

Chapter 10: Reaching the Age of Adolescence

Adolescence:

1. It is the period of life, when the body undergoes changes, leading to reproductive maturity.
2. Adolescents are also called as teenagers. The age group of these teenagers is from 11 years to 18 or 19 years.

Puberty:

1. Marked important change which boys and girls become capable of reproduction is said to be the onset of puberty.
2. Puberty ends with attainment of reproductive maturity.

Changes at puberty:

- 1) Increase in Height:
The most noticeable change is the increase in height. It is mainly because of elongation of the arm and leg bones.
- 2) Change in body shape:
In girls, the region below the waist becomes wider. In boys, the muscles of the body grow more prominently than in the girls. Shoulders generally broaden as a result of growth. Thus, changes occurring in adolescent boys and girls are different.
- 3) Voice change:
The larynx begins to grow in males. Due to this Boys develop larger voice box which looks like a protruding part of the throat called Adam's apple. On the other hand, girls have a high-pitched voice.
- 4) Increased Activity of Sweat and Sebaceous Glands:
The secretion of sweat glands and sebaceous glands (oil glands) markedly increases. This leads to development of acne and pimples on the face.
- 5) Development of Sex Organs:
The male sex organs like the testes and penis develop completely. The testes produce sperms after attainment of puberty. In girls, the ovaries enlarge and eggs begin to mature. ovaries start releasing mature eggs.
- 6) Reaching Mental, Intellectual and Emotional Maturity: It is the period which influences a person's way of thinking. A teenager may feel independent, insecure, self-conscious or even depressed at times while trying to adapt to these body changes.
- 7) Development of secondary sexual characters:
In girls, breasts development and in boys begin to grow facial hair grows. Features which distinguish the male from the female they are called secondary sexual characters.

➤ **Role of Hormones in Initiating Reproductive Function:**

- Hormones: Chemical secretions from endocrine glands is called hormones.
- The male hormone or testosterone is released by the testes.
- Ovaries produce the female hormone or estrogen.
- Due to this hormone mammary glands develop inside the breasts.

- The production of these hormones is under the control of the pituitary gland.
- Target site: A particular body part on which the endocrine hormones act.
- The testes and ovaries secrete sex hormones responsible for the male and female secondary sexual characters.
- Pituitary Gland secretes hormones which makes ova mature in the ovaries and sperms form in the testes

➤ **Reproductive Phase of Life in Humans**

- Adolescents become capable of reproduction when their testes and ovaries begin to produce gametes.
- The capacity for maturation and production of gametes is longer in males.
- In females, the reproductive phase of life begins 10 to 12 years of age and lasts till the age of approximately 45 to 50 years.
- The matured ovum is released by one of the ovaries once in about 28 to 30 days.
- This period is marked by the development of uterus walls. It becomes thick to receive the egg in case of fertilization and begins to develop.
- This results in pregnancy.
- In case if fertilization does not occur, the released egg, thickened lining of the uterus along with its blood vessels are shed off. This leads to bleeding in women which is called menstruation.
- Initially the menstruation cycle is irregular but it will become regular with time. It is under the hormonal control.
- Menarche: It is the first menstrual flow at onset of puberty.
- Menopause: It is the stopping of menstrual cycle in the age between 45 to 50 years.

➤ **Sex determination of the Baby:**

- Zygote has the necessary information for sex determination of babies
- Humans have 23 pair of chromosomes.
- Chromosomes are thread like structures who store information for sex determination.
- The two chromosomes X and Y are called the sex chromosomes.
- A female has two X chromosomes and a male has one X and one Y chromosome.
- The gametes i.e. egg and sperm are haploid having only one set of chromosomes.
- The unfertilized egg always has one X chromosome. Whereas the sperm can have either X or Y chromosome.

➤ **Role of Hormones in Completing the Life History of Insects and Frogs**

- Metamorphosis: the series of change that take place in life cycle from larva to adult is called Metamorphosis.
- It is controlled by insect hormone and by thyroxine in frogs.
- Iodine in water is essential for production of Thyroxine hormone.

➤ **Reproductive Health:**

1. An Individuals health comprises of both physical and mental wellbeing of the person.
2. A balanced diet is essential to keep the body healthy at any stage of life.

3. It is very important to have a balanced diet in the Adolescence stage as it is a stage of rapid growth and development.
4. Chips and packed or tinned snacks, though very tasty can never replace regular meals as they do not have adequate nutritional value.

➤ **Personal Hygiene**

1. Have bath once daily to clean body smell as sweat glands are more active during this period.
2. If cleanliness is not maintained there are chances of catching bacterial infection.
3. Cleanliness during the time of menstrual flow is important. Girls should keep track of their menstrual cycle and be prepared for the onset of menstruation.
4. One should use sanitary napkin or clean homemade pads. Change pads after every 4–5 hours as per the requirement.
5. Physical exercise: Walking and playing in fresh air keeps the body fit and healthy. Hence all young boys and girls should take walks, exercise and play outdoor games.
6. Say “NO” to Drugs: Drugs are addictive and should not be consumed until prescribed by a doctor.
7. The drugs harm the body and ruin health and happiness
8. AIDS is caused by HIV virus. The virus can pass on to a normal person from an infected person by sharing the syringes used for injecting drugs.
9. HIV can also be transmitted to an infant from the infected mother through her milk.
10. The virus can also be transmitted through sexual contact with a person infected with HIV.