

## Changes During Puberty

After the age of ten years, an individual becomes an **adolescent**, and experiences a lot of physical changes in the body. Adolescent is a general term for **teenagers** of both sexes. Adolescence is the period of life between the onset of **puberty** and reaching adulthood, that is, the period that leads to **reproductive maturity**. An increase in **height** is the most apparent physical change during puberty. Exercise and eat healthy **food** to gain height faster. Everyone will not have the same rate of increase in height, as the height of individuals is controlled by the **genes** inherited from parents. During adolescence, the **body shapes** of boys and girls also change an increase in their heights. The **larynx** or **voice box** in boys grows during puberty and protrudes out, making it clearly visible, and is commonly called **Adam's apple**. During puberty, **sweat glands** become active and start producing more sweat. During puberty, **pimples** or **acne** appear due to increased action of **sebaceous glands** or **oil glands**.

During puberty, the **sex organs** grow and become functionally active. The **testes** start producing male gametes, called **sperms**. During puberty, the **ovaries** grow and result in the maturation of the **ovum**. There is an increase in size of the **penis** with respect to different ages in males. Adolescents may experience **mood swings** during puberty. Puberty also results in mental and **intellectual maturity**. During puberty, the **brain** is very active and so will have a greater capacity to learn. Adolescence is the period of life that leads to reproductive maturity, making a person capable of **reproduction**. The growth of **facial hair**, that is, the beard and moustache, is a secondary sexual characteristic visible during adolescence. Puberty is marked by the development of **breasts** in girls **Secondary sexual characters** are used to distinguish a male from a female.

## Hormones and Reproductive Function

**Hormones** are **chemical messengers** that regulate most functions in the human body. **Endocrine glands** or **ductless glands** secrete hormones directly into the bloodstream. **Sex hormones** control the onset of **puberty** and initiate the **reproduction** function. Body changes such as the growth of facial hair and cracking of voice, are initiated due to the secretion of **testosterone**. Body changes in females during puberty, such as breast development, are initiated by **estrogen**. At puberty, the level of **sex hormones** is sufficient to bring about the maturation of gametes, sperm and ovum. The **reproductive phase** of life lasts longer in males than in females. **Menarche** is the first occurrence of menstruation. The shedding of the uterine thickening along with its blood vessels is **menstruation**. **Menopause** is the stoppage of menstruation. **Fertilisation** is the fusion of a sperm and an ovum.

The **menstrual cycle** takes place every 28-30 days. **Sex chromosomes** in sperms determine the baby's gender. Humans have 23 pairs of **chromosomes** in each cell.

A **gamete** is a mature reproductive cell - a sperm or an ovum. Gender determination of an **unborn baby** is considered illegal in India. **Goitre** is caused by the enlargement of the **thyroid gland**. **Insulin** deficiency causes **diabetes**. The **thyroid gland** produces thyroxine and **calcitonin**. The adrenal glands secrete **adrenalin**. The pituitary gland is the master gland and controls all the endocrine glands. The **life cycle** of the **silk moth** is controlled by insect hormones. **Thyroxine** is responsible for **metamorphosis** of the larva or **tadpoles** into adult **frogs**.

## Adolescence-and-Health

**Adolescents** need to avoid **junk food**. A **balanced diet** contains nutrients like carbohydrates, proteins, fats, vitamins, minerals and water in the right proportions. **Healthy foods** have more **nutritional value**, whereas junk foods have no or little nutritional value.

A person with complete physical and mental health is termed a **healthy individual**. **Personal hygiene** is the first step in maintaining health. **Cleanliness** - Cleaning of private parts is important to prevent possible infections. Many **myths** and **taboos** about **menstruation** and pregnancy prevail in society. Body parts such as hair, skin, nails and feet are vulnerable to **bacterial** and **fungal** infections, if we don't keep them clean. The activity of **sweat glands** increases in puberty and makes the body smell. **Physical exercise** keeps your body fit and healthy. **Sweating** helps you to release toxins and wastes from your body.

**Outdoor games** and exercise in addition to **indoor games** will help you build a healthy, muscular body. A lot of people take anabolic **steroids** to increase body mass, but it has dangerous side effects. **Peer pressure** is best addressed by self confidence and a healthy lifestyle.

During **adolescence**, with drastic changes taking place in the body and mind, you might feel **insecure** and confused. **Drugs** are **addictive** and should only be taken under prescription of a **physician**. **AIDS** is caused by a virus called **HIV**. AIDS can be transmitted from an infected person to a healthy person by sharing **syringes** used for injecting drugs. **Pregnancy** occurs only by **sexual contact**. In India, the **legal age** for marriage is 21 years for a boy and 18 years for a girl.