

Pubertal Changes: What the teachers should know ?



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Please read the article on this topic.
This presentation is a summary of that article.

Puberty :

A thrilling bridge between childhood and adulthood



Instagram user @keziamallista

What is puberty?

- A sequence of different processes and stages
- to attain physical and sexual maturity, wherein,
- body organs grow,
- the 'growth spurt 'takes place,
- secondary sexual characteristics appear,
- fertility is achieved, and
- major psychological changes are achieved.

Why teachers should learn about puberty?

- Schools contribute towards overall development of an adolescent.
- Once trained, teachers can help generations of students.
- The informed teachers are better able to understand the adolescents.
- They can discuss various bothersome issues of this phase
- Help bring awareness among adolescents.
- Help the students in handling difficult situations.

From Birth to Adulthood



Infancy (birth to age 1)

During this period infants develop trust and are dependent on others.

Early Childhood (ages 1–3)

In the toddler years children learn that they can do simple tasks without help.

Middle Childhood (ages 3–5)

Increased mental skills during the preschool period give children the ability to play make-believe and imitate real-life situations.

Late Childhood (ages 6–11)

In this stage children begin to interact more with their peers. They gain mastery over objects and activities.

Adolescent & Adulthood

PUBERTY

- **Body changes from a child to and adult**
- Females 9-16 yrs
- Males 10-17 yrs



Adolescence (ages 10–19 years)

- During this period teens take on greater responsibility and begin to develop their adult personalities

Adulthood (age 19 years onward)

- At this stage adolescents have fully developed physical characteristics and have established their identity.
- During adulthood people work to achieve goals, and to understand the meaning of their lives.

When does Puberty Start?

- **For Girls:9-16 years:**

Usually starts around 9-11 years.

- **For Boys: 10 -17 years:**

Usually starts around 10-13 years.

There's no way of knowing exactly when a child will start puberty.

Early changes in a child's brain and hormone levels can't be seen from outside.

What happens during puberty?

- 1. Neurosecretory factors and/or hormonal surge
- 2. Modulation of Physical Growth on all parameters
- 3. Initiation of the development of the sex glands (testes and ovaries)
- 4. Changes in sexual organs
- 5. Development of secondary sexual characters
- 6. Structural Changes in Brain & Cognitive development
- 7. Psychosocial changes in behaviour
-

How does puberty roll out?

It all starts in the brain



- The **hypothalamus** is the engine
- ↓
- It pushes the **pituitary gland**;
(the master gland of the body)
- ↓
- It stimulates **testes and ovaries**
- ↓
- **Sex hormones** released in blood stream
- ↓
- **Changes in the reproductive organs and the entire body (PUBERTY)**

Puberty Changes: Regulated By The Endocrine System

The hormones that cause the physical and emotional changes of adolescence are produced by endocrine(hormonal) system.

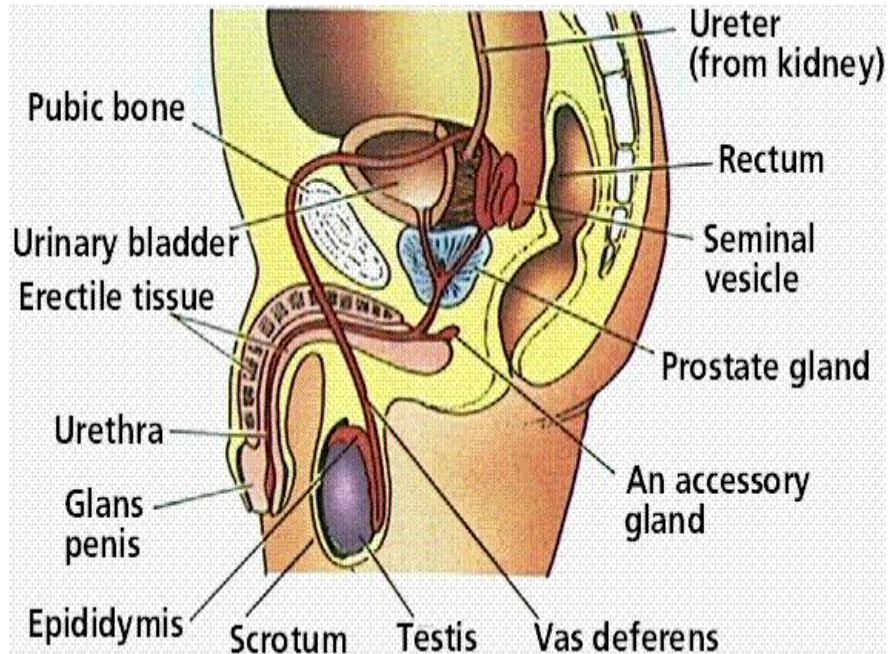
- *The endocrine system produces hormones that go directly into bloodstream.*
- *The hormones are then carried to different parts of the body to control various functions.*

The “Growth Spurt”

- Hallmark of puberty.
- Rapid increase in height.
- Lasts for two to three years.
- About 20-25% of adult height is attained during this phase.
- Occurs two years earlier in girls than in boys.
- In girls, the growth spurt typically precedes the onset of menstruation by about six months.
- Girls gain 24-26 cm
- Boys gain 27-29 cm.



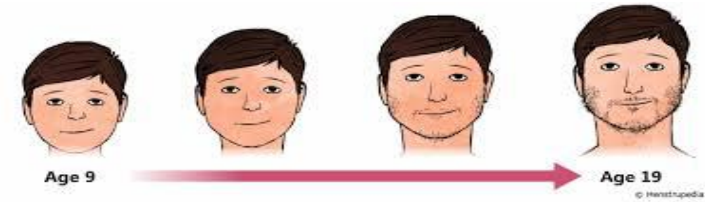
Sex Organ Changes : Boys



- The testes start producing more testosterone.
- Primary sex characteristics develop
The enlargement of the testes and scrotum,
- Followed about a year later by growth of the penis.
- Internal organs like seminal vesicles and prostate develop
- The first ejaculation, (emission of semen) may be the result of masturbation or occurs during sleep (wet dream/ Night fall).
These first emissions usually do not contain fertile sperm.

BOYS:

Key Changes in puberty



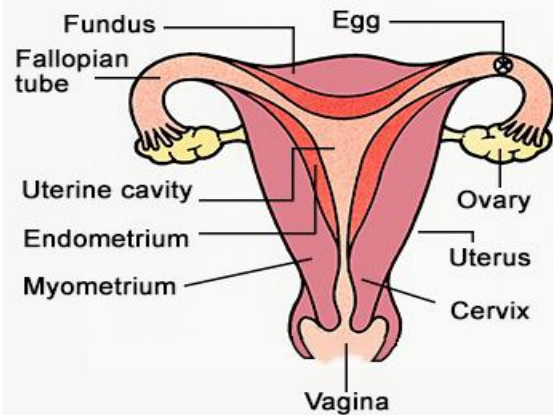
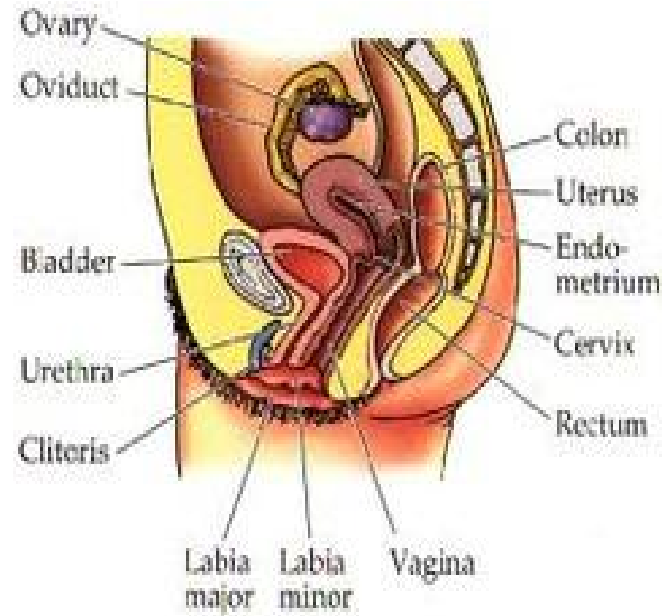
- Beginning of puberty: 10 to 13 years old
- First pubertal change: Enlargement of testicles
- Penis enlargement: begins approximately one year after the testicles begin enlarging
- Appearance of pubic hair: 13.5 years old
- Nocturnal emissions (or "wet dreams"): 14 years old
- Hair under the arms and on the face
- Voice change
- Acne
- Increased muscular development.



tanner stages of puberty in boys

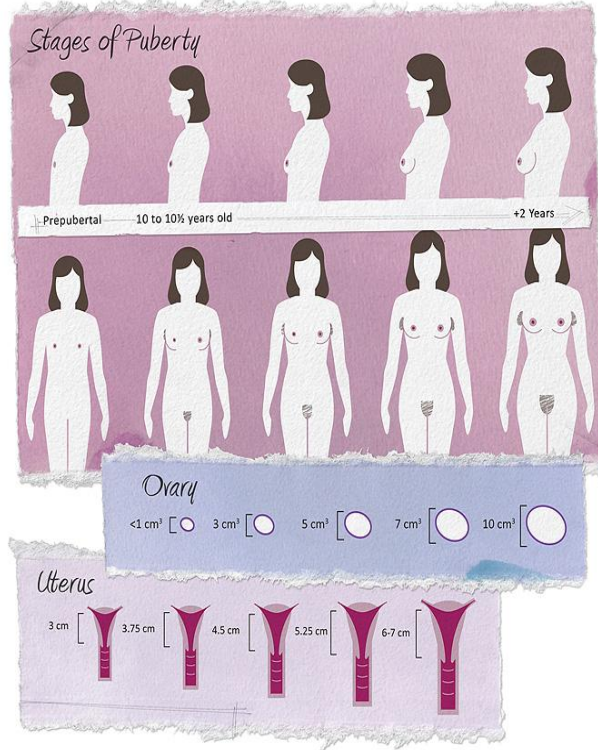
stage	genitals	testicle length	pubic hair	other
I	infrequent erections	less than 1.6 cm	villus hair only	adrenarche
II	scrotum skin thins and reddens; frequent erections	2.5 to 3.2 cm	sparse, slightly pigmented at the base of the penis	leaner body
III	lengthening of penis	3.3 to 4.0 cm	coarser, darker, curled over the junction of the pubes	some temporary swelling of breasts, voice breaks
IV	thickening of penis, darkening of scrotum skin	4.1 to 4.5 cm	adult type, covering the pubes	acne, underarm hair, voice deepens
V	adult genitals	4.5 cm	adult type, spreading	beard, continuing muscle dev

Sex Organ Changes In Girls



- the ovaries in females produce more estrogens & progesterone.
- development of primary sex characteristics for girls
- enlargement of the external sex organs
- development of the uterus and vagina
- **The first menstrual cycle, or *menarche* occurs**
- **first ovulation of an egg occurs a year or more later.**

Girls :Key changes

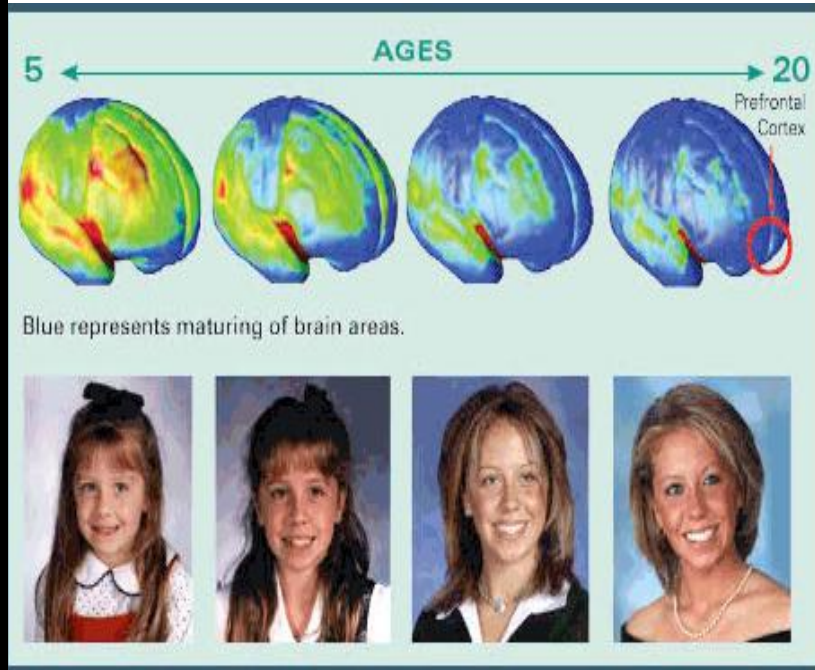


- Beginning of puberty: 9 to 11 years
- First pubertal change: breast development(**Thelarche**):9 years
- Pubic hair development(**Puberche**): shortly after breast development
- A widening of the pelvic bowl
- Menstrual periods(**Menarche**):
The first menstrual cycle, or *menarche* occurs at the average age of 12-12.7 years.
- The first ovulation of an egg occurs a year or more.
- Hair under the arms: 12 years old
- *Sequence of development in Girls: Thelarche—Puberche –Menarche-Axillarche*

Tanner stages of puberty in girls

Stage 1 <i>(Prepubertal)</i>	Elevation of papilla only.	No pubic hair.
Stage 2	Elevation of breast and papilla as small mound, areola diameter enlarged. Median age: 9.8	Sparse, long, pigmented hair, along labia majora. Median age: 10.5
Stage 3	Further enlargement without separation of breast and areola. Median age: 11.2	Dark, course, curled hair sparsely spread over mons. Median age: 11.4
Stage 4	Secondary mound of areola and papilla above the breast. Median age: 12.1	Adult type hair, abundant but limited to mons. Median age: 12
Stage 5	Recession of areola to contour of breast. Median age: 14.6	Adult type spread in quantity and distribution. Median age: 13.7

Brain Development & Cognitive Growth ...



1. myelination : Insulation of nerve cells for rapid transfer of information

2. Neural pruning : Removal of unused neurons (brain cells) and their synapses (connections of other neurons)

limbic system ,the seat of emotions, develops first

prefrontal cortex, the center for rational and logical thinking develops later

Mental Changes

- As compared to children, post pubertal children can think about complexities, as their abstract thinking develops.
- They move away from parental umbrella.
- They develop their social circle outside the family and give it the utmost importance.
- Sexual thoughts emerge.

How puberty bothers the adolescents?

With ongoing physical and mental changes, the adolescents are bewildered

They may get confused, frightened, feel awkward and embarrassed.

They may feel sorry or guilty about certain physiological changes that they see in themselves. They may be worried if something is going wrong with them.

It may cast effect on their self esteem.

They may feel losing control over their bodies .

Body image issues are thus very common.

They are confused regarding their sexual feelings.

Common worries of the pubertal boys:

Late bloomers are anxious to see their peers grow faster.

Sizes of external sex organs

Physique and muscularity

Beards and moustaches

Nocturnal emissions (night falls)/masturbation

Fear of indulging into sexual activities

Gynaecomastia (breast development in boys).

Common worries of the pubertal girls:

- Early bloomers are more worried
- Fat deposition, breast development and widening of hips may make them awkward.
- Their complexion, acne and hair growth are issues they ponder on a lot.
- Asymmetric breast development, painful breasts rise worries
- Girls generally find the menses bothersome and messy.
- The normal vaginal discharge may also bother them. .
- They are fearful of eve teasing, abuse or getting pregnant.

How teachers can help?

- Understand the pubertal changes and problems thereof.
- Monitor growth by charts (height, weight, BMI)
- Promote healthy nutrition and outdoor activities.
- Give anticipatory guidance on common concerns
- Arrange programs on gender issues & gender respect.
- Guide on sexuality issues and reproductive hygiene.
- Join hands with parents to help adolescents to face challenges.
- Take professional help for all these if needed

When to consult a doctor

- For routine yearly check ups of all adolescents
- Too early or too delayed pubertal growth
- Too thin or too much of a weight
- Excessive acne
- Periods beyond 21-60 days cycle, even after 2 years of menarche
- Facial hair growth in girls
- Painful or heavy menses
- Foul smelling discharge through genitals
- Any psychological issues that hamper working
-



The teenage brain is a
work in progress.
Young people are dealing with
social, emotional and cognitive
changes that are not yet developed.
Teachers can help by listening,
staying calm and being
good role models.

themodernparent.net

Thank you