiation into two cell types is initiated. The trophoblast is the cell layer that will soon connect with the uterine wall, whereas the inner cell mass includes the cells of the later stage embryo. At the blastocyst stage, a central cavity blastocoel is formed. If a blastomere is removed from the inner cell mass of a blastocyst as, for instance, in preimplantation diagnosis, the blastocyst is still able to produce a complete late embryo and fetus. This illustrates a fundamental principle called regulation, or regulative development. Within the early embryo, cell fates are not definitely fixed but largely depend on interactions with neighboring cells, so that development adjusts to the presence or absence of specific environmental cues. The molecular basis and the genes responsible for these cues are increasingly well known. At the blastocyst stage, the inner mass cells are pluripotent. Recent research does suggest that individual blastomeres acquire some degree of molecular specificity quite early. However, this inherent "bias" that tends to drive every blastomere towards a specific cellular fate can easily be overridden at this stage. Around day 6, the blastocyst has hatched from the surrounding zona pellucida the outer envelope of the ovum and is ready for implantation. As it attaches to the endometrium, two distinctive layers appear in the inner cell mass. The ventral layer hypoblast contributes to the primitive yolk sac. The dorsal layer soon differentiates between the embryonic epiblast that will contribute to the embryo, and the amniotic ectoderm lining the newly appearing amniotic cavity day 7. This two-layered structure is called the embryonic disk. All this happens as the blastocyst burrows deeper into the uterus wall and the trophoblast comes into close contact with maternal blood vessels. The trophoblast also produces human chorionic gonadotropin hCG, which is the substance detected in pregnancy tests and is essential to the maintenance of pregnancy. Abnormal conceptuses are very common until that stage and are eliminated, usually without detectable signs of pregnancy. Inversely, fertilization occasionally results in a hydatidiform mole. This structure consists of trophoblastic tissue and therefore mimics the early events of

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pregnancy hCG is produced, without their being any actual embryonic tissue present. The term "pre-embryo" was often used to mark the embryonic stages described so far. This term is sometimes shunned in contemporary discourse, as it has been suspected to be a semantic trick to downgrade the standing of the very early embryo. Yet even writers like Richard A. McCormick belonging to the Catholic tradition, sets great store by the moral standing of the earliest forms of prenatal development, have expressed doubts about the validity of this suspicion. More importantly, doing away with the term "pre-embryo" does not solve the two underlying conceptual problems that this term addresses. The first ensues from the cellular genealogy linking the zygote to the later stage embryo and fetus. Only a small part of the very early embryo is an actual precursor to the late embryo, fetus, and born child. Whatever terminology one wishes to use, no account of early development can avoid sentences such as this, written by Thomas W. Sadler in , "[t]he inner cell mass gives rise to tissues of the embryo proper," or terms such as the embryo "to be". This is an inescapable consequence of the fact that the late embryo includes only a small subset of all the cells that originate with the zygote and blastocyst. Figure 1 shows the complex genealogy of embryonic and extraembryonic tissues in human development. The second problem arises from the fact that the early embryo has a degree of freedom as regards its final numerical identity. Until about 12 days after fertilization, twinning can occur. In other words, until that stage, a single embryo still has the potential to divide in two embryos, ultimately developing into two separate persons. Therefore there is no intrinsic one-to-one relationship between the zygote and the late embryo, as there is between the late embryo, the fetus, and the born human. Gastrulation begins with a wave of cellular movements that start at the tail end of the embryo and extend progressively forward. Future endoderm and mesoderm cells slip inside the embryonic disk through a groove called the primitive streak. The anterior end of the streak is called the node. Of the cells that migrate inside the streak, some form the endoderm and others will lie atop the endoderm and form the mesoderm. Finally, those cells that remain in their initial position on the surface of the embryonic disk become the ectoderm. Gastrulation sets the overall organization of the embryo in a definitive way.

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Chapter 2 : Copy of Human Development- From Conception to Death by NaYeppuddah Sarang on Prezi

By: Montfort Bizimana Human Development: From Conception to Death Prenatal Development Childhood When looking at the Biblical Perspective of human development, it is clear that life begins long before the sperm even meets the egg.

Theoretical Perspectives and Research Issues 1. Historical Background, Research, and Basic Concepts 2. Key Developmental Principles and Major Theories 3. Brief Overview of Developmental Periods B. Genetic and Environmental Influences 1. Genetic Code, Mechanisms, and Processes 2. Gene-Environment Interaction and Correlation 3. Stress, Development, and Wellness 1. Physical, Emotional, Cognitive, and Behavioral Reactions 3. Views on Life and Death 1. Theoretical Perspectives and Cultural Influences 2. Personal Perspectives and Experiences 3. Bereavement and Development II. Biological Foundations of Human Development 1. Neurons and Neurotransmitters 2. Central and Peripheral Nervous Systems 3. Physical and Neurological Changes and Processes 1. Conception and Prenatal Stage 2. Early Childhood Through Adolescence 4. Sensation, Perception, and Attention Abilities 1. Stress, Wellness, and Physical Challenges 1. Cognition, Learning, Memory, and Information Processing 1. Language Development, Intelligence, and Creativity 1. Cognitive Development and Moral Reasoning 1. Stress, Wellness, and Cognitive Challenges 1. Personality, Emotions, Self-Concept, and Identity 1. Attachment, Family Environment, and Social Relationships 1. Stress, Wellness, and Developmental Psychopathology 1. Also, the students should be able to use this knowledge and understanding to reflect on their own personal life experiences or observations. Specific objectives for each instructional unit appear in separate handouts.

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Chapter 3 : Posthumous conception raises 'host of ethical issues'

Development means "a progressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience". The development of human being is a continuous process from conception to death.

Biography[edit] Paul B. Baltes was born in Saarlouis , Germany. He is credited with developing theories about lifespan and wisdom, the selective optimization with compensation theory, and theories about successful aging and developing. After, Baltes spent 12 years at several American institutions as a professor of psychology and human development before returning to Germany in His interests also included models of successful development and the cross-cultural comparative study of self-related agency beliefs in the context of child development and school performance. Together with his late wife, Margret Baltes, he proposed a systemic metatheory of ontogeny which characterizes lifespan development as the orchestration of three processes: Regarding interdisciplinarity, Baltes was engaged primarily in two projects: An attempt by researchers has been made to examine whether research on the nature of development suggests a specific metatheoretical worldview. Baltes argues there are seven key features which affect human development across the life span, namely: It was believed that the five or six decades after adolescence yielded little to no developmental change at all. The current view reflects the possibility that specific changes in development can occur later in life, without having been established at birth. This belief clearly emphasizes that all stages of the life span equally contribute in the regulation of the nature of human development; no age period holds supremacy over another. Many diverse patterns of change such as direction, timing, and order can vary among individuals and affect the ways in which they develop. Multidimensionality and Multidirectionality[edit] Baltes states that multidimensionality and multidirectionality are characteristics of human development. By multidimensionality, Baltes is referring to the fact that a complex interplay of factors, both endogenous and exogenous, influence development across the lifespan. As a result, certain factors may have a more powerful effect on a particular domain than another factor. Regardless, Baltes stresses that not one single criterion determines the development of a domain. As a result, the development of various domains is multidirectional in nature. The concept of puberty is also multidirectional as individual domains may both improve or decline in levels of effectiveness. Self-regulation is one domain of puberty which undergoes profound multidirectional changes during the adolescent period. During childhood, individuals have difficulty effectively regulating their actions and impulsive behaviors. Baltes argues that factors which contribute to gain or loss are not in equal proportions but adjust according to systematic age-related shifts. This relation between developmental gains and losses occurs in a direction to selectively optimize particular capacities which requires the sacrificing of other functions, a process known as selective optimization with compensation. As adolescents gain the ability to effectively regulate their actions, they may be forced to sacrifice features to selectively optimize their reactions. For example, individuals may sacrifice their capacity to be spontaneous or creative, if they are constantly required to make thoughtful decisions and regulate their emotions. Plasticity is imperative to current research because the potential for intervention is derived from the notion of plasticity in development. Without visual input, blind humans have demonstrated that tactile and auditory functions still fully develop. A superiority of the blind has even been observed when they are presented with tactile and auditory tasks. This superiority may suggest that the specific sensory experiences of the blind may influence the development of certain sensory functions, namely tactile and auditory. Both congenitally blind adults and sighted adults could locate a sound presented in front of them with precision but the blind were clearly superior in locating sounds presented laterally. Currently, brain-imaging studies have revealed that the sensory cortices in the brain are reorganized after visual deprivation. These findings suggest that when vision is absent in development, the auditory cortices in the brain recruit areas that are normally devoted to vision, thus becoming further refined. A significant aspect of the aging process is cognitive decline. The dimensions of cognitive decline are partially reversible however, because the brain retains the lifelong capacity for plasticity and reorganization of cortical

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tissue. Mahncke and colleagues [16] developed a brain plasticity-based training program that induced learning in mature adults experiencing age-related decline. This training program focused intensively on aural language reception accuracy and cognitively demanding exercises that have been proven to partially reverse the age-related losses in memory. It included highly rewarding novel tasks that required attention control and became progressively more difficult to perform. In comparison to the control group, who received no training and showed no significant change in memory function, the experimental training group displayed a marked enhancement in memory that was sustained at the 3-month follow-up period. These findings suggest that cognitive function, particularly memory, can be significantly improved in mature adults with age-related cognitive decline by using brain plasticity-based training methods.

Historical embeddedness[edit] The perspective of historical embeddedness is composed of two main ideas: During the time of adolescence, Baltes believed the socio-cultural setting in which an individual develops plays a distinct role in the development of their personality. Similarly, Edler showed that the Great Depression was a setting that significantly affected the development of adolescents and their corresponding adult personalities, by showing a similar common personality development across age groups. The areas of influence that Baltes thought most important to the development of intelligence were health, education, and work. The first two areas, health and education, significantly affect adolescent development as a healthy child, who is educated effectively, will develop a higher level of intelligence. The second idea of historical embeddedness is that this socio-cultural setting evolves over time. Therefore, during adolescence, when intelligence is influenced significantly, [22] advances in the areas of health, education, and type of work available to adolescents will show an effect that persists into adulthood. This effect of intelligence not only changing with time as people age , but also varying by the historical time period a person developed in, was shown in a study by Schaie on adults only ten years apart in age. Baltes wrote that these three influences operate throughout the life course, their effects accumulate with time, and, as a dynamic package, they are responsible for how lives develop. Age-graded influences are those biological and environmental factors that have a strong correlation with chronological age. Nonnormative influences are unpredictable and not tied to a certain developmental time, personally or historically. They are the unique experiences of an individual, whether biological or environment, that shape the development process. This certainly applies to adolescent development as these experiences could occur in the adolescent time period, however they are just as likely to occur in any other period of development. The most important aspect of the perspective of contextualism as a paradigm is that the three systems of influence work together to influence development. Concerning adolescent development, the age-graded influences would help to explain the similarities within a cohort, the history-graded influences would help to explain the differences between cohorts, and the nonnormative influences would explain the idiosyncrasies of each adolescents individual development. This combination of disciplines would also be able to delineate the source and mechanisms associated with age-graded, history-graded, and nonnormative influences that one discipline, such as psychology, would find quite difficult to approach. The field of psychology would only be able to provide a partial representation of human development from conception to death. The concept of a multidisciplinary perspective assists in helping one to understand the complexities of lifelong development as well as appreciate just how incomplete the study of behavioural development actually is. Many disciplines are able to contribute important concepts that integrate knowledge, which may ultimately result in the formation of a new and enriched conception of development across the life span.

Applications of Life-Span Developmental Psychology[edit] Positive Youth Development[edit] The idea that development is a lifelong process is very beneficial to society because it may help in the identification of qualities or problems that are distinctive in a particular age period. If these qualities or problems could be identified, specific programs could be established such as after-school interventions that enhance positive youth development PYD. Positive Youth Development holds the belief that all youths have the potential to become productive, contributing members of society. These healthy adults, or mentors, committed a minimum of several hours, two to four times a month for a year with a youth that was carefully assigned to them based on their background, preference, and

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geographic proximity. One of the ways that life-span developmental psychologists contribute to this function is by studying the various social policies implemented by the government and how such policies affect adolescents and children. Does helping poor parents affect the outcomes of their children as well? The research on the effects of MFIP on the children found that while MFIP did increase employment rates and decrease poverty, it was also linked with benefits for the children of parents receiving welfare. Selective Optimization with Compensation Theory[edit] Selective optimization with compensation is a developmental process that was first outlined by Baltes in to describe the relation between age-related changes within individuals and changes in behavioral and cognitive styles. To deal with these limits placed on domains, individuals will begin to invest resources into particular styles and behaviors that are deemed adaptive to the new constraints. This specialization in particular domains and styles will increase the ability in those particular faculties that are deemed more adaptive to growing age-related deficits. In response to the reduction in particular styles and behaviors, individuals will utilize specialized capacities as a compensatory mechanism to deal with gaps in capacities created by the specialization process. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. He also started the Margret M. Baltes Foundation which aims to advance research in developmental psychology and gerontology.

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Chapter 4 : Syllabus - Human Growth and Development

Human development from conception to death, is generally viewed as occurring through eight stages. The major developments during each of these stages are described below.

This fact, along with the actions of medical personnel, stimulates the control center in the brain, which in turn responds by triggering inhalation. Thus the newborn takes its first breath. The bypass connecting the atria of the heart, known as the foramen ovale, normally closes slowly during the first year. During this period the body goes through drastic physiological changes. The most critical need is for the body to get enough oxygen as well as an adequate supply of blood. The respiratory and heart rate of a newborn is much faster than that of an adult. Newborn infant, just seconds after vaginal delivery. Newborns are wet, covered in streaks of blood, and coated with a white substance known as vernix caseosa, which is believed to act as an antibacterial barrier. The newborn may also have Mongolian spots, various other birthmarks, or peeling skin, particularly at the wrists, hands, ankles, and feet. The average total body length is 14–20 inches. These "soft spots" are known as fontanelles; the two largest are the diamond-shaped anterior fontanel, located at the top front portion of the head, and the smaller triangular-shaped posterior fontanel, which lies at the back of the head. This will usually return to normal on its own within a few days or weeks. Special exercises sometimes advised by physicians may assist the process. Some newborns have a fine, downy body hair called lanugo. It may be particularly noticeable on the back, shoulders, forehead, ears and face of premature infants. Lanugo disappears within a few weeks. Likewise, not all infants are born with lush heads of hair. Some may be nearly bald while others may have very fine, almost invisible hair. Some babies are even born with a full head of hair. Amongst fair-skinned parents, this fine hair may be blond, even if the parents are not. The scalp may also be temporarily bruised or swollen, especially in hairless newborns, and the area around the eyes may be puffy. The breasts may also be enlarged, even in male infants. This is caused by naturally-occurring maternal hormones and is a temporary condition. In either case, this is considered normal and will disappear in time. The umbilical cord of a newborn is bluish-white in color. After birth, the umbilical cord is normally cut, leaving a 1–2 inch stub. The umbilical stub will dry out, shrivel, darken, and spontaneously fall off within about 3 weeks. Occasionally, hospitals may apply triple dye to the umbilical stub to prevent infection, which may temporarily color the stub and surrounding skin purple. Newborns lose many of the above physical characteristics quickly. Thus prototypical older babies look very different. While older babies are considered "cute", newborns can be "unattractive" by the same criteria and first time parents may need to be educated in this regard. Neonatal jaundice Neonatal jaundice is usually harmless: Serum Bilirubin initially increase because a newborn does not need as many red blood cells as it did as a fetus since there is a higher concentration of oxygen in the air than what was available through the umbilical vein. Normally bilirubin levels drop to a low level without any intervention required. In babies where the bilirubin levels are a concern particularly in pre-term infants, a common treatment is to use UV lights "bili lights" on the newborn baby. By 5 months a baby will have doubled its weight, and tripled its weight by the first year. Infants and toddlers grow in little spurts over the first 21 months of life. A baby can go through periods of 7 to 63 days with no growth but they can add as much as an inch in one 24 hour period. During the day before a growth spurt, parents describe their babies as irritable and very hungry. This is done by having a x-ray of the long bones of the body to see the extent to which soft, pliable cartilage has hardened into bone. Changes in body Proportions Cephalocaudal trend means that growth occurs from head to tail. The head develops more rapidly than the lower part of the body. At birth the head takes up to one fourth of the total body length and legs only one third. The lower body catches up by age 2 and the head accounts for only one fifth and legs for nearly one half of the body length. Proximodistal trend means that head growth proceeds literally from near to far or from center of the body outward. At birth the brain is nearer its adult shape and size than any other physical structure. The brain continues to develop at an astounding pace throughout infancy and toddlerhood. The Brain Development The neurons of infants and

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adults differ in 2 significant ways: Growth of neural fibers and synapses increases connective structures. When synapses are formed, many surrounding neurons die. This occurs in 20 to 80 percent of the brain region. Synapses are tiny gaps between neurons where fiber from different neurons come close together but do not touch. Neurons release chemicals that cross the synapses sending messages to one another. During the prenatal period the neural tube produces far more neurons than the brain will ever need. The coating of neural fibers with a fatty sheath called myelin that improves the efficiency of message transfer. Multi-layered lipid cholesterol and protein covering produced by neuralgia cause a rapid gain in overall size of brain due to neural fibers and myelination. Neurons seldom stimulated soon lose their synapses. Neurons not needed at the moment return to an uncommitted state so they can support future development. However, if synaptic pruning occurs in old age neurons will lose their synapses. If neurons are stimulated at a young age, even though neurons were pruned, they will be stimulated again. Surrounding the brain, it is the largest most complex brain structure. The cortex is divided into four major lobes: The brain is highly plastic. Many areas are not yet committed to specific functions. If a part of the brain is damaged, other parts can take over tasks that they would not normally have handled. Sleep patterns are more developed as the brain develops. It is not until the first year of life that the secretion of melatonin, a hormone produced in the brain, affects more drowsiness in the night than in the day. In addition, REM is decreased.

Infancy[edit] Infant Infancy is the period that follows the neonatal period and includes the first two years of life. During this time tremendous growth, coordination and mental development occur. Most infants learn to walk, manipulate objects and can form basic words by the end of infancy. Another characteristic of infancy is the development of deciduous teeth.

Deciduous Teeth Deciduous teeth, otherwise known as milk teeth, baby teeth, or primary teeth, are the first set of teeth in the growth development of humans and many other animals. They develop during the embryonic stage of development and erupt - become visible in the mouth - during infancy. They are usually lost and replaced by permanent teeth, but in the absence of permanent replacements, they can remain functional for many years.

Concise Deciduous teeth start to form during the embryo phase of pregnancy. The development of deciduous teeth starts at the sixth week of development as the dental lamina. This process starts at the midline and then spreads back into the posterior region. By the time the embryo is eight weeks old, there are ten areas on the upper and lower arches that will eventually become the deciduous dentition. These teeth will continue to form until they erupt in the mouth. In the deciduous dentition there are a total of twenty teeth: In most babies the eruption of these teeth begins at the age of six months and continues until twenty-five to thirty-three months of age. The first teeth seen in the mouth are the mandibular centrals and the last are the maxillary second molars. However it is not unheard of for a baby to be born with teeth. The deciduous dentition is made up of centrals, laterals, canines, first molars, and second molars; there is one in each quadrant, making a total of four of each tooth. All of these are replaced with a permanent counterpart except for the first and second molars; they are replaced by premolars. These teeth will remain until the age of six. At that time, the permanent teeth start to appear in the mouth resulting in mixed dentition. The erupting permanent teeth causes root resorption, where the permanent teeth push down on the roots of the deciduous teeth causing the roots to be dissolved and become absorbed by the forming permanent teeth. The process of shedding deciduous teeth and the replacement by permanent teeth is called exfoliation. This will last from age six until age twelve. By age twelve there are only permanent teeth remaining. Deciduous teeth are considered essential in the development of the oral cavity by dental researchers and dentists. The permanent teeth replacements develop from the same tooth bud as the deciduous teeth; this provides a guide for permanent teeth eruption. Also the muscles of the jaw and the formation of the jaw bones depend on the primary teeth in order to maintain the proper space for permanent teeth. The roots of deciduous teeth provide an opening for the permanent teeth to erupt through.

Adolescence[edit] American high school students Adolescence is the period of psychological and social transition between childhood and adulthood. Adolescence is the transitional stage of human development in which a juvenile matures into an adult. This transition involves biological, social, and psychological changes, though the biological ones are the easiest to measure objectively.

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Chapter 5 : Developmental Science Ph.D. | Human Development and Family Science | NDSU

6) *Life-span development is the study of human development from conception to death. Historically, however, most of the focus has been on which age group? A. children and adolescents B. young adults C. middle-aged adults D. the elderly.*

Human stages of growth and development are differentiated by age and key stages of scientifically supported psychomotor development. Psychomotor development is progress in mental and motor skill activity. The process of growing and developing begins on the cellular level even before conception in the womb and continues throughout life until death. The scientific community divides human growth into stages according to age and assesses psychomotor development as a human develops motor skills and reaches cognitive milestones. Most human stages of growth and development occur in infancy, childhood and adolescence. Growth Stages Four growth stages are between birth and adolescence. The period of time between birth and adolescence is commonly divided into four growth stages: A cognitive milestone for a 1-year-old is being able to find missing objects after watching someone hide them. Although every child does not stay within the same time frame in development, parents should note delays in psychomotor development and bring them to the attention of a pediatrician. Infancy Pediatricians check motor skill, language and social development during the first year. A baby is considered an infant from birth through the first year of life. During this first year, babies develop skills that will be lifelong resources. Pediatricians look for specific markers of growth and development during this time. Learning how to control the head, move by crawling and sit are called gross motor skills. Using the thumb and finger to pick up pieces of food and hold a pacifier are called fine motor skills. Language skills are evident the first year of life when a baby makes sounds, learns some basic words and responds to the spoken word. Finally, social skills include how a baby interacts with family and peers. Childhood The middle childhood years include rapid mental growth. The toddler years are more mobile and exploratory. Middle childhood occurs about age 6 years, and children have a better sense of right and wrong then. They also tend to become more independent as they begin dressing themselves and spend more time at school and with friends. Cognitive changes include rapid mental growth with a greater ability to talk situations through and focus on the environment around them instead of being self-centered. Juvenile Growth spurts are common around the "tween" years. As children approach the ages of 9 and 10 years, they become more independent and might start noticing the physical changes of puberty. A major growth spurt can occur at this time as the body begins sexual development. This also can be a time of stress for children as peer pressure takes its toll. Body image along with emotional changes often cause children to feel less confident. Juveniles also start preparing for middle school by taking on more academic responsibilities and focusing on goal-setting and accomplishment. Adolescence Teen-agers often have the need to be more independent. From ages 12 to 18 years, children experience distinct mental and physical changes. The NIH reports that boys do not begin puberty with a distinct marker and tend to mature with adult genitalia about age 16 or 17 years. During this time of physical change, adolescents may become more self-centered. In middle to late adolescence, teen-agers are often characterized as becoming more comfortable with their body sexually and ready to have romantic friendships. Adulthood Even adults experience continued growth and development. Adulthood is often noted when a person is considered chronologically, legally and behaviorally ready to hold responsibilities such as operating a motor vehicle, voting, taking the vows of marriage, entering into a contract and serving in the armed forces. The process of becoming mature does not end with adolescence but continues throughout adulthood as psychological, safety and self-actualization needs are met. Adulthood is often divided into three categories:

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Chapter 6 : Human Growth Development Stages | How To Adult

Human Development is the process of growing to maturity and mental ability. Traditionally, theories that explain senescence have generally been divided between the programmed and stochastic theories of aging.

The development of human being is a continuous process from conception to death. Developmental psychology is concerned with the scientific understanding of age-related changes in experience and behaviour. Although most developmental theories have been specifically concerned with children, the ultimate aim is to provide an account of development throughout the life span. Some developmental psychologists study developmental change covering the life span from conception to death. By so doing, they attempt to give a complete picture of growth and decline. Among the different developmental psychologists, the views presented by Erickson and Havighurst appear to give a comprehensive picture of development of human individual from infancy to old age. These views are presented here. Erik Erickson was a student of Sigmund Freud. He offered a modified Freudian view of development of personality identity through the life span. His theory presents a progression through eight psychosocial stages. At each stage there is a crisis and its resolution leads to development of a virtue. Erickson differed from Freud however, in giving more emphasis to social and cultural forces of development. Erickson considered personality formation to be more malleable and to continue throughout life, to be influenced by friends the family and society. The following are the stages of development: This period extends from birth to 18 months of age. Inevitably the child will experience moments of anxiety and rejection. If the infant fails to get needed support and care, it develops mistrust which affects the personality in later stages of life. This stage ranges from 18 months to 3 years. By second year of life, the muscular and nervous systems have developed markedly, and the child is eager to acquire new skills, is no longer content to sit and watch. The child moves around and examines its environment, but judgement develops more slowly. The child needs guidance. In an extremely permissive environment, the child encounters difficulties that it cannot handle, and the child develops doubt about its abilities. Similarly if the control is severe, the child feels worthless and shameful of being capable of so little. This stage extends from years. Once a sense of independence has been established, the child wants to tryout various possibilities. Otherwise the child develops feelings of guilt. This period ranges from years. During this period the child develops greater attention span, needs less sleep, and gains rapidly in strength; therefore, the child can expend much more effort in acquiring skills, and needs accomplishment, regardless of ability. The child aims to develop a feeling of competence, rather than inability. The success in this endeavour leads to further industrious behaviour, failure results in development of feelings of inferiority. Hence, the caretakers should guide the child to take up appropriate tasks. This is a period of transition from childhood to adulthood which extends from years. During this period the individual attains puberty leading to many changes. The individual craves for encouragement and support of caretakers and peer groups. As an adult, the individual takes a firmer place in society, usually holding a job, contributing to community and maintaining a family and care of offspring. These new responsibilities can create tensions and frustrations, and one solution involves is, an intimate relationship with family. If these problems are solved effectively by the love, affection and support of family the individual leads a normal life, otherwise he will develop a feeling of alienation and isolation which in turn affects his personality negatively. It is otherwise called middle age. The positive solution to the crisis lies not only in giving birth to children, but also in working, teaching and caring for the young, in the products and ideas of the culture, and in a more general belief in the species. This response reflects a desire for wellbeing of the humanity rather than selfishness. If this goal is not achieved the individual will be disappointed and experience a feeling of stagnation. This stage is the extension after 65 years till death. It is based not so much on what has happened but, as on how one feels about it. If a person has found meaning in certain goals, or even in suffering, then the crisis has been satisfactorily resolved. If not, the person experiences dissatisfaction, and the prospect of death brings despair. The declining physical health conditions,

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decreased income, death of spouse, etc. Havighurst prepared a developmental model in which he has presented the list of developmental tasks from birth to old age. Every cultural group expects its members to master certain essential skills and acquire certain approved patterns of behaviour at various ages during the life span. Havighurst has labeled them developmental tasks. Although most people would like to master these tasks at the appropriate time, some are unable to do so, while others are ahead of schedule. Though these tasks are applicable to American population, they are generally accepted to be applicable to all. They are as follows: This stage covers approximately first two weeks of life. It is the shortest developmental period. It is a time for radical adjustment. The new born infant must make four major adjustments to post natal life viz. Babyhood and Early Childhood:

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Chapter 7 : Human development of the unborn child - SPUC

Every one goes through many stages in life beginning at the time of conception, throughout life, and finally in death. Human development is important to psychologists because it can provide insight about a person and the stage he or she may be experiencing in life based on age-related changes in behavior, emotions, personality, and thought.

Advances in technology over the last 50 years mean that we now know radically more about life before birth than any previous generation. What do human embryologists have to say about the beginning of human life? The zygote is the beginning of a developing human. Torchia, *Before We Are Born: Essentials of Embryology*, 8th edition. Image-maker Alexander Tsiaras shares a powerful medical visualization, showing human development from conception to birth and beyond. The uterus is the size and shape of a large pear: A woman ordinarily has two tubes and two ovaries, one at each side of her uterus. Every month one of the ovaries in turn releases an egg ovum which passes slowly along the tube towards the womb cavity. If the egg is not fertilised within 12 hours or so of being released, it dies; it cannot develop further. But if the woman has sexual intercourse during the days of her monthly cycle just before or at the time when an egg has been released from the ovary, then many sperm cells released by her partner may travel up to the Fallopian tube and one may fertilise the egg. When fertilisation is completed and the nuclei of egg and sperm have combined, a new being comes into existence and is capable of further development. Because the parents are human - belonging to the species *Homo sapiens* - the new being is also human. Fertilisation by which we mean conception marks the beginning of the human lifespan. A consultant specialising in the care of pregnant women writes: When born, we are already nine months old. When cells divide, the DNA takes the form of chromosomes - the units carrying the genes that pass hereditary features from parents to offspring. Different species have varying numbers of chromosomes per cell: Human body cells normally contain 46 distinctively human chromosomes. But an egg and a sperm cell contain only 23 chromosomes each, to allow for their adding together at fertilisation: When they "marry" they make one completely new cell - the human embryo, zygote or conceptus - with 46 chromosomes carrying a fresh, unique combination of genes. At fertilisation this human embryo is about 0. Since characteristics come from both parents the zygote is never the same as, or part of, the mother, but is a genetically distinct individual. The colouring of hair, skin and eyes, the sex of the new human being, and factors influencing height and build, are determined at fertilisation by information on the DNA. If an X chromosome is present the baby is a girl; if a Y chromosome is carried by the sperm instead, the baby is a boy. Twins Occasionally two eggs are released by the ovary and fertilised. This results in fraternal twins who are different in appearance and may be of different sexes because their genes form from two eggs and two sperm cells. Rarely, one embryo splits into two and both cells develop separately, as identical twins, similar in appearance. Nevertheless, they are obviously different human beings. A blueprint is inert and cannot carry out instructions, but the embryo is active and begins work at once. A house needs builders, carpenters, electricians and plumbers to complete it; but the embryo has the ability to grow spontaneously, moving on to other phases of development and constructing the skeleton, flesh, nerve connections and a waste disposal system of the human body. After a house is built, a blueprint remains separate; but the embryo - already an essential human by virtue of the genes - is blueprint, builder and "house" together. Implantation After fertilisation the single cell splits into two, then the two cells double to four, four to eight, eight to sixteen and so on. Because the cell cluster looks superficially like a berry it is called the morula Latin for "mulberry", but the new life is always biologically human species *Homo sapiens*. The journey along the Fallopian tube continues slowly for about four days. By the time the womb cavity is reached, the cell cluster becomes hollow and fluid-filled, and is referred to as the blastocyst. However, this is not an inert clump of cells but a busily developing human individual: Meanwhile the uterus is forming a spongy lining within which the embryo will implant. To achieve this the embryo burrows into the wall of the womb and is covered over by the lining of the womb. This begins 6 days after fertilisation and is completed within the next 7 days. This is usually her first indication of

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pregnancy. When she misses a period she may take a pregnancy test; she should see a doctor promptly to obtain professional care for herself and her child. In this booklet all developments of the embryo and foetus are dated from the time of conception, or fertilisation unless stated otherwise. Protection and life support During and after implantation the embryo develops a protective, fluid-filled capsule which surrounds and cushions the developing body to prevent injury. Embryo and fluid are enclosed in two membranes, an inner amnion and an outer chorion. The placenta also produces hormones to maintain the pregnancy. Body development By 25 days from fertilisation the body is developing. Head and trunk appear and tiny arm buds begin to form, followed by leg buds. The early embryo seems to have a "tail", but this is really a protective covering for the spinal cord. Because the central nervous system brain. Other internal organs are present in simple form and functioning as they grow. Early facial features appear. The doctor who performed the first-ever blood transfusion to an unborn baby has described the embryo at the end of the first month from fertilisation: The baby in the womb is usually measured from the top of the head to the bottom of the spine crown-rump lengths. Hands and feet By the sixth week from fertilisation tiny fingers appear, followed within days by the toes. By the seventh week the baby has individual fingerprints; no two sets of fingerprints are ever the same. Even in utero the baby has unique characteristics. Eyes and ears By six weeks the eyes which appeared in simple form in the first month develop lens and retina; the eyelids start to take shape. The ears continue to develop: The sensitive area extends to include the rest of the face in the sixth and seventh weeks and the palms of the hands and soles of the feet in the eighth and ninth weeks respectively. The body is essentially complete. Now the baby can be referred to as the foetus - a Latin term meaning "young, offspring. These terms simply identify different stages in the human lifespan which begins at fertilisation. The third month Development By the end of the twelfth week the baby measures almost 90mm and weighs 45g. Boyhood or girlhood is now obvious. Sensitivity Two British consultants, one caring for pregnant women and the other for children after birth, describe human development at this stage: In response to a touch on the sole of his foot he will curl his toes or bend his hips and knees to move away from the touching object. At 12 weeks he can close his fingers and thumb and he will open his mouth in response to pressure applied at the base of his thumb. Brain cells which are essential for consciousness in the adult are known to be present in the foetus by 10 weeks. Nerve fibres which transmit pain impulses are known to be present before fibres inhibiting pain are completed. According to a scholarly study of the available evidence, this "implies that the first trimester foetus may be more susceptible to pain than slightly older subjects. The same study concludes that there is a likelihood that the "foetus has started to acquire a sentient capacity perhaps as early as six weeks, certainly by nine to ten weeks of gestation. Anatomical examination of such foetuses indicates the probability that differentiation sufficient for reception, transmission and perception of primitive pain sensation has already occurred. He can also produce complex facial expressions and even smile. Thumb-sucking has also been recorded in the foetus. Although the baby does not breathe air inside the fluid-filled amnion, these movements help develop the respiratory organs. Four to five months Enlargement of baby and uterus By sixteen weeks the baby measures mm from crown to rump, just over one third of the size he or she will be at full term, and weighs around g. The heart now pumps 30 litres of blood a day. The uterus expands and changes shape to accommodate the growing baby; pregnancy begins to show externally. Hearing There is evidence that from four months the foetus responds to sound. Doctors testing unborn children for deafness, while monitoring their reactions to noise with ultrasound a technique for visualising the children in utero , have observed eye movements and "blink-startle" responses in foetuses of 16 to 32 weeks gestation. One might object that if a person dives under water and someone else talks to him he hears only a muffled sound. The sound is muffled by the cushion of air remaining in the auditory canal outside the ear drum. But the foetus living in the amniotic fluid has no muffling air cushions around its ear drum - and water conducts sound better than air does. The silent world of the foetus or, below the surface of the ocean is a fantasy, unfounded in reality. Loud noises from outside the uterus such as the slamming of a door or loud music reach the foetus and he reacts to them. Put Vivaldi on the record player and even the most agitated baby relaxes In a film made at

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the City of London Maternity Hospital, Yehudi Menuhin demonstrated that it was possible to contact the unborn via music. The fifth month and beyond After 20 weeks the baby is mm from crown to rump and weighs g. Between this stage and birth the baby will gain weight and will develop an insulating layer of fat beneath the skin. Waking and sleeping Foetal activity is affected when the mother is tired or under stress. In later pregnancy the foetus has been observed to show "behavioural states" - waking, calm sleeping, and "rapid eye movement sleep" which is associated with dreaming in adults. We know that foetal comfort determines foetal position, that changes in maternal position provoke baby to seek a new position of comfort. A document from the Royal College of Obstetricians and Gynaecologists the professional body of doctors who treat pregnant women states: The cervix neck of the womb gradually opens to allow the baby to pass into the vagina birth canal. The amnion tears and releases its fluid this is often referred to as "the waters breaking". Contractions become more frequent as the baby is pushed through the cervix and vagina. If the mother has attended ante-natal classes she will have learned what to expect and how to control her breathing and pushing process. After labour, which varies in length but usually lasts some hours, the baby is born. A gasp and a cry start the lungs working.

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Chapter 8 : Stages of Development of Psychology

a pattern of change involving growth and decline, beginning at conception and lasting until death. Life-Span Development Life phases: infancy, childhood, adolescence, young adulthood, middle adulthood, and late adulthood.

It is a series of developments of the physical, social, psychological, intellectual, emotional and other attributes of man. The Pre-Natal stage starts in the conception wherein the ovum is fertilized by the spermatozoon. The fertilization will eventually produce a fertilized egg. It will continue to develop until the time of birth. The Infancy or Babyhood stage happens from the birth up to two years of age. This stage is considered as the foundation age in which behavior patterns are organized. This is also the stage in which the ontogenetic skills emerge. The Early Childhood stage happens from two up to six years of age. This stage is considered as the exploration, questioning as well as the Pre-gang stage. The Late Childhood stage happens from six up to twelve years of age. This stage is considered as the gang age and the development of social life. Self-help is also established. The Adolescence stage happens from thirteen up to nineteen years of age. The Adolescence is considered as the transition stage between the childhood and adulthood stage. In this stage, the sex maturation happens and physical developments rapidly occur; the individual feels, thinks and acts differently. The Early Adulthood stage happens from nineteen to forty years of age. This stage is the adjustment to the new patterns of life. Here, an individual adjusts to the new way of living as he or she has its own role to play such as being a parent, being a spouse or being in a high position in society and other else. The Middle Age stage happens between the ages of forty up to the retirement. This stage in life is the transition stage and physical adjustment stage. In here, an individual may experience initial decline of physical and mental attributes. The Old Age stage happens from the retirement to death. In this stage, an individual could experience rapid physical and mental decline as well as psychological and physical illnesses might be experienced. Article Written By varron varron is a blogger at ExpertsColumn.

Chapter 9 : The Different Stages Of Human Development

Human undergoes different stages of development. It is a series of developments of the physical, social, psychological, intellectual, emotional and other attributes of man. There are different stages of these developments; these are the Pre-natal Stage, the Infancy or Babyhood Stage, the Early Childhood Stage, the Late Childhood Stage, the