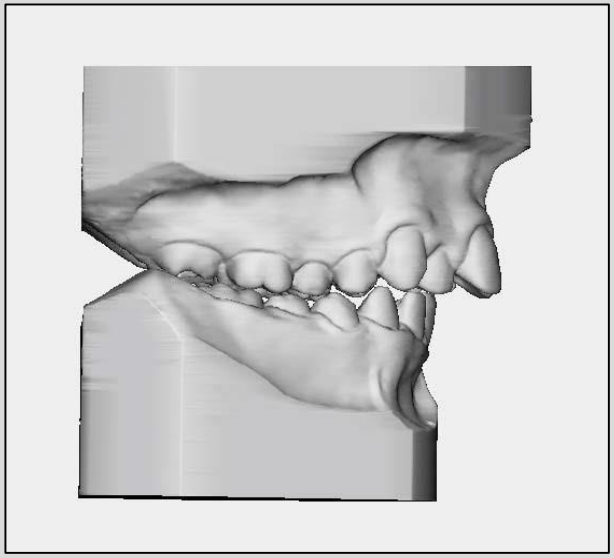
# The ABO Discrepancy Index (DI)
# A Measure of Case Complexity

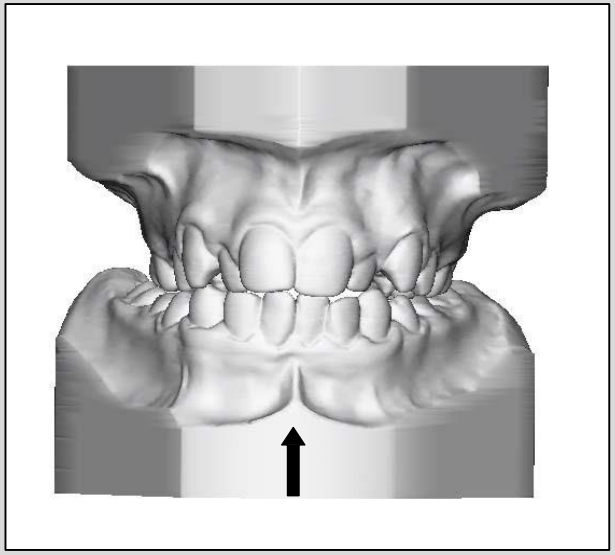

*Updated 04/01/2016*

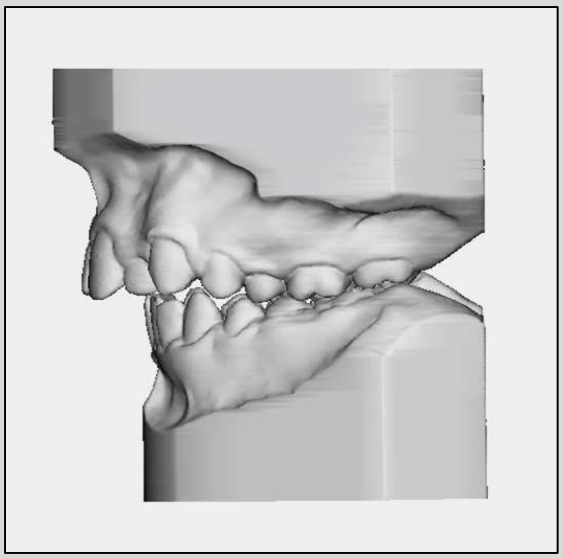
# Target Disorders for Discrepancy Index

1. Overjet
2. Overbite
3. Anterior Open Bite
4. Lateral Open Bite
5. Crowding
6. Occlusal Relationship
7. Lingual Posterior Crossbite
8. Buccal Posterior Crossbite
9. ANB Angle
10. SN-MP Angle
11. Lower Incisor to MP
12. Other

# Occlusal Relationship
# Position of the Models





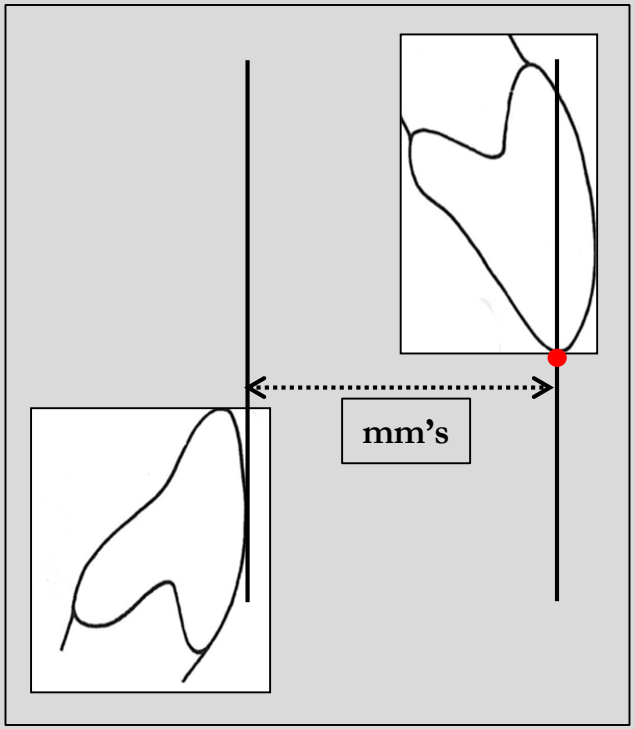


Occlusion for plaster models is determined by placing the separated, properly trimmed study casts (Mx/Mn) on a flat surface and then bringing them together into maximum intercuspation. All measurements must be made from this position. For digital models, measurements will be made from a standard 3D orientation that is described in ABO Digital Model Requirements.

# Overjet (horizontal overlap) Relationship

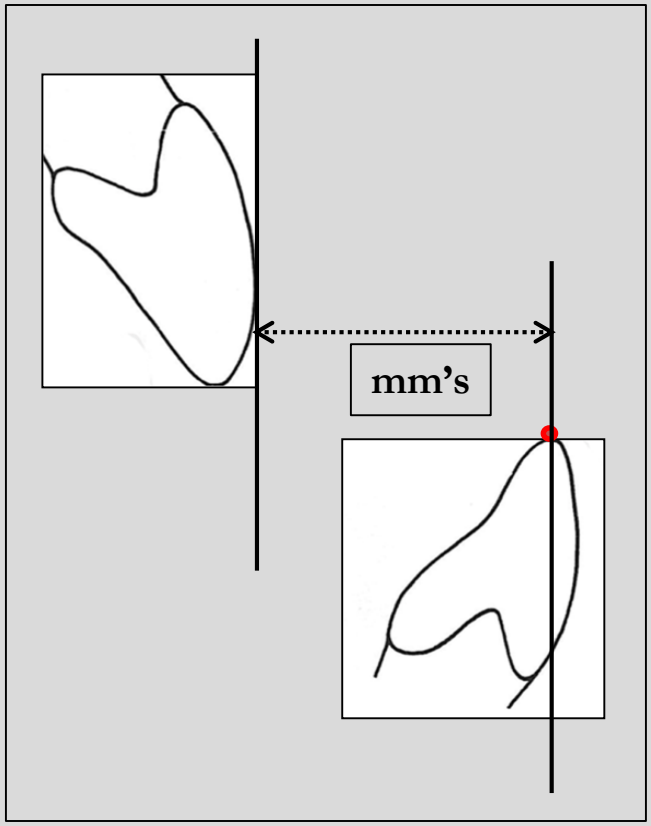
**Overjet Measurements**

- For ≥0 to <1 mm, score 1 pt (edge- to-edge)
- For ≥1 to ≤3 mm, score 0 pts
- For >3 to ≤5 mm, score 2 pts
- For >5 to ≤7 mm, score 3 pts
- For >7 to ≤9 mm, score 4 pts
- For >9 mm, score 5 pts




**Overjet** is a measurement between two antagonistic anterior teeth (lateral or central incisors) comprising the greatest overjet and is measured from the facial surface of the most lingual mandibular tooth to the middle of the incisal edge of the more facially positioned maxillary tooth.

# Negative Overjet Relationship

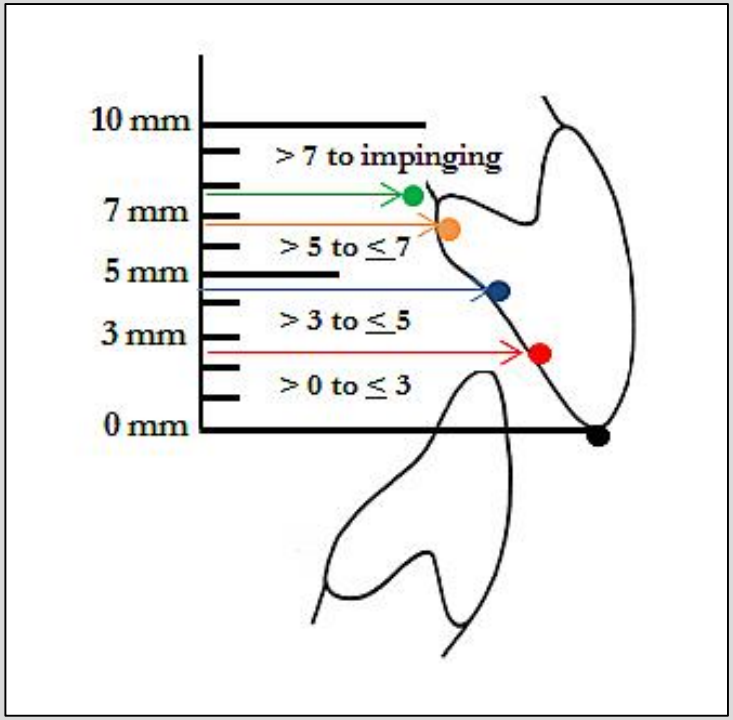



If there are anterior teeth with negative overjet (canine to canine in anterior crossbite > 0 mm), measure from the facial surface of the maxillary tooth to the middle of the incisal edge of the mandibular tooth. Round any fractional remainder to the next full mm, then score 1 pt per mm per anterior tooth in crossbite.

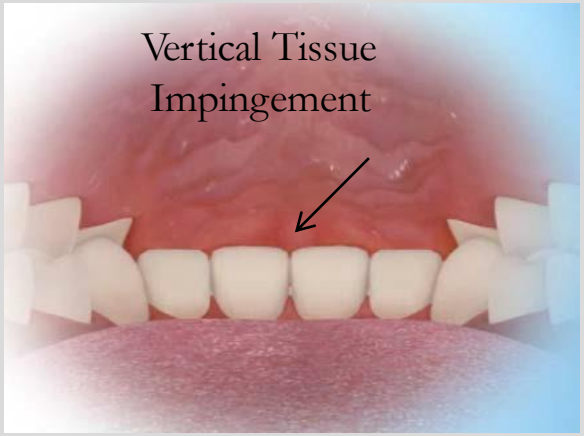
# Overbite (vertical overlap) Relationship

**Overbite** is a measurement between two antagonistic teeth (lateral or central incisors) comprising the greatest overbite.

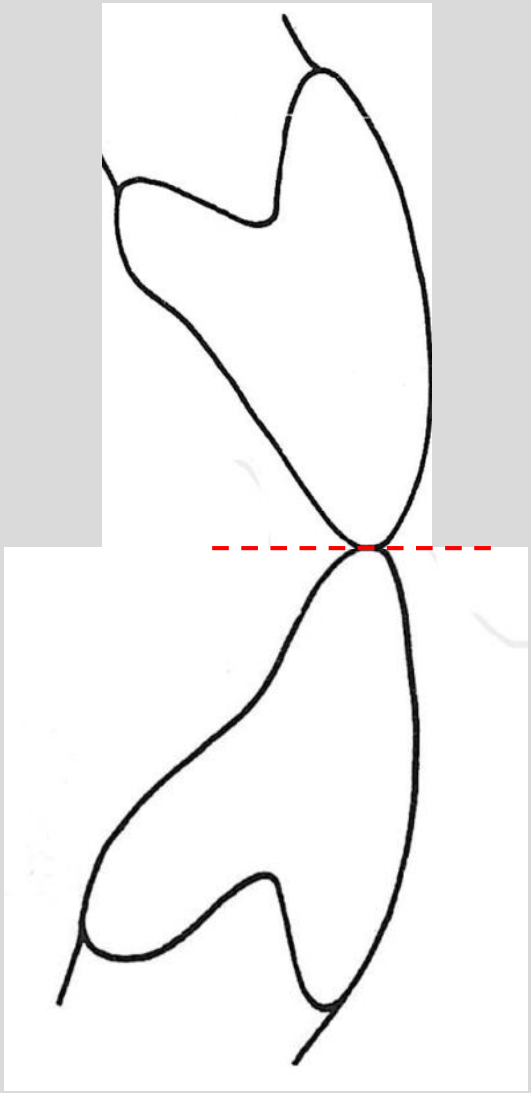
- For > 0 to ≤ 3 mm, score **0 pts**.
- For > 3 to ≤ 5 mm, score **2 pts**
- For > 5 to ≤ 7mm, score **3 pts**
- If any of the lower incisors are impinging on the palatal tissues (≤ 0.5 mm) or there is 100% overbite ( a complete vertical overlap of antagonistic incisors, score **5 pts**.

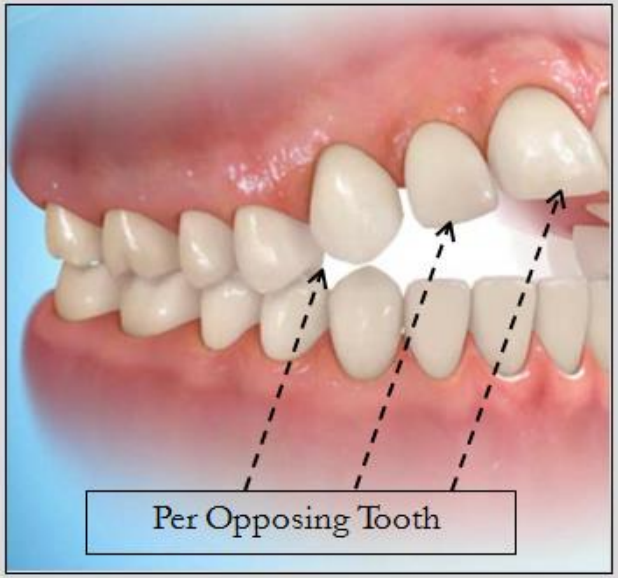




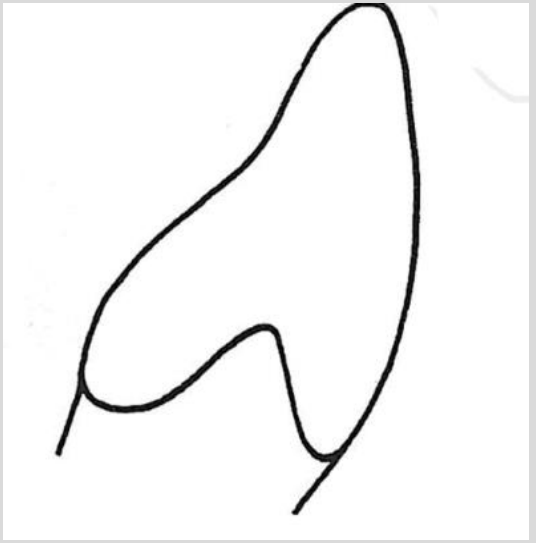


# Anterior Open Bite Relationship






4.6 mm= 5.0 pts.

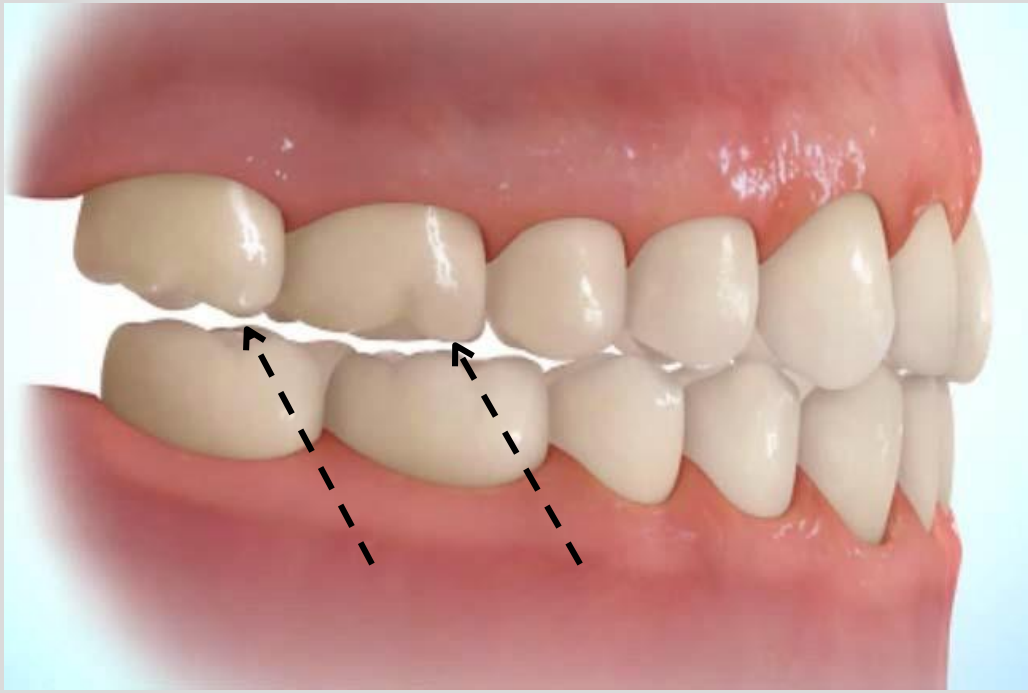


For each anterior tooth in an edge to edge relationship (0 mm) score 1 pt per tooth. Then add for each anterior tooth in open bite (>1 mm) any fractional remainder to the next full mm 1 pt per mm per tooth in an open bite. No points are scored for any tooth that is blocked out of the arch due to space deficiency or not fully erupted.

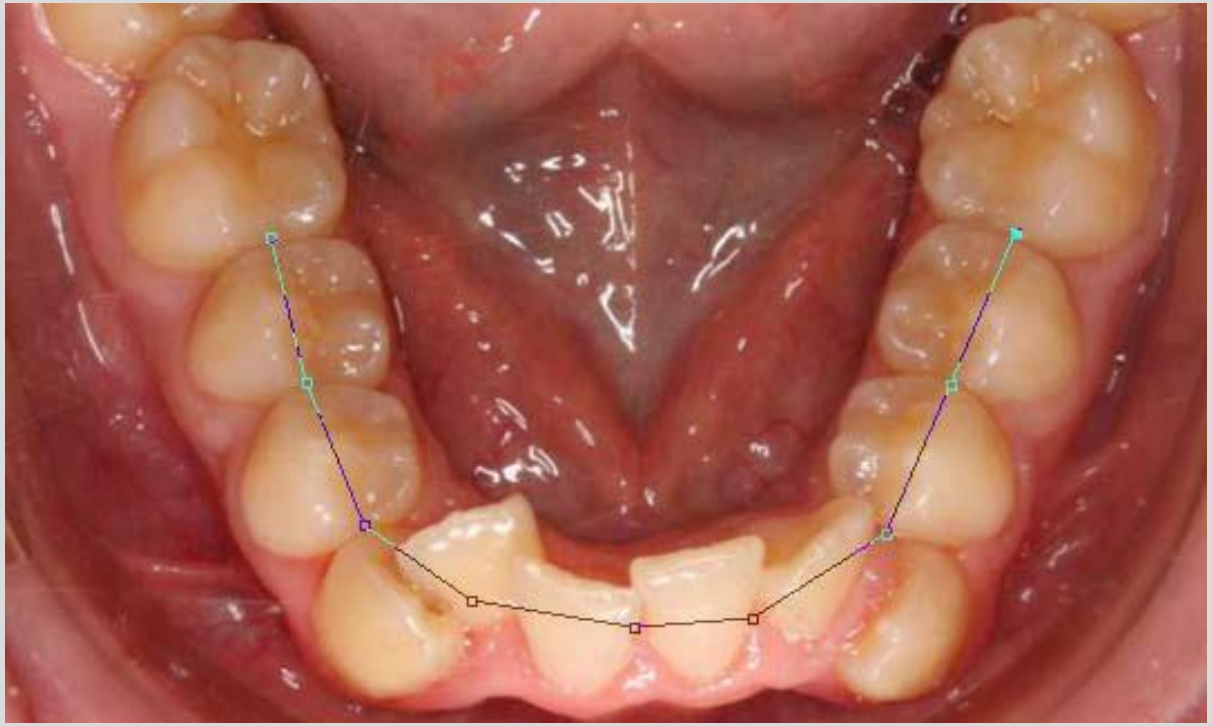
# Lateral Open Bite Relationship

For each maxillary posterior tooth (from the 1st premolar to the 2rd molar) in an open bite relationship ≥ 0.5 mm from its opposing tooth, measure cusp to cusp.

- Round any fractional remainder to the next full mm
- Then score 2 pts per mm of open bite for each tooth.
- No points are scored for any tooth that is blocked out of the arch due to space deficiency or not fully erupted.

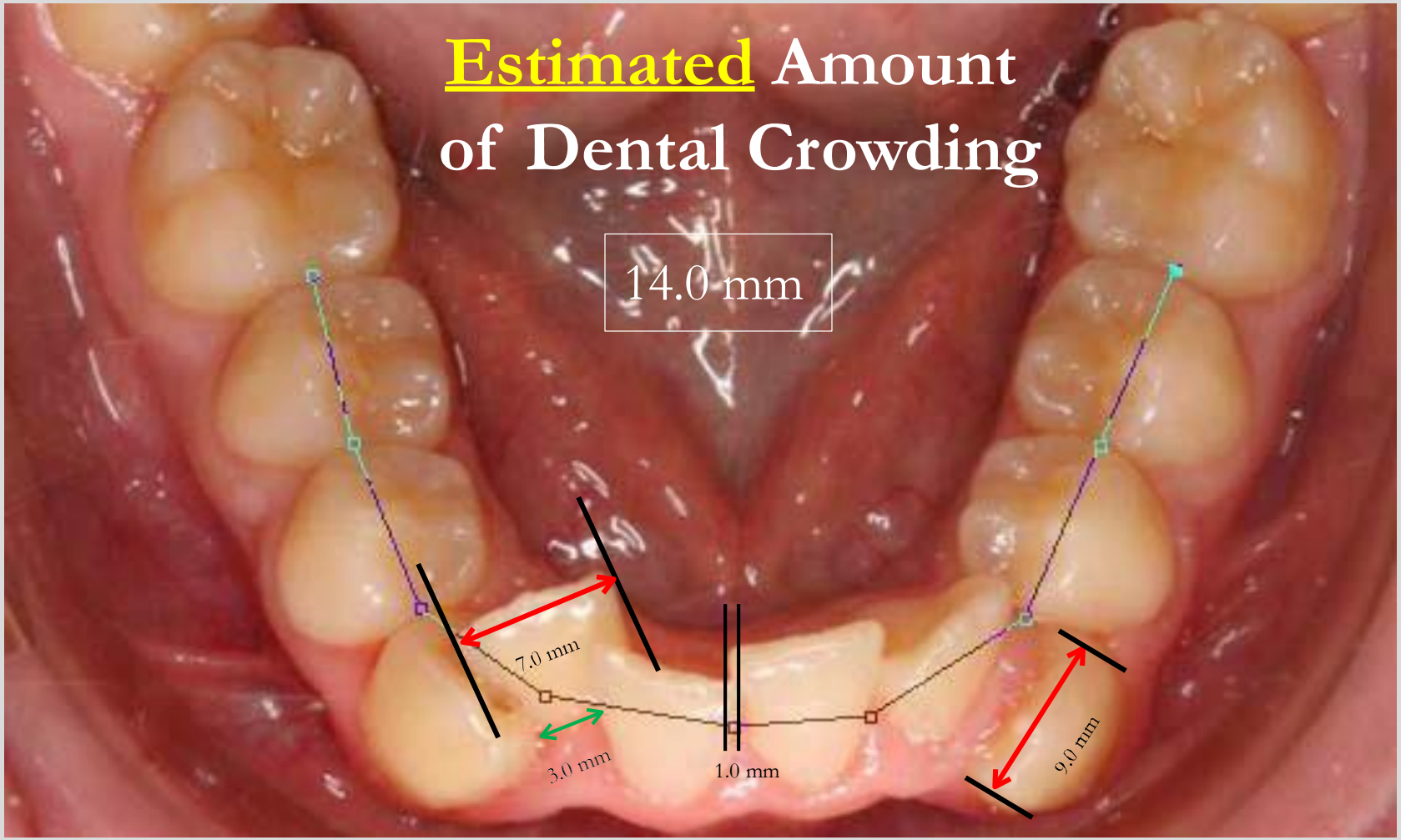


# Crowding



Measure the most crowded arch (only one arch) from the mesial contact point of the right first molar to the mesial contact point of the left first molar. If there are conditions such as missing , fractured or decayed teeth, measure crowding consistent with your treatment objectives and be prepared to defend the score at your oral examination.

# Estimated Amount of Dental Crowding



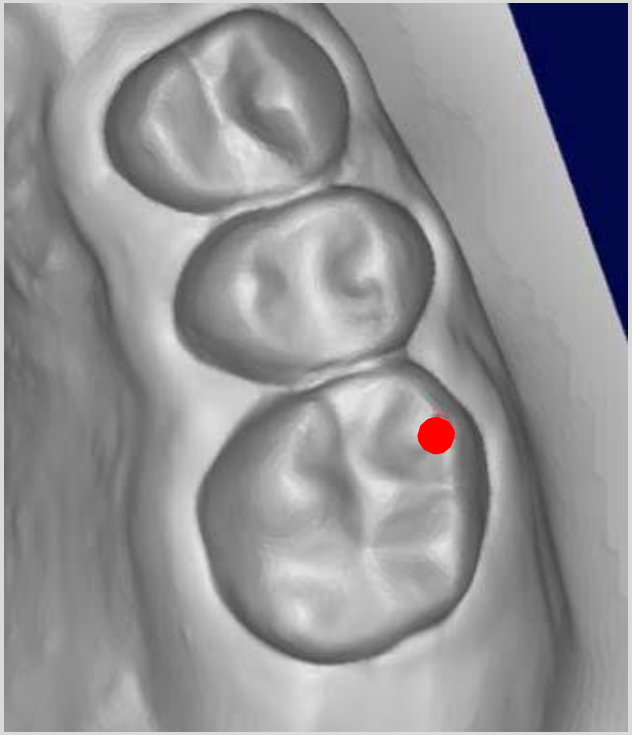

1. Md right lateral incisor = 7.0 mm
2. Md space = 3.0 mm
3. Md right central incisor = 1.0 mm of crowding
4. Md left canine = 9.0 mm
5. 0.0 space available for md left canine
6. Therefore, crowding irrespective of arch form position is estimated at 14.0 mm of dental crowding.

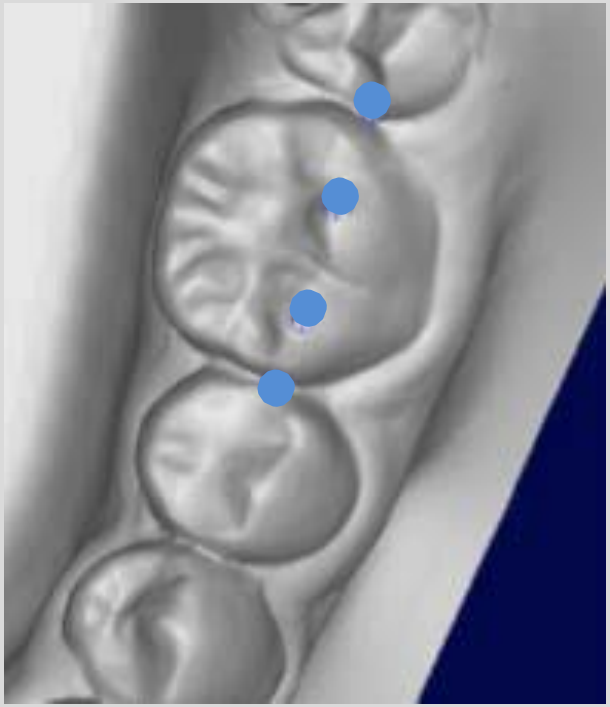
# Occlusal Relationship

Models must exhibit the patient's maximum intercuspation. The Angle molar classification is used.

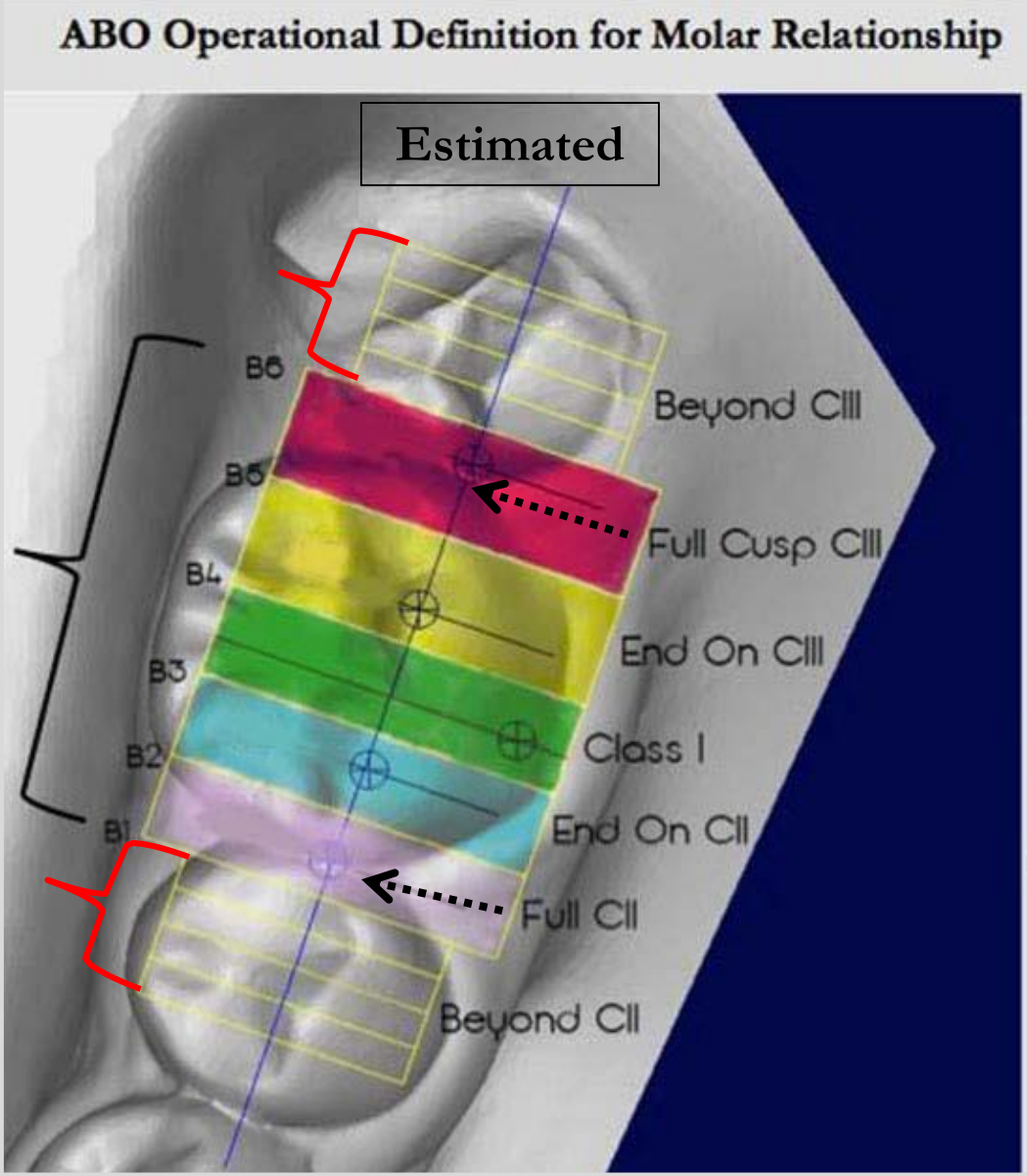
Molar classification is then determined for each side of the arch:

- Locate the mesio-buccal cusp of the maxillary first molar. - demonstrated by **red** dot.
- Locate the two buccal cusps and two interproximal contact points of the mandibular first molar – demonstrated by **blue** dots.





# Occlusal Relationship



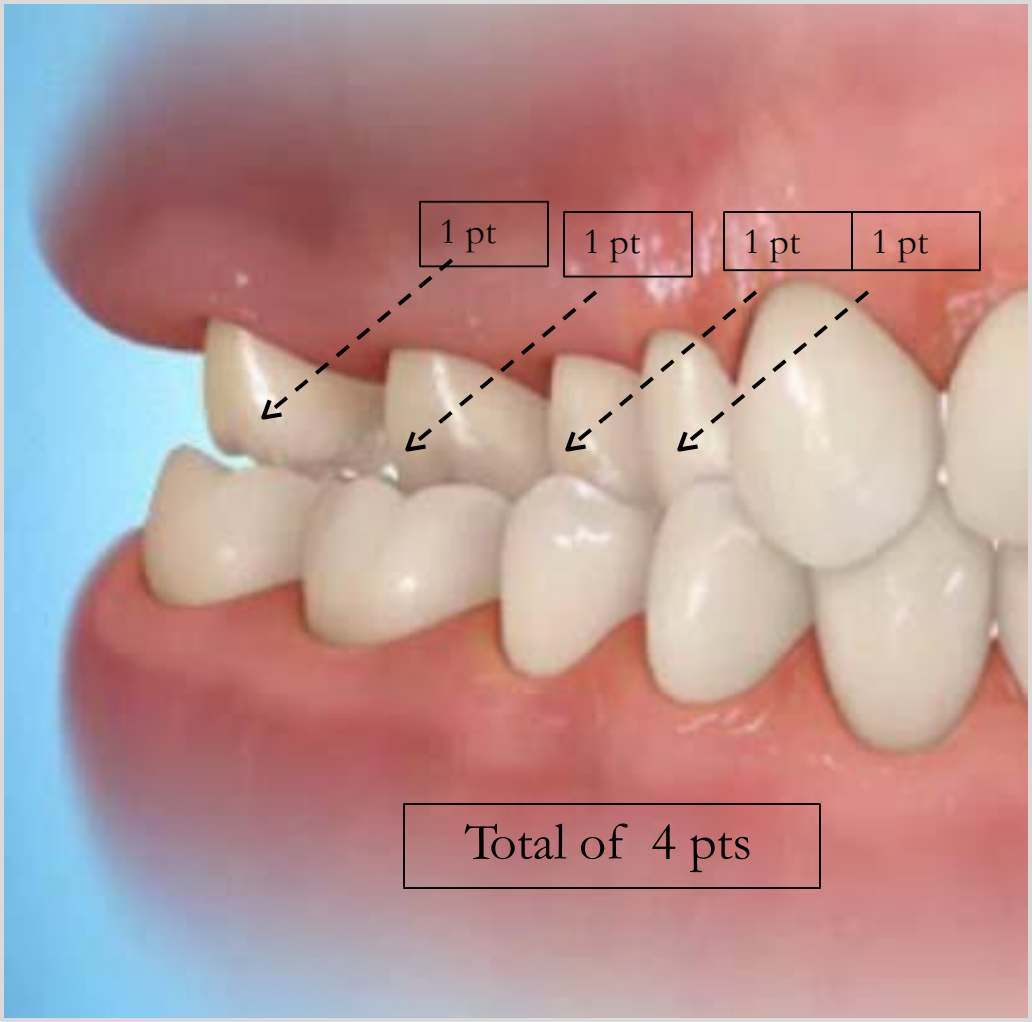

For DI scoring per side, the location of the cusp within the zones is an **estimation**

1. B1-B2- Full Cusp Class II- Lavender- 4 pts.
2. B2-B3- End to End Class II- Aqua- 2 pts.
3. B3-B4- Class I- Green- 0 pts.
4. B4-B5- End to End Class III- Yellow- 2 pts.
5. B5-B6- Full Cusp Class III- 4 pts.
6. One (1) point is awarded for each additional zone mesial to B1 or distal to B6

If the relationship is beyond Class II or II, measure the additional distance, round any fractional remainder to the next full mm- Score 4 pts. plus 1 addl. pt per mm per side.

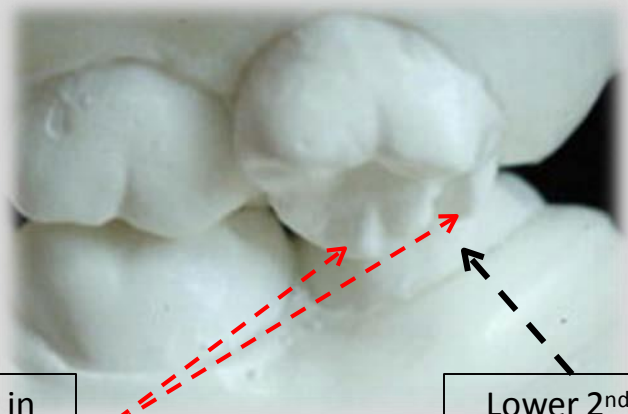
# Lingual Posterior Crossbite

For each maxillary posterior tooth (from the 1st premolar to the 2rd molar ) where the maxillary buccal cusp is >0 mm lingual to the buccal cusp tip of the opposing tooth, score 1 pt per tooth.



# Buccal Posterior Crossbite

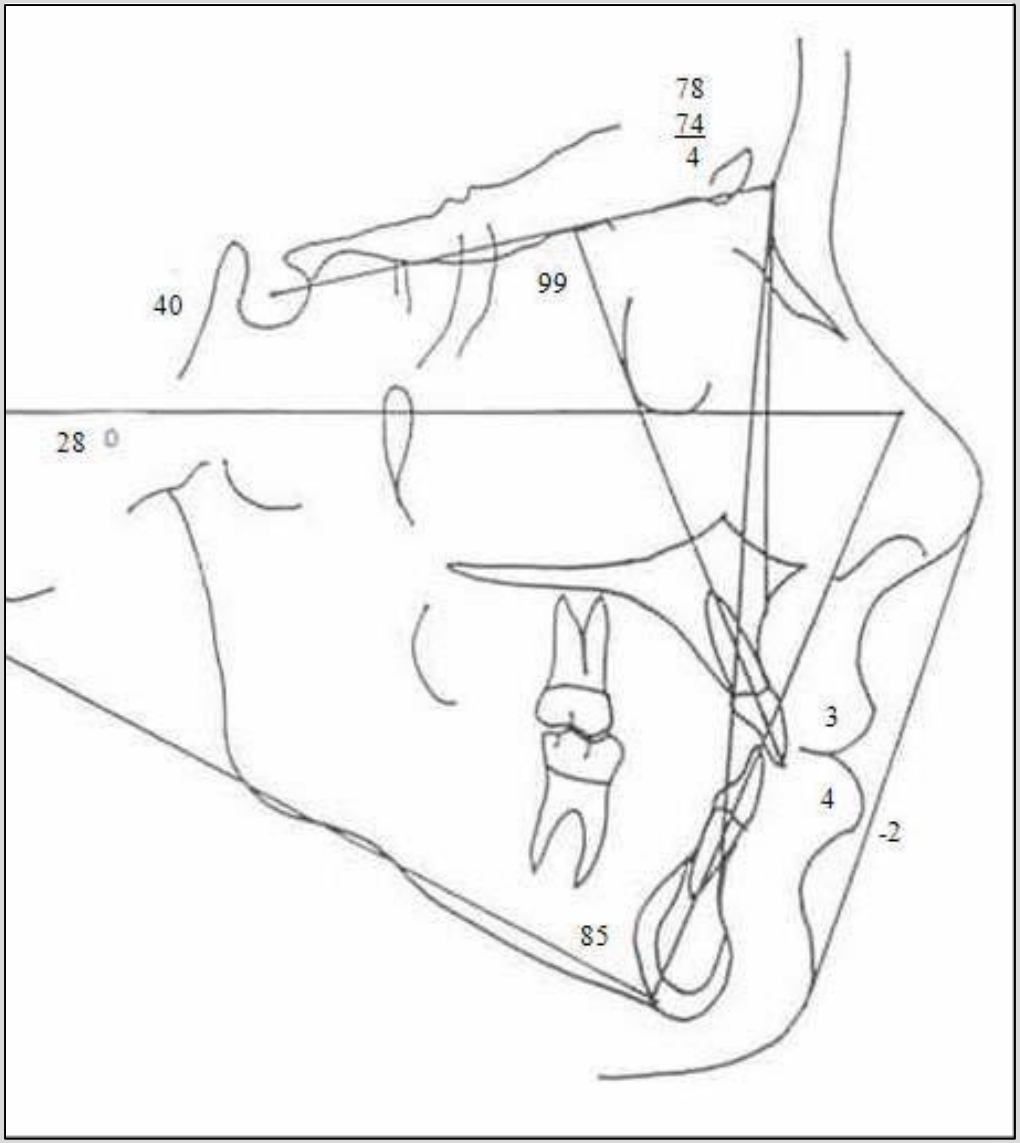
For each maxillary posterior tooth (from the 1st premolar to the 2rd molar) where the maxillary palatal cusp is > 0 mm buccal to the buccal cusp of the opposing tooth, score 2 pts per tooth.

Upper 2nd molar lingual cusps in buccal crossbite

Lower 2nd molar buccal surface

# Cephalometrics




ANB ≥ 6º or ≤ -2º = 4 pts

Each full degree > 6º add 1 pt

Each full degree < -2º add 1 pt

SN-MP

≥ 38º = 2 pts

Each full degree > 38º add 2 pts

≤ 26º = 1 pt

Each full degree < 26º add 1 pt

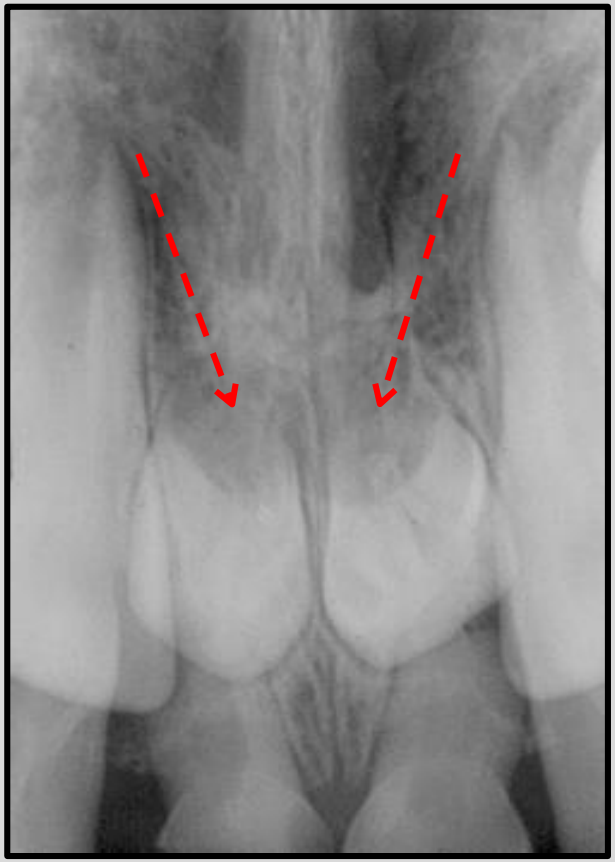
$\overline{1}$ to MP ≥ 99º = 1 pt

Each full degree > 99º add 1 pt

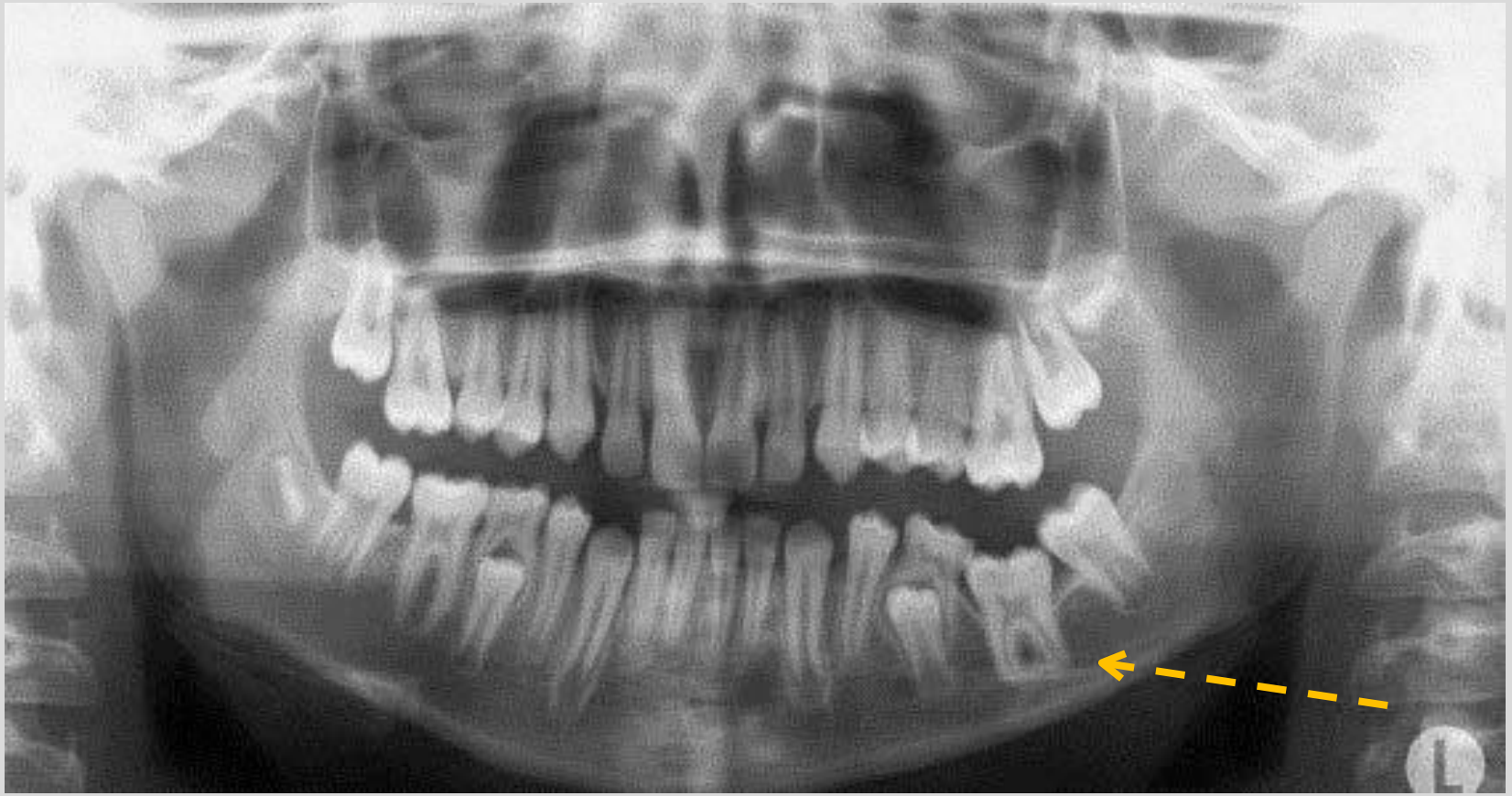
# Other Classification Exemplars

Because it is not possible to include every clinical entity in an index, the additional category of "Other" is included to permit scoring of other conditions which may add to treatment complexity.

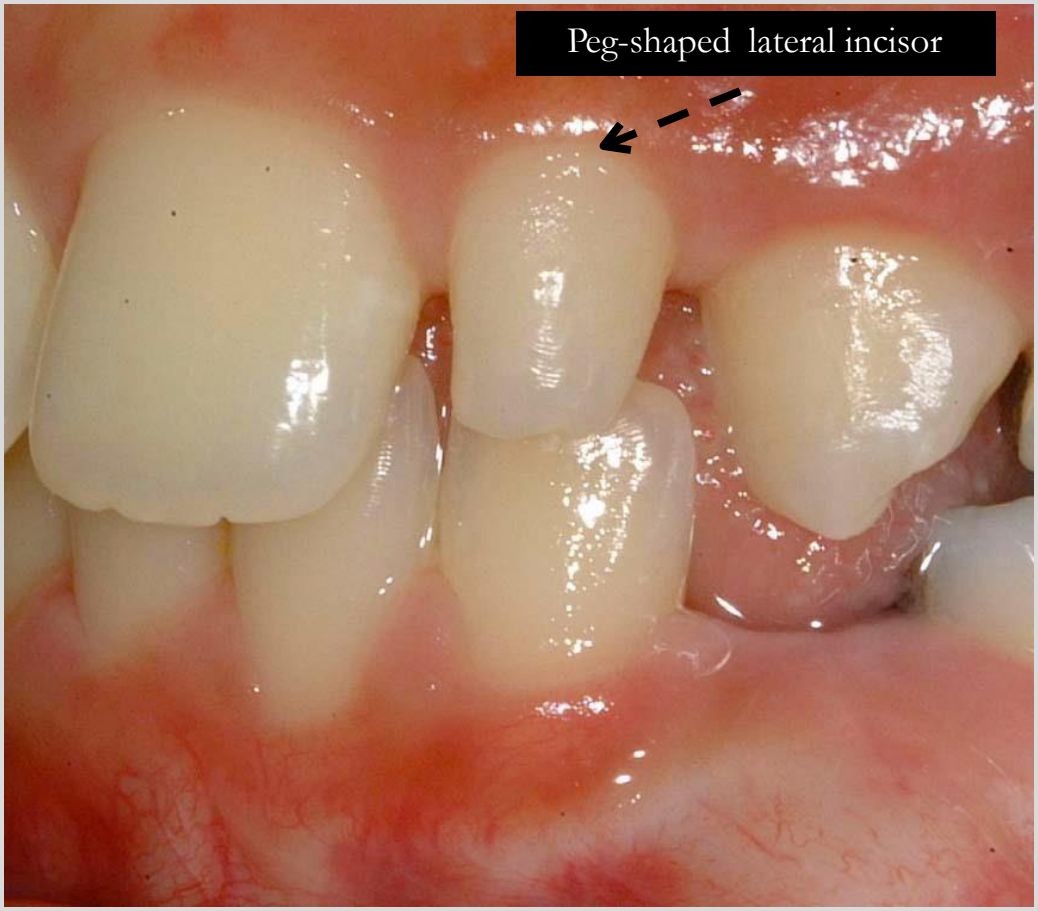
Other: Supernumerary teeth- one (1) point each



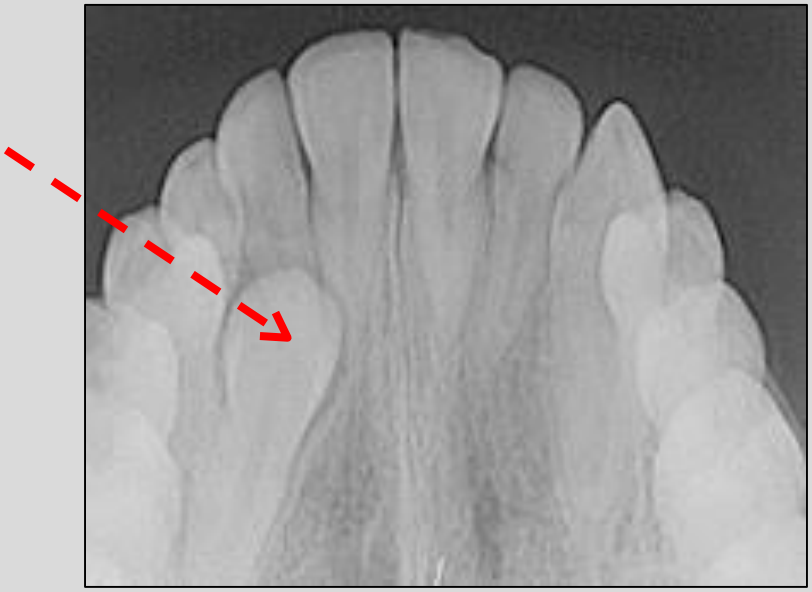
Other: Ankylosis of permanent teeth - two (2) points per tooth



Other: Anomalous Morphology of tooth size and shape (e.g. natural and/or iatrogenic)- two (2) points per tooth

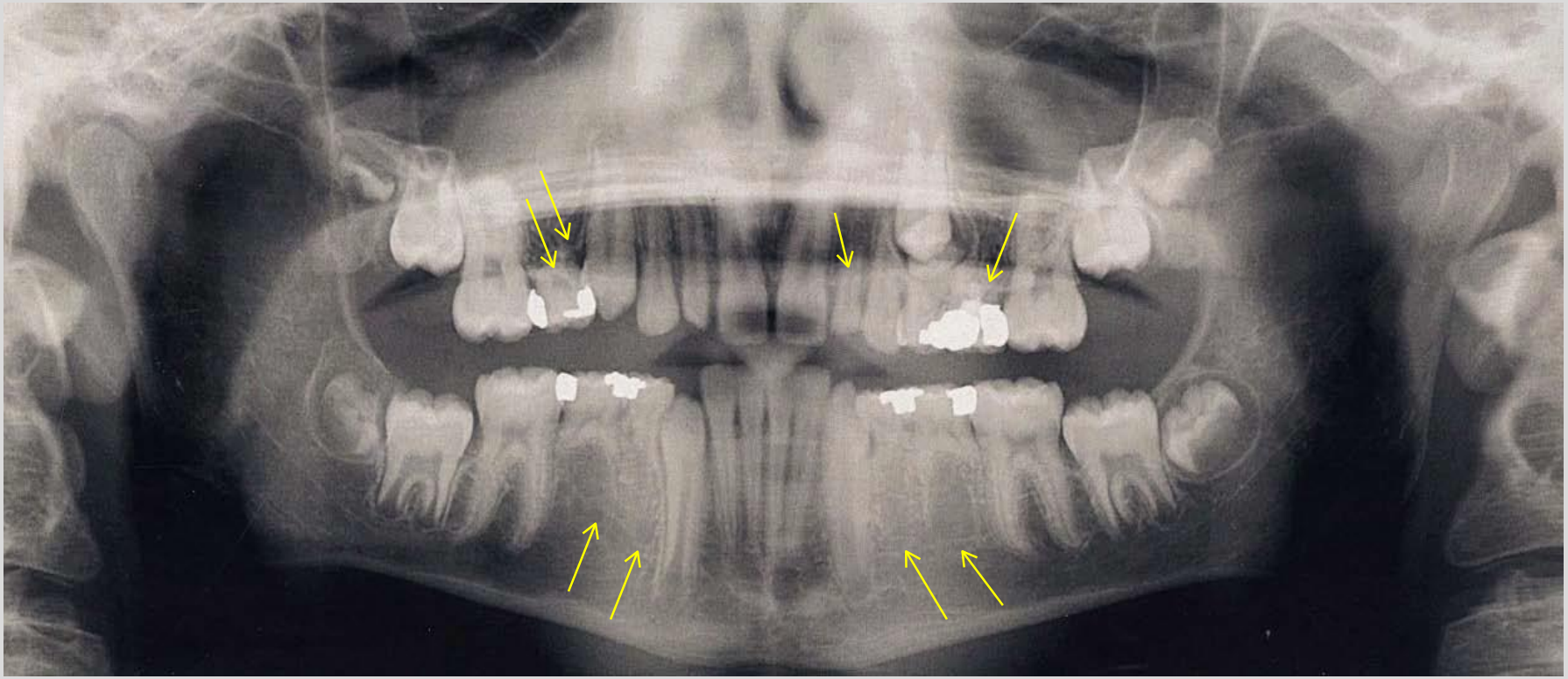


Other: Impaction (except 3rd molars) of teeth - two (2) points for each tooth



# Other: Missing teeth (except 3rd molars):

- Non-congenital - one (1) point per tooth
- Congenital - two (2) points per tooth

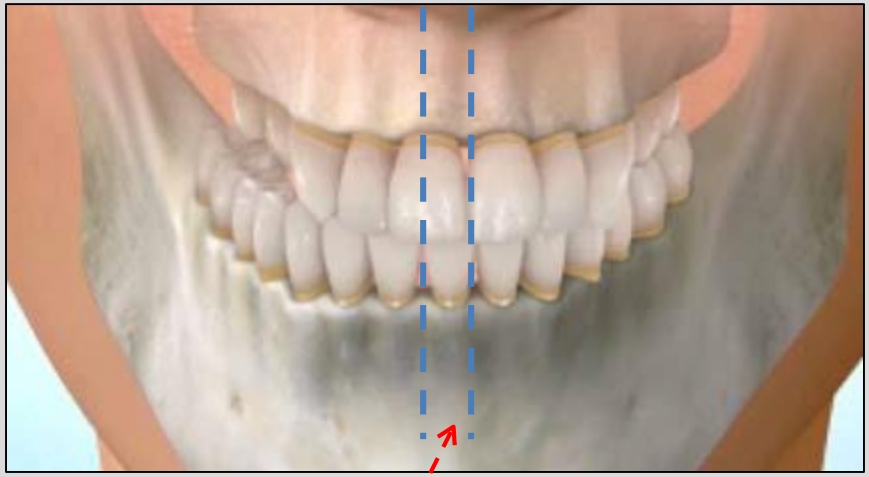


In this example, there are eight congenitally missing teeth, therefore 16 points are allocated.

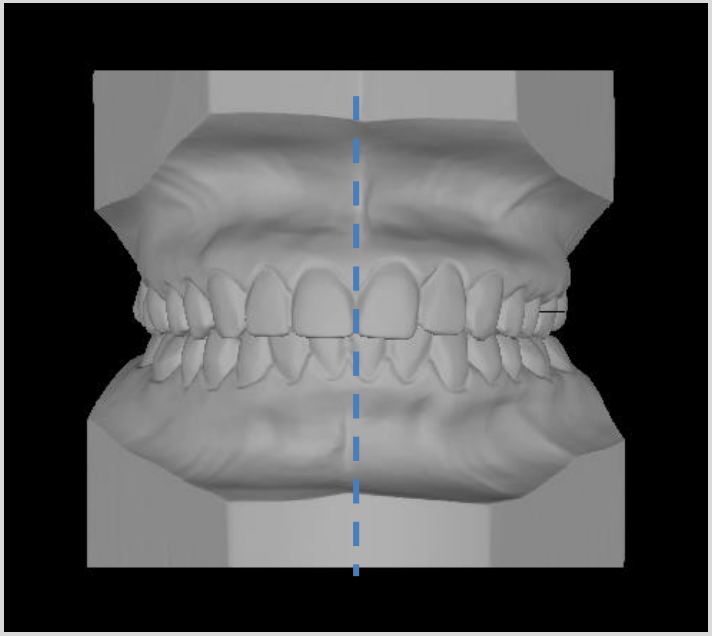
# Other: Midline Discrepancy

The midline for each arch equals the mid-point between the Mx central incisors and the Mn central incisors demonstrated by two vertical reference lines. The discrepancy is the difference between the two vertical reference lines measured in the horizontal plane.

Score two (2) points for 3 mm or more.



4.0 mm midline discrepancy = 2 pts.

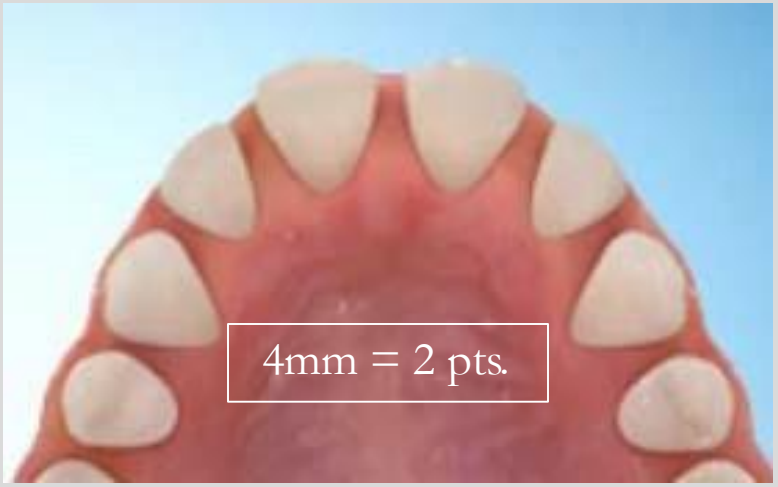


Midline coincident = 0 pts.

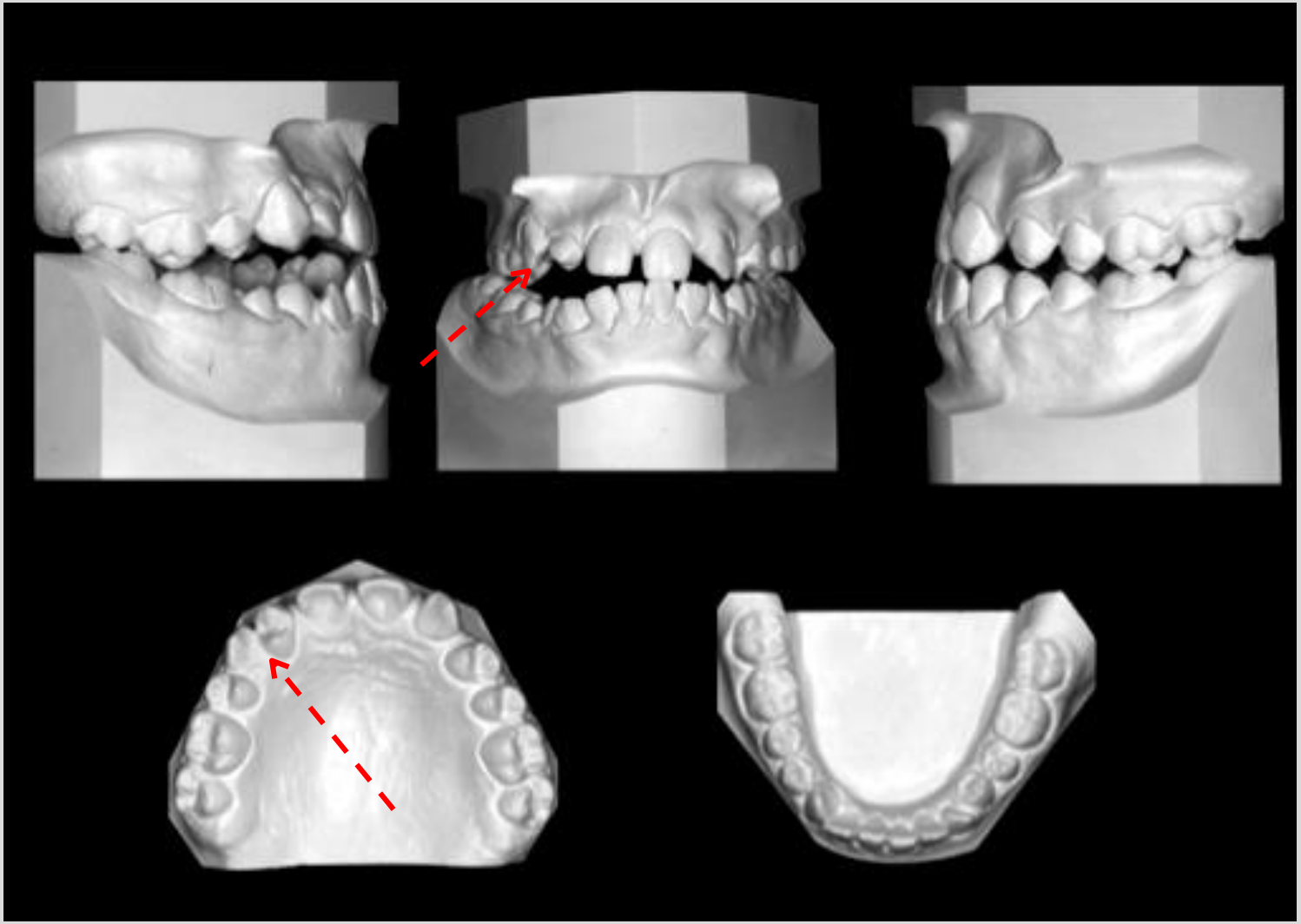
# Other: Spacing

For generalized spacing per arch in which there is ≥ 0.5 mm of space on both sides of any 4 teeth or more, score 2 points.

For a maxillary central incisor space **(diastema)** of ≥ than 2.0 mm, score 2 points.

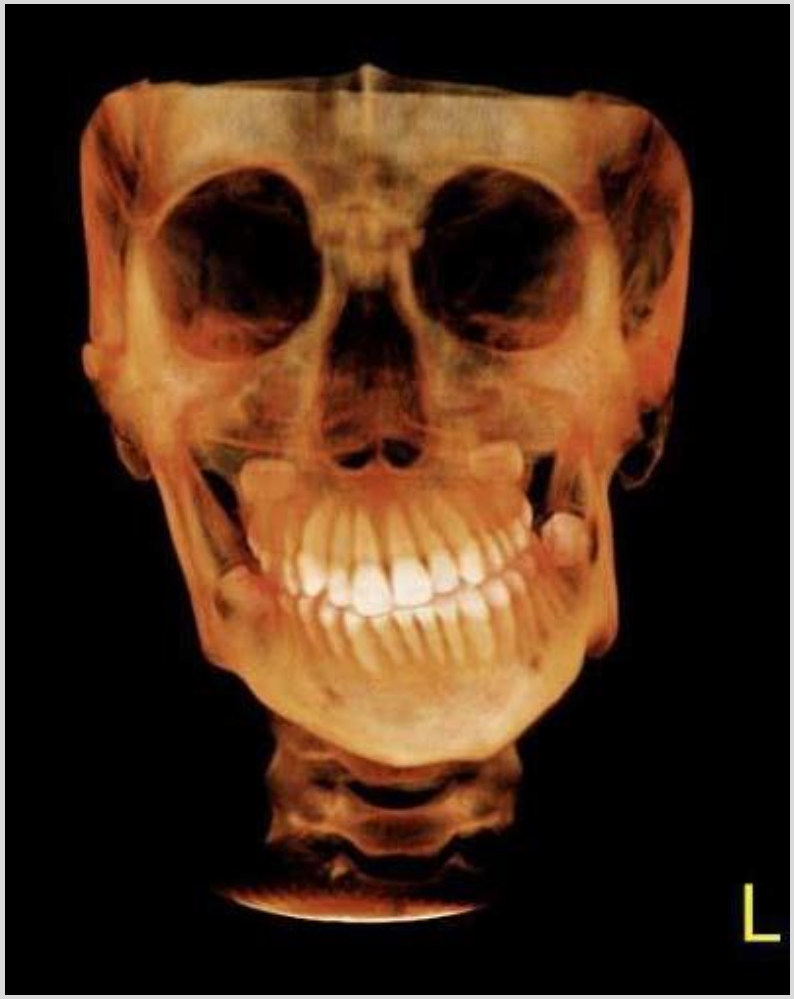



Other: Tooth transposition-
score two (2) points for each event



Other: Skeletal asymmetry (treated non-surgically) – score three (3) points

(appropriate diagnostic information is recommended)



# Examples of Potential Treatment Complexities

*Not to be considered all-inclusive*

- Significant Bolton Discrepancy (3 mm or greater)
- Severe enamel wear
- Multiple areas of shortened roots
- Deep curve of Spee
- Associated traumatic injury to multiple teeth
- Periodontally labile condition
- Severely angulated roots
- Severe bi-maxillary protrusion (critical anchorage case)
- Cleft lip and palate
- Craniofacial dysmorphologies

*Some images provided courtesy of*
*Dolphin Imaging & Management Solution*
*www.dolphinimaging.com*