

Chapter Twelve

Kajang, J. Y.

GROWTH AND DEVELOPMENT.

The child like any other organism, is expected to grow develop and mature into human being.

The nature and sequences of development from the moment of conception to death play a significant role in determining the human organism.

The period of growth and development begins from conception and continues through to old age. Various needs have to be satisfied in order for an individual to have an all round development devoid of retardation (Amao Kehinde, 2000).

THE MEANING OF GROWTH

As organism feeds, the body processes and utilizes the consumed materials to replace worn-out tissues cell and develop or produce new ones. This type of activity brings about a change or increase in the general appearance of the organisms both in size, weight and height (Nhodun, 2001).

The terms growth and development are commonly used interchangeably by many scholars, nevertheless, a close look at their meanings show that they do not necessarily mean the same thing. The term growth refers to increase in size of the individual in terms of observable factors such as increase in height and weight. It is measurable or quantifiable. Oladele (1987) defined the term growth as a permanent increase in size of cell or protoplasm acquired by an organism in the course of its development.

Nkenakolam (1995) defined it as the biological multiplication of cells of the various parts of the body leading to physical increase in size of these parts and the body as a whole.

Growth as a process is an irreversible increase in size which involves a synthesis of the prothoplasm, formation of new cells and the specialization of cells. It result in a permanent increase in dimension's remaining basically unchanged. It is quantitative in nature and is a biological process which cannot be reversed. Growth as Laraba (1981) describe is a quantitative change in the individual's characteristics such as height, weight and size. Growth is more influenced by

internal factors than external factors.

Growth can be measured in centimeters or grammes. This is because ones the human body grows proportionally by adding more centimeters in height and grammes in weight through the process of cell division (mitoses or meiosis).

Growth reaches a speak for all humans. The most rapid period of growth occurs during the adolescent or teenage years, male children according to Amao Kehinde (2000), continue to grow up to the age of 25 while the female growth tends to stop about the age of fifteen. Growth terminates in adulthood~as such it is not continuous.

THE MEANING OF DEVELOPMENT.

The term development, refers to certain changes that occur in human being (or animals) between conception and death (Woolfolk, 1998). The term is not applied to all changes, but rather to those that appear in orderly ways and remain for a reasonably long period of time. The term development is defined in various ways by different authors. Mallum, Haggai and Ajegbust (1999) defined development as qualitative and quantitative change in an orderly coherent manner.

Good and Brophy (1977) define development as an orderly progression to increasingly higher levels or differentiation. Cow and Cow(1977)advanced that development is concerned with growth and those changes in behaviour which result in environmentalstimulation. In other words, progressive changes that take place in the growing organism as he/she advances toward maturity. It may be defined as a process involving a sequence of maturational stages that occur in a fixed and predictable order. This implies that a child must successfully complete one stage before advancing to the next.

Nelson (1981) pointed out that development is a process of both maturational changes or changes that occur in organism over the course of life. It must be borne in mind that environment exerts a lot of influence on development. In the view of Oladele (1987), development is a progressive series of changes that occur in an orderly predictable sequence or pattern as a result of maturation and experiences. From the expositions made above, it shows that development is more comprehensive sequential, predictable and orderly. It is the qualitative changes in an individual's characteristics that occur or result from growth, maturation that occurs or result from growth, maturation and experience.

Development is influenced by those characteristics one is born with, those we acquire through learning or experience and maturation. In other words, it is influenced by both intrinsic and extrinsic factors.

PRINCIPLES OF GROWTH AND DEVELOPMENT

Napdum (2001) highlighted the following principles of development:

1. Development is a product of interaction.
2. Development follows an orderly sequence.
3. Growth and development follow a directional pattern.
4. Development is continuous.
5. Different aspects of development are interrelations and interdependent.
6. Development is an individualized process.
7. Development is cumulative.
8. Development proceeds from general to specific.
9. Development proceeds in stages.
10. Growth and development not always smooth and gradual.
11. Development upholds the principles of diminishing plasticity.
12. Development is the outcome of maturation and experience.
13. Experience of one stage affects later development.
14. Development is from simple to complex.
15. Various types of development occur in different children at different rates.
16. There is discontinuity in growth rate.
17. Development leads to death.
18. Growth and development are affected by environmental and hereditary factors.

There are two major factors which affect a child's growth and development. They are hereditary and environment.

HEREDITARY

Hereditary factors place limits on individual's development. The types of chromosomes a child receives from his parents determine his/her growth and development.

ENVIRONMENT.

Some environmental factors that affect growth and development include:

- a. Nutrition
- b. Physical condition home.
- c. Social and emotional climate of the home.
- d. School
- e. Social environment
- f. illness
- g. accidents.

DIFFERENCE BETWEEN GROWTH AND DEVELOPMENT.

GROWTH

1. Growth reaches a peak
2. Growth is quantitative in nature
3. Growth does not follow a particular sequence.
4. Growth is increase in size and due to cell division.
5. Growth provides the basis on which certain development pattern take off.
6. Growth is an irreversible process.
7. Growth is mainly influenced by intrinsic factors such as the environment.
8. Growth is not affected by learning.

DEVELOPMENT

1. Development is a continuous process.
2. Development is both quantitative and qualitative in nature.
3. Development follows directional Pattern.
4. Development is a process of maturational stages and is as a result of
5. Development is on a higher structural organization than growth.
6. Development is reversible process.
7. Development is highly influenced by extrinsic factors.
8. Learning and maturation are vital factors in development.

CELLS:

Meaning:- A cell is a smallest unit that possesses all the essential properties of a living organism such as metabolism and reproduction, differentiation, regeneration and excitability (response to stimulus) Ross and Wilson (1996) describe cell as the smallest functional unit of the body. They are grouped together to form tissues, each has a specialized function, e.g. blood muscle and the bones.

The human body develops from a small cell called zygote which result from the fusion of ovum (female egg cell) and the spermatozoon (male germ cell), cell multiplication follows and the fetus grows. Cell with different structural and functional specifications develop, all-with the same genetic make the zygote. individual cells are too small to be seen with the ~ naked eye. However, they can be seen when tin slice of tissue, consisting of millions of cells are stained in the laboratory, and magnified.

A cell consists of plasma membrane inside which there are a number of organelles floating in a watery fluid called cytosol. The structure of the cell include: the nucleus, mitochondria, ribosomes, endoplasmic recficulum, golgi4paratus, liysosomes microfilaments and micro- tubules.

TYPES OF CELL.

- a. Somatic cells:- Somatic cells are body cells comprising of all cells in the body with the exception of sex cells. In plants, somatic cells carry out purely vegetative functions like photosynthesis.
- b. Sex cells:- Sex cells determine the sex of an individual.

CELL DIVISION.

Beginning with the fertilized egg, or zygote, cell division is an ongoing process. As the foetus develops in the mother's uterus cells multiply and grow into all the specialties that provide the sum total of the body's physiological functions.

The life span of most individual cell is limited. Many become worn out and die~ and are replaced by identical cells by the process of mitosis (Wilson and Waugh 1996). Mitosis occurs in two stages: replication of DNA, in the form of 23 pairs of chromosomes, then division of the cytoplasm, BNA is the only type of molecule capable of independently forming duplicate of itself when the two identical sets of chromosomes have moved to the opposite poles of the parent cell, a waist form in the cytoplasm, and the cell divided and there is then a complete set of chromosomes in each daughter cells.

Mitotic cell division brings about increase in weight and height of a living organism. It can also be called vegetative growth. The human chromosomes get duplicated as the cells divide, for example, cells divide into two, two into four, four into eight and so on. Thus they are said to be displayed condition. (Amao-kehinde, 2000). The parent's and baby's cells are indential. They are made up of

the same number of chromosomes. The frequency with which cell division occurs varies with different type of cells.

MEIOSIS.

This is the process of cell division that occurs in the formation of reproductive cells (gametes - the ova and spermatozoa). They grow to maturity in the ovaries of the female and the spermatozoa in the testes of the male. In meiosis four daughter cells are formed after two divisions. During the meiosis, the pairs of chromosomes separate and one from each pair moves to opposite poles of the parent cells. When it divides, each of the 'daughter' cells has only 23 chromosomes, i.e. haploid. Each part of the division has half of the total number of chromosomes in the parents cells. This means that when the ovum is fertilized the resultant zygote has the full complement of 46 chromosomes, half from the father and half from the mother. Thus the child has some characteristics inherited from the mother and some from the father, such as colour of hair and eyes, height, facial features and some diseases.

Determination of sex depend upon one pair of chromosomes, the male sex chromosomes and in the female both sex chromosomes are the same size and shape and are called (sex chromosomes. In the male there is one X chromosomes and a slightly smaller Y chromosome. When the ovum is fertilized by an X bearing spermatozoa, the child is male:

Sperm X + Ovum X = child XX = female

Sperm Y + Ovum X = child XY = male

CELL DIFFERENTIATION.

Formation of tissue organs and systems.

There are various ways of classifying tissues for convenience we will divide animal tissues into epithelial, connectives skeletal, blood, nerve, muscular and reproductive.

EPITHELIUM.

One of the simplest animal tissue is epithelium, this tissue demonstrates how individual cells can be build up into a varying complexity Epithelium consist of a single layer of cells covering the surface of the body and the organs within it. It also lines various spaces and tubes, in this situation is usually referred to as

endothelium. Typically the individual cells, firmly attached to each other, rest on a basement membrane and have a free surface. The main function of epithelial tissue is protection. There are six main types of epithelial tissues:

(i) Cuboidal epithelium (ii) Squamous epithelium (iii) Columnar epithelium (iv) Ciliated epithelium (v) Glandular epithelium (vi) Stratified epithelium.

In summary, epithelial tissues form the lining of structures, cavities and tubes. There are seven different types, whose functions collectively are protection, absorption, movement by means of cilia and secretion.

The tissue (and organs in an animal's body) must be supported and held in position. This function is performed by connective tissue which binds organs and tissue together (Marborough 1975). It follows from its function that connective tissue must be strong. It consists of matrix or ground substance in which a variety of structures may be embedded.

Connective tissues can be summarized by describing it as a mixture of fibres in different proportions. Its efficiency in binding structures together is achieved by the molecular configuration of the protein molecules. The particular type and abundance of fibre present depends on stresses and strains to which the tissue is normally subjected.

SKELTAL TISSUE:

Closely related to connective tissue is skeletal tissue, responsible for supporting the body and providing it with a rigid framework. Like connective tissues it consists of cells embedded in an organic matrix but in the case the matrix is comparatively hard. Two kinds of skeletal tissue occur in vertebrates: cartilage (gristle) and bone. The skeleton of the mammals, which is predominantly bony skeleton, has cartilage at the joints and in the discs between successive vertebrae. Bone as Marborough (1975) put it, is much harder than cartilage. It consists of an organic matrix impregnated with calcium salts, mainly calcium phosphate. These salts confer upon bone its property of extreme hardness.

BLOOD.

Blood is a fluid circulating tissue consisting of three types of cells suspended in fluid (plasma). The most numerous cells are the red blood cells (erythrocytes) as many as five million per cubic millimeters, whose function is to transport oxygen. Less numerous are the white blood cells (leucocytes) of which there are several

different types. Collectively they combat diseases by destroying pathogenic micro organisms, bacteria and viruses, which have got into the body.

Finally, blood contains minute fragment called platelets which play an important part in the process by which blood clots when exposed to air. So blood is a complex tissue whose main function is transportation and defense.

THE NERVOUS TISSUES.

The nervous system transmits electrical messages from one part of the body to another. To this end nerve cells are elaborately inter-connected, the process of one cell linking up with adjacent, nervous tissues is an intricate network of interconnected cells whose function is to transmit, and sometimes to store, information.

There are two types of tissues found in the nervous system.

- i. Excitable cells:- They are called nervous and they initiate, receive, conduct and transmit information.
- ii. Non excitable cells:- They support the nervous muscle cell.
There are three types of muscle tissues.
 - i. Striated, skeletal or voluntary muscle.
 - ii. Non-striated, involuntary, visceral or smooth muscles
 - iii. Cardiac muscle.

i. Striated Muscle tissue.
This may be described as skeletal, striated, stripped or voluntary muscle. It is called voluntary because contraction is under the control of the will.

ii. Non-striated (visceral) muscle tissue: Non-striated muscle may also be described as smooth or involuntary. It is not under the control of the will. It is found in the walls of hollow organs i.e. blood and lymph vessels, ducts of glands, the alimentary tracts, the respiratory tract, the urinary bladder and the uterus.

iii. Cardiac muscles: This type of muscle tissue is found exclusively in the wall of the heart. It is not under the control of the will. The arrangement of cardiac muscle tissue gives cardiac muscle the appearance of a sheet of muscle rather than a very large number of individual fibers. The end to end contiguity of cardiac muscle cells has significance in relation to the way the heart contracts. A wave of contraction spread from cell to cell across the interconnected discs, which means that cells do not need to be stimulated individually.

REPRODUCTIVE TISSUE.

The reproductive tissue is associated with ovaries and testes, this is concerned with reproduction of gametes: eggs, and sperm respectively. Reproductive tissue is composed of developing gamete in the process of division and differentiation together with cells that provide support and nourishment.

REPRODUCTIVE SYSTEM.

The ability to reproduce is one of the properties which distinguished living from non living matter. The more primitive the animal the simpler is the process of reproduction. In human being the process is one of sexual reproduction.

The reproductive organs of male and the female differ anatomically and physiologically. The female produces an egg cell or ovum which is fertilized by the germ cell or spermatozoon produced by male. The resultant zygote embeds itself in the wall of the uterus in the female, where it grows and develops until the mature body is born after a gestation of 40 weeks.

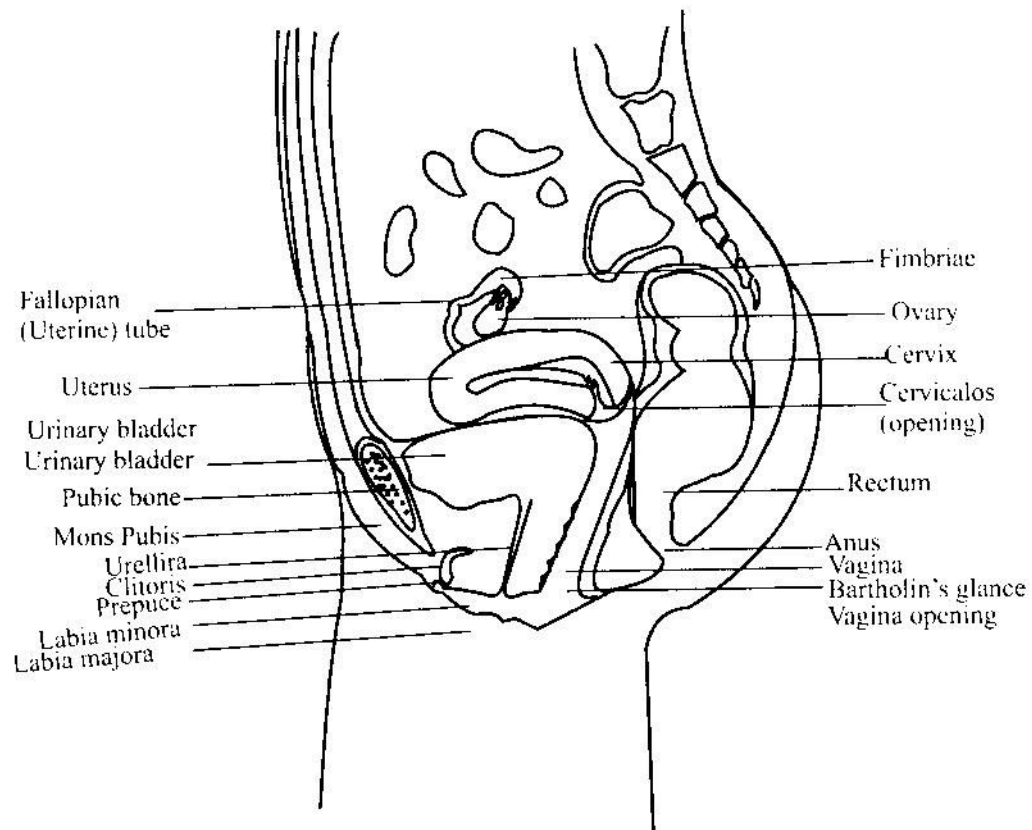
The function of female reproductive system, is, therefore, to form the ovum and if it fertilized, to nurture until it is born. The function of the males reproductive system is to form and transmit the spermatozoa to the female.

The female reproductive system:

The female reproductive system consist of the internal and external genitalia.

THE EXTERNAL GENITALIA.

The external organs lying in front of and below the public are known collectively as the vulva and consists of several, structures, these are



Labia majora

The clitoris.

Bulb of the vestibule

Greater vestibular glands

The hyman.

The labia majora:- these are two large folds of skin which form the boundary of the vulva. Anteriorly the two foliis joints in front of the symphysis pubis. At puberty, hair grows on the mons pubis and on the lateral aspect of the labia

manora

The labia minora:- The labia minora are two smaller folds of skin containing numerous sebaceous glands which lie between the labia majora. Anteriorly, they are divided into two parts, one stretching in front of the clitoris to form the prepuce, the other passing behind it to form the frenlu.

The clitoris:- The clitoris corresponds to the pennies and contains erectile tissue. It is attached to the symphysis pubis by a suspensory ligament and lie, between the prepuce and the remulumm.

The hymen:- The hymen is a thin layer of mucous which partially includes the opening of the vagina.

The vestibule:- the area between the labia minora is called the vestibula. The vigena, the urethra and the ducts of the greater vestibular glands open into the vestibule.

The greater vestibular gland:- The grater vestibular glands lie in the labia majora, one on each side near the vegmal opening. They are about the size of a small pea and have ducts about 2cm long which open into the vestibula. The glands secrete mucus which lubricates the vulva.

The internal organs:-

The internal organ of the females reproductive systems lies in the pelvic cavity and consist of: (i) the vagina, (ii) the uterus (iii) the uterine tubes (iv) the ovaries.

The vagina:- the vagina is a fibromuscular tube connecting the internal and external organ of generation. It runs obliquely upward and backward at an angle of 45°

The vagina has three layers of tissues namely.

1. An outer covering of the oves jar and elastic tissue. Containing bundles of nerves and many blood vessels.
2. A middle layer of smooth muscle tissue which consists of longitudinal and circular fibres.
3. An inner living of stratified squamous epithelium arranged in transvers folds,or rugosa.

THE UTERUS:-

The uterus is a hollow muscular organ shaped like a pear which is flattened anterior sterioly. It lies in the pelvic cavity between the urinary bladder and the rectum and its position is one of anteversion and anteflexion.

Anteversion means the uterus leans forward, while anteflexion means that uterus is bend forward almost at the right angles to the vagina with it anterior surfaces resting on the urinary bladder.

The walls of the uterus are composed of three layers of tissue.

1. The perimetrium an outer covering of peritoneum,
2. The myometrium- a middle layer of smooth muscle fibres.
3. The endometrium a mucous membrane ilining

FUNCTION OF UTERUS:-

1. After puberty the uterus goes through a regular cycle of changes which prepares it to receive, nourish and protect a fertilized ovum.
2. During pregnancy the walls of the uterus relax to accommodate the growing fetus,

THE UTERINE TUBES:

The uterine tubes lie on each side of the uterus in the upper free border of the broad legament.

FUNCTION OF THE UTERINE TUBES:

- i. It conveys the ovum from the ovary to the uterus this is by peristalsis assisted by movement of the cilia of the living epithelium.
- ii. Fertilization of the ovum usually takes place in the uterine tube

THE OVARIES:- The ovarics are the female gonads or sex glands. They lie in a shallow fossa on the lateral walls of the pelvis and are attached to be posteriorlayer of the broad ligament by a band of peritoneum called the mess ovarium.

During the child-bearing years, one ovarian follicle matures during each menstrual cycle. It attaches the surface of the ovary ruptures and releases its ovum into the peritoneal cavity. If the ovum is not fertilized the corpus luteum degenerates, menstruation occurs and the next cycle begins. Some times more

than one follicle matures at a time which means that two or more ova are released in the same cycle. When this happens and the ova are fertilized the result is a multiple pregnancy.

The male reproductive system consists of the following organs:-

(i) 2 testis (ii) Epididymides, (iii) 2 deferent ducts and sperm cords (iv) Seminal vesicles, (v) 2 ejaculatory ducts (vi) 1 prostate glands (vii) 1 penis.

THE SCROTUM:- The scrotum is a pouch of deeply pigmented skin divided into two compartment each of which contains one testis, one epididymis and the testicular end of a spermatic cord. It lies below the symphysis publis, and in front of the upper parts of the thigh behind the penis.

THE TESTES:- the testes are the reproductive glands of the male and are the equivalent of the ovaries in the female. They are suspended in the scrotum by the spermatic cords.

The spermatic cords:- there are two spermatic cords, one leading from each testis each sperm cord composed of the following structures (a) testicular artery (b) testicular venous plexus (c) lymph vessels (d) deferent ducts.

The seminal vesicle:- the seminal vesicle are two pouches which lies on the posterior aspect of the bladder. At the lower end each seminal vesicle opens into a short duct which joins with the corresponding deferent duct to form an ejaculatory duct. Where the sperms will come out.

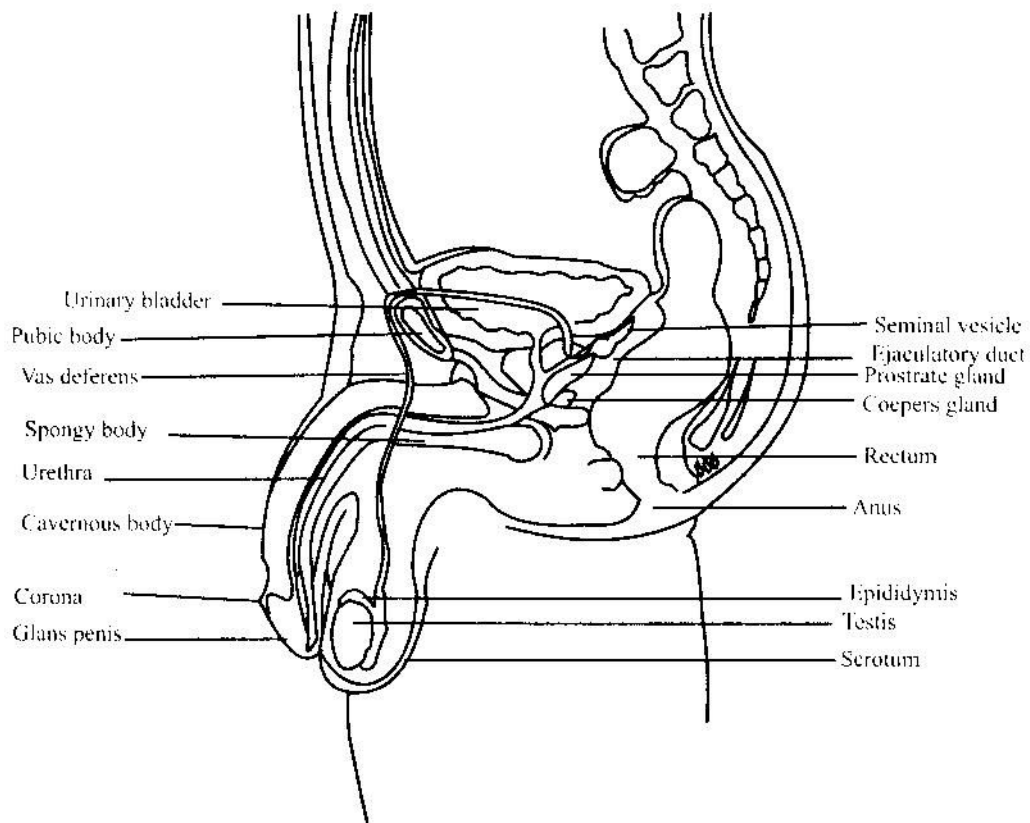
The ejaculatory ducts:- the ejaculatory duct are two short tubes approximately 2 cm long, each formed by the union of the duct from a seminal vesicle and deferent. They pass through the prostate gland and join the prostatic part of the urethra.

The prostate gland:- the prostate gland lies in the pelvic cavity in front of the rectum and behind the symphysis. It surrounds the first part of the urethra and is about the size of a chestnut. The secretion of the prostate gland consists of a thin lubricating fluid which passes into the urethra numerous duct.

The urethra and penis:- the male urethra provides a common pathway for the flow of urine and the secretion of the male reproductive organ called semen.

The penis:- the penis is composed of a root and a body. The root lies in the perineum and the body surrounds the urethra. It is formed by the three elongated

masses of erectile tissue and involuntary muscles very rich in the blood vessel. The erectile tissue is supported by fibrous tissue and covered with skin.



Section of the male reproductive organs, arrows show the structures through which the spermatozoa pass.

1. As in the female, the male reproductive organs are stimulated by the gonadotrophic hormones from the anterior lobe of pituitary gland.
2. The follicle stimulating hormone stimulates the seminiferous tubules of testes to produce the male germ cell the spermatozoa.
3. The spermatozoa then pass through the epididymis, the deferent ducts, the seminal vesicle, the ejaculatory duct and the urethra to be implanted in the female vagina during coitus.
4. In the epididymis and the deferent duct the spermatozoa become more mature and mobile. They are now capable of independent movement through a liquid medium. If they are not ejaculated they are reabsorbed by these tubules.
5. In man successful spermatogenesis takes place at a temperature~ about 3°C lower than normal body temperature. This lower temperature is achieved because the testes in the scrotum are covered by only a thin layer of tissue containing very little fat.

PREGNANCY.

Pregnancy is the condition or time of being pregnant. It is the nine month period during which a single cell is transformed into a human being. A missed menstrual period is usually considered the first sign of pregnancy.

During the sexual intercourse, sperm from a man are introduced into the vagina of the woman through the penis the sperm swim through the vagina into the uterus and to the fallopian tubes. If there is mature egg (ovum) then fertilization can occur and the woman becomes pregnant. This usually takes place in the upper part of the fallopian tube (Anyokoha and Eluwa 1997).

It must be borne in mind that conception must closely follow ovulation because the egg, if not fertilized will die within 48 hours. Fertilization takes in the fallopian tube if sperm are present.

Sperm are capable of living for about 48 hours after they have been deposited in the vagina, and since 100 to 200 million are deposited, thousands normally reach the fallopian tube. One sperm which is the smallest cell in the body, unites with the egg, which is the largest cell in the body. Once union has taken place other

sperm cells are repelled from the new fertilized egg and soon die. The product of fertilization is called zygote.

The zygote moves down to the uterus through the fallopian tube. It becomes implanted in the walls of the uterus. In about two weeks the embryo in the uterus appears and undergoes rapid development.

At the same time, a surrounding membrane, the amniotic sac, forms the embryo is suspended in the uterus of this sac and act as protective cushion for the growing foetus, as the embryo is called 8 weeks after conception where the amniotic sac touches the uterine wall projecting growth develop in the soft lining of the uterus. This area of attachment, called placenta becomes larger as the foetus grows soon, the umbilical cord appears for the purpose of establishing contact between the foetus and the placenta (Brooks and Brooks 1979). In the placental, food nutrients such as amino acids, sugars, fatty acids, minerals, vitamins and oxygen diffuse from the mother's blood into the blood of the foetus. The foetus is covered by two membranes the amnion which is an inner one, and chorion which is the outer one. The amnion liquid protects the child (foetus) from physical shock and injury.

FETAL DEVELOPMENT

After fertilization, the menstrual cycle is normally suppressed because the embryo prevents the uterine lining being shed, at 6 weeks, a tiny new formed embryo is recognizable within the amniotic sac

Protecting it. The head is forming as are the brain, chest, and spine, and minute depressions now appear where ears and eyes will develop. By 8-10 weeks main internal organs are formed, limbs are distinguishable and the foetus is 4cm long, facial contours and external genitals soon appear (Wallis, 1977).

STAGE OF LABOUR:

There are three stages of labour.

The first stage of labour:-

This is the period of time from the onset of labour to the full dilation of the cervix. It last on an average of about 10 hours in the first pregnancy and 7 hours in subsequent one's. During the first stage the uterus contracts. The contractions of the uterus are not very strong at first and occur at long intervals.

As the uterus contracts, it exerts a pull on the cervix and causes it to dilate or open

up. At this stage the mother is asked to relax during contraction.

Second stage:-

This is the stage at which the labour may last from just a few minutes to two hours. Contractions are commonly experienced every one to two minutes. During this stage, the mother has to push as the baby's head descends through. In the cervix into the markedly enlarged vagina passage, this is the actual stage of delivery. In a straightforward birth.

CHILD BIRTH.

When the foetus is full grown, the membrane burst, the flit is discharges (Godman and Coutteridge, 1979). Birth marks the beginning of new life in the outside world, it is achieved at the end of the mother's pregnancy. During labour, contraction of the uterus occurs, and the cervix dilates to allow the head of the baby to pass through.

There are various signs that indicate that labour is imminent or already under way. Regular contraction of the womb, gradually increasing in frequency and strength, are the most common signals. These contractions are definitely rhythmic and cause discomfort, so a mother will usually have no difficulty in distinguishing between the contractions heralding labour and other uterine action commonly experienced during pregnancy. The head emerges first it is moved so that the baby faces a direction in which the shoulder can emerge more easily. Generally, the rest of the baby then slips out quite readily.

The third stage:-

the third stage takes place within some 20 minutes after the birth with the expulsion of the placenta or after birth from the uterus.

Diseases of the Female Genitalia

GONORRHOEA:

This is the most commonly occurring venereal disease and affects man and woman. It affects the mucos of the reproductive and urinary tracts. In the male, suppurative urethritis occurs and the infection may spread to the prostate glands, epididymis and testes.

In female the infection may spread from vagina and cervix to the body of the uterus, uterine tubes, ovaries and peritoneum. Healing by fibrosis in

the female may cause obstruction of the uterine tubes, leading to infertility in the male it may cause urethral stricture.

SYPHILIS.

This disease is caused by *Treponema pallidum*. There are ~ clearly marked ~ stages. After an incubation period of several weeks the primary sore (chancre) appears at the site of infection, e.g. the vulva, vagina, perineum, penis, round the mouth in the female the primary sore may be undetected if it is internal. After several weeks the chancre subsides spontaneously. Secondary lesions appear 3 to 4 months after infection. They consist of skin rashes and raised papules on the external genitalia and vaginal walls. These subside after several months and are followed by a latent period of a variable number of years. Tertiary lesions (gummas) develop in many organs and in a few cases the nervous system is involved leading to general paralysis.

TRICHOMONAS VAGINALIS:

These protozoa cause acute vulvovaginitis. It is usually sexually transmitted and is commonly present in women with gonorrhoea.

CANDIDIASIS.

Candida albicans is the causative organism. It is common in the vagina and causes infection (thrush) in some circumstances e.g. in diabetes, malnutrition and general debility.

CERVICITIS:

This occurs in most multiparous women and may be due to acute or chronic infection caused by specific or non-specific microbes. In non-specific infection there are several predisposing factors, e.g. strain at child birth, instruments used in gynaecological treatments, abnormal blood oestrogen levels, hypersecretion by cervical glands. In many cases the only indication of infection is excessive white vaginal discharge (leucorrhoea). Chronic inflammation may follow acute attacks or develop gradually, and may predispose to malignancy.

SALPINGITIS:

This is an infection that usually spreads from the uterus, and only occasionally from the peritoneal cavity. The outcome may be:

- i. Uneventful recovery
- ii. Chronic inflammation leading to fibrous tubal obstruction and infertility.
- iii. Pus formation (pyosalpinx) and further spread to the ovaries and peritoneal cavity, leading to fibrous and obstructive infertility and/or pelvic adhesions.

ACUTE ENDOMETRITIS.

This is usually caused by non-specific infection following parturition or abortion, especially if fragments of membranes or placenta have been retained in the uterus. A variety of microbes may be involved. The inflammation may subside after removal of retained products, the infection may spread to:

- i. Myometrium, perimetrium and surrounding pelvic tissues, which may lead to thrombosis of iliac veins.
- ii. Uterine tubes causing salpingitis, fibrosis, obstruction and infertility.
- iii. Any of the above mentioned areas, causing peritonitis and possibly Adhesions.

NON SPECIFIC INFECTIONS:

The non-specific ones sometimes include: pelvic inflammatory diseases, ectopic pregnancy, vesico vaginal fistulae etc.

Pelvic inflammatory diseases (P. I. D):

This infection may be specific or nonspecific. It usually begins as vulvovaginitis, including the vulvar glands, then it may spread to the cervix, uterus, uterine tubes and ovaries. Upward spread is most common when microbes are present in the vagina before a surgical procedure, abortion, especially if some of the products of conception are retained.

COMPLICATION OF (P. I. D) INCLUDE:-

- i. Infertility due to obstruction of uterine tubes
- ii. Peritonitis.

- iii. Interstitial obstruction due to adhesions between the bowel and the uterus ant/or uterine tubes.
- iv. Bacteraemia, which lead to meningitis endocarditic, and suppurative arthritis.

ECTOPIC PREGNANCY.

i This is the implantation of a fertilized ovum outside the uterus, most commonly in the uterine tube. As the foetus grows the tube ruptures and its contents enter the peritoneal cavity, causing acute inflammation (peritonitis) and possibly severe intraperitoneal haemorrhage.

Vesico-vaginal fistula is a reproductive disorder which is suffered from exclusively by women or adolescent girls or women who engage in sexual activities while their reproductive organs were still tender. The condition leads to continuous leakage of urine or faeces with a stench odour (Dawyaro and Atama, 1999).

Where the urine leaks uncontrollably from a women, condition is referred to as vesico-vaginal fistula (VVF) where the rectum is affected and faeces leak continuously the condition is medically referred to as recto-vaginal fistula (RVF).

CLASSES OF FOOD NUTRIENTS.

Food is vital to life, it can be defined as any solid or liquid substances which when taken by the body, provides it with necessary materials to enable it grow, to replace worn out and damage parts, and function normally (Tull, 1996). The human body is like a complex piece of machinery in that it is prone to faults and weaknesses if it is poorly maintained. This can happen if too little or too much is eaten, or if the daily food intake is in any way unbalanced.

The foods we eat contain various nourishing elements called nutrients each nutrient according to Anyakoha and Eluwa, (1997) makes a special contribution to health. It is very important to stress the sources, functions and deficiency effects of the food nutrients.

FOOD NUTRIENTS.

There are six classes of food nutrients. These are carbohydrates, proteins, fats, vitamins, minerals and water.

CARBOHYDRATES.

Carbohydrate are found in a wide variety of foods e.g. sugar, jam, bread, cereals, e.t.c. They consist of carbonhydrogen and oxygen, the hydrogen and carbohydrates are classified according to the complexity of the chemical substances of which they are formed.

MONOSACCHARIDES.

These are the simplest sugars. They include glucose or grape sugar, fructose or fruit sugar and galactose which is a constituent of lactose. Carbohydrate~ are digested in the alimentary canal and when asorbed, they are in form of monosaccharides. These are chemically the simplest form in which a carbohydrates can exist.

DISACCHARIDES.

These are referred to as double sugars because they are formed by the joining of two monosceharides. There are three main disaccharides:

Sucrose: sucrose is formed from one unit of glucose and one unit of fructose.

Lactose:- lactose is found in the milk of mammals, to supply the infant with a source of energy. It is not sweet as sucrose. Lactose is formed from one of unit of glucose and one unit of galactse.

Maltose:- Maltose is formed from two units of glucose joined together. It is .~sometimes called malta sugar and is found in cereals such as bareley, where it is formed during germination. During digestion disaccharides are broken down to monosaccharides before being absorbed into the blood stream.

POLYSACCHARIDES.

These are formed from a varying numbers of monosaccharide units, hence the prefix "poly" meaning many. It is made up of many or large number of monosaccharide molecules in chemical combinations e.g. starches, glocogen, cellulose and dextrans.

FUNCTION OF CARBOHYDRATES.

- i. Provision of rapidly energy and heat.
- ii. Excess carbohydrates are converted into fats and stored in the body as adipose tissue under the skin.

- iii. Protein sparing, i.e. when there is an adequate supply of carbohydrate in the diet, protein does not need to be used to provide energy and heat

SOURCES OF CARBOHYDRATES.

- i. Sugar are obtained from all types of sugar, syrup fruit, honey, milk, vegetable such as carrots, sweets, jam, e.t.c.
- Starch is obtained from cassava, yams, potatoes, rice, maize, millet, wheat, bread e.t.c. Cellulose is obtained from husks of cereals, fruits and vegetables.

PROTEIN.

Proteins are important components of all cells in both plants and animals. The enzymes and hormones found in the body and other body fluids are made up of protein. Protein is vital for growth, repair and maintenance of the body. Protein also provide the body with energy.

Protein can be classified into two groups:

- a. First class protein: These are also referred to as animal or complete proteins, or proteins of high biological value because they contain the essential amino acids. Protein in this class come mainly from animal source.
- b. Second class protein :- These are referred to as vegetable or incomplete protein and have a low biological value because they are deficient in one or more of the amino acids. They are usually found in vegetable sources such as beans.

SOURCES OF PROTEINS.

First class or animal protein are obtained from eggs, fish, meat, milk, cheese. Second class or vegetable proteins are obtained from legumes such as beans e.g. soya beans, bread, runner beans, groundnuts, bambara nuts, pears, cereals, e.g. wheat, rice, centils vegetables.

FUNCTION OF PROTEINS.

Protein are used for:-

- i. Growth and repair of body cells and tissues.
- ii. Provision of energy, this occurs when there is a shortage of energy in the body due to lack of carbohydrates and fats.
- iii. Proteins are needed for the production of enzymes, hormones and

antibodies which are very important for normal body function.

EFFECTS OF PROTEIN DEFICIENCIES.

When the body supply of proteins is insufficient in food, the body cells will lack amino acids for their synthetic activities. The resultant effects are:

- i. In a young child growth slows or stops in severe cases.
- ii. The body degenerates as worn out cells are not replaced.
- iii. Various body organs stop functioning properly because of hormone and enzymes, deficiency. A
- iv. The liver fails to maintain its normal structure and function.

FAT ACCUMULATES IN THE LIVER CELLS.

Two diseases commonly resulting from protein energy malnutrition are marasmus and kwashiorkor.

FATS

Fats consists of carbon, hydrogen and oxygen, but they differ from carbohydrates in that they hydrogen and oxygen are not in the same proportions as in water fats are divided into two groups; saturated and unsaturated.

Saturated or animal fats, containing mainly saturated fatty acids and glycerol, is found in milk, cheese, butter, eggs, meat and oily fish, e.t.c. All the animal sources of protein contain some saturated fat.

Unsaturated or vegetable fat, containing mainly unsaturated fatty acids and glycerol, is found in some margarine and in most vegetable oils.

FUNCTIONS OF FATS

1. Provide convenient and concentrated source of energy. Surrounds, protects certain vital organs e.g. kidneys and glands.

Forms an insulating layer (adipose tissue) beneath the skin to help preserve body heat and protects the skeleton and organs.

Provides a reserve of energy for long-term storage which can be utilized if energy intake is restricted, provides texture and flavour in food helps to make it palatable.

The essential fatty acids are necessary for a healthy skin and hair.

Foods containing fat provide a feeling of fullness (satisfy) after a meal, as fat digestion is slow.

SOURCE OF FATS.

Meat, fats containing a mixture of saturated and unsaturated fatty acids, but in widely varying proportions. Fats and oils are obtained from both plants and animals.

ANIMAL SOURCE INCLUDE:

- a. Meat made of- lard bacon fat (pigs), suet (cattle), visible and invisible fat.
- b. Dairy produce- fat in milk and milk products (butter, cream, cheese) egg yolk.
- c. Fish Fish, liver oils (cod, halibut) oily fish (tuna, herring, salmon, pilchard)
plant sources includes:
 - i. Seeds - cotton, maize, sesame, olive, soya, sunflower.
 - ii. Nuts and pulses - brazil, peanut e.t.c.
 - iii. Kernels palm e.t.c

VITAMINS.

Vitamins are chemical compounds required in very small quantities which are essential for normal metabolism and health. When they are lacking in the body, various deficiency diseases will occur. They are found widely distributed in food and are divided into two main groups:

Fat soluble vitamins A, D, E, and K.

Water soluble vitamins B comple

WATER.

Water is a liquid compound of hydrogen and oxygen formed by the chemical combination of two parts hydrogen and one part oxygen (H₂O) water make up about 70% of the body weight in men and about 60% in women.

A large amount of water is lost each day in faeces, sweat and urine. Under normal circumstances this is balanced by intake in food and to satisfy thirst. Dehydration with serious consequences may occur if intake does not balance loss.

FUNCTION OF WATER.

- i. Water is vital to life, 70% of the human body is water
- ii. Water is required for all body fluids e.g. digestive juices, lymph, sweat, saliva, blood, mucus and urine.

- iii. It helps lining of mucus membranes, digestive tract and bronchial tubes
- iv. Some nutrients dissolve in water for proper absorption
- v. Water lubricates joints and membranes.
- vi. It is necessary for the transportation of substances from one part of the body to another.
- vii. It aids in digestion of food by. a. helping to dissolve food. b. forming secretions for enzymes C. assisting with absorption.
- viii. Water is essential for the regulation of body temperature when the body heat is high, sweat is excreted through the pores of the skin, as the sweat evaporated it removes heat from the body making it cool.
- ix. What aids in dilution of waste products and poisonous substance in the body.

BALANCE DIET.

There is no single food known to be a perfect food, and it follows that a satisfactory diet must be based on one, but a variety of foods, balance diet is essential for health.

According to Wilson and Waught (1996) a balance diet is a diet which provides the appropriate amounts of all nutrients in the correct proportion to meet the requirements of the body cells. A satisfactory diet is one that will supply us with all our body needs.

We often call this a balance diet; that is one which supplies us with all the essential nutrients which contains them in the correct proportions for our needs.

Diet:- The diet simply refers to the practice of selection of foods eaten by an individual.

DIGESTIVE SYSTEM

The digestive system is the collective name used to describe the alimentary canal, some necessary organs and a variety of digestive process which take place at different levels in the canal of preparation for food eaten for absorption. The alimentary canal begins at the mouth, vocal cord passes through the thorax, abdomen, and pelvic and end at the anus.

The alimentary canal has various parts. The parts are:

- (i) Mouth (ii) Pharynx (iii) Oesophagus (iv) Stomach (v) Small intestine (vi) Large intestine (vii) Rectum and anus.

THE MOUTH

The mouth consist of the tongue and the teeth. The mouth is the first channel where the food passes through the tongue in the mouth plays an important part in:

- i. Masticulation (chewing)
- ii. Deglutition (swallowing)
- iii. Speech
- iv. Taste

Forming round ball of food (bolus).

THE TEETH

The teeth are embedded in the alveoli sockets of the alveolar ridges of the mandible and maxilla. Each individual has two sets, dentitions, the temporary or deciduous teeth and the permanent teeth. At birth teeth of both dentitions are present in immature form in the mandible and maxilla.

The temporary teeth are 20 in number, 10 in each jaw.

The permanent teeth begin to replace the deciduous teeth in the 6th year~ of age.

STRUCTURE OF THE TEETH

Although the shapes of different teeth vary, the structure is the same and consist of:

- i. The crown- the crown which protrudes from the gum.
- ii. The root - the part embedded in the bone.
- iii. The neck - the slightly constricted part where the crown merges with the root.

FUNCTION OF TEETH

The incisor and canine teeth are the cutting teeth and are used for biting off pieces of food, where as the premolars molar teeth, with broad, flat surfaces are used for grinding or chewing food.

Saliva: Saliva in the mouth contains enzyme called ptyalin which change cooked starches food into sugar.

FUNCTION OF SALIVA

Chemical digestion:- The enzyme salivary amylase acts on cooked starches

(polysaccharides), changing them to the disaccharide maltose. Enzyme action continues after the bolus is swallowed, until it is finally inhibited by the strongly acid reaction of gastric juices

- i. Lubrication of food
- ii. Cleansing and lubricating.
- iii. Taste.

PHARYNX

The pharynx is divided into three parts, the nasopharynx, oropharynx and laryngopharynx food passes from the oral cavity (mouth) the pharynx then to the oesophagus below, with which it is continuous.

OESOPHAGUS

The oesophagus or gullet is the first part of the alimentary tract. It is continuous with the pharynx above and just below the diaphragm, it joins the stomach. The oesophagus passes through the diaphragm, it curves upwards before becoming the stomach. This sharp angle is believed to be one of the factors which prevents the regurgitation (backward flow) of gastric contents into the oesophagus. The presence of the bolus in the pharynx stimulates a wave of peristalsis which propels the bolus through the oesophagus to the stomach.

STOMACH

The stomach is a J-shaped dilated portion of the alimentary tract situated in the epigastric, umbilical and left hypochondriac regions of the abdominal cavity. The stomach is continuous with the oesophagus at the cardiac orifice, and with the duodenum at the pyloric sphincter or orifice. At the distal end of the pyloric antrum there is pyloric sphincter guarding the opening between the stomach and the duodenum. When the stomach is inactive, the pyloric sphincter is relaxed and when it contains food the sphincter is closed.

GASTRIC JUICE AND FUNCTIONS

When food is in the stomach it is mixed with gastric juice gradually and it may take some time before the food is sufficiently acidified to stop the action of salivary amylase. Gastric muscle contraction consists of churning movement that breaks

down the bolus and mixed it with gastric juice, and peristaltic waves that propel the stomach content towards the pylorus.

FUNCTIONS OF GASTRIC JUICE.

- i. Water further liquefies the food swallowed.
- ii. Hydrochloric acid.
 - acidifies the food and stops the action of salivary amylases.
 - Kills many microbes which may be harmful to the body.
 - Provides the acid environment needed for effective digestion by pepsins.
- iii. Pepsinogens are activated to pepsins by hydrochloric acid and pepsins already present in the stomach. They begin the digestion of proteins, breaking them into smaller molecules.
- iv. Intrinsic factor a protein compound, is necessary for the absorption of vitamin B12, the anti- anaemia factor from the alimentary track in the ileum.

FUNCTIONS OF THE STOMACH

- i. Temporary storage allowing time for the digestive enzymes, pepsin to act.
- ii. Chemical digestion - pepsin converts proteins to polypeptides
- iii. Mechanical digestion - the three smooth muscle layers enable the stomach to act as churn, gastric juice is added and the contents are liquefied to chyme.
- iv. Limited absorption of water, alcohol and some lipid soluble drugs.
- v. Non- specific defense against microbes is provided by hydrochloric acid in gastric juice and vomiting may be a response to local irritation e.g. ingestion of noxious chemicals or microbes, mechanical irritation.
- vi. Dissolving out of iron from food - this takes place most effectively in the presence of hydrochloric acid - though. Absorption occurs in the small intestine.
- vii. Production of intrinsic factor needed for absorption of vitamin B12 in the terminal ileum.

SMALL INTESTINE

The small intestine continues with the stomach at the pyloric sphincter and leads into the large intestine at the ileocaecal valve. It is a little 5 metres long and has in

the abdominal cavity surrounded by the large intestine. In the small intestine the chemical digestion of food is completed and most of the absorption of nutrient materials take place.

The small intestine is divided into three parts. (a) The duodenum (b) Jejunum and (c) Ileum.

The duodenum is about 25cm long and curves around the head of the pancreas. At its mid-point there is an opening, common to the pancreatic duct and the common bile duct, guarded by the hepatopancreatic sphincter.

The jejunum is the middle part of the small intestine and is about 2 metres long.

The ileum or terminal part is about 3 metres long and ends at the ileocaecal valve controls the flow of material from the ileum to the caecum, the first part of the large intestine, and prevents regurgitation.

FUNCTIONS OF SMALL INTESTINE

- i. Onward movement of its contents which is produced by peristaltic, segmental and pendular movements.
- ii. Secret of intestinal juice.
- iii. Completion of chemical digestion of carbohydrate protein and fats in the enterocytes of the villi.
- iv. Protection against infection by microbes that have survived antimicrobial action of the hydrochloric acid in the stomach by the solitary lymph follicles and aggregated lymph follicles.
- v. Secretion of the hormones cholecystokinin (CCK) and secretion.
- vi. Absorption of nutrient materials.

Chemical digestions in the small intestine:

when the acid chyme passes into the small intestines it is mixed with pancreatic juice, bile and intestinal juice, and is in contact with the enterocytes of the villi. In the small intestine the digestion of all the nutrients is completed.

- a. Carbohydrates to monosaccharides.
- b. Protein to amino acids.
- c. fat to fatty acids and glycerol.

PANCREATIC JUICE

Pancreatic juice enters the duodenum at the hepatopancreatic ampulla (ampulla of the bile duct). Pancreatic juice is alkaline (pH 8) when acid stomach contents

enter the duodenum they are mixed with pancreatic juice and bile and the pH is raised to between 6 and 6.5. This is the PH at which the pancreatic enzymes, amylase and lipase act most effectively.

FUNCTION OF PANCREATIC JUICE

- i. Digestion of protein.
- ii. Digestion of carbohydrate.
- iii. Digestion of fats.

BILE

Bile, secreted by the liver, is unable to enter the duodenum when the hepato pancreatic sphincter is closed. The hepatic duct along the cystic duct to the gall bladder where it is stored. Bile has a PH of 8 and between 500 and 1000, ml are secreted daily.

FUNCTION OF BILE

The bile salts, sodium tartrate and sodium glyco-cholate, emulsify fats in the small intestine. The bile pigment bilirubin, is a waste product of the breakdown of erythrocytes.

The presence of bile salts in the small intestine is necessary for the dissolution of vitamin K and digested fats.

Stercobilin colours and deodorizes the faeces. It has an apparent effect.

INTESTINAL SECRETIONS.

About 3 litres of intestinal juice with pH 7.8 to 8.0 are secreted daily by the glands of the small intestine.

Traces of the enzymes found in the intestinal juice are believed to be released following the breakdown of cells brushed off the villi.

Most of the digestive enzymes in the small intestine are contained in the enterocytes of the wall of the villi. The digestion of carbohydrates, protein and fats is completed by direct contact between these nutrients and the microvilli and within the enterocytes.

The enzymes involved in completing the chemical digestion of food in the enterocytes of the villi are:

- a. Peptidases.

- b. Lipase
- c. Sucrase, maltase and lactase.

ABSORPTION.

Absorption is the process whereby soluble food is transferred to the circulatory system (Godman and uttering, 1979) the processes involved in the absorption of nutrients include:

Carbohydrates as monosaccharides, protein as amino acids and fats as fatty acids and glycerol may be slowly absorbed by diffusion but more rapidly by active transport.

Carbohydrates as disaccharides and protein as peptides and tripeptides are actively transported into the microvilli where chemical digestion is completed to monosaccharides and amino acids before transfer to capillaries in the villi.

Throughout the length of the small intestine the inner lining is well covered with villi. These are small finger-like projections from the lining, each about 1.25mm long. Each villi is well supplied with blood capillaries from a small artery. The capillaries network surrounds a lacteal, The capillaries reunite and lead away to the veins. These veins are joined together and eventually form the hepatic portal vein connecting the small intestine with the liver. The liquid food is absorbed through the surface of the villi by dialysis.

ASSIMILATION.

The process whereby dissolved food is brought to the interior body cells is called assimilation. The hepatic portal vein delivers all absorbed food, except digested fats, to the liver, which controls the supply of food to the rest of the body.

Digested fats enter the lymphatic system and so enter into the circulatory system. The absorbed food is delivered by the circulatory system to every cell in the body.

Large amounts of fluid enter the alimentary canal or tract each day. Of these, only about 500ml is not absorbed by the small intestine and passes into the large intestine.

LARGE INTESTINE

The undigested food from the small intestine passes to the large intestine. The large intestine is about 1.5 metre long, beginning at the caecum in the right iliac

fossa and terminating at the rectum and anal canal, the large intestine consist of caecum, appendix, colour rectum and anus.

The caecum is the first part of the colon, it is a dilated portion which is blind superiorly and inferiorly and is continuous with the ascending colon superiorly.

Attached to the caecum is the appendix, a narrow tube which is not essential for digestive purpose.

The colon extends to the small intestine and has the same muscle structure as the small intestine, but it has no villi. The undigested food stuffs are pushed along the colon by peristalsis, but the movement is slower than in the small intestines. In the colon, water is absorbed from the liquid digestible residue, and by the time the colon has been transverse, the residue is semi solid pellets. The semi-solid residue collects in the last portion of the colon until enough accumulates to be pushed into the rectum.

The rectum forms the last 15cm of the large intestines. The colon empties into the rectum about four times a day. The presence of faeces in the rectum produces a desire to void (defecate) and the anus is a short canal about 3,8 cm long in the adult and leads from the rectum to the exterior. There are two sphincter muscles which control the anus, the internal sphincter, consisting of smooth muscle fibres, is under the control of the autonomic nervous system and the external sphincter, formed by the striated muscle is under voluntary nerve control. The faeces is expelled through the anus by the contraction of the muscular walls of the rectum.

METABOLISM.

This refers to all the chemical reactions that occur in the body, using absorbed nutrients to.

- a. Provide energy to chemical oxidation of nutrients.
- b. Make new or replacement of body substances.

There are two types of metabolisms namely:

- i. Catabolism and ii. Anabolism.

Catabolism: catabolism is the break down of large molecules into smaller ones releasing chemical energy that is stored as adenosine triphosphate (ATP) and heat. Heat is used to maintain the body at the optimum level for chemical activity.

Excess heat is disposed off through the skin and excreta.

Anabolism: anabolism is building up, or synthesis of large molecules from smaller one's and utilizes the energy stored as A. T. P

Anabolism and catabolism usually involve a series of chemical reactions know as metabolic path ways. These efficient and gradual transfer of energy from A.T. P rather than large in tracellular explosion. Metabolic pathways are switched on and off by hormones, providing control of metabolism and meeting individual requirements.

Both processes occur continually in cells maintaining a balance of energy. In cells that are very active, there must be an adequate energy supply produced from chemical breakdown of nutrients to meet the demand posed by activity.

DISORDERS OF DIGESTIVE SYSTEMS

GASTRITIS.

Gastritis occur when where there is an imbalance between the corrosive action of gastritic and protective effect of mucus on the gastric mucosa develops. The amount of mucus in the stomach is insufficient to protect the surface of epithelium from the destructive effects by drochloric acid. It may be acute or chronic.

Gastritis occurs in varying degree of severity. The most severe form is acute haemorrhagic gastritis. When the surface epithlium of the stomach is exposed to acid gastric juice the cells absorb hydrogen ions which increase their internal acidity, disrupt their metabolic processes trigger the inflammatory reaction. The cause of acute gastritis include:

1. Regular prolonged use of aspirin another anti inflammatory drugs, especially the non-steriod.
2. Regular excessive alcohol.
food poisoning caused by staphilococcus aureus, satmonella paratyphi.
3. Heavy cigarette smoking
4. Treatment with cytotoxic drugs, and lenising radiation.
5. Ingestion of corrosive poisons, acids and alkalis.
6. Regurgitation of bile into the stomach.

PEPTIC ULCERS.

Ulceration of the gastromtestional mocosa is caused by disruption of the

normal balance of the corrosive effect of gastric juice and the protective effect of mucus on the gastric epithelial cells. It may be viewed as an extension of the cells damage found in acute gastritis. The most common sites for ulcer are the stomach and the first few centimeters of the duodenum. Occasionally there are two ulcers facing each other in the duodenum, called kissing ulcers, the underlying causes are unknown but their development is often associated with severe stress e.g. severe illness, shock, burns, severe emotional disturbance and following surgery. Healing occurs with the formation of fibrous tissue and subsequent shrinkage may cause structure of the lumen the stomach stenosis of the pyloric sphincter adhesions so adjacent structures, e.g. pancreas liver and transverse colon.

COMPLICATION OF PEPTIC ULCERS.

- i. Haemorrhage may occur.
- ii. Perforation of the affected areas may result.
- iii. Fibrous tissue (pyloric stenoses) may be formed as an ulcer in the pyloric region. Development of malignant tumour.

CIRRHOSIS OF THE LIVER.

This is the result of long-term inflammation caused by a wide variety of agents. The most common causes, are alcohol abuse.

- i. Hepatitis B and C virus infection
- ii. The effects of bile retained in hepatocytes due to structure of bile flow or chronic inflammation.
- iii. Congenital metabolic abnormalities

ULCERATIVE COLITIS.

This is a chronic inflammatory diseases of the mucosa of the colon and rectum which may ulcerate and become infected. It usually occurs in young adults and begins in the rectum and sigmoid colons from there it may spread to involve a variable proportion of the colon and sometimes, the entire colon, the cause is not known but there is an association with arthritis, some skin lesions haemolytic anaemia and some drugs sensitivities. In long standing cases cancer develops.

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