**Periods of Development**

Development is defined as the orderly and sequential changes that occur with the passage of time as an organism moves from conception to death. Development occurs through the process that are biologically programmed within the organism and processes of interaction with the environment that transform the organism.

Fundamental Domains of Development:

a. Physical Development – involves changes that occur in a person’s body.

b. Cognitive Development – involves changes that occur in mental activity

c. Emotional-Social Development – includes changes in an individual’s personality,

emotions, and relationship with others.

Periods of Development:

Prenatal → Infancy → Early Childhood → Middle Childhood → Adolescence

→ Early Adulthood → Middle Adulthood → Late Adulthood

**Prenatal Period**

It is the period between conception and birth averaging normally about 266 day. During this period the human being grows from a single cell to a mass of about 7 pounds containing some 200 billion cells. It begins soon after fertilization when the zygote divides forming 2 cells, then 4 cells, 8cells, 16 cells, 32 cells and so on. Further cell division converts the zygote into a blastocyst that implants itself into the uterine wall transforming itself into an embryo. Major organs are developing during the embryonic stage. The nervous system develops beginning at the head and going down the body in what is known as cephalocaudal development. The embryo becomes a fetus at the end of the 8th week where it now resembles a human being complete with face, arms, legs, fingers, toes, trunk and head muscles and internal organs. The fetus is delivered nine months from conception.

**Infancy (0-2 yrs)**

The newborn’s nervous system develops more rapidly than other systems. Weighing approximately 350g at birth, the brain is almost that of the adult in weight and size at age 7. The rapid growth of the brain during the first two years of life is associated with the development of nerve pathways and connections among nerve cells, particularly in the cerebral cortex. The head which is disproportionately large at birth becomes smaller relative to their bodies as infants continue to grow.

An infant’s motor development progresses in a sequence that follows the cephalocaudal principle. First, infants gain the ability to lift up the head and later the chest. At about 7 months, the child begins to crawl moving with the abdomen in contact with the floor, maneuvering by twisting the body and pulling with the arms. They may then, progress to creeping which is moving while on hands and knees. At 8 months, they can pull themselves to a standing position. They often fall backward but keep on practicing. Many infants cruise before age 1, standing and walking while holding onto a furniture.

An infant’s manual skills develop from the center of the body to the periphery following the proximodistal principle. At 2 months, infants can only swipe at objects. At 16 weeks, children spend a lot of time looking at their hands and can approach an object with it open. At 36 weeks they are able to grasp with the tips of their thumb and forefinger. By the age of two, most children can use utensils, crayon, paintbrush, or toothbrush with their hands.

**Early Childhood**

Healthy young children are constantly active. At this age, they run, jump, hop every chance they can get. Their arms and legs are developing and children in this group need and benefit from plenty of exercise and activity.

Four year olds are more comfortable with their bodies pushing their physical limits by exploring various play structures. Coordination between upper and lower bodies are more developed and tasks like running are done more efficiently. Five year olds are fearless performing swings, jumps and other acrobatics. Six year olds show increased interest in daring adventures and games. They enjoy running fast, throw hard, leap higher and farther. They like riding bikes, climbing trees, jumping from high walls or steps. They gain confidence as they participate in team or individual sports.

**Middle Childhood**

Children grow slower during middle childhood than in early childhood or in adolescence. Most children gain small motor skills and hand-eye coordination for writing, getting dressed, tying shoes, and performing other tasks. They may appear slimmer because as they grow taller their body proportions change. Muscles become bigger and stronger and they can kick or throw a ball farther. Lung capacity increases giving them great endurance and speed.

Seven or 8 year old children have improved their skills to be successful in games like soccer or baseball. They enjoy activities that require speed, endurance and coordination such as skateboarding, jumping rope, rollerblading, and bicycle riding.

The rate of illness is lower in middle childhood than at any time since birth.

**Adolescence**

Young people undergo revolutionary changes in growth and development during adolescence. Females typically mature earlier than males with the development of reproductive organs signaling sexual maturity. Chemical and biological changes are taking place that will, overtime, transform girls into women and boys into men.

Most children experience the adolescent growth spurt during the early adolescent years evidenced by a rapid increase in height and weight. This spurt usually occurs 2 years earlier in girls than in boys which explains why many girls are taller than most boys in late middle school and junior high. The spurt usually lasts about 2 years, and during this time girls gain about 6” to 7” and boys about 8” to 9” in height. Ninety eight percent of young people will have reached their final height by age 17 in girls, and 18 in boys.

Sexual and reproductive maturation happens in this period of life known as puberty. Similar to adolescent growth spurt, girls typically begin their sexual development earlier than boys. The breasts increase in size when puberty begins in girls. At about 9 or 10 year old the areola becomes elevated and the nipples begin to project forward. The action of the hormones produce an increase in fatty and supportive tissue in the buttocks and hip region. The uterus and vagina mature simultaneously with the development of the breasts. Menarche, however, occurs relatively late in puberty usually after peak of the growth spurt. Most girls report happiness and anxiety during their first menstruation. It is a symbol of a girl’s developing sexual maturity and as such, menarche plays an important part in shaping a girl’s image of her body and her sense of identity as a woman.

During puberty, boys acquire additional weight and size in the form of increased muscle mass and expansion of the shoulder and rib cage. Growth of facial hair begins usually at the corner of the upper lip which spread to complete and become a moustache. Hair also appears on the sides of the face, in front of the ears, and just below the lower lip. Maturation of the testes, penis and scrotum is also accompanied by voice changes as the larynx enlarges and vocal folds double in length.

**Early Adulthood**

After completing high school, most young adults enter into new routines that affect how active they are. Some enter into environments that include time for exercise, whereas others take on responsibilities that prevent them from being as active as they were during adolescence. Of great concern for many young adults is the ever increasing waistline. American adults weigh about 25 lbs more now than they did in 1960. To control weight, some individuals combine their exercise program with dieting. Others use dieting as the primary means of maintaining health. Because our metabolism slows down and the likelihood that we will gain weight increases as we age, preventative measures in the early adult years play a significant role in keeping us healthy as we grow older.

**Middle Adulthood**

Overall, middle aged individuals report that they are not appreciably different from what they were in their early thirties. They mention that their hair has greyed and often thinned, they have more wrinkles, they may have lost a step, tire more easily, and recover less quickly. Some individuals overextend themselves physically at work, at home, or during recreational pursuits.

One area in which individuals in middle adulthood are most likely to note changes is in their vision. Many in this age group experience presbyopia, a normal condition in which the eye loses its ability to accommodate as quickly as it did in youth. They find they can read printed material only by holding it farther and farther away from their eyes, until eventually they cannot see to read even at arm’s length. Adaptation to darkness and recovery from glare also take longer. More people find they need contacts, bifocals, or half-glasses to read the newspaper, computer screens, restaurant menus, or small printed numbers on price tags, wristwatches and prescription dosages. Along with this, mild to moderate hearing loss is seen in people between the ages of 45 thru 54.

Taste buds and smell receptors begin to deteriorate in people who are in their forties. Salty and sweet are the first tastes to change, and one’s appetite may become especially partial to sweet and salty foods. Individuals may also gain weight as they attempt to satisfy their yearning for flavors or compensate for the loss of flavors with fat.

A majority of women in this age group experience perimenopause or menopause which is a process resulting from a decline in ovarian function. A woman is said to have gone through menopause, or is in postmenopause, when she no longer menstruates for one year. Men in midlife may experience a diminished sex drive, erectile dysfunction, fatigue and depression which is sometimes referred to as male menopause or andropause. They are also likely to experience an enlargement of their prostate gland.

The best preventatives against loss of strength and vitality and some minor sensory changes are an engaged lifestyle, proper nutrition, and regular exercise along with a healthy dose of humor about how life marches along.

**Late Adulthood**

Physical characteristics are some of the most visible changes associated with aging. The hair grows thinner and turns gray. The skin changes texture, loses its elasticity and moistness, and gathers spot pigmentation. Both man and woman begin losing muscle mass, a condition known as sarcopenia, or age related loss of muscle, which coupled with the loss of elasticity of the skin, begins to produce skin folds and wrinkling. Exercises such as yoga, weight training, and Tai Chi help to reduce muscle loss, improve balance, and reduce frailty. Other changes are noticeable in body height, shape and weight.

One should have annual eye exams to check for pressure buildup in the fluid of the eye, or glaucoma, which must be treated to prevent blindness. Blurred detail vision for most is not a problem until sometime in the seventies or eighties, which can be a sign of cataract, or hardening of the lens of the eye so that it cannot accommodate as efficiently. Hearing loss occurs in about 25% of people aged 65 to 75 years old and 50% of those over age 75. Severe hearing loss or loss of vision diminishes the person’s quality of life, making the person more dependent on others to meet even basic needs.

Older people report that they are losing their ability to enjoy food. Persons 70 to 85 years of age have on average one third as many taste buds as young adults. Sense of smell also declines among older adults which help explain why many complain about their food. Adults who lose teeth and cannot afford dental care are unable to eat a range of foods that provide essential nutrients. Older adults have increased risk of developing dysphagia, which is difficulty swallowing, as aging occurs. Stroke, diabetes, alcoholism, Alzheimer’s, Multiple Sclerosis, Parkisnson’s Disease are some of the medical conditions that can lead to dysphagia, which if left untreated, can lead to malnutrition, dehydration, respiratory infection, aspiration pneumonia, or even death.

The elderly are also less sensitive to changes in temperature. Elderly individuals can fail to notice a drop of 9°F making them susceptible to hypothermia, a condition in which body temperature falls more than 4 degrees and persists for a number of hours. This can be life threatening, especially because the aging body becomes less able to maintain an even temperature in winter weather.

Sleep difficulties also increase with age. Older people do report being sleepy during the day, and they do take naps, so apparently it is not the amount of sleep needed that declines with age but rather the ability to stay asleep. The two main reasons why the ability to sleep decreases with age are changes in circadian rhythms and the presence of sleep disorders. Exposure to sunlight may help stabilize circadian rhythm.

Reference:

Crandell, C., Crandell, T., Vander Zauden, J. (2007).*Human Development,* 8th ed., McGraw-Hill