



INDIAN SCHOOL AL WADI AL KABIR



Class: VIII	Department: SCIENCE 2022-2023	Date: 25-11-2022
HANDOUT	Topic: REACHING THE AGE OF ADOLESCENCE	Note: A4 FILE FORMAT
Name of the student:	Class & Section:	Roll no.

Adolescence: The period of life, when the body undergoes changes, leading to reproductive maturity is known as adolescence.

Generally, adolescence begins at the age of 11 and lasts up to 18 or 19 years of age. Adolescents are also called teenagers because they cover the period of the ‘teens’ i.e. 13 to 18 or 19 years of age.

Puberty: The period of adolescence during which an adolescent reaches sexual maturity and becomes able to have children.

Changes at Puberty

During puberty sudden increase in height takes place. This happens due to the elongation of long bones of legs and arms that make a person tall.

- Girls grow faster than boys by about 18 years of age, and both reach their maximum height. The rate of growth in height varies in different individuals.
- The height of an individual (male or female) depends on the genes inherited from parents. However, the right kind of food during the growing years is also essential.
- Boys develop larger voice boxes (Larynx) to form a protruding part of the throat called the Adam’s Apple. Boys have a deep voice.
- In Girls, the larynx is hardly visible (Adam’s apple is not visible). They have pitched voices.

Change in Body Shape: In boys, at the age of puberty, shoulders generally broaden as a result of growth. In boys, the muscles of the body grow more prominently than in girls.

In girls, the region below the waist becomes wider. The muscles also comparatively grow less.

Increased Activity of Sweat and Sebaceous Glands: Secretion from sweat and sebaceous glands (oil glands) increases during adolescence. Due to this, some teenagers may suffer from acne and pimples.

Reaching Mental, Intellectual, and Emotional Maturity: These changes also have a profound effect on a person's way of thinking. Teenagers spend more time thinking than earlier. The learning capacity increases and there is a shift from dependence to a more independent attitude.

Secondary Sexual Characters: The characters that help in distinguishing the males from the females are called secondary sexual characters.

- **Secondary Sexual Characters in Boys:** Facial hair, deep voice, and hair on the chest.
- **Secondary Sexual Characters in Girls:** high-pitched voice and growth of body hair.

Hormones: Hormones are chemical substances secreted in endocrine glands. They are also known as ductless glands. These glands release hormones directly into the bloodstream to reach a particular body part known as the target site.

Hormones control the changes that occur during adolescence. The male hormone called testosterone is secreted by the testes at the onset of puberty and causes the development of facial hair, chest hair, etc. At the onset of puberty in girls, ovaries secrete female hormones or oestrogen which makes the breast develop. Their secretion is under the control of the pituitary gland.

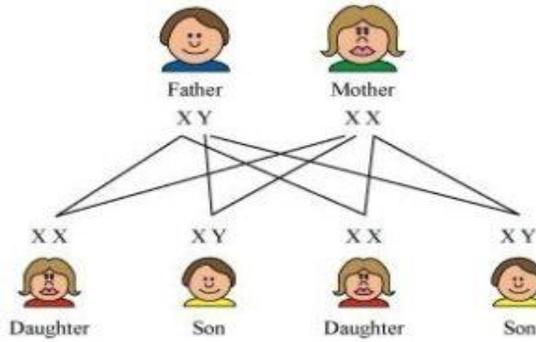
Menstruation: The uterine wall in females prepares itself to receive the developing fertilised egg. In case there is no fertilisation, the thickened lining of the uterine wall breaks down and goes out along with blood. This bleeding in women is called menstruation which occurs once in about 28 to 30 days.

Menarche: The first menstrual flow which begins at puberty is known as menarche.

Menopause: At 45 to 50 years of age, the menstruation cycle stops. Stoppage of menstruation is known as menopause.

Sex chromosomes: All human beings have 23 pairs of chromosomes in the nuclei of their cells. Two chromosomes out of these are the sex chromosomes known as X and Y. A female has two X chromosomes whereas a male has one X and one Y chromosome. The sex of the unborn child depends on whether the zygote has XX or XY chromosomes.

- If a sperm with an X chromosome fertilizes the egg, the zygote thus formed will lead to the birth of a girl child.
- If a sperm with a Y chromosome fertilizes the egg, the zygote thus formed will lead to the birth of a male child.



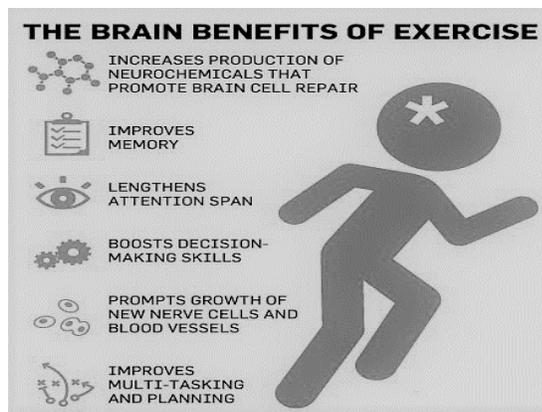
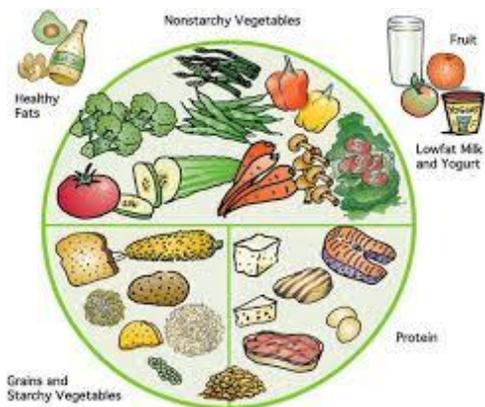
Hormones other than Sex Hormones

Gland	Hormone	Function
Pituitary gland	Growth hormone	Normal growth of the body
Thyroid	Thyroxine	Required for regulating body metabolism. Lack of thyroxine causes goitre. Supplementing iodine in the diet can prevent the goitre.
Pancreas	Insulin	Maintain the levels of blood sugar. Lack of insulin can lead to a condition called diabetes.
Adrenal	Adrenaline (Emergency hormone)	Helps the body to adjust to stress due to anger, worry or embarrassment.

Role of hormones in completing the life cycle of insects and frogs: The change from larva to adult is called metamorphosis. In insects, metamorphosis is controlled by insect hormones. In frogs, the metamorphosis from tadpole to adult frog is controlled by thyroxine hormone which is produced by the thyroid gland. Thyroxine production requires the presence of iodine in water.

Nutritional needs of the Adolescents: Adolescence is a stage of rapid growth and development. Hence, a balanced diet is very important at this stage. Here, a balanced diet means that the meals should include proteins, carbohydrates, fats, minerals, and vitamins in requisite proportion.

Need for physical exercise: Walking and playing in fresh air keeps the body fit and healthy. All young boys and girls should take walks, exercise, and play outdoor games to keep their body fit.



Personal Hygiene: It is more necessary for teenagers because the increased activity of sweat glands makes the body smelly. So, a daily bath is necessary.

If all body parts are not washed or cleaned every day, the chances of bacterial infection are more.

Girls should take special care of cleanliness during the time of menstrual flow.

Say 'No' to Drugs

The adolescence period is full of activities, confusion, and insecurity. Some people take advantage of this and lead adolescents to bad habits. They are addictive. If anyone suggests that you will get relief if you take some drugs. You should be firm to say 'NO' to such activities because they ruin your health and happiness.

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