

FORENSIC MEDICINE AND TOXICOLOGY

**Determination of age for
identification.....**

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Topics include:

Determination Of Age By:

- Examination of The Teeth
- Examination of The Ossification Of Bones
- Height And Weight
- MEDICOLEGAL IMPORTANCE Of
Determination Of Age

Teeth:

For Age Estimation From Teeth, Its Necessary To Know-

- 1.The Difference Between The Two Sets Of Teeth
- 2.The Time Of Their Eruption and
- 3.The period when there root calcification, and this can be ascertained On X-RAY Examination.

Two Sets Of Teeth Are: (1)Temporary (2)Permanent

Temporary Teeth (decidual teeth)Are 20 in Number, viz. Four Incisors, two canines, And Four Molars in Each Row

FORMULA-I=4

C=2

M=4

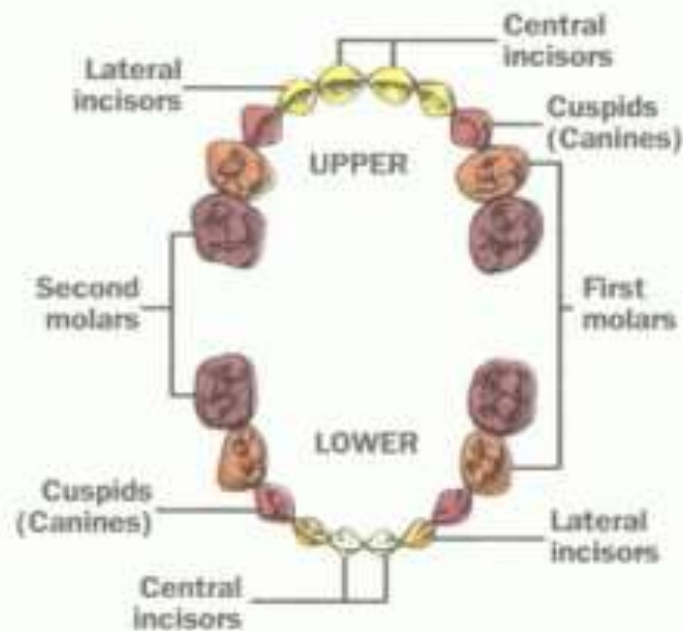
Continue....

- Permanent teeth are 32 in no., viz. Four incisors, two canines or cuspids, four premolars or bicuspid, and six molars or tricuspid in each row.
- The time of eruption of teeth gives a good indication of age upto 18 to 25 years but there are variations depending upon Geographic and other factors.
- As compare to permanent teeth, the temporary teeth are smaller except the molars, whiter, more constricted at the neck.
- I=4
- C=2
- P=4
- M= 6

TEMPORARY TEETH	PERMANENT TEETH
1. Small, narrow, light, delicate.	1. Big, broad, heavy, strong.
2. Crowns china-white in color.	2. Crowns ivory-white in color.
3. Junction of the crown with the fang.	3. Junction of the crown with fang not often marked by ridge.
4. Neck more constricted.	4. Neck less constricted.
5. Edges serrated.	5. Edges not serrated.
6. Anterior teeth vertical.	6. Anterior teeth usually inclined somewhat forward.

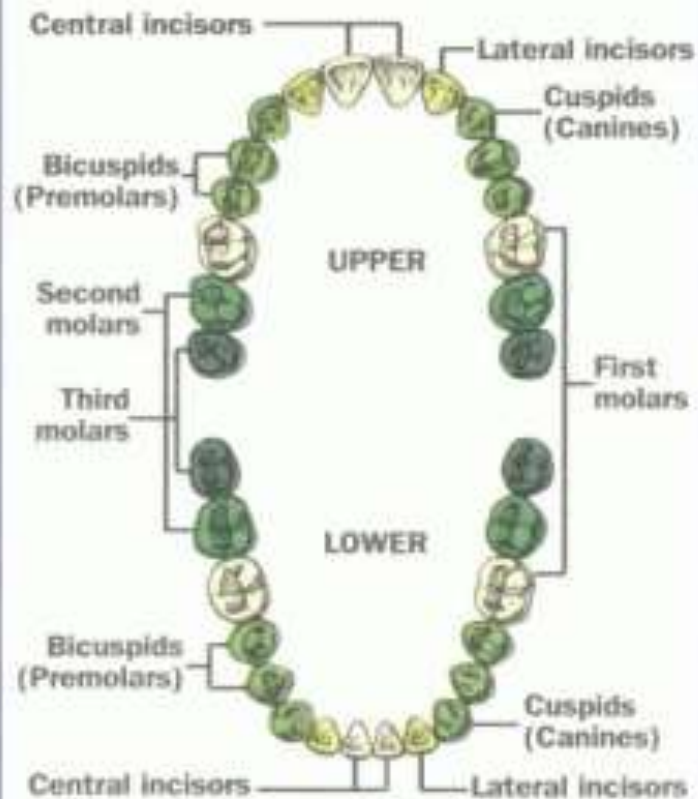
TOOTH DEVELOPMENT

When do primary (baby) teeth usually appear?



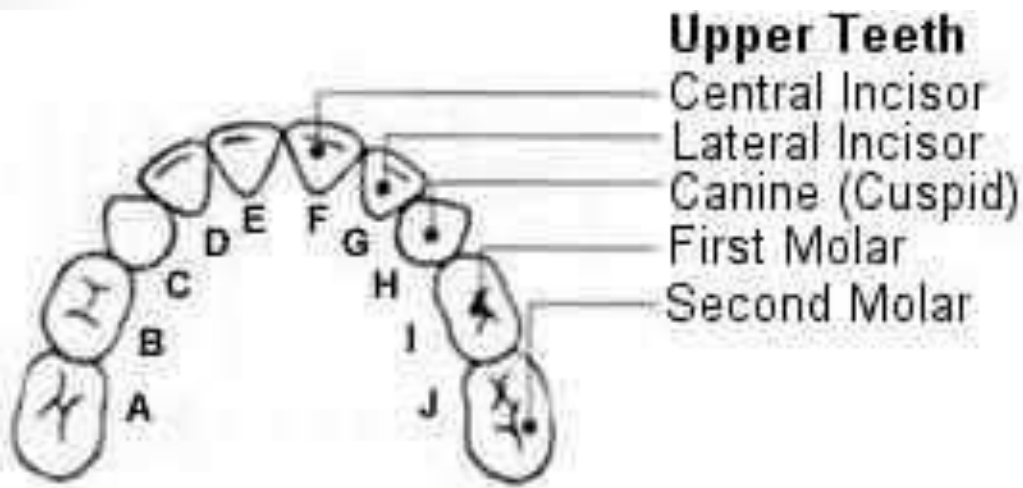
 6-10 months	 13-19 months
 8-13 months	 16-23 months
 10-16 months	 23-33 months

When do permanent teeth usually appear?



 6-8 years	 11-13 years
 7-9 years	 17-21 years
 9-12 years	

Eruption chart



Upper Teeth

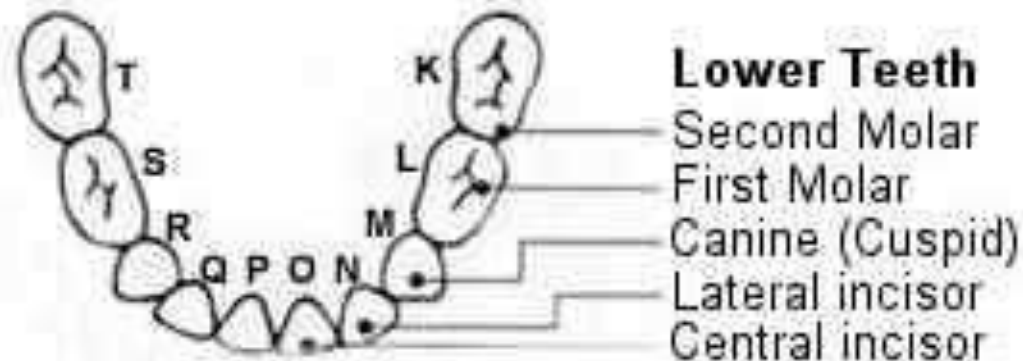
Central Incisor
Lateral Incisor
Canine (Cuspid)
First Molar
Second Molar

Erupt

8-12 mos.
9-13 mos.
16-22 mos.
13-19 mos.
25-33 mos.

Shed

6-7 yrs.
7-8 yrs.
10-12 yrs.
9-11 yrs.
10-12 yrs.



Lower Teeth

Second Molar
First Molar
Canine (Cuspid)
Lateral incisor
Central incisor

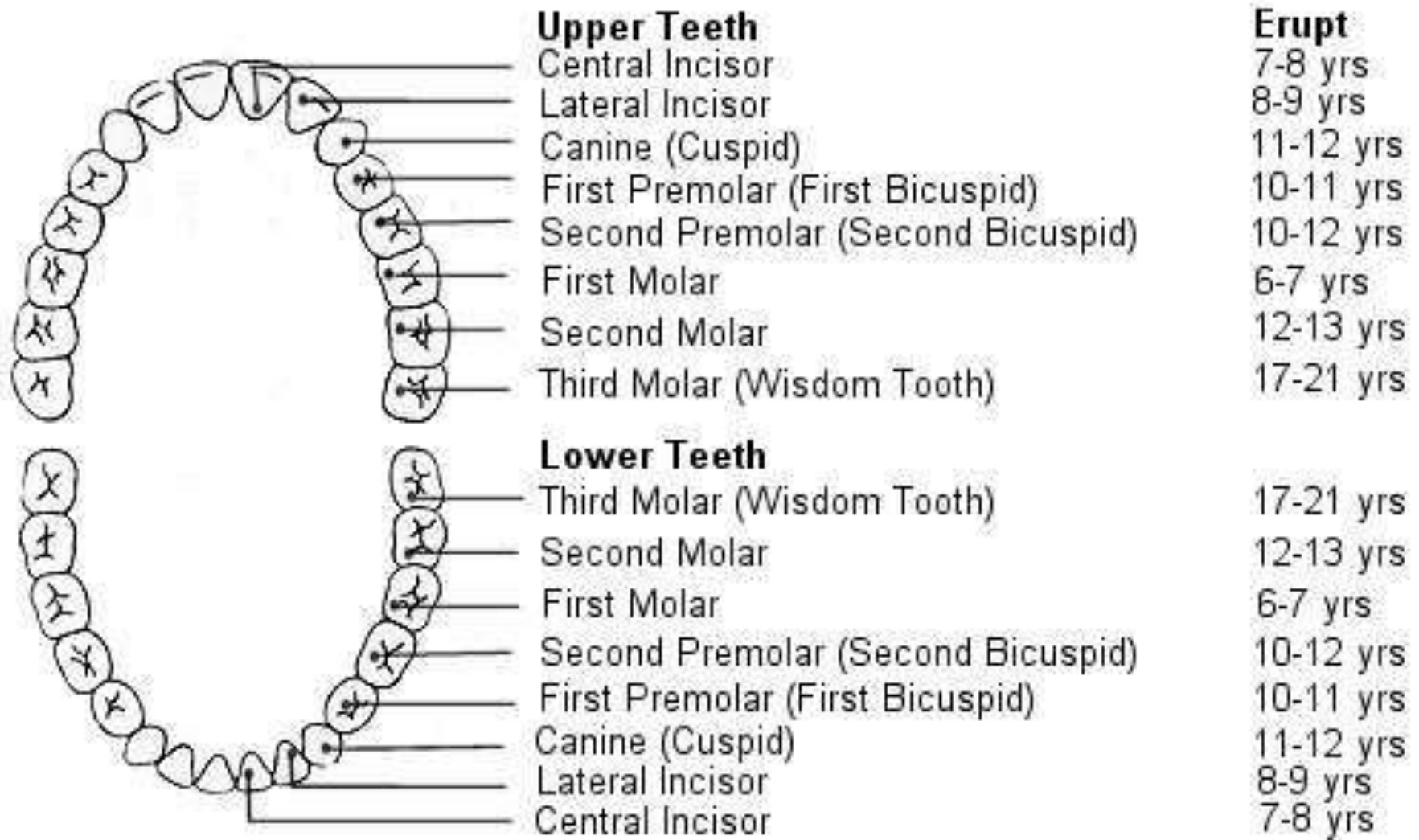
Erupt

23-31 mos.
14-18 mos.
17-23 mos.
10-16 mos.
6-10 mos.

Shed

10-12 yrs.
9-11 yrs.
9-12 yrs.
7-8 yrs.
6-7 yrs.

Eruption chart



- MIXED DENTITION PERIOD – when temporary and permanent set of teeth are present in jaw at a same time. This period is in between the age 8 yrs to 14 yrs
- Space behind 2nd molar – in few individuals wisdom teeth may not erupt even after age of 22 yrs. In such condition we can see space behind 2nd molar. X ray examination is required

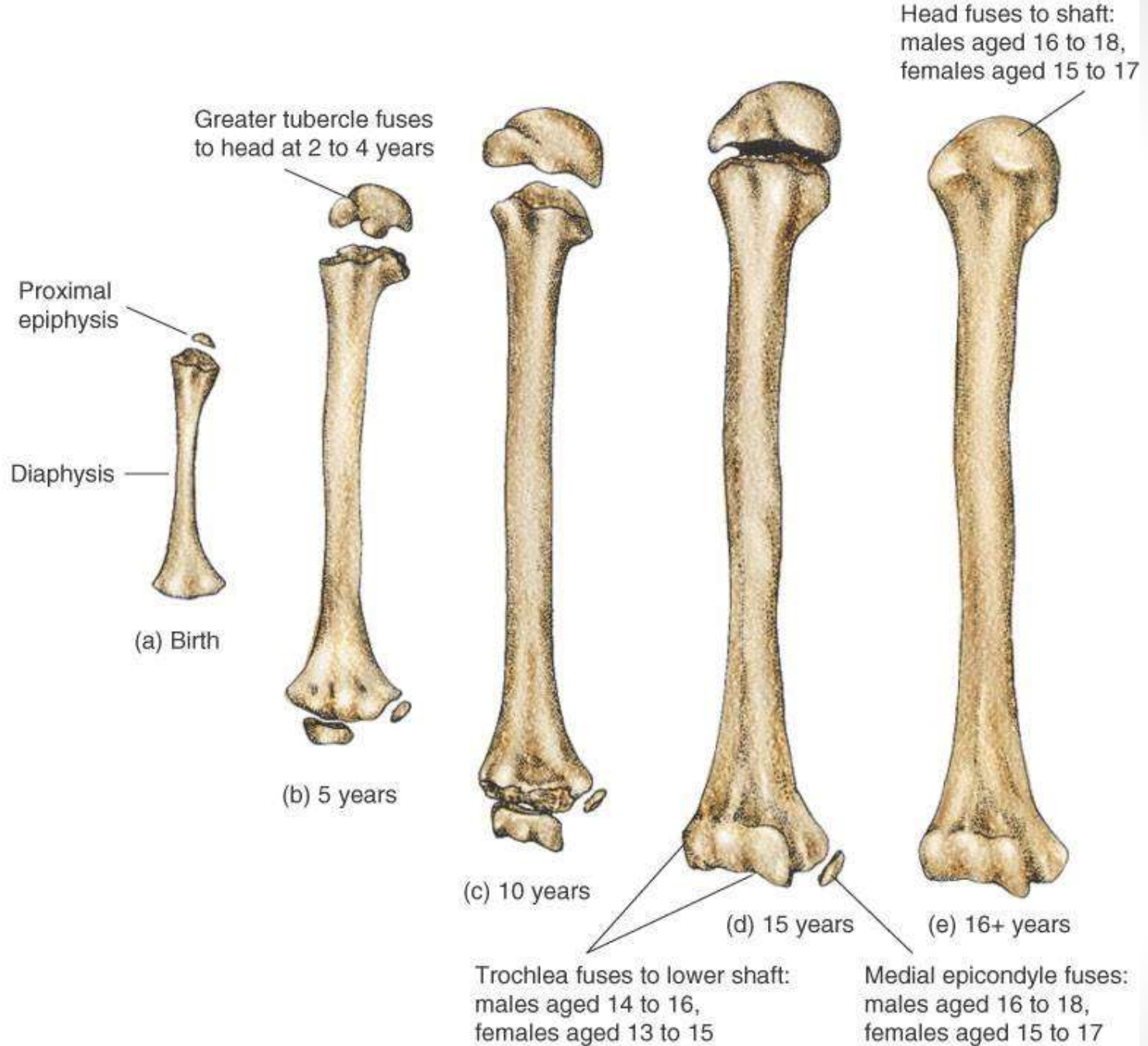
- The presence of one wisdom tooth usually means that the subject has passed the age of 17 years.
- If there are two-about 19 years, three about 21 years and all four 22 years and above.
- If wisdom tooth are erupted, an X-RAY should be taken to ascertain if there roots are calcified; if they not , there is strong presumption that the age is below 25 years.



Ossification of Bones

While the time of ossification gives a good indication of age, it should be remembered that,

- There are variations due to Geographic, hereditary and other factors.
- Union of epiphysis in cartilaginous bones takes place earlier in the female by about 2 years than in male except in case of skull sutures where obliteration sets in a little later and proceeds more slowly in the females than in males.



AGE	DEVELOPMENT
At birth	Lower end of femur shows a center of ossification about ½ cm
About 1 ½-2 years	Anterior fontanelle closed.
Between 2-6 years	No. of carpal bone present indicate the respective age of an individual.
Between 7-8 years	Rami of pubis and ischium unite.
Between 10-12 years	Pisiform ossifies
Between 13-14 years	Lateral epicondyle unite with trochlea
Between 15-16 years	Epiphysis of calcaneum joints the bone.
Between 16-18 years	All epiphyses (at elbow, femur) joints the respective shaft.

AGE	DEVELOPMENT
Between 18-20 years	All epiphyses (wrist, knee, crest of ilium) united
By 22 years	Inner epiphysis of clavicle fuses.
By 23 years	Sacral vertebra united.

- Old age = x ray of sternum, skull and vertebra
- Adults = x ray knee jt, shoulder jt., elbow jt. Long bone
- Child= x ray of wrist, hand

Height And Weight

- A full term child at birth is about 45-50 cm in length. It is in generally 60 cm at the end of one year, and roughly about double its length at birth at end of fourth year, i.e. 90-100 cm. The average weight at birth is from 2 ½ to 3kg and this increases at the rate of approximately 0.5kg per month for the first year so that a normally growing child is roughly double its birth weight in first six months and three time its birth weight at the end of first year.
- Tables of average heights and weight indicate in general way the rate of growth but the individual variation are so great that they are of little value from Medicolegal point of view for fixing the age.

- General physical changes –
- Hairs – colour- greying
- Cataract – after age of 40- 50
- Skin- wrinkled – old age

MEDICOLEGAL IMPORTANCE

Evidence as to age may be demanded in the following circumstances, viz.

- Criminal responsibility
- Judicial punishment
- Kidnapping
- Rape
- Marriage
- Attainment of majority
- Employment
- Infanticide
- Criminal abortion
- Impotence and sterility
- Competency as a witness
- identification

Criminal Responsibility

- Individuals are responsible for their actions and must be held accountable for them.
- Certain individuals may lack capacity to appreciate the wrongfulness of their conduct.
- Factors beyond individuals' control may lead them to commit criminal acts. In such instances the law exempts individuals from responsibility.
- There are situations in which acts that would otherwise be crimes may be justified (e.g., homicide in self-defense).

Criminal responsibility

In law responsibility means liability to punishment. Under sec.82 IPC ,a child under the age of 7 is incapable of committing an offence, this is because action alone does not amount to guilt unless it is accompanied by guilty mind, but not other act.

Example-the railway act

under sec.83 IPC ,a child above 7 and below 12 years is presumed to be capable of committing an offence, if he has obtained sufficient maturity to understand and judge the nature and consequences of his conduct on that occasion.

under sec.89 IPC ,a child under 12 years of age cannot give valid consent to suffer any harm which can occur from an act done in good faith and for its benefit

Example –consent of operation

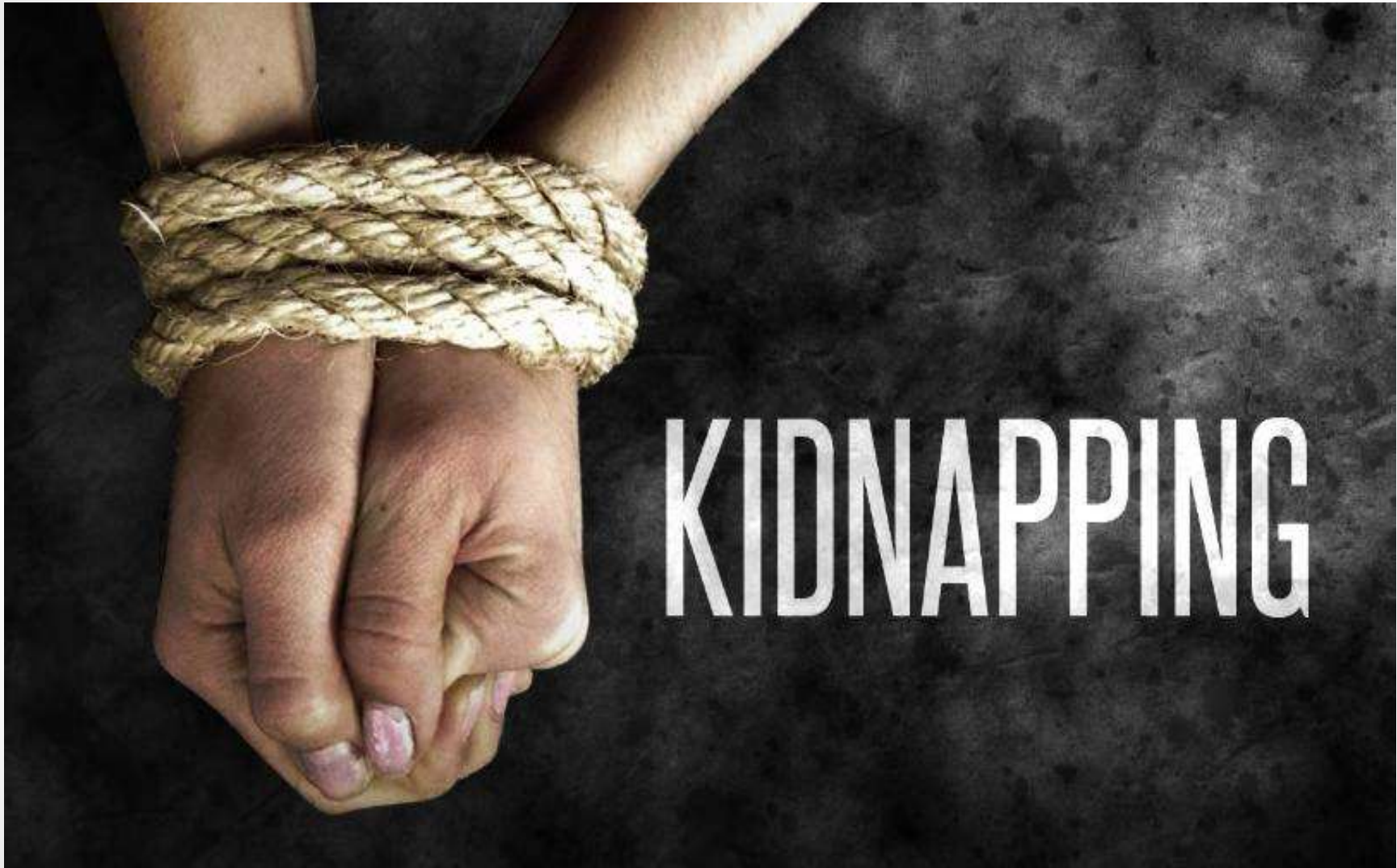
**10 year olds are
children, not
criminals.**



#RaiseTheAge

Judicial Punishment

Juvenile offender, that is children(boy under 16 years and girls below 18 years of age),who have committed a crime, are tried by the juvenile court and, on conviction, are entrusted to parents or guardians for special care or sent to a correctional school, with facilities for education, vocational training and rehabilitation.



KIDNAPPING

Kidnapping

- This means carrying away a person from lawful guardianship by illegal means. It is an offence
- To kidnap a child with the intention of taking dishonestly any moveable property from its person, if age of such a child is under 10 years.
- To kidnap a minor from lawful guardianship, if the age of boy is under 16 and that of a girl under 18 years (sec.361 IPC)
- To import into India from foreign country, a girl for illicit intercourse, if her age is less than 21 years.(sec.366B IPC)



RAPE

- Under section 375 IPC, sexual inter-course by a man with the girl under 15 years of age, even if she be his wife or any other girl under 16 years of age, even with her consent, constitution the offence of rape.

MARRIAGE

- The child marriage Restraint Act (Act XLI of 1949) lays down that a girl under 18 years of age and a boy under 21 years of age cannot contract a valid marriage.

Attainment of Majority

- Under Indian Majority Act (Act IX of 1875), person domiciled in India attain majority on completion of 18 years, except when under a guardians appointed by a court or under a court of wards, when the individual attains majority on completion of 21 years. Persons under this age are minors. A minor cannot make a valid will, sell his property or serve on a jury.

EMPLOYMENT

- Under The Factories Act 1948(Act LXIII of 1948), a child below 14 years of age cannot be employed in any factory on hazardous occupation. A person who has completed 15 years of age

INFANTICIDE

- A charge of infanticide can be sustained only if it can be proved that foetus had attained the age of viability, that is 210th day of intrauterine life and in exceptional circumstances 180th day.



ABORTION

- The MTP ACT
- Pregnancy can be terminated if gestational age is less than 12 wks
- And if it is more than 12 wks and less than 20 wks with consultation of 2 MO it can be terminated
- Based on grounds of termination - eugenic, therapeutic, social ,humanitarian

Criminal Abortion

- It is necessary to recognize the stage of development of the product of conception in view of enhanced punishment for the crime after the pregnancy has advanced beyond the stage of quickening. It is also necessary to find out if the woman has passed the child bearing women, lest it might be a false charge.

Impotence and Sterility

- A boy is sterile though not impotent before puberty. There is no upper limit regarding potency or sterility of men. Women become sterile after menopause.

Competency as a Witness

- Under section 118 IEA, no age limit is laid down for this purpose. Every person is competent to testify provided he is able to understand the question put to him by the court.

IDENTIFICATION

- The determination of age may be required for the identification of an individual, either living or dead. When a person suddenly appears after many years and claims to be missing person or when a dead body is produced as that of missing person, the approximate age is an important link in any chain of identify data.

THANK YOU!!!