OCCLUSION

Occlusal theory
Temporomandibular disorders
Occlusal disease
Osteoarthritis of TMJ
Disease of lateral pterygoid muscle (provisional name)
Disease of retrodiscal tissue (provisional name)
Centric relation
Determining of centric relation
Malocclusion
Occlusal analysis
Occlusal equilibrations
Examinations and diagnosis for occlusal equilibration
Method of occlusal equilibration
Case of occlusal equilibration
Occlusal plane
Vertical dimension
Smile design
Anterior guidance
Long centric
Bruxism
Noise of TMJ
Occlusal splint
Ideal occlusion

(OCCLUSION)

Anterior guidance

Contents

（ANTERIOR GUIDANCE）

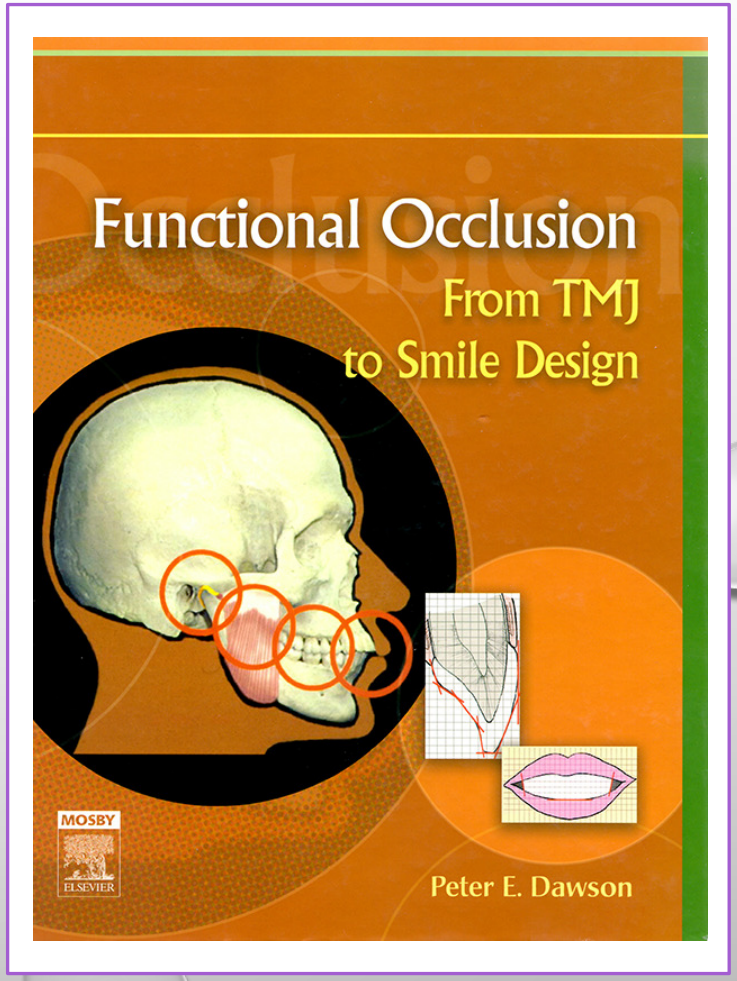
1. what is anterior guidance?

Anterior guidance is provided in GPT-9 as follows. “The influence of the contacting surfaces of anterior teeth, limiting mandibular movements”

Gysi found that anterior guidance is as important as the condyle tract as a guide to mandibular movement.

Dawson explains in Chapter 17 of Functional Occlusion as ″The Relationship Between Anterior Guidance and Smile Design”. The chapter begins with the statement, ″The anterior guidance must be in harmony with the envelope of function”.

The theory of anterior guidance is still being actively discussed and developed. As a result, anterior guidance has become one of the most important elements of esthetic dentistry.

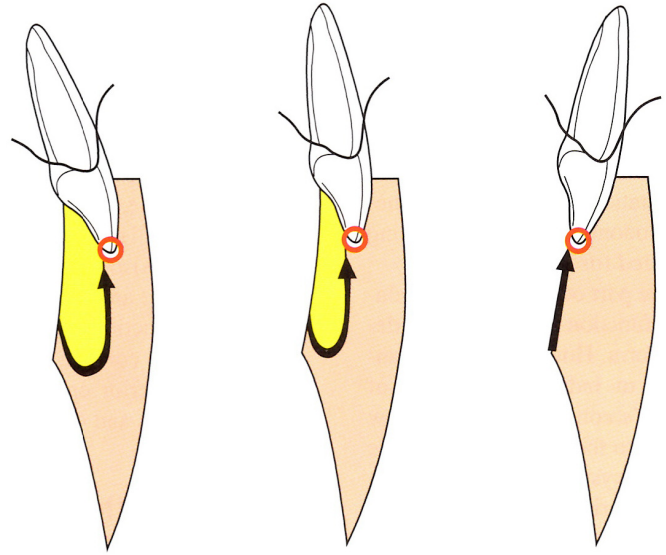


（ANTERIOR GUIDANCE）

2. Individual differences in anterior guidance

Dawson shows three different patterns of anterior guidance in the right illustration. As can be seen, there is a great deal of individual variation in anterior guidance, which must complicate the setting of anterior guidance for the patient. In addition, anterior guidance must be in harmony with functional limiting movements.
Furthermore, anterior guidance is an important factor in esthetics.

Therefore, the setting of anterior guidance requires the development of a multifaceted theory that addresses individual differences, functional harmony, and esthetics.



(from Functional Occlusion)

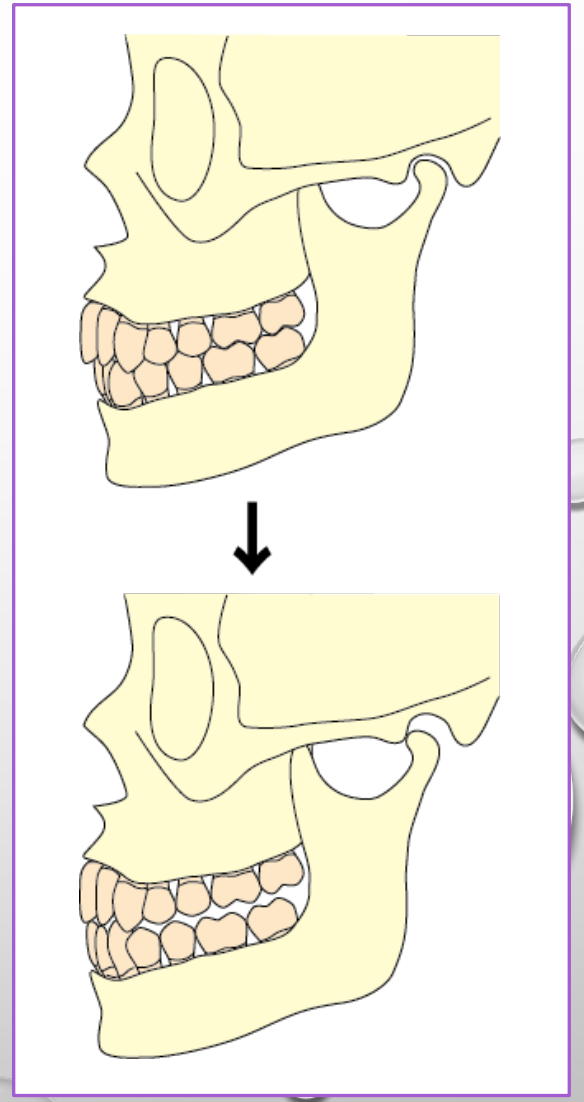
（ANTERIOR GUIDANCE）

3. Significance of anterior guidance

In reconstructing occlusion, anterior guidance is an important component following the centric relation.

As shown in the right illustration, the mandible moves from the centric relation to the protrusive position, the anterior teeth remain in contact with the molars, thereby separating them and protecting them. This role of the anterior teeth is important. Molars that are not protected by the anterior teeth will certainly be subjected to a great deal of stress in the future.

On the other hand, anterior guidance is composed of contact between the anterior teeth of the upper and lower jaws. Therefore, the morphology of the anterior teeth is strongly influenced by the anterior guidance. In other words, the anterior guidance is the key to the esthetics of the anterior teeth.



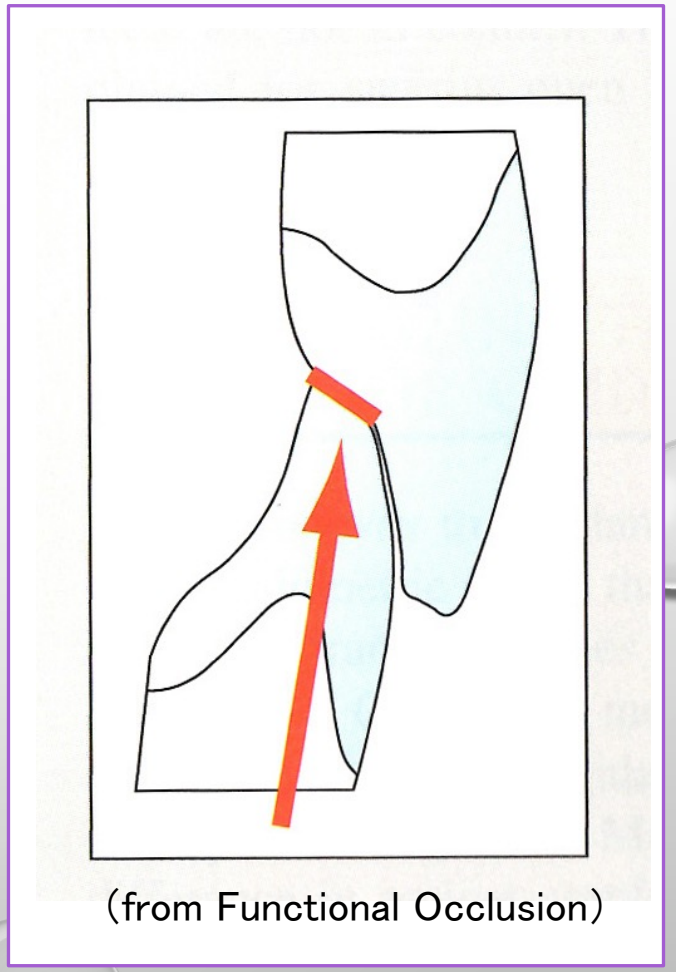
（ANTERIOR GUIDANCE）

4. Determination of maxillary anterior tooth morphology

First step

The morphology of the maxillary anterior teeth is determined through five stages. The first stage is the red line indicated by the arrow in the right illustration.

This portion of the lingual aspect of the maxillary anterior teeth should be shaped in such a way that the incisal margin of the mandibular anterior teeth has a distinct stop on the lingual aspect of the maxillary anterior teeth in the centric relation of the bite.



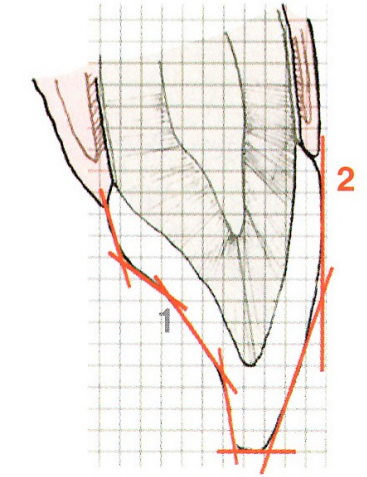
(from Functional Occlusion)

（ ANTERIOR GUIDANCE ）

4. Determination of maxillary anterior tooth morphology
Second step

The second step in determining the maxillary anterior tooth morphology is to determine the area indicated by 2 in the upper right illustration, i.e., the upper 1/2 of the labial aspect. This portion can be accurately set by means of a study cast.

As shown in the lower right illustration, the upper 1/2 of the labial aspect should be an extension of the alveolar process labial aspect and there should be no curvature from the alveolar process to the tooth surface. To facilitate this determination, the study cast should have impressions of all labial aspects of the alveolar process.



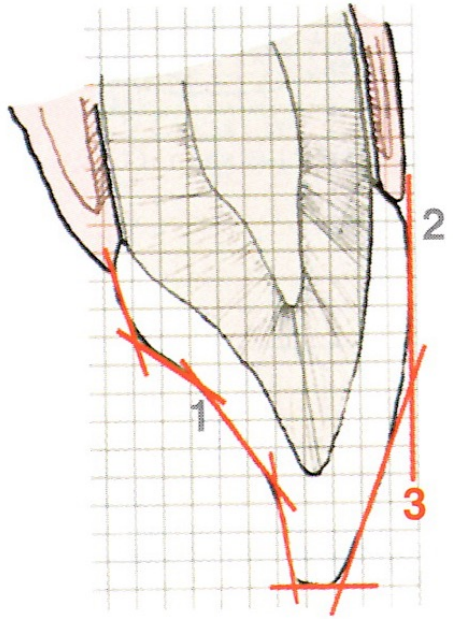
(from Functional Occlusion)

（ ANTERIOR GUIDANCE ）

4. Determination of maxillary anterior tooth morphology
Third step

The third step in determining the morphology of the maxillary anterior teeth is to determine the morphology of the lower half of the labial aspect, which is part 3 in the illustration on the right. This plane is constructed as a second plane that differs from the one established in the second step. The upper and lower lips must be carefully monitored so that they can make firm contact using this plane as a guide.

The correction of this plane requires a diagnostic wax-up on a model to estimate the morphology, and then a provisional restoration is placed on the patient and adjusted to complete the procedure.

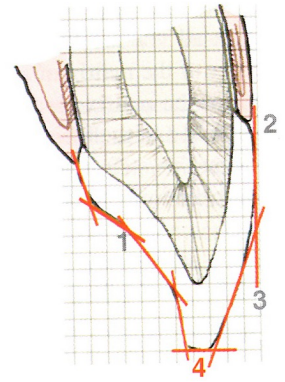


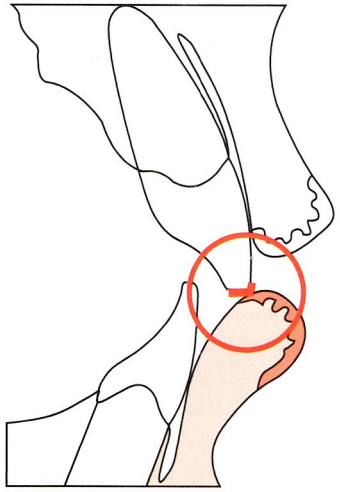
(from Functional Occlusion)

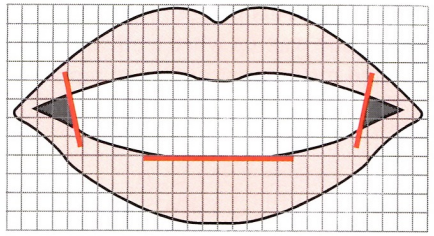
（ANTERIOR GUIDANCE）

4. Determination of maxillary anterior tooth morphology Fourth step

The fourth step in determining the morphology of the maxillary anterior teeth is to determine the position and morphology of the incisal incisal margin, which is part 4 in the upper right illustration. The incisal margin should be aligned with the medial side of the patient's lips when the patient smiles quietly, as shown in the middle right illustration. This incisal position is also the ideal position of the anterior teeth and lower lip for natural pronunciation, as shown in the lower right illustration. The position and form of the incisor can be determined in more detail by having the patient wear and speak the provisional restoration.







(from Functional Occlusion)

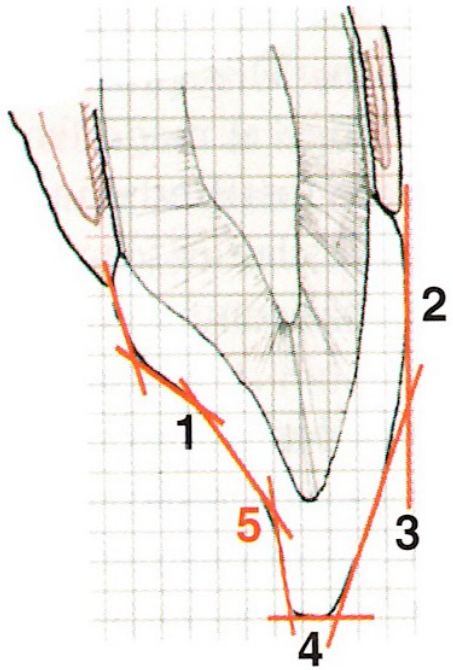
（ ANTERIOR GUIDANCE ）

4. Determination of maxillary anterior tooth morphology
Fifth step

The fifth step in determining the morphology of the maxillary anterior teeth is to determine the morphology of the ″5″ in the illustration on the right. The morphology of this area is determined by harmonizing the anterior guidance with the functional range of motion of the mandible. For this harmonization, the following five steps are required

(1) Centric stop construction
(2) Expansion of the centric stop
(3) Determination of the position of the incisal margin
(4) Establishment of group function during linear anterior movement
(5) Establishment of ideal lateral movement with distributed load to the anterior teeth

Each of these will be explained.

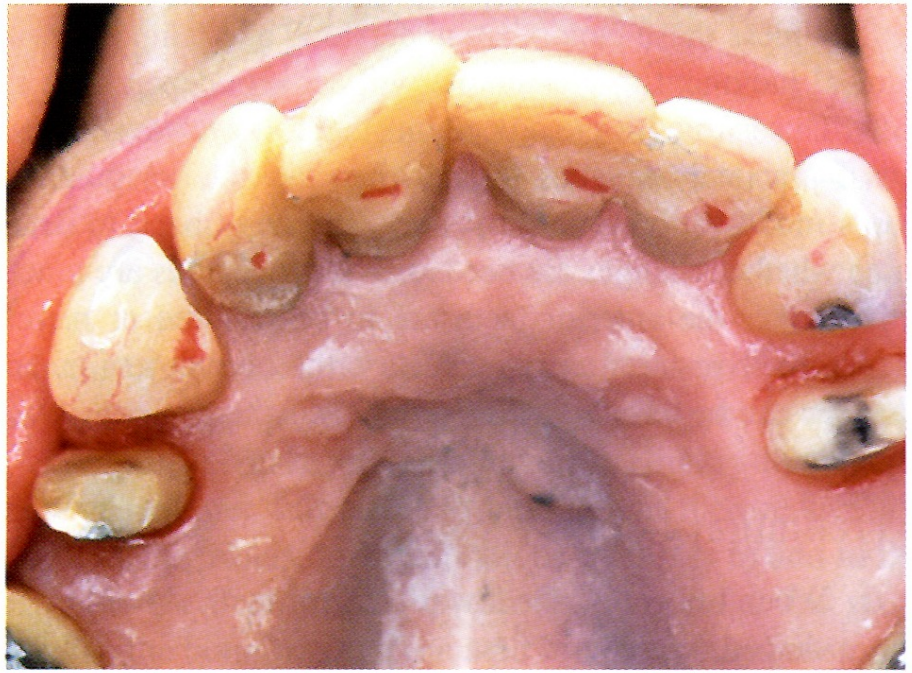


(from Functional Occlusion)

（ANTERIOR GUIDANCE）

4. Determination of maxillary anterior tooth morphology
Fifth step　(1) Centric stop construction

Build adjusted centric stops in all anterior teeth, as shown in the right photo.



(from Functional Occlusion)

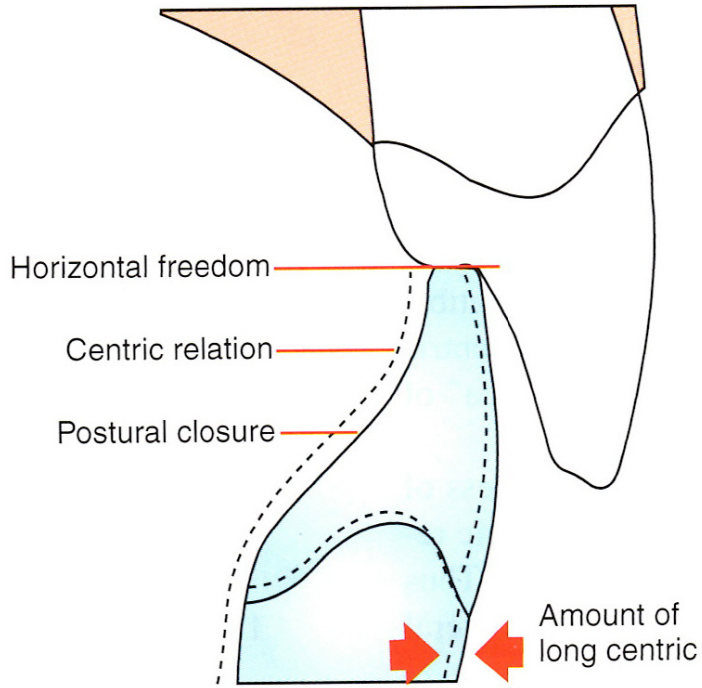
(ANTERIOR GUIDANCE)

4. Determination of maxillary anterior tooth morphology

Fifth step

(2) Expansion of the centric stop

If the habitual closing tract is located anterior to the centric relation, the centric stop is enlarged anteriorly at the same occlusal height diameter. (Long Centric)



(from Functional Occlusion)

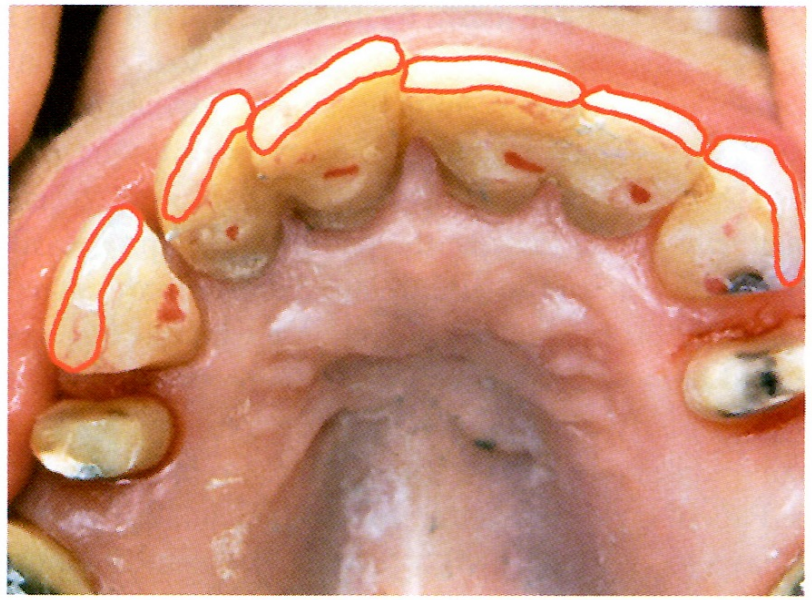
(ANTERIOR GUIDANCE)

4. Determination of maxillary anterior tooth morphology

Fifth step

(3) Determination of the position of the incisal margin

The position of the incisal edge, shown in the picture on the right, is the second most important after the contact that maintains the central position. If the anterior teeth are appropriate and there is no need to change the morphology, the incisal position should be maintained. If the incisal is to be restored with a restoration, a provisional restoration should be placed on the patient and the patient should accept the comfort and esthetics of the restoration before it is finalized as the final form.



(from Functional Occlusion)

（ANTERIOR GUIDANCE）

4. Determination of maxillary anterior tooth morphology

Fifth step

(4) Establishment of group function during linear anterior movement

Before establishing the anterior motion path, the exact incisal position must be determined. The interference area should be marked by sliding the anterior teeth through the occlusal paper from the centric relation to the incisal position, and the adjustment should continue until the four anterior teeth have continuous anterior contact, as shown in the right photo.

(from Functional Occlusion)

(ANTERIOR GUIDANCE)

4. Determination of maxillary anterior tooth morphology

Fifth step

(5) Establishment of ideal lateral movement with distributed load to the anterior teeth

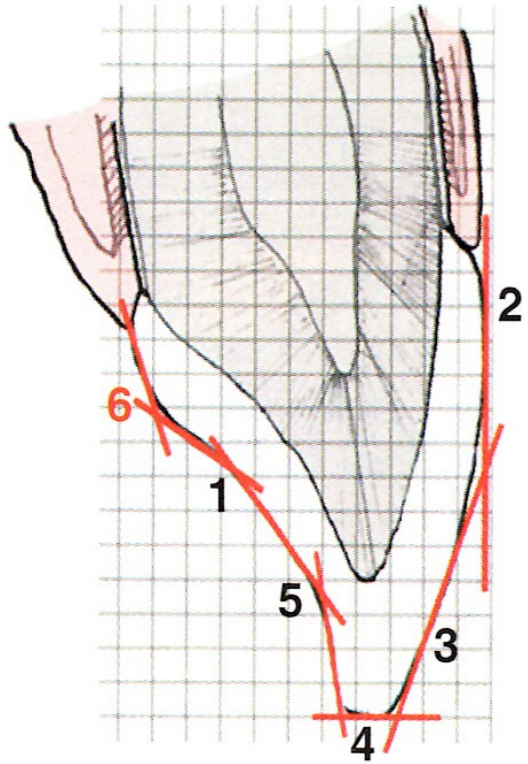
It is a mistake to set up a group function for all patients. This is as erroneous as saying that all occlusions should be cuspid-guided. In dentition where very stable lateral movement is obtained with cuspid-only guidance, there is no need to change these occlusal relationships. However, if the canines are highly upset, severely erupted, or likely to lose support from the periodontal tissue, a group function with the other anterior teeth can reduce the burden and wear of the canines. There are advantages to converting cuspid guidance to group function, but conversely, there is no clear advantage to converting group function to cuspid guidance.

(from Functional Occlusion)

（ANTERIOR GUIDANCE）

4. Determination of maxillary anterior tooth morphology
Final stage

The final determination of the basic morphology of the anterior teeth is 6 in the right illustration, the abundance from the centric stop to the gingival margin. Although a simple decision, errors in morphology here can interfere with the pronunciation of t, d, or s sounds where the tongue is positioned to contact this area. Sharp shelves should be avoided.



(from Functional Occlusion)

5. Guideline of maxillary anterior tooth morphology for esthetic morphology

By this point, the boundary range between function and anatomy has been established. In most cases, the diagnostic wax-up approximates the ideal morphology. Therefore, no significant modification is necessary. However, slight morphologic modification with provisional restorations is necessary to achieve ideal labial canthus and incisal position. If esthetics are problematic and morphologic correction is necessary, the following five guidelines should be used to correct the problem.

(1) Midline
(2) Tooth contours
(3) Gingival contour
(4) Canine inclination
(5) Canine contours

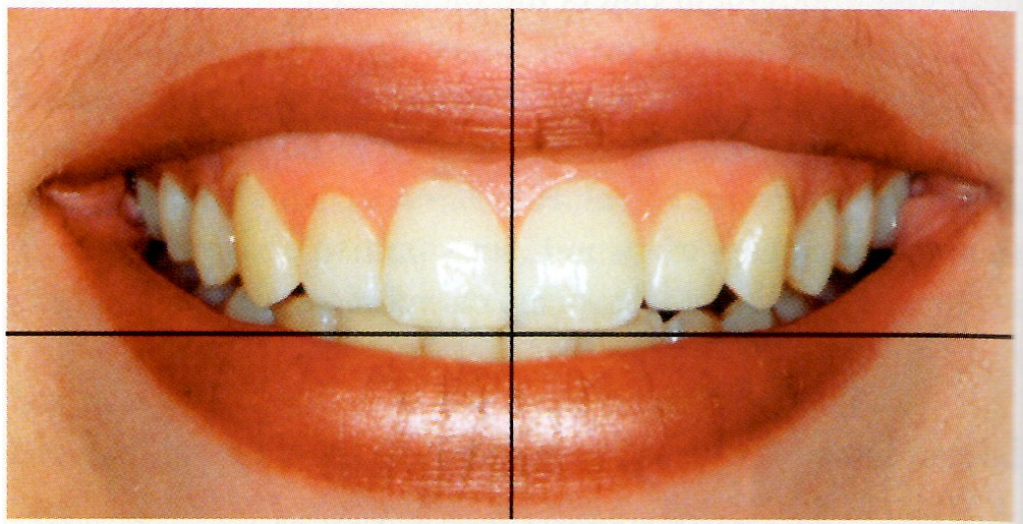
The following is an explanation of each of these.

（ ANTERIOR GUIDANCE ）

5. Guideline for upper anterior tooth contours

(1) Midline

Midline should always be vertical regardless of incisal plane. A slanted midline is one of the most noticeable detriments to good esthetics.

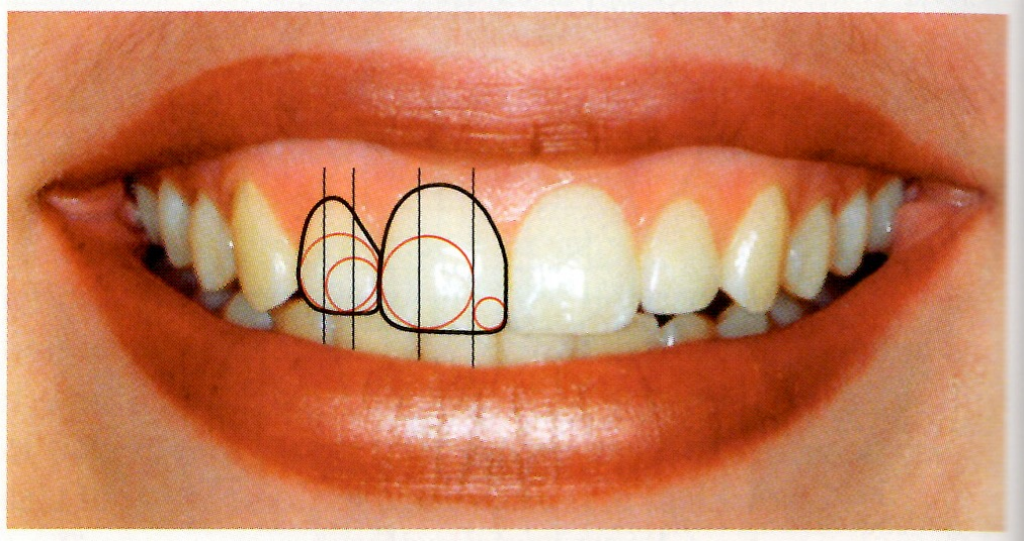


(from Functional Occlusion)

（ ANTERIOR GUIDANCE ）

5. Guideline for upper anterior tooth contours
(2) Tooth contours

The curvature of the individual incisal edges can be related to circles that guide contour for incisal embrasures. Starting at the mesial of central, the size of the circle progresses from 1/3 width to 2/3 width at the distal. The lateral is 2/3 at mesial and 3/3 of the width at distal. This is an easy guide to follow when shaping anterior teeth.

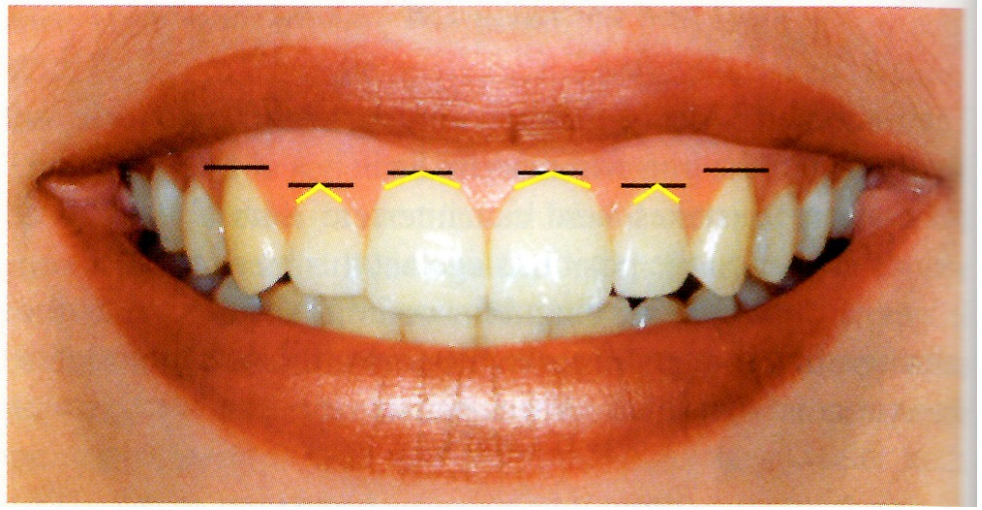


(from Functional Occlusion)

（ ANTERIOR GUIDANCE ）

5. Guideline for upper anterior tooth contours
(3) Gingival contour

Gingival contour formed as trigonal shape with apex slightly toward distal. Height varies, with centrals slightly higher than laterals.

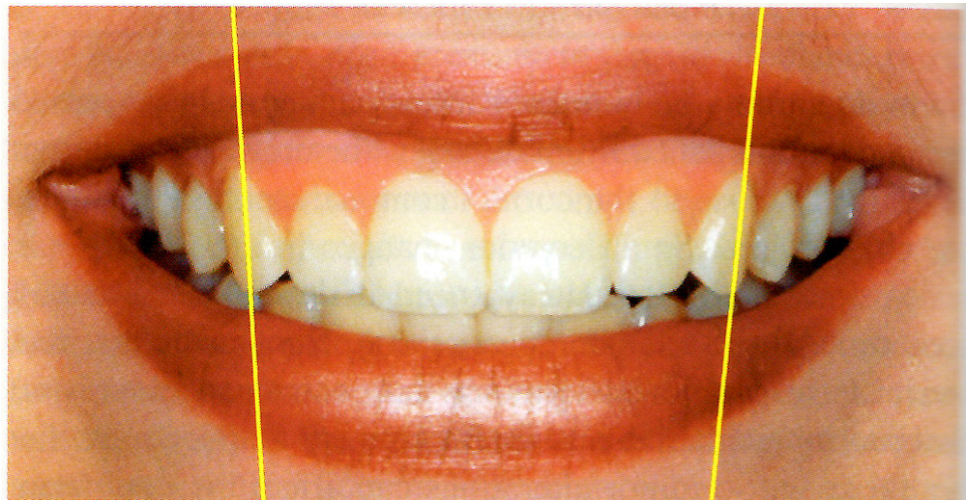


(from Functional Occlusion)

（ANTERIOR GUIDANCE）

5. Guideline for upper anterior tooth contours
(4) Canine inclination

Canine inclination should converge inwardly from front view. From side view, canines should be straight vertical for best appearance.



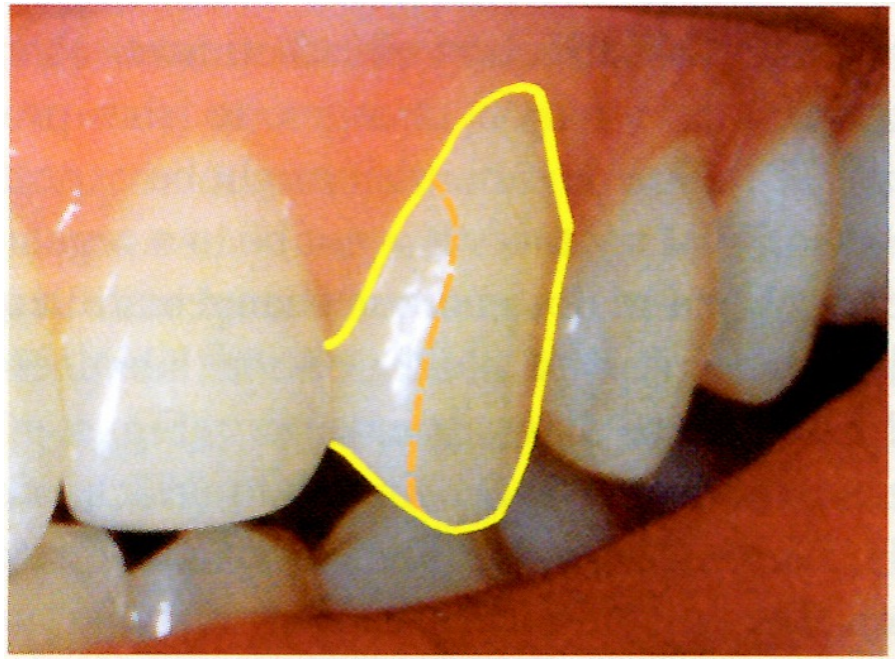
(from Functional Occlusion)

（ ANTERIOR GUIDANCE ）

5. Guideline for upper anterior tooth contours

(5) Canine contours:

The ideal position for canines is facing to the side. Front view should display the mesial surface, and there is typically a line angle at the mesio-labial juncture. Try also to avoid roundness of the labial surface. Note that it is rather straight. Correct positioning creates a high contact with the lateral.



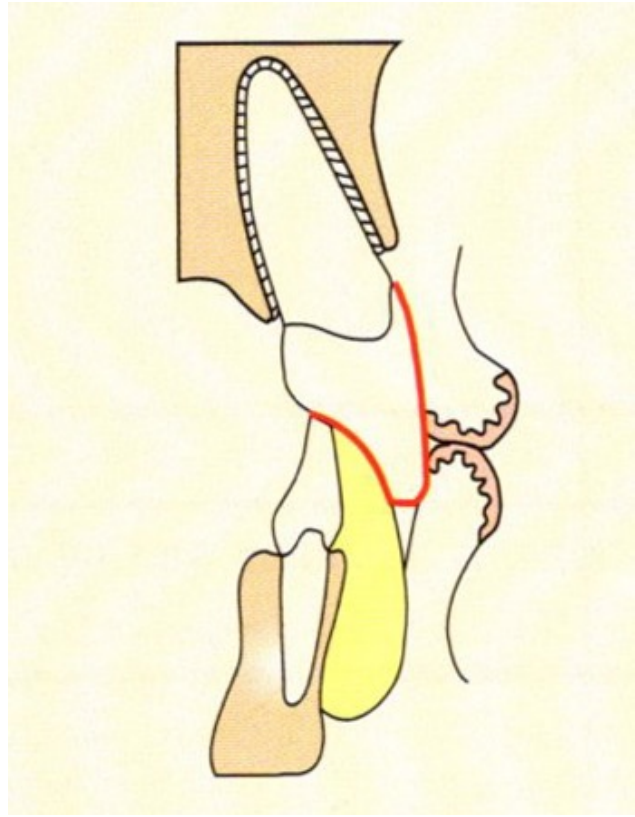
(from Functional Occlusion)

6. Key points of anterior guidance

For optimum stability, comfort, and function, the anterior teeth must be:

In harmony with the neutral zone
In harmony with the lips
In harmony with phonetics
In harmony with centric relation
In harmony with the envelope of function

This results in tooth position and contours that are in harmony with a matrix of functional anatomy that also produces the most natural esthetics.



(from Functional Occlusion)

Anterior guidance

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If you have any questions or doubts, please leave them in the public comment section below.

The next topic will be ” Long centric ″.