# CASE HISTORY

BY – DR. HARSHIK PAREKH

## THOMAS RAKOSI:

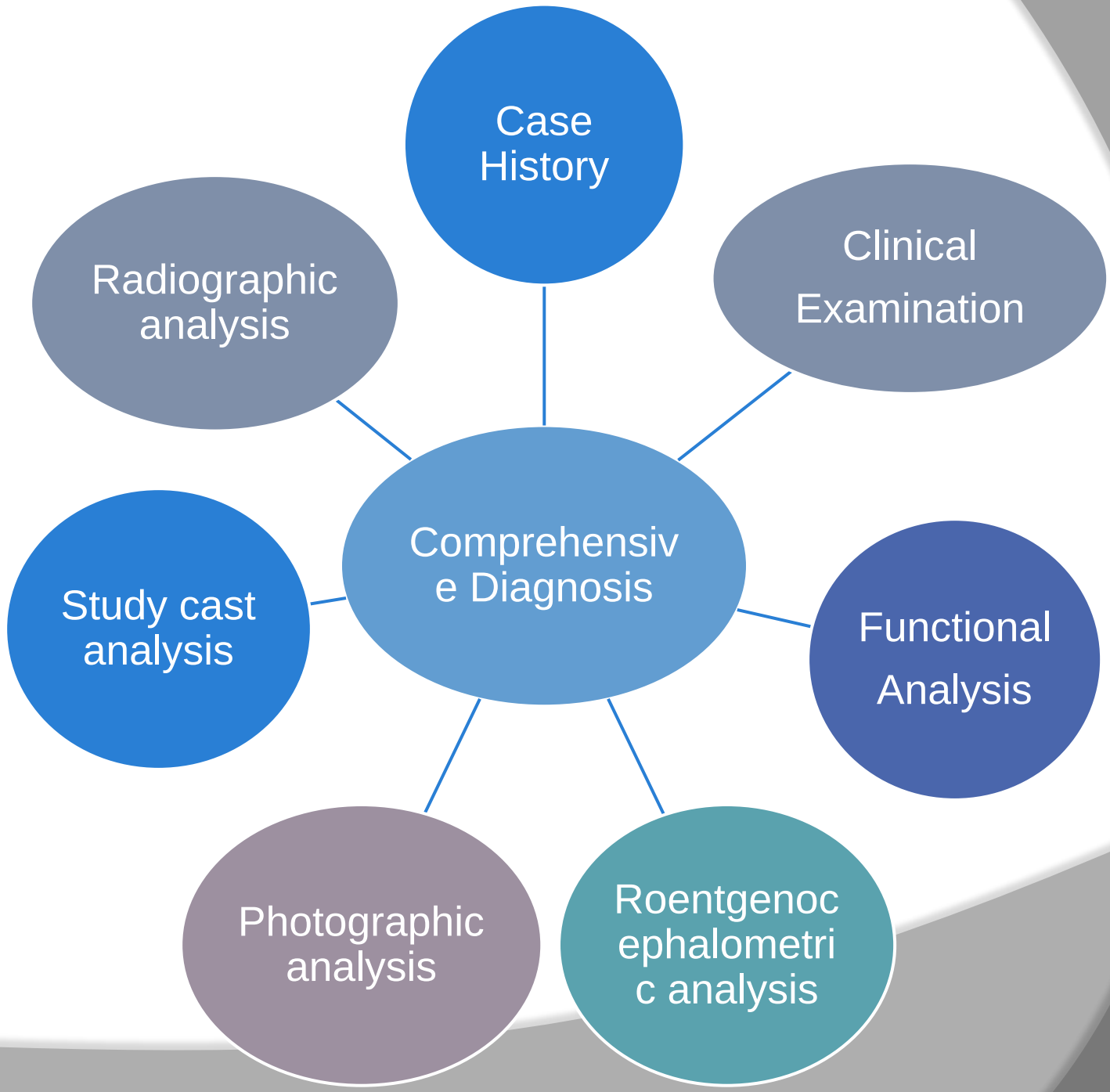
THE RECOGNITION AND SYSTEMATIC DESIGNATION OF ANOMALIES, THE PRACTICAL SYNTHESIS OF THE FINDINGS, PERMITTING THERAPY TO BE PLANNED AND INDICATION TO BE DETERMINED, THEREBY ENABLING THE DOCTOR TO ACT.

ORTHODONTIC DIAGNOSIS REQUIRES A BROAD OVERVIEW OF THE PATIENT'S SITUATION.

- The 1st step in assessment of orthodontic case history is the critical examination of case history.

- The purpose is to understand the development of malocclusion,so that by early elimination of the causative factors,correct therapy can be undertaken.

- Such an approach increases the likelihood of more favourable prognosis & greater stability as compared to purely symptomatic approach to orthodontic or dentofacial orthopedic treatment.


Case History
Radiographic analysis
Clinical Examination
Comprehensive Diagnosis
Study cast analysis
Functional Analysis
Photographic analysis
Roentgenocephalometric analysis

- **Case Record**
- **History**
  - ✓ Prenatal History
  - ✓ Natal History
  - ✓ Post Natal History
  - ✓ Medical History
  - ✓ Family History
  - ✓ General History
  - ✓ Dental History
- **Clinical Examination Record**
  - ✓ General Examination Record
  - ✓ Extra Oral Examination
- **Functional Examination**
- **Radiographic Examination**
- **Model analysis**

# PERSONAL INFORMATION

Data collection for the orthodontist begins with the first encounter with patient or parent.

It is helpful to have a protocol for gathering personal and financial information.

This will include certain demographic information i.e.

- name
- sex
- age
- occupation
- address
- source of referral
- etc

**Patient registration number** :-

Useful for – record maintainance
- billing purposes
- medicolegal purposes

**Date** :-
for reference
record maintainance

# Name

- For identification
- For communication
- Forming a rapport with the patient
- Record maintainance
- Psychological benefit
- Information such as religion

# Age

1. Diagnosis :- there is predilection of certain diseases at different age levels

Eg :- diseases commonly present at birth

- cleft lip/ palate
- teratoma
- heamophilia

Commonly present in children and young adults

- papilloma
- scarlet fever
- juvenile periodontitis
- pre pubertal gingivitis

- Commonly occuring in adults
  - attrition / abrasion
  - periodontitis
  - root resorption

2. *Treatment planning* :-

- Comparing the chronological age with dental age
- *Chronological age* – age according to DOB
- *Dental age* – according to last erupted tooth in the oral cavity
- *Skeletal age* – according to skeletal maturity factors
- helps in calculation of child dosage

3. *Behavior management* -

Management of patients of different age group require different behaviour modification methods

## Sex

- There is predilection of different diseases for specific sexes.
- Females – iron deficiency anemia
  - osteoporosis
  - myasthenia gravis
  - juvenile periodontitis

- Males – hemophilia
  - attrition
  - oral carcinoma
- Esthetics – girls are more concious about esthetics

**Address** :-

- For future correspondence
- Gives us a view of socioeconomic status
- Prevalence of diseases

Ex – flurosis ( endemic diseases )

caries more common in industrial area

periodontitis common in rural areas

**Occupation** :-

- Socioeconomic status
- I.Q. for effective communication
- Attitudes towards general and oral health
- Occupational hazards

**Religion** :-

- Identifying festive periods when religious people are reluctant to undergo treatment

## Chief complaint :-

- Established by asking the patient to describe the problem for which he or she is seeking help or treatment.
- Recorded in patients own words and no documentary or technical language should be used.
- Recorded in chronological order of there appearance, and in order of severity.
- Chief complaint aids in diagnosis and treatment planning and should be given the first priority.

## History of chief complaint :-

- Initially, the patient may not volunteer the detailed history of the problem, so the examiner should elicit out the additional information by the possible questionaire about the symptoms.

## Medical history :-

- Recording of past medical history includes history of past illness, hospitalizations, and evaluation of the patient's health based on the history provided by the patient.
- Patient should be evaluated for-
- CNS- epilepsy/ convulsions
- CVS- congenital heart disease / rheumatic fever / hypertension
- RS – asthma / TB
- GIT- jaundice / ulcer / malabsorption syndrome / xerostomia
- Endocrine – hypo/ hyper- pituitary / thyroidism / diabetes mallitus

## Pre- Natal History :-

- Should include of the mother during pregnancy.
- Drug intake during pregnancy( tetracycline/ thalidomide) or trauma or any diseases(german measles).
- Excess use of certain vitamins can cause congenital deformities
- Uterine posture, fibroids, amniotic lesions, etc have been blamed for malocclusions.

***Pregnancy*** :-

- Term of delivery – Full/ premature

= *indicates the development of organs and the organs system status*

- Type of delivery – Normal / Forceps / Ceasarean

- Forceps delivery results in TMJ disorder and ankylosis, also sometimes to deviated nasal septum
- Suction cups are used it may lead to non fusion of sutures , and also hydrocephaly

***Natal History*** :-

- Weight – normal / increased / decreased
- Trauma
- Congenital defects – cleft / cerebral palsy / cleidocranial dysplasia / syphilis
- Rh incompatability – Erythroblastosis fetalis

***Post Natal History*** :-

- Feeding – breast / bottle / combination

*Breast feeding* - mainly important for immunization

- mineralization defects

Breast fed – duration / frequency / weaning

Bottle fed - duration / frequency / weaning

- This is to assess the amount of balanced nourishment the infant has received especially in cases of supplement food instead of breast feeding

- The duration of feeding is important pertaining to the caries risk factor in the infant( nursing bottle caries).

**Tonsils / adenoids :-**

- Enlarged / infected / removed / normal
- Prolonged swelling leads to alteration in the tongue and jaw posture.
- **Mode of breathing** :- oral /nasal

- **Accidents (** fractured teeth, etc)

**Habits** :-

- Thumb sucking
- Finger sucking / finger biting
- Dummy sucking
- Nail biting
- Lip biting / lip sucking
- Tongue thrusting
- Bruxism

If yes – duration / frequency / intensity

# ALLERGY HISTORY

- Latex sensitivity: gloves, elastics
- Nickel sensitivity: wires & brackets. If sensitive titanium brackets or ceramic brackets may be used.

**2) Patient history**

Prenatal (course of pregnancy)

Diseases: Nutritional disorders: yes/no

Psychological problems: yes/no Medication: yes/no

Accidents: yes/no When: Type:

Birth

Premature – normal – late: Position:

Course of labor: Normal Forceps Cesarian section Suction cup

Weight: Length: Incubator: yes/no

Postnatal

Developmental state at birth: Normal / underdeveloped / hospitalization

Infant feeding: Breastfed up to month bottle-fed up to year spoon-fed after the month
fed solid foods after the month given the following additional foods after the month:
Vitamin D: Fluoride preparations: up to:

First tooth: month Learned to walk during the month Learned to speak during the month

Premature loss of deciduous teeth: yes/no Which teeth:

Sucking: Which finger right / left, pacifier, corner of the blanket From to years
NUK nipple: yes / no From to years

Parafunctions: Nail biting, clenching, bruxism

Sleeping habits: Position: Mouth opened / closed Snoring: yes / no

Diseases: Rickets – colds – pneumonia – otitis – asthma – allergies

Systemic diseases:

Allergies:

Adenoidectomy / tonsillectomy: At age of:

Accidents: Age: Type:
Teeth involved: yes / no Treatment:

Operations in the head / neck region:

**1) Family history**

| | Father | Mother | Siblings | | | | Relatives | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Rickets (R), colds (C) | | | | | | | | | | |
| Adenoids (A), mouth breathing (M) | | | | | | | | | | |
| Adenoidectomy (AT), tonsillectomy (T) | | | | | | | | | | |
| Cleft lip (L), jaw (J), or palate (P) | | | | | | | | | | |
| Supernumerary teeth (S), missing teeth (MT) | | | | | | | | | | |
| Protrusion (P), Class II, Division 2 (D), Class III (M) | | | | | | | | | | |
| Open-bite (O), deep bite (D) | | | | | | | | | | |
| Dental crowding | | | | | | | | | | |
| Orthodontic treatment | | | | | | | | | | |
| Miscellaneous: | | | | | | | | | | |

**Dental History** :-

- It gives information about patients past dental problems.
- Frequency of dental visit by the patient which gives an indication of the patient's behaviour.
- Patient attitude towards previous dental treatment.
- To know about any excessive bleeding in the past dental treatment .
- Reasons for loss of teeth.

- Age of eruption of decidous teeth –
- Age of eruption of permanent teeth –
- Any teething problems –
- Extraction, if any –
- Any rampant caries –
- Traumatized teeth –
- Brushing habit –
- History of Orthodontic treatment & any relevant past history -

# Clinical Examination Record


includes examination of the

- constitution and physique
- height and weight
- General health
- Gait and posture
- Body type

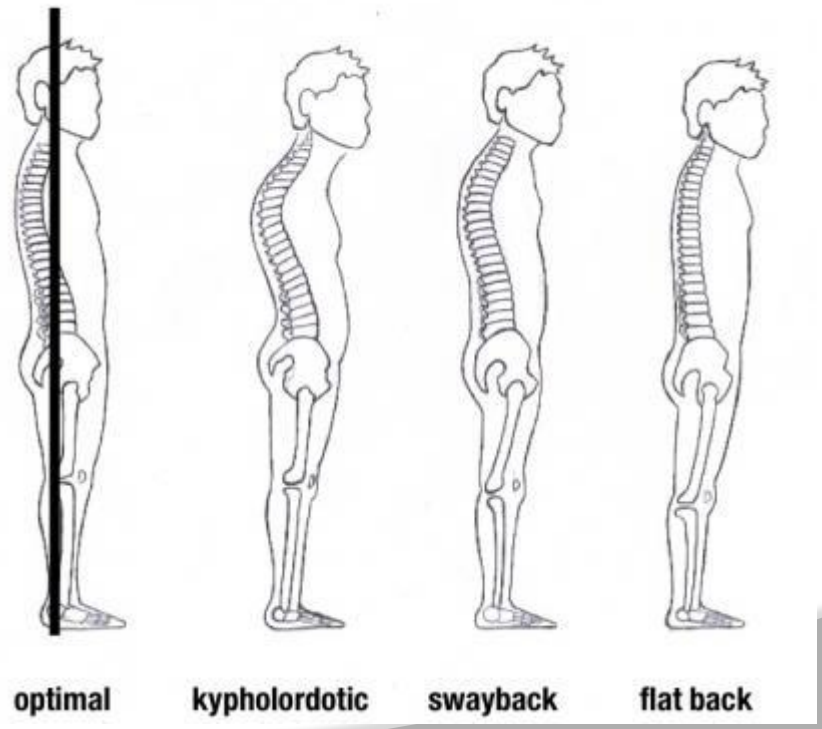
## PHYSICAL GROWTH EVALUATION

- Whether the child has recently grown rapidly?
- Whether there is a change in the size of the clothes?
- Whether there are signs of sexual maturation?
- Whether there is a change in the voice?

- Build & General Physique :-

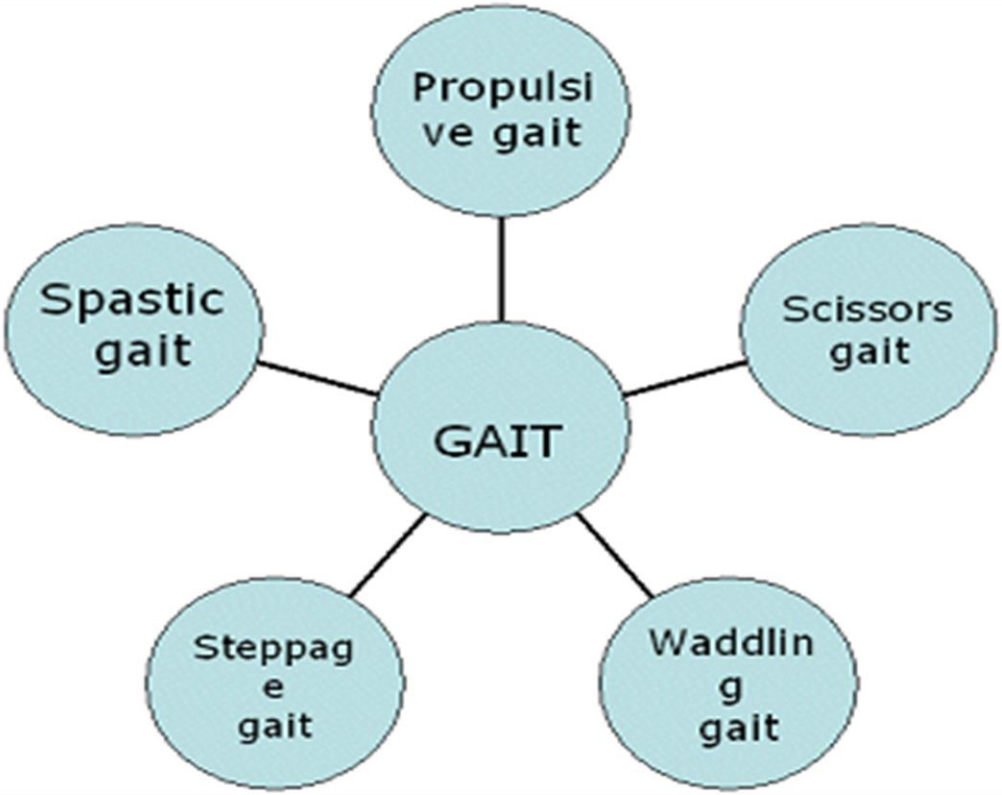
# Posture

- *Posture* refers to the way a person stands
- Abnormal postures can predispose to malocclusion due to maxillomandibular relationship.

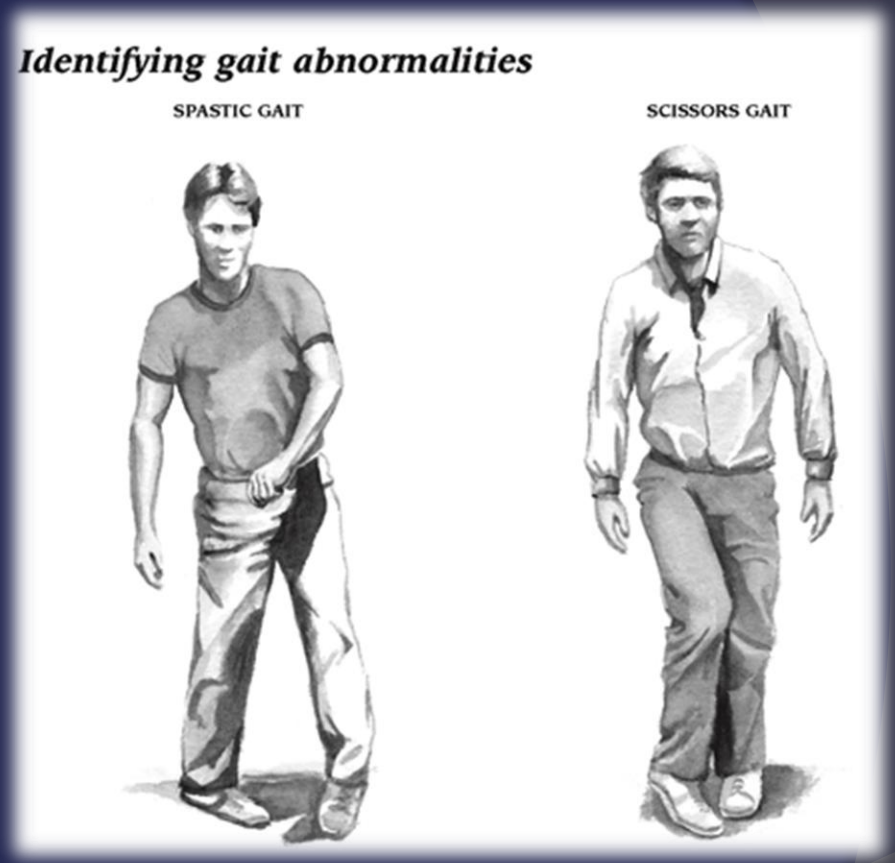


# Gait

- It is the way person walks.
- Abnormalities of gait are usually associated with neuromuscular disorders which may have a dental correlation.



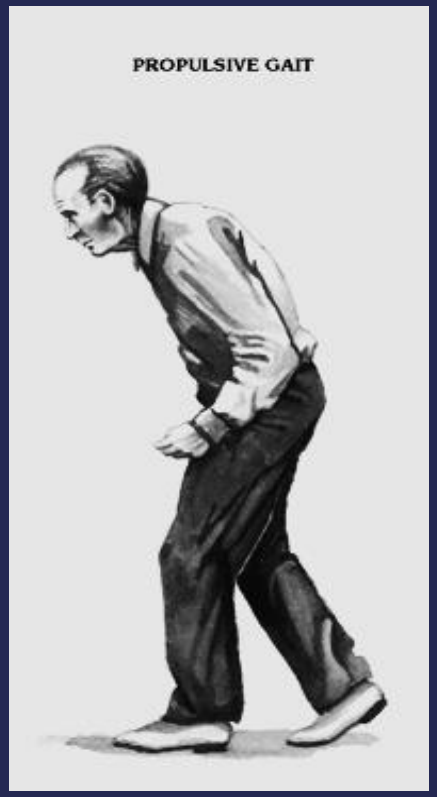
- Scissors gait - legs flexed slightly at the hips and knees like crouching, with the knees and thighs hitting or crossing in a scissors-like movement
- Spastic gait - a stiff, foot-dragging walk caused by a long muscle contraction on one side



**Propulsive gait** - a stooped, stiff posture with the head and neck bent forward

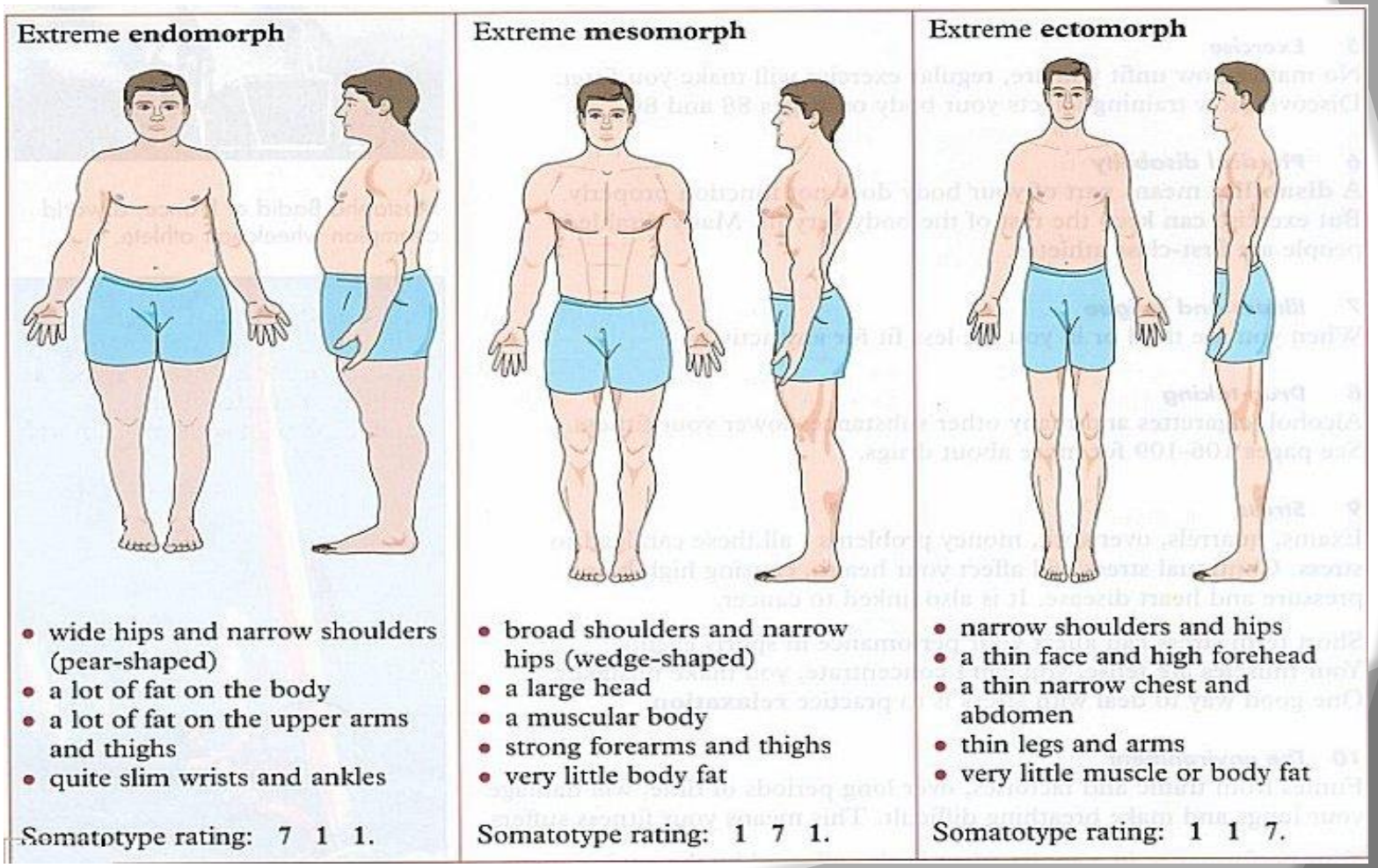
**Steppage gait** - foot drop where the foot hangs with the toes pointing down, causing the toes to scrape the ground while walking, requiring someone to lift the leg higher than normal when walking

**Waddling gait** - a duck-like walk that may appear in childhood or later in life





- *Body Type* –
- Sheldon's classification



- *Weight & Height*
- *Age* – dental
  - skeletal
  - chronological

# DENTAL *AGE*

**244 Nine relevant stages of dental development**

**O** Tooth germ without signs of calcification.

**A** Calcification of single occlusal points without fusion of different calcifications.

**B** Fusion of mineralization points; the contour of the occlusal surface is recognizable.

**C** Calcification of the crown is complete; beginning of dentin deposits.

**D** Crown formation is complete up to the cementoenamel junction.

**E** Root length shorter than crown height.

**F** Root length larger than crown height.

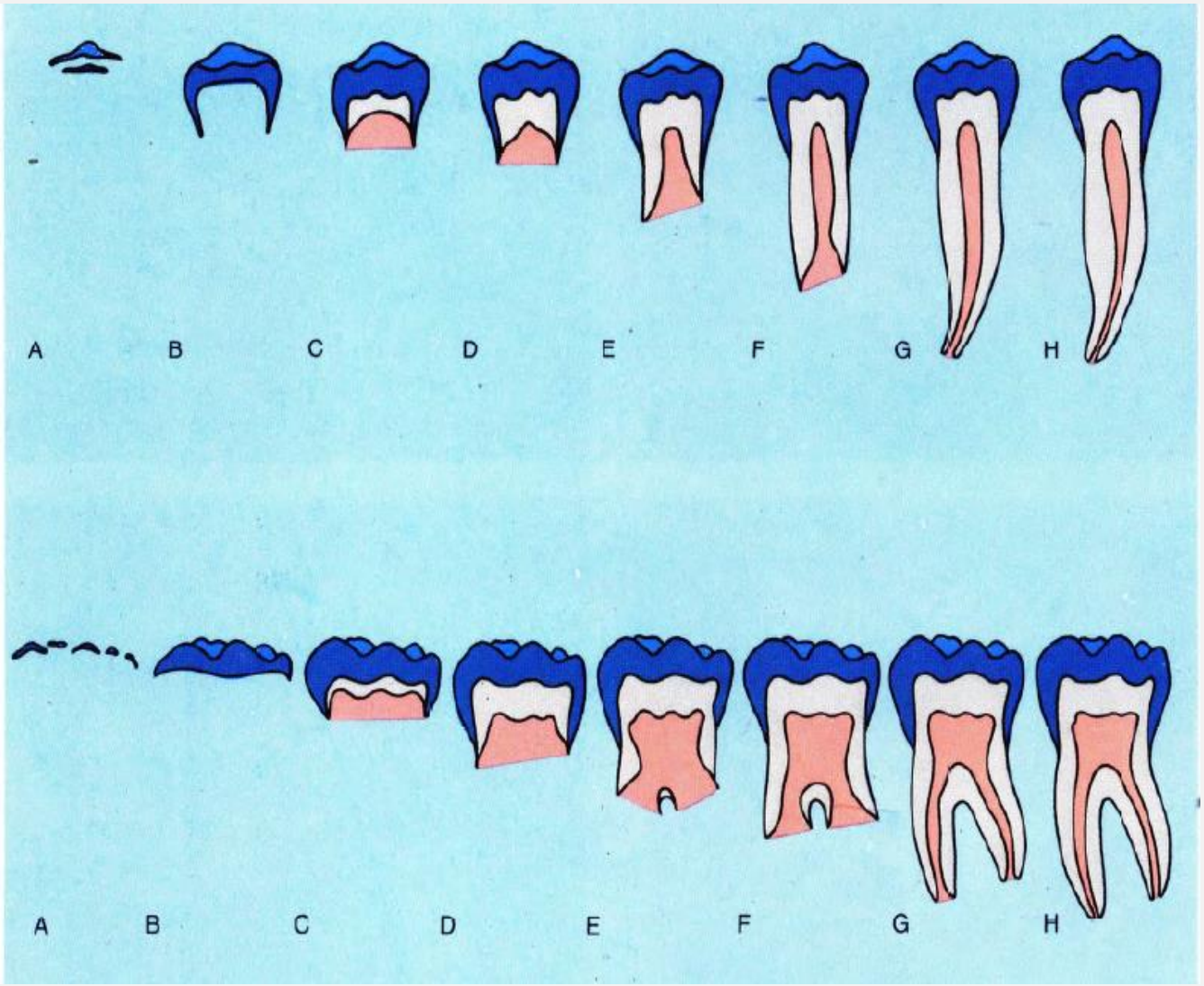
**G** Root formation finished. Apical foramen still open.

**H** Apical foramen is closed.

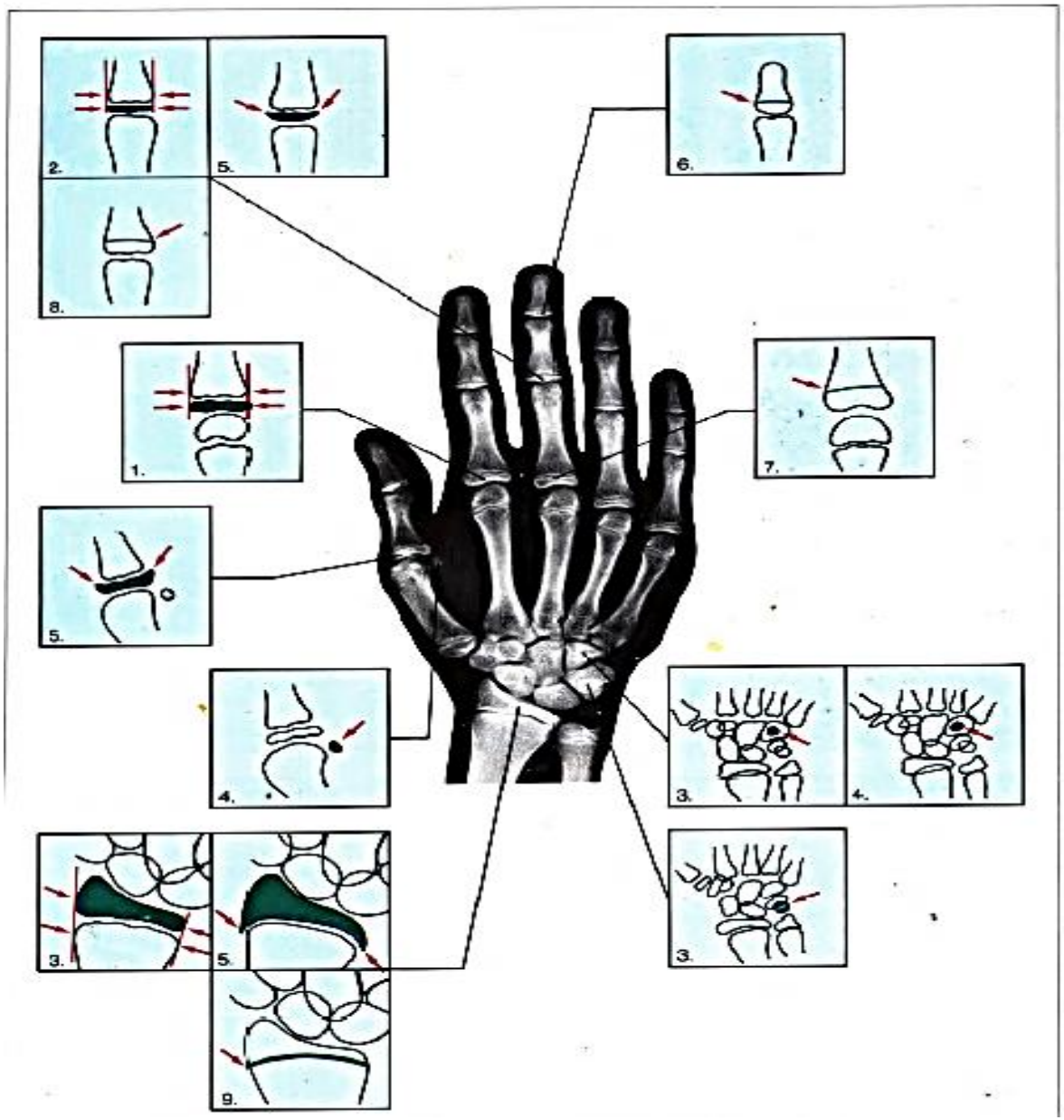
(*Demirjian* et al., 1973)

*Above:* Developmental stages of a singlerooted tooth.

*Below:* Developmental stages of a multirooted tooth.



# SKELETAL AGE




**249 Maturation indicators of the hand bones for determining skeletal age from the 8th to the 18th year**

Presence of 9 developmental stages according to *Björk* (1972), *Grave* and *Brown* (1976). The ossification events are localized in the area of the phalanges, carpal bones, and radius (R).

Growth stages of the fingers are assessed according to the relationship between the epiphyses and the diaphyses.

There are three stages of ossification of the phalanges:

First stage:
Epiphysis shows the same width as the diaphysis (—).

Second stage:
Capping stage (= cap); the epiphysis surrounds the diaphysis like a cap.

Third stage:
U-Stage (= u); bony fusion of epiphysis and diaphysis.

For assessment of maturity in the area of the phalanges, fingers 1–5, beginning with the thumb, are labeled.

# Extra-Oral Examination

- Shape of Head –

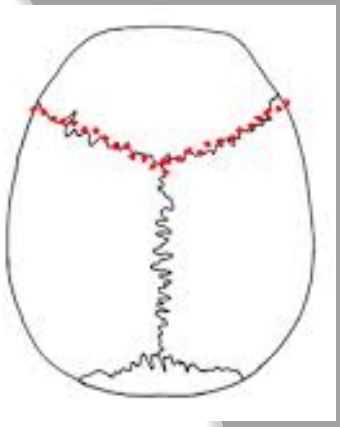
  Cephalic index = max. skull width/ max. skull length

  - Dolicocephalic: -75.9
  - Mesocephalic:76-80.9
  - Brachycephalic:81-85.4
  - Hyperbrachycephalic:85.5

- ***Mesocephalic***

  average shape of head

-Possess normal dental arches



***Dolicocephalic***

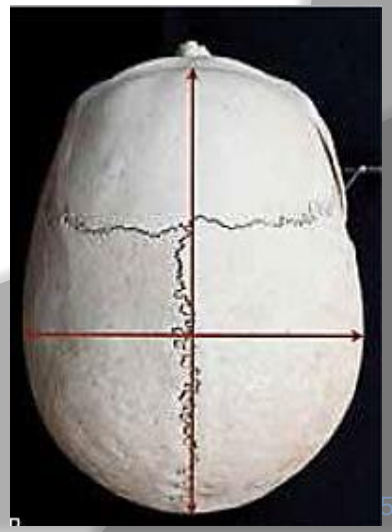
long and narrow head

-Narrow dental arches

***Brachycephalic***

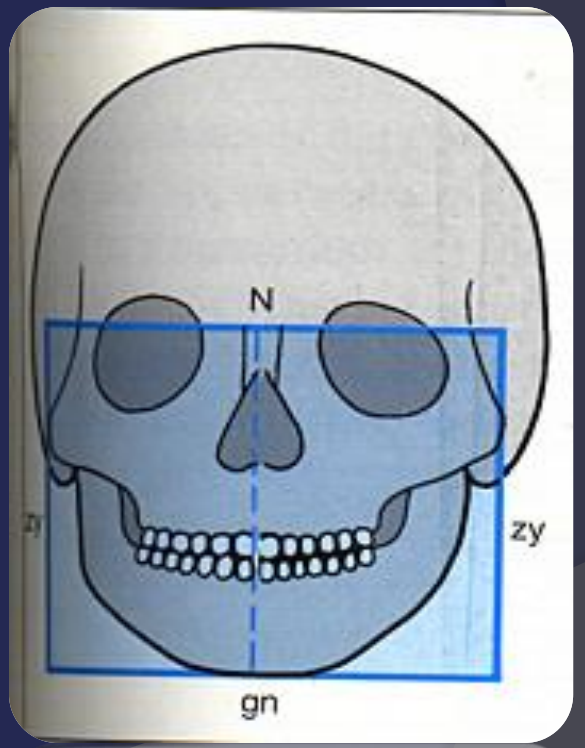
broad and short head

-Broad dental arches



# MORPHOLOGIC FACIAL INDEX

- I= Morphologic facial height / Bizygomatic width




- Hypereuryprosopic:-78.9
- Euryprosopic: 79-83.9
- Mesoprosopic:84-87.9
- Leptoprosopic:88.0-92.9
- Hyperleptoprosopic:93.0

- Dolichofacial :

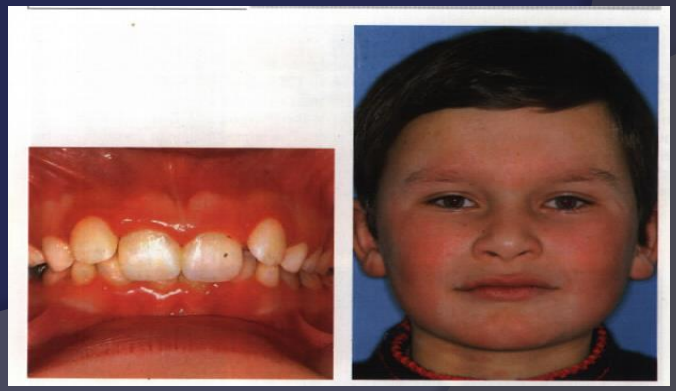
-long & narrow face

- Mesofacial :

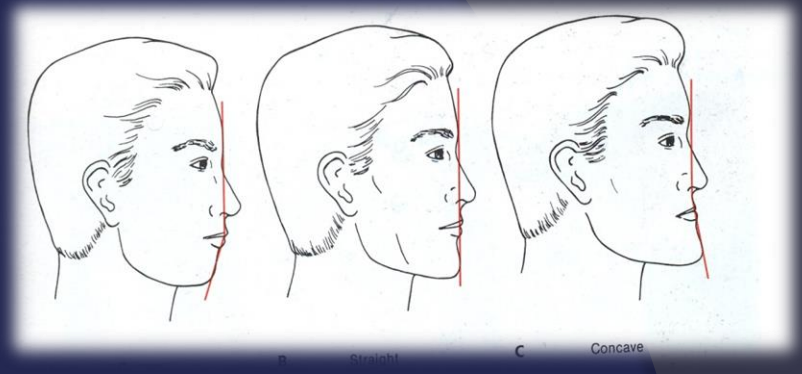
-Average face/Normal face

- Brachyfacial :

- Broad & short face



# LATERAL VIEW- PROFILE

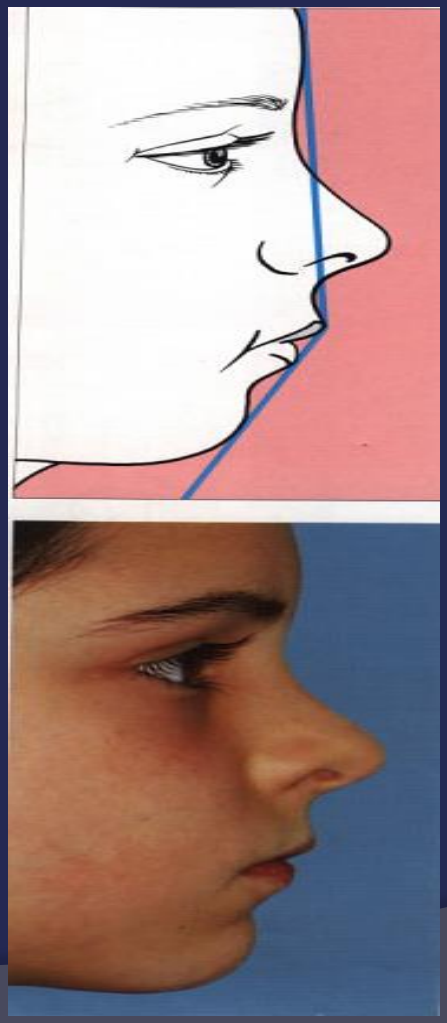



- *"Poor man's cephalometric analysis"*
- **Goals: To establish whether the jaws are placed proportionately in the anteroposterior plane of space.**
- 2 lines are drawn: one from the bridge of the nose to the base of the upper lip & the 2nd one extending from that pt. downward to the chin. These line segments should form a straight line.
- **CONVEX PROFILE**: Skeletal class2
- **CONCAVE PROFILE**: Skeletal class 3

# Depending on the angle formed

Straight - Class I

Convex – Class II



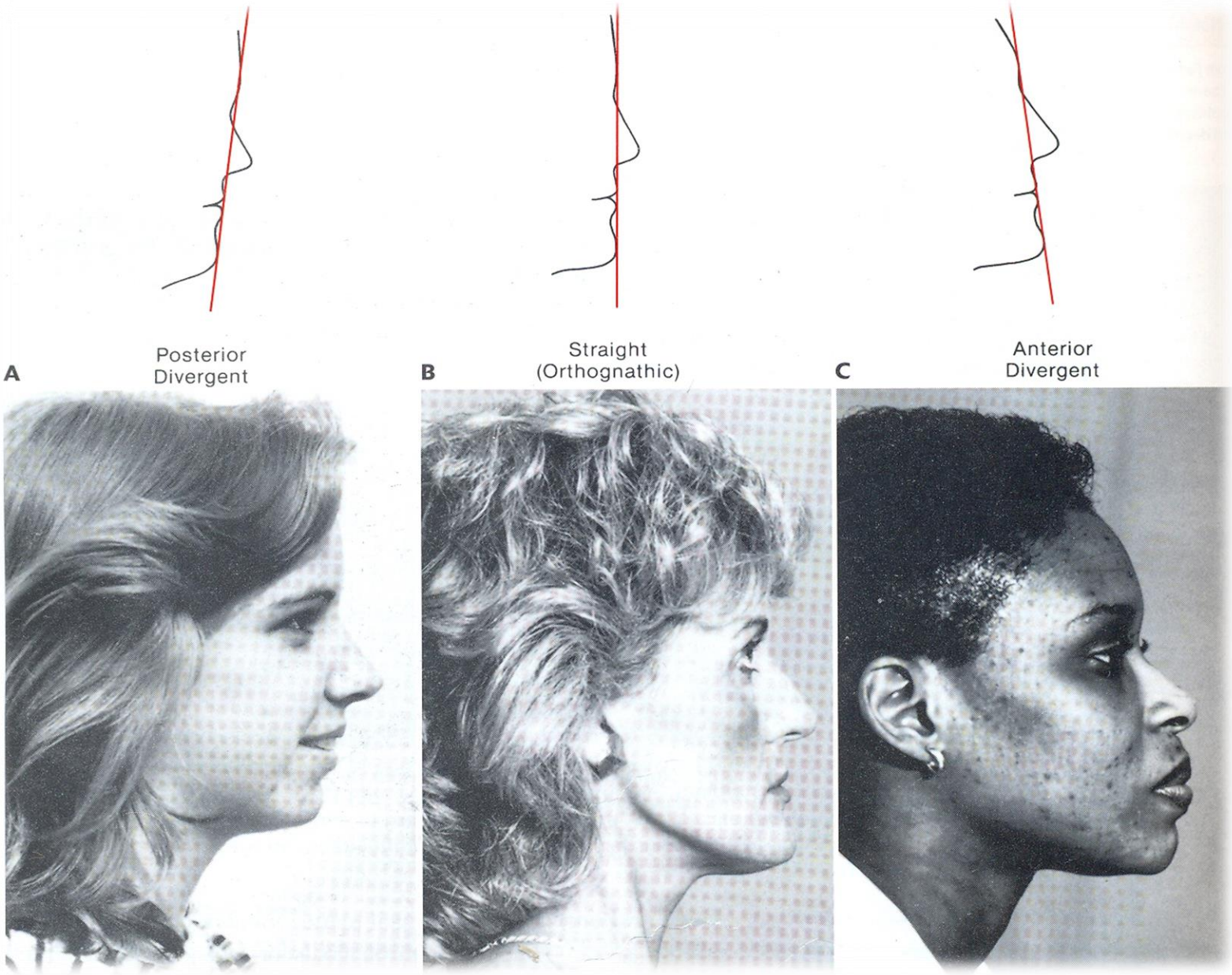
Concave - Class III

# DIVERGENCE OF FACE

- **MILO HELLMAN**
- Defined as an anterior or posterior inclination of the lower face relative to the forehead.

- Profile does not matter whether it slopes anteriorly **(anterior divergence)** or posteriorly **(posterior divergence)**

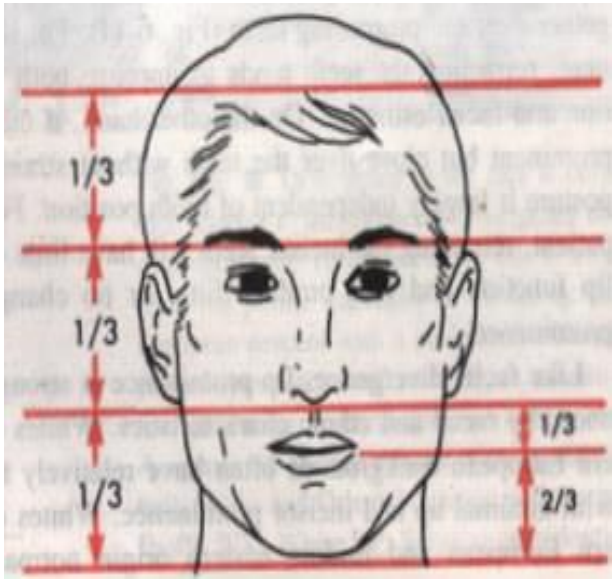
- Divergence does not indicate facial or dental disproportion whereas profile concavity or convexity does indicate disproportion, but does not by itself indicate which jaw is at fault.

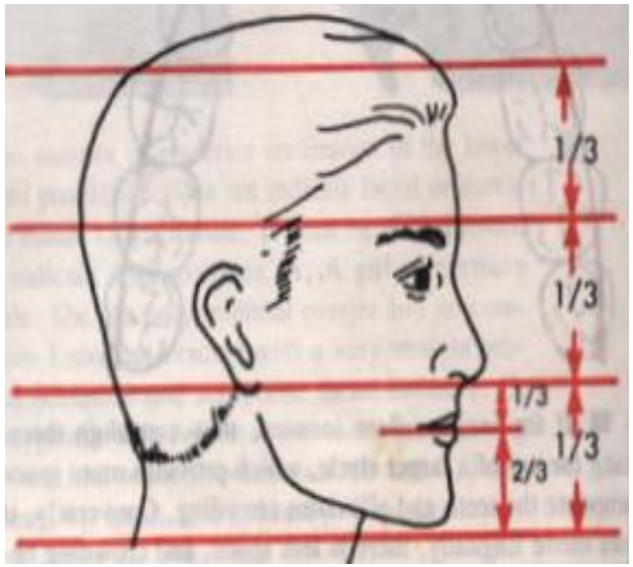

A
Posterior
Divergent
B
Straight
(Orthognathic)
C
Anterior
Divergent

# INCLINATION OF THE MANDIBULAR PLANE

- **Steep**: open bite, long ant. facial ht.
- **Flat**: Deep bite, short ant. facial ht.
- Visualized by placing a finger or a mirror handle along the lower border.

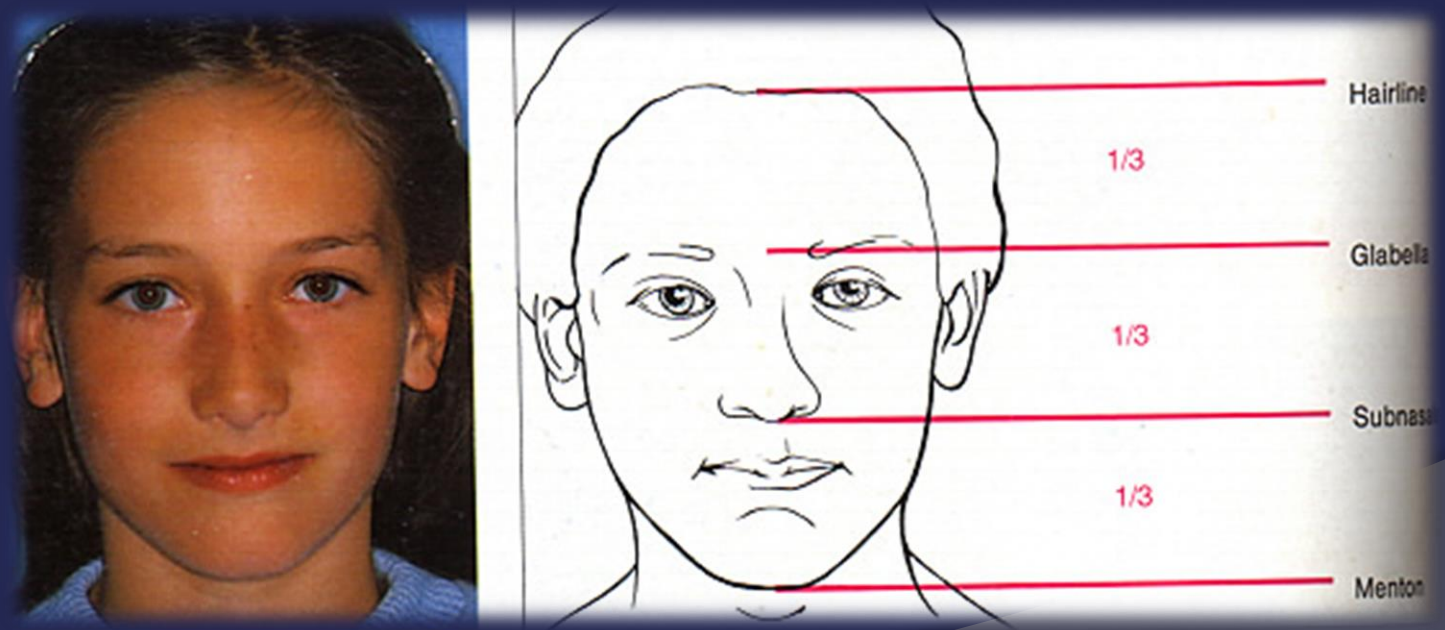
# Evaluation of vertical facial proportions and mandibular plane angle



# FOREHEAD

- The ht. of the forehead (dist. From hairline to glabella) should be 1/3rd of the entire face ht.& is as long as the midthird (dist. of the glabella to the subnasal line)& the lower third (dist. From subnasale to menton.



- Relationship of the forehead is considered to the bizygomatic width. It can be described as Narrow or wide.
- The lateral forehead contour or the slope of the forehead could be **Flat**, **protruding**, **steep**. The dental bases are more prognathic than incases with a flat forehead.

# NOSE

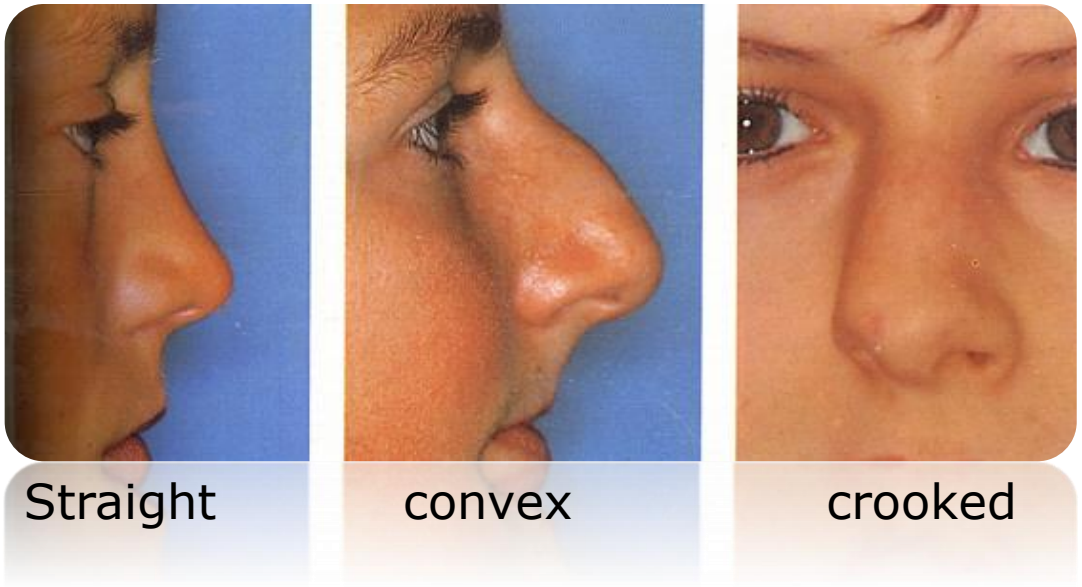
- Shape ,size & position of nose determine the esthetic appearance of face.
- Besides the contour of the bridge & the tip of the nose, the size,shape & width of the nostrils as well as position of nasal septum should be assessed.

**Figure 1-24**

Profile of a patient with ideal nasal anatomy, illustrating the nasofrontal angle (radix), supratip break, double break of the nasal tip, and the nasolabial angle.

# SIZE OF THE NOSE

- 1) Normal type:The vertical nasal length measures 1/3rd of the total facial ht. (dist. From hairline to gnathion)
- The relationship b/w vertical & horizontal length of the nose is 2:1.
- 2) Microhinic type: The root of the nose is high, short nasal bridge & an elevated tip.
- 3) Large type: Deep root of nose, long nasal bridge & protruding tip.

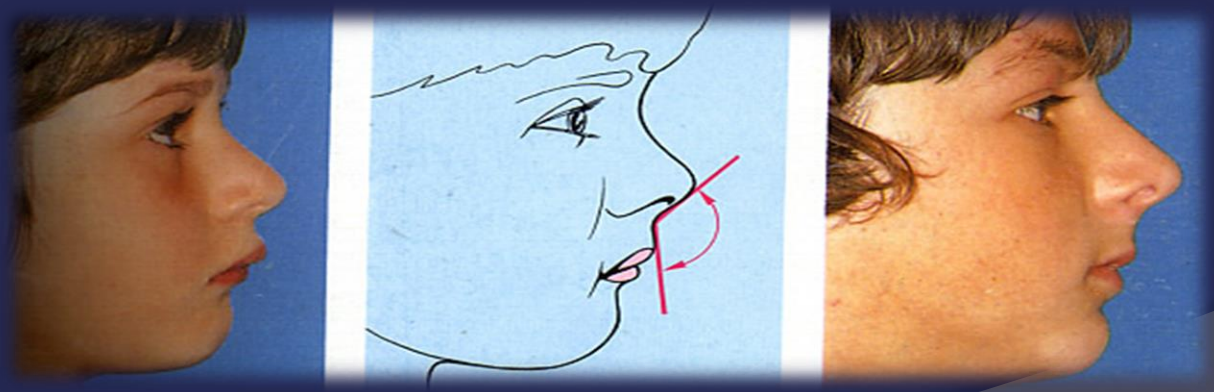



- **NASAL CONTOUR:**

- **SHAPE & WIDTH OF NOSTRILS** Should be assessed since they indicate impairment of nasal breathing.
- Nostrils: oval & bilaterally symmetrical

# NASOLABIAL ANGLE-110degree

- Formed b/w a tangent to the lower border of the nose & a line joining the subnasale with the tip of the upper lip. (Labrale Superius)
- Reduces: max. prog., proclined ant.
- Obtuse: Retrognathic maxilla

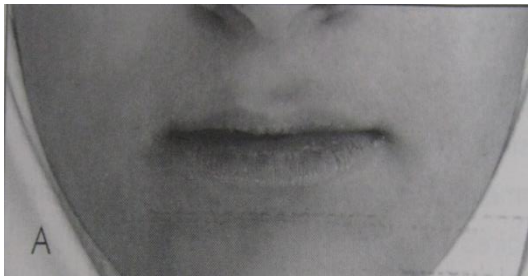


# LIPS

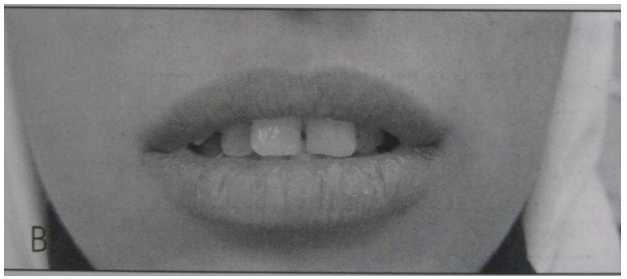
- Size – the length of the upper lip measures 1/3rd the lower lip and the chin two thirds of the lower face height.
- Position – normally the upper lip covers the entire labial surface of the upper anteriors except the incisal 2-3mm.
- Lower lip covers the entire labial surface of the lower anteriors and 2-3mm of the incisal edge of the upper anteriors.


## Types

- *Competent lips* -contact of the lips when the musculature is relaxed.
- Up to 4mm of lip separation is normal especially in young children.

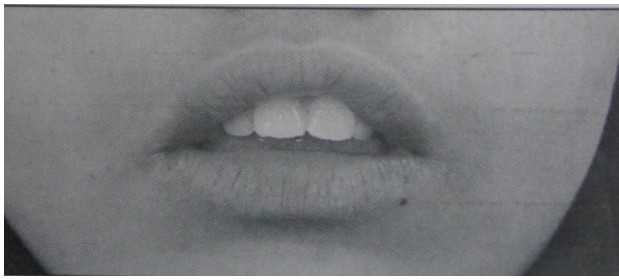


*Incompetent lips* – morphologically short lips which do not form a lip seal in a relaxed state. Lip seal can be achieved by active contraction of the perioral and mentals muscles.



*Potentially incompetent lips* – they are normal lips that fail to form a lip seal due to proclined upper incisors.

*Everted lips* – they are hypertrophied lips with weak muscular tonicity.



# LIP STEP-KORKHAUS

- Positive lip step: Protrusion of the lower lip in relation to the upper lip. Seen in class 3 malocclusion.

# NORMAL LIP PROFILE

- Slightly negative lip profile. The lower lip slightly behind the upper lip.

# NEGATIVE LIP STEP

- Marked retrusion of the lower lip as a symptom of class 2 malocclusion.

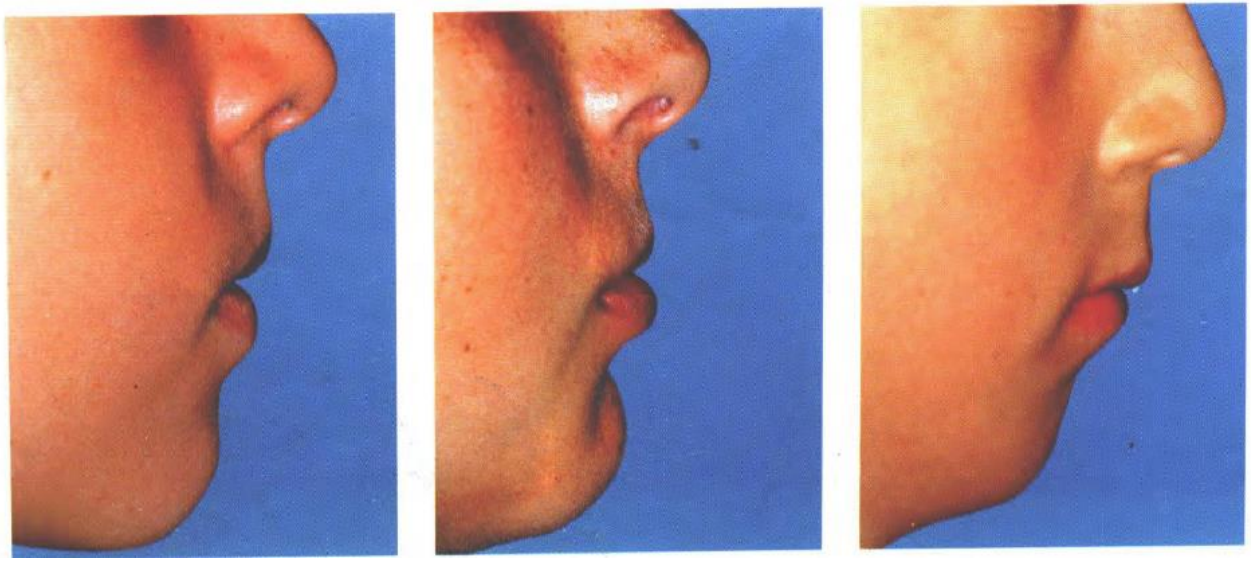
# CHIN

- The configuration of chin is determined by both
- > underlying bone structure &
- > thickness & tone of mentalis muscle.

**280 Chin formation and profile contour**
The degree of chin formation has a marked influence on the entire profile.

*Middle:* Protruding chin with a marked mentolabial sulcus, causing a retruded lip profile.

*Right:* Negative chin formation with absence of the mentolabial sulcus, causing a protruded lip profile.



**279 Overdevelopment of the chin height**

Frontal and profile view of a 12-year-old patient with a long lower face and overdeveloped chin height, (distance from mentolabial sulcus menton) causing hyperactivity of the mentalis muscle.

Lip closure is difficult in this type of facial morphology.

In order to improve muscular imbalance, a genioplasty is required or a surgical change of the insertion of the mentalis muscle should be considered.

**278 Relation of the soft-tissue chin to the bony chin**

Frontal and profile picture of a 10-year-old patient with a flat soft-tissue chin.

*Middle:* The lateral cephalogram shows a distinct positive bony chin contour, compared with the soft-tissue profile. In this case, the skeletal contour is compensated by the thin overlying soft tissue.