




## Lateral Cephalometry

A lateral cephalogram is one of the orthodontic records that provides information about the sagittal and vertical relations of:

- The craniofacial skeleton
- The soft tissue profile
- The dentition

 The pharynx

- The cervical vertebrae

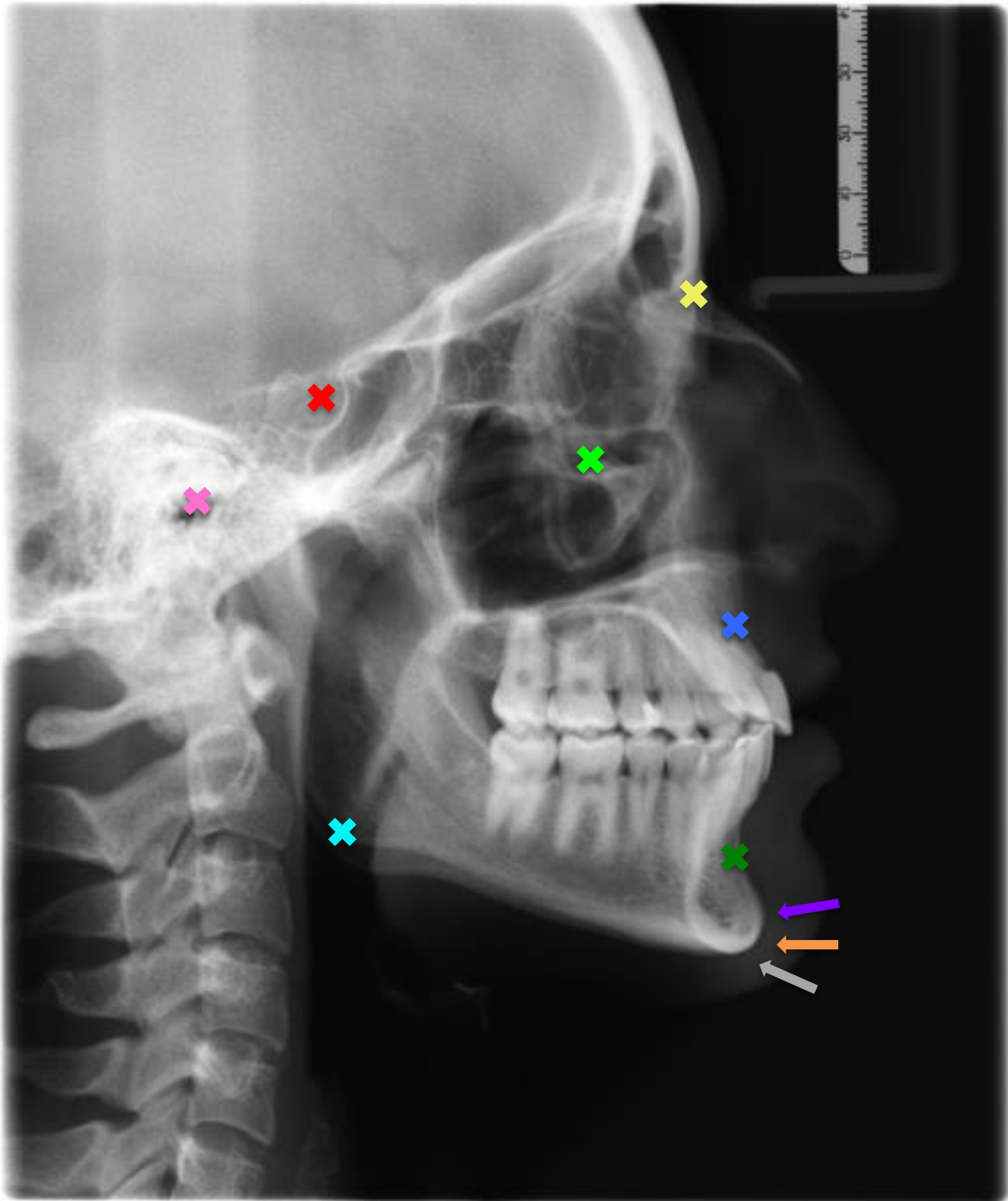
These structures and their relationships to each other are inspected by means of linear and angular measurements as well as by the use of ratios based on the various cephalometric landmarks.

Some important landmarks include:

- **Na - nasion** - the most anterior point of the frontonasal suture in the median plane
- **S- sella** - the point representing the midpoint of the pituitary fossa (sella turcica)
- **A - Point A** - the point at the deepest midline concavity on the maxilla between the anterior nasal spine and upper central incisors
- **B - Point B** - the point at the deepest midline concavity on the mandibular symphysis between infradentale and pogonion
- **Pog - pogonion** - the most anterior point of the bony chin in the median plane
- **Gn - gnathion** - the most anteroinferior point on the symphysis of the chin
- **Me- menton** - the most inferior midline point on the mandibular symphysis
- **Go-gonion** - the constructed point of intersection of the ramus plane and the mandibular plane



- FH - Frankfort horizontal – (reference line) line connecting the points porion (po) and orbitale (or)
- **Po - porion** - the superior point of the external auditory meatus
- **Or - orbitale** - the lowest point in the inferior margin of the orbit





## Down's Analysis

	Angles	Mean Values	Increased value interpretation	Decreased value interpretation
1.	NPog-FH	88°	Prognathic face	Retrognathic face
2.	MeGo-FH (Mandibular plane angle)	22°	Hyperdivergent	Hypodivergent
3.	Occ-FH (Occlusal plane orientation)	9°	Occlusal plane tipped downward	Occlusal plane tipped upwards
4.	Yaxis-FH (Y axis-face height and growth direction)	59°	Vertically growing	Horizontally growing
5.	N-A-Pog (Facial convexity)	0°	Concave face	Convex face
6.	AB-NPog (Apical base relationship)	-4.5°	Skeletal. Class 3	Skeletal Class 2
7.	<u>1</u> -1 (Interincisal angle)	135°	Retroclined incisors	Proclined incisors
8.	1-Occ (Lower incisor to Occlusal plane)	14.5°	Proclined mand. Incisor to occ. plane	Retorclined mand. Incisor to occ. plane
9.	1-MeGo (Lower incisor to Occlusal plane)	91°	Proclined mand. Incisor to mand. plane	Retroclined mand. Incisor to mand. plane
10.	<u>1</u> -APog (Upper incisor position)	3 mm	Proclined upper incisors	Retroclined upper incisors



## Steiner Analysis

	Angles	Mean Values	Increased	decreased
1.	SNA (Maxilla position to cranial base)	82°	Maxillary prognathism	Maxillary retrognathism
2.	SNB (Mandible position to the cranial base)	80°	Mandibular prognathism	Mandibular retrognathism
3.	ANB (relation of maxilla and mandible to each other)	2°	Skeletal class 2	Skeletal class 3
4.	$\underline{1}$ -NA (Maxillary incisor position)	4 mm	Maxillary incisor positioned anteriorly	Maxillary incisor positioned posteriorly
5.	$\underline{1}$ -NA (Maxillary incisor inclination)	22°	Proclined maxillary incisor	Retroclined maxillary incisor
6.	$\bar{1}$ -NB (Mandibular incisor position)	4 mm	Mandibular incisor positioned anteriorly	Mandibular incisor positioned posteriorly
7.	$\bar{1}$ -NB (Mandibular incisor inclination)	25°	Proclined mandibular incisor	Retroclined mandibular incisor
8.	Pog-NB (Chin prominence)	3.5 mm	Recessive chin	Prognathic chin
9.	1- $\bar{1}$ (Interincisal angle)	131°	Retroclined incisors	Proclined incisors
10.	SN-Occ (Occlusal plane orientation)	14°	Steep occlusal plane	Flat occlusal plane
11.	SN-GoGn (Mandibular plane angle)	32°	Hyperdivergent/long face	Hypodivergent/short face



## Holdaway Analysis of soft tissues

	Angles	Mean Values	Increased	Decreased
1.	Facial Angle (FH-N'Pog')	90±2°	Prognathsim	Retrognathsim
2.	Nose Prominence Distance measured between the (a) Perpendicular line tangent to SuperiusLabial Sulcus from FH distance to (b) nose tip)	14-24 mm	Prominent nose	Recessive nose
3.	Skeletal Convexity at A-point (Distance measured from A Point to N- Pog line)	Avg= -2 to +2 mm Mean=0mm	Convex profile	Concave profile
4.	H-Line angle (Angle between H-line &(N'-Pog')	7-15°	Recessive chin and protrusive lip	Protrusive chin and recessive lip
5.	Soft tissue subnasale to H-line	Avg=5±2 mm Mean=3-7 mm	Increase in subnasal depth	Decrease in subnasal depth
6.	Superior Sulcus Depth (Depth of sulcus from a line drawn perpendicular to FH and tangent to tip of upper lip.	1-4 mm	Increased in depth	Decreased n depth
7.	Upper lip thickness (Horizontal distance measured on the outer alveolar plate 2mm below A Point)	15±1 mm	Protrusive lips	Recessive lips
8.	Upper lip Strain (Lip thickness form vermilion border of upper lip to the labial surface of max central incisor)	13-14 mm	Protrusive lips	Recessive lips

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<b>9.</b>	Lower lip to H- line (Distance between the most prominent part of lower lip to H- line)	0-1 mm	Protrusive lower lip	Recessive lower lip
<b>10.</b>	Inferior Sulcus Depth (Distance between inferior labial sulcus to Hline)	5 mm	Increased depth of lower lip	Decreased depth of lower lip
<b>11.</b>	Soft tissue chin thickness (Distance between soft to hard tissue pogonion (Pog'-Pog))	10-12 mm	Protrusive chin	Recessive chin

### Wits Analysis

	Angles	Mean Values	Increased	Decreased
<b>1.</b>	AO-BO (Apical base position) (A point and B point difference)	Males-1 mm Females-0 mm	Skeletal Class 2	Skeletal class 3