Skeletal Vertical Assessment

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Hello.

About Me

- Qualified 2009 Manchester Univ
- Associate until 2013
- Smileworks Liverpool (2013)
- General and Cosmetic Dentistry and Facial Aesthetics
- Liverpool loves braces

Why Orthodontics at BPP

- Orthodontics is increasing in popularity
- Adults and Children
- Shift from aggressive restorative quick-fixes
- Short courses are a shaky (dangerous?) foundation
- Knowledge to diagnose, treat, when to refer and better serve patients

Skeletal Vertical Assessment

Aims and Objectives

- To understand why Skeletal Vertical Assessment is performed
- To be able to accurately perform Vertical Assessment
- To be able to assess discrepancies in the Vertical Dimensions of patients
- To know how discrepancies manifest themselves in occlusion

Skeletal Vertical Assessment

Background

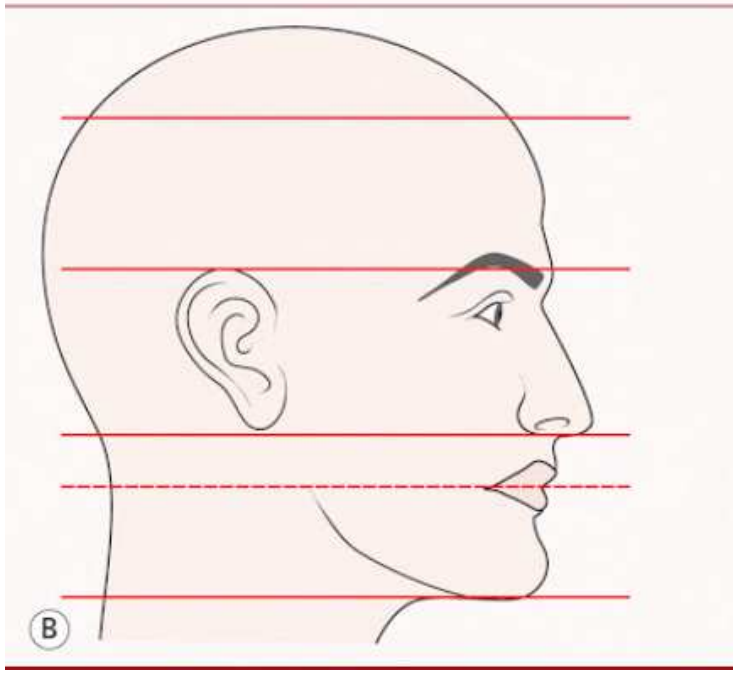
- Assessment as the key to diagnosis and treatment planning
- Assessment in anterior-posterior, transverse and vertical
- Craniofacial assessment: Visual and cephalometric for complete data to determine treatment plan considering patient goals

- 2 components: lower facial height & FMPA
- Assessment by viewing patient from side

Components of Skeletal Vertical Assessment

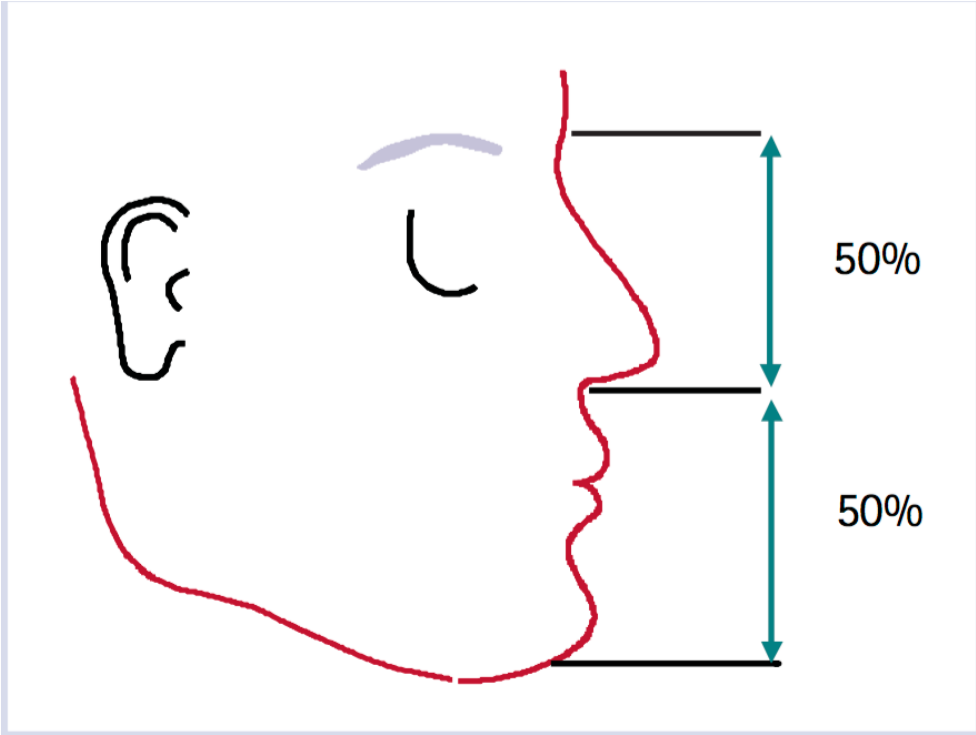
1. Lower Facial Height

- Glabella – subnasale = subnasale – underside of chin
- Rule of thirds (lower face further thirds)



Components of Skeletal Vertical Assessment

Lower Facial Height



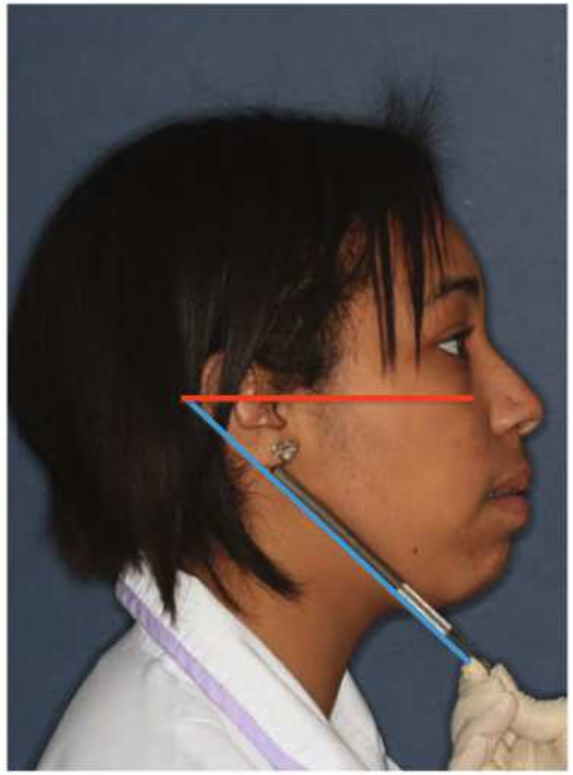
Components of Skeletal Vertical Assessment

2. Frankfort Mandibular Planes Angle

- Frankfort Plane: External auditory meatus to lower border of orbit
- Mandibular Plane: lower border of mandible
- 28 degree average (intersection at back of head)
- Increase / high angle: meet before back of head
- Reduced / low angle: more parallel

Components of Skeletal Vertical Assessment

Frankfort Mandibular Planes Angle



How to Measure?

- Natural Head Position
  - Accurate determination of Frankfort Plane
  - Study by Wosniak: differences in NHP show differences in assessment
  - Set with mid-distance gaze to fixed point at eye level
  - Sometimes parallel to true horizontal but varies
- Mirror Handle or Ruler
- FMPA: Intersection can be assessed by eye

What does it mean?

- Clinical manifestations of overbite, anterior open bite / lateral open bite
- Average angle 28 deg – average growth
- Increased lower facial height, decreased lower facial height: facial disharmony

  - High angle – vertical growth
    - Body of maxilla / frontal process of maxilla
    - Alveolar process maxilla + tooth crown length
    - Alveolar process mandible + tooth crown length
    - Body of mandible
  - Low angle – horizontal growth (A-P)
    - Condyles & posterior aspect of rami
    - Anterior symphysis
    - Posterior tuberosity of maxilla
    - Anterior pterygoid processes
    - Nasal septum
    - Retromaxillary suture system
    - Lingual movement of mandibular incisors (positional change)

Normal Facial Height

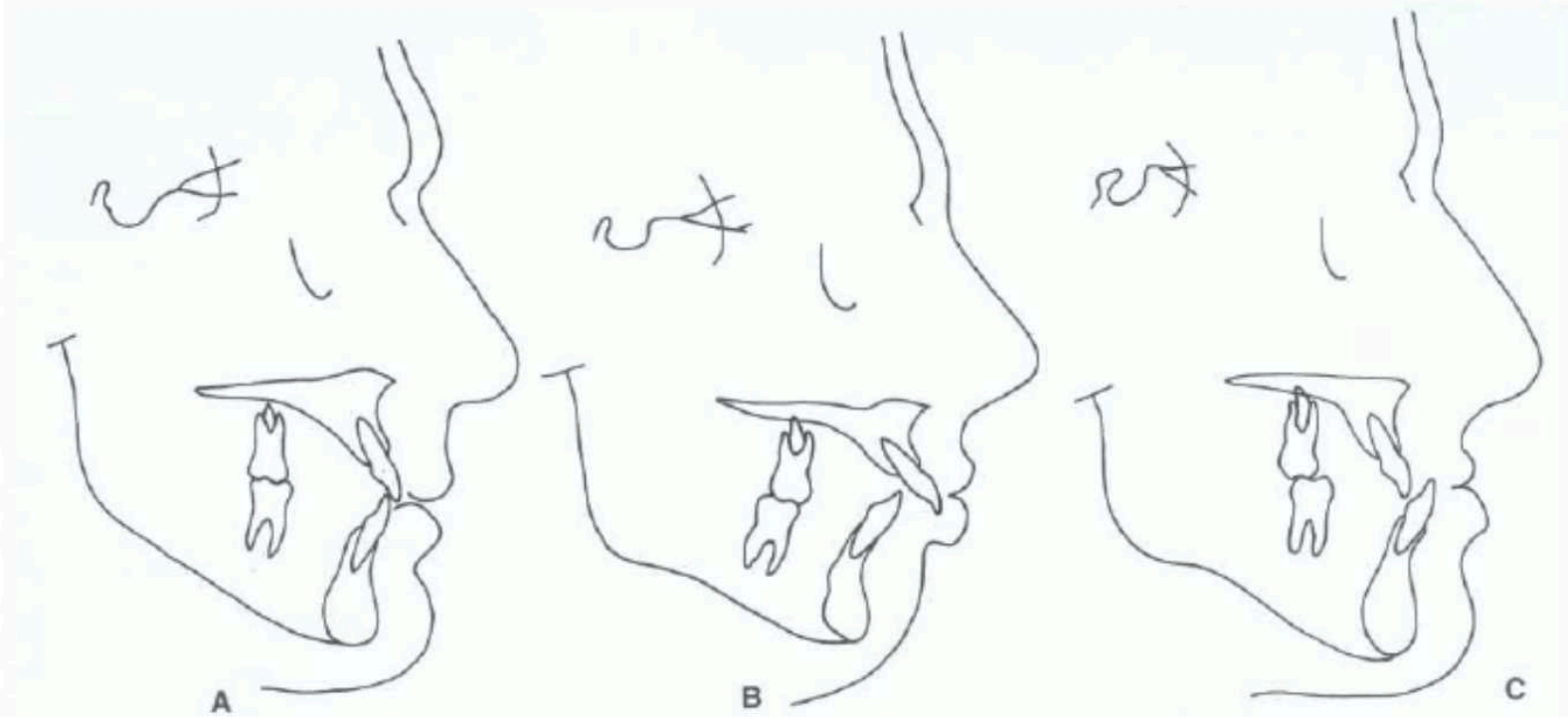


Figure 9-5 A, Straight profile, Class I. B, Convex profile, Class II Division 1. C, Concave profile, Class III.

Decreased Lower Facial Height

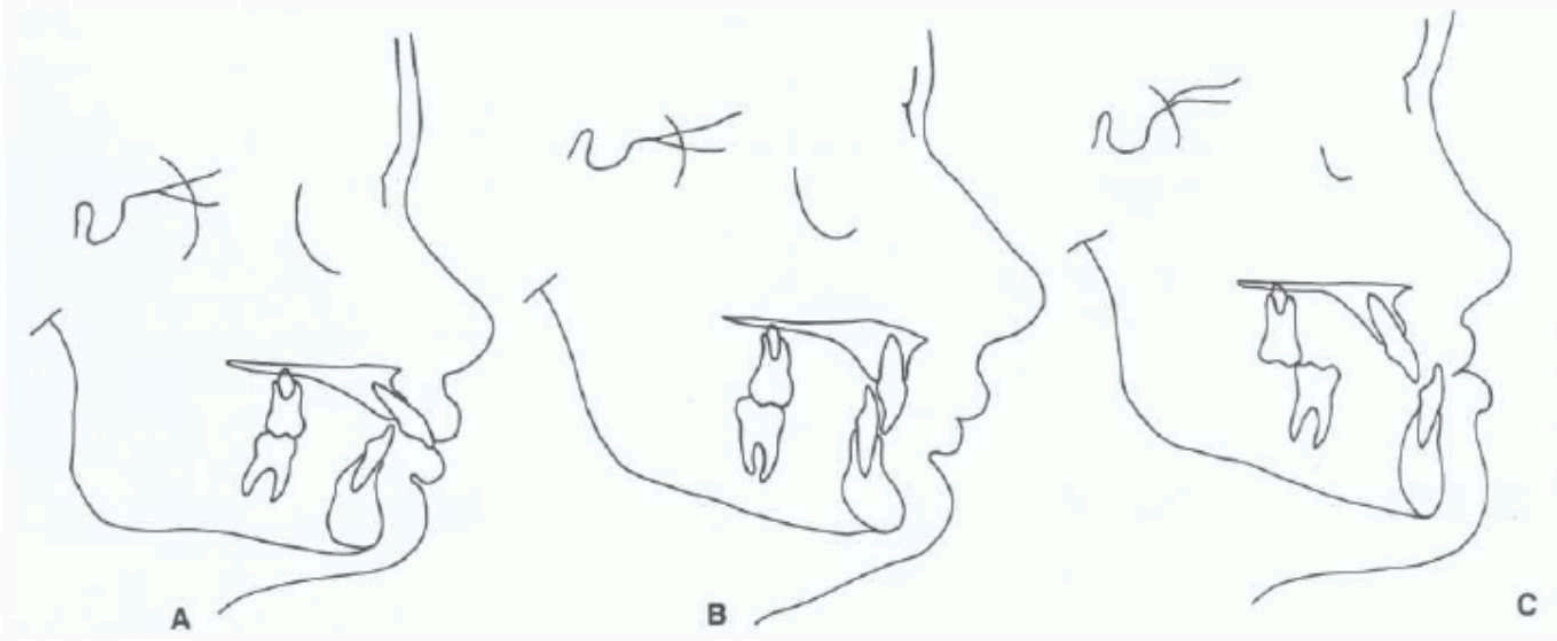


Figure 9-7 Short vertical growth profiles. A, Class 11 Division 1. B, Class 11 Division 2. C, Class III.

Increased Lower Facial Height

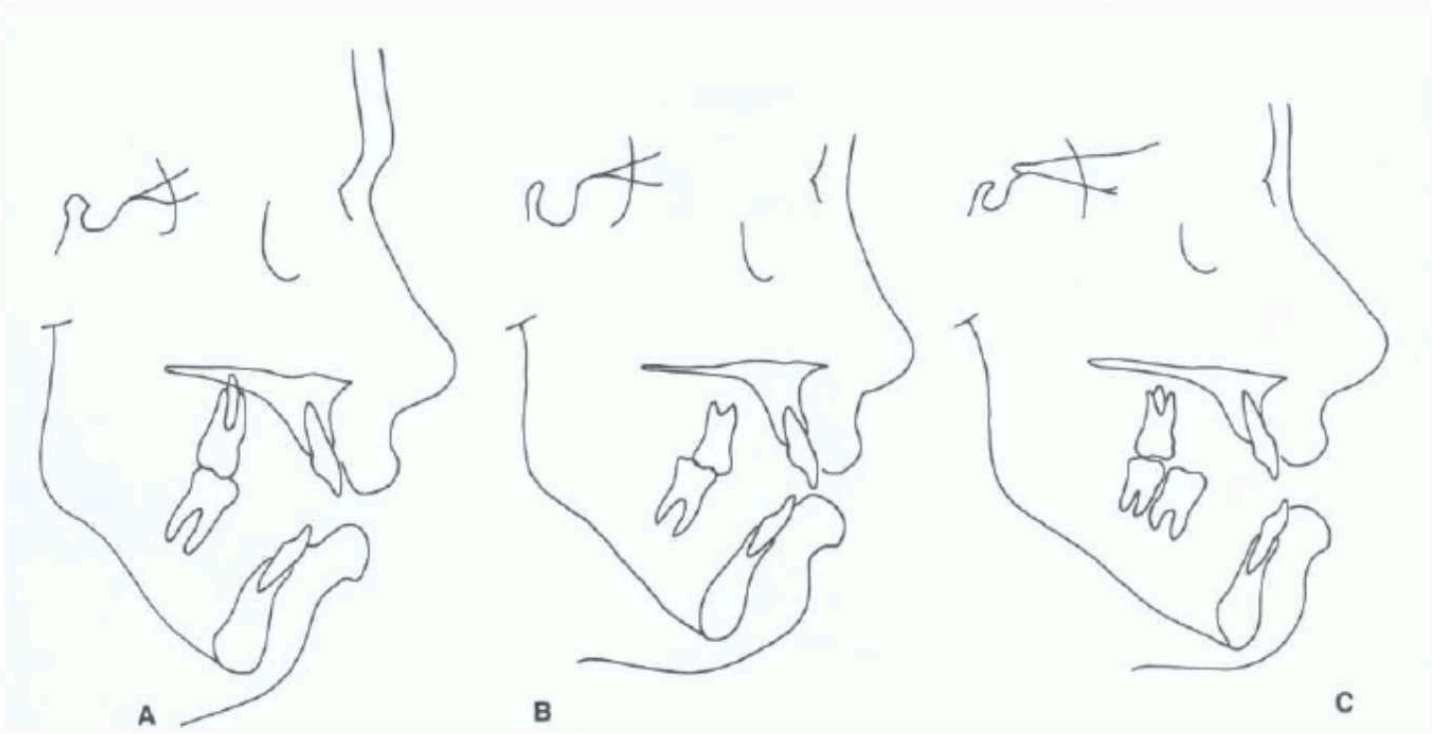


Figure 9-6 Long vertical growth profiles. A, Class I. B, Class II Division 1. C, Class III.

Conclusions

- Discrepancies vertical mean malocclusion
- High angle: open bite, low angle: deep bite
- Does what we see on the outside correlate with the inside?
- Must analyse all dimensions prior to intervention – extremes may pose problems

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