

OCCLUSION

Principle of occlusion

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

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Ideal occlusion



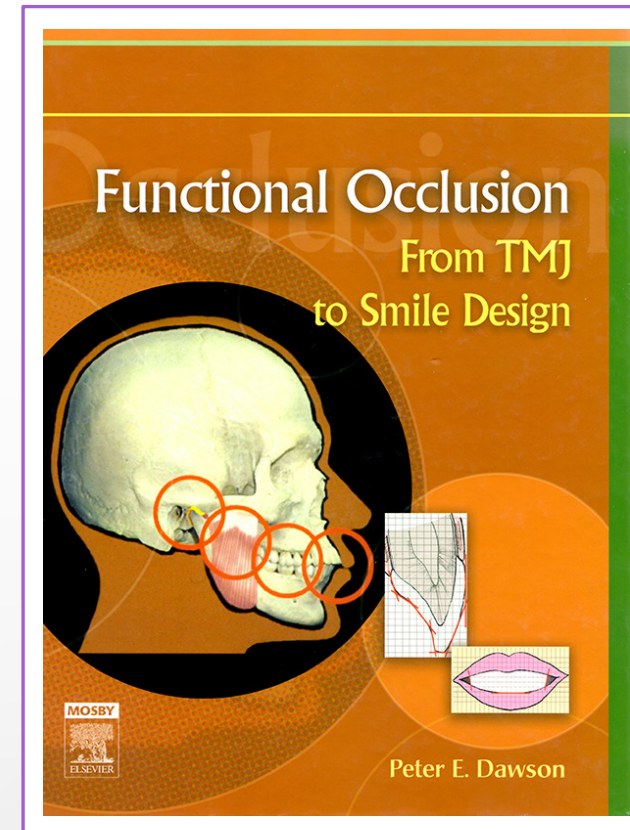
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Malocclusion

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References



(MALOCCLUSION)

1. What is malocclusion

Many researchers have repeatedly made various claims about the definition of malocclusion based on their own perceptions. Therefore, malocclusion is one of the technical terms that will be debated and a unified view is required in the future.

Among the many definitions, the following definition, as described in Dr. Sumiya Hobo's Encyclopedia of Articulation, seems to be the most straightforward.

The term "malocclusion" refers to a state of occlusion in which the maxillofacial region and teeth have abnormalities in their morphology, development, and function for some reason, and as a result cannot perform normal occlusal function.



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2. Classification of malocclusion
methods by Angle, Piper, and Dawson are available.

(a) Angle's classification of morphological malocclusion

The classification of malocclusion by Angle is suitable for analyzing morphological malocclusion and is applied in the diagnosis of orthodontic treatment.

However, it ignores the relationship with the temporomandibular joint and is not suitable for the diagnosis of TMJ diseases. It is not suitable for the diagnosis of TMJ disorders.



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2. Classification of Malocclusion

Methods by Angle, Piper, and Dawson are available.

(b) Piper's classification of TMJ disorders

Piper's classification is a method of classifying TMJ conditions. This classification is a method of classifying conditions inside the TMJ (medial and lateral poles) according to the type and timing of pain, joint noise, or locking condition. It is used to analyze the condition inside the TMJ joint capsule.



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2. Classification of malocclusion

Methods by Angle, Piper, and Dawson are available.

(c) Classification of functional malocclusion

Classification of functional malocclusion is based on the functional centric relation of the temporomandibular joint. In other words, it is a classification that relates the TMJ to the occlusion. It is considered most useful for occlusal analysis of occlusal diseases.

Classification of functional malocclusion is explained in more detail below.



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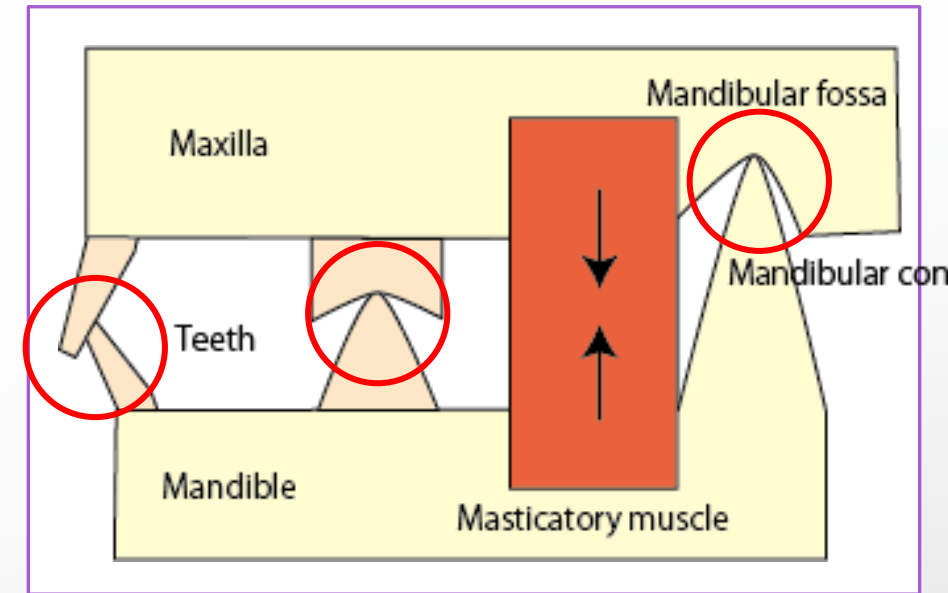
3. Normal relationship between teeth, masticatory muscles and temporomandibular joint

Before discussing the classification of functional malocclusion, the normal relationship between the teeth, masticatory muscles, and temporomandibular joint is explained.

(a) Centric relation

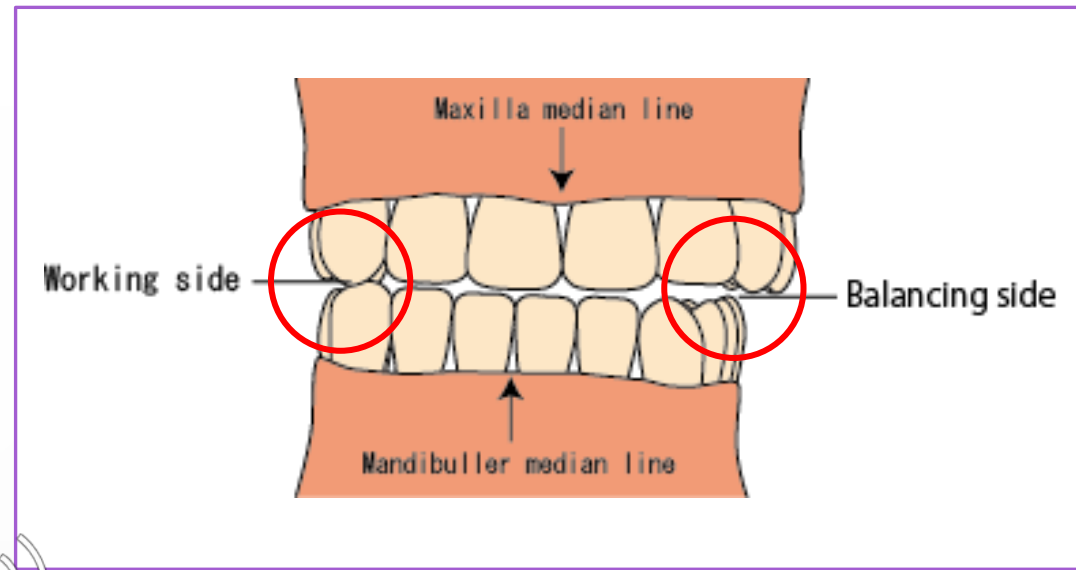
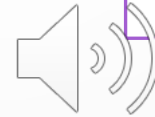
As shown in the upper right illustration, the normal relationship between the centric relation and the intercuspal position is that the mandibular condyle is stable in the center of the mandibular fossa when the teeth are in the intercuspal position and the fossa are in proper alignment.

Functionally, the mandible is not subjected to horizontal movement even if the mouth-closing muscles are contracted, and the occlusion is stable.



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3. Normal relationship between teeth, masticatory muscles and temporomandibular joint (b) Lateral position



As shown in the upper right illustration, when the mandible is moved laterally, the normal relationship between the teeth, masticatory muscles, and temporomandibular joint is that the working side canine teeth (premolars, molars buccal cusp) make contact and the balancing side molars do not, the working side lateral pterygoid muscle relaxes and the balancing side lateral pterygoid muscle contracts, the working side mandibular condyle is stable in the center of the mandibular fossa and the balancing side mandibular condyle. The balancing mandibular condyle slides forward.

Functionally, the mandible can be moved laterally to bite off the thread with the canine teeth.

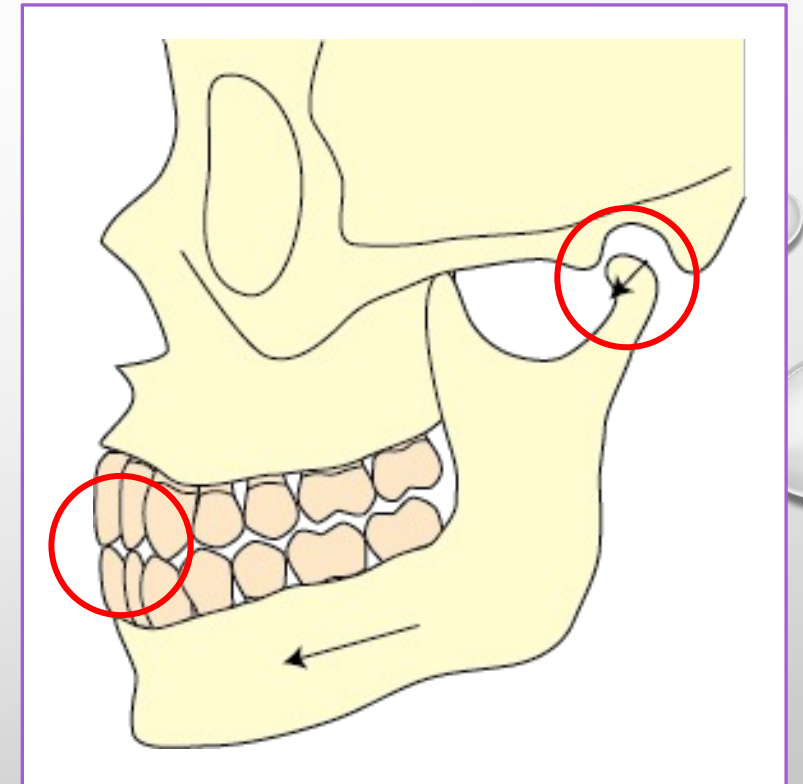
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3. Normal relationship between teeth, masticatory muscles and temporomandibular joint (c) Protrusive position

As shown in the right illustration, the normal relationship between the teeth and masticatory muscles and temporomandibular joint when the mandible is thrust forward is as follows. That is, the upper and lower anterior teeth make contact, the molars do not, the left and right lateral pterygoid muscles contract, and the left and right mandibular condyles slide forward.

Functionally, the anterior teeth can chew through noodles.



(MALOCCLUSION)

4. Classification of functional malocclusion

Functional malocclusion causes discomfort and bruxism, which can lead to disorders in various organs. Therefore, by removing functional malocclusion, patients often regain healthy masticatory function.

Functional malocclusion can be classified according to the types of occlusal interference listed below.

(Occlusal interference is contact between the upper and lower jaw teeth that interferes with normal mandibular movement.)

- (a) Occlusal interference in the centric relation
- (b) Occlusal interference on the balancing side of the mandible
- (c) Occlusal interference on the working side of the mandible
- (d) Occlusal interference in the protrusive position of the mandible

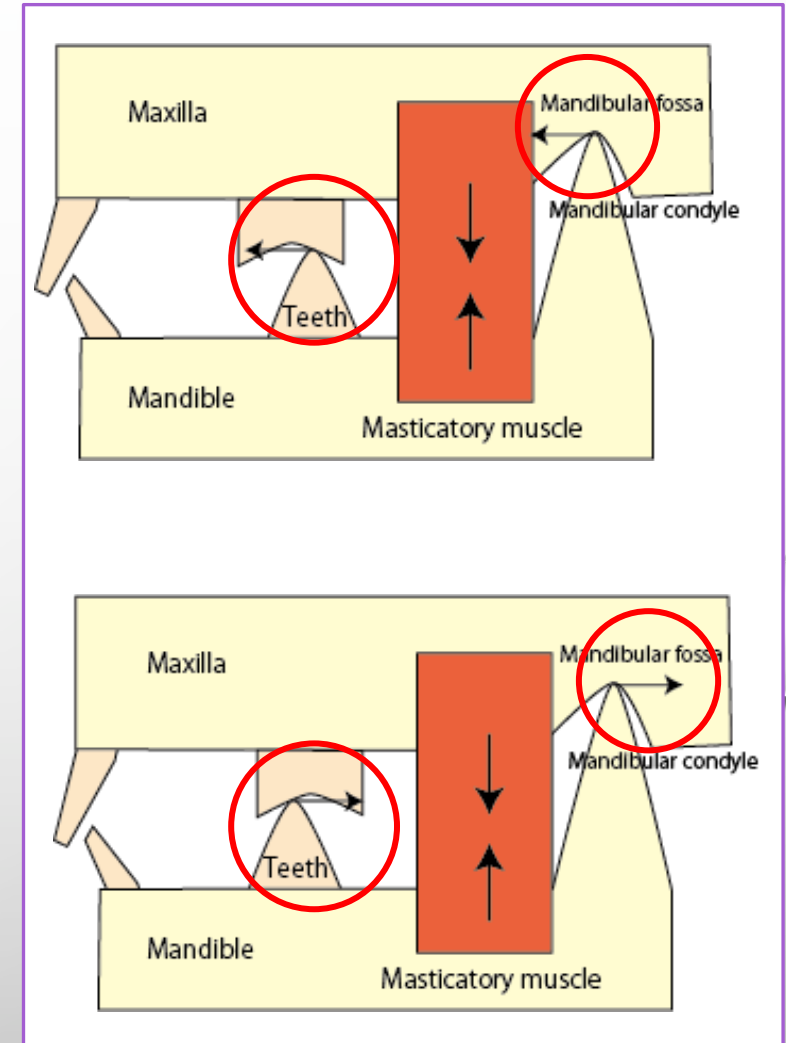


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4. Classification of functional malocclusion (a) Occlusal interference in the centric relation

As shown by the red circle in the right illustration, when the cusp of the mandibular tooth contacts the slope of the maxillary tooth in the centric relation, the mandible is subjected to a force that moves it toward the slope when the closing muscles contract. As a result, the mandibular condyle becomes unstable in the mandibular fossa. At this time, by shaving the early contact area of the slope, the mandibular condyle is not subjected to the force of horizontal movement even if the closing muscles contract.

Occlusal interference of centric relation

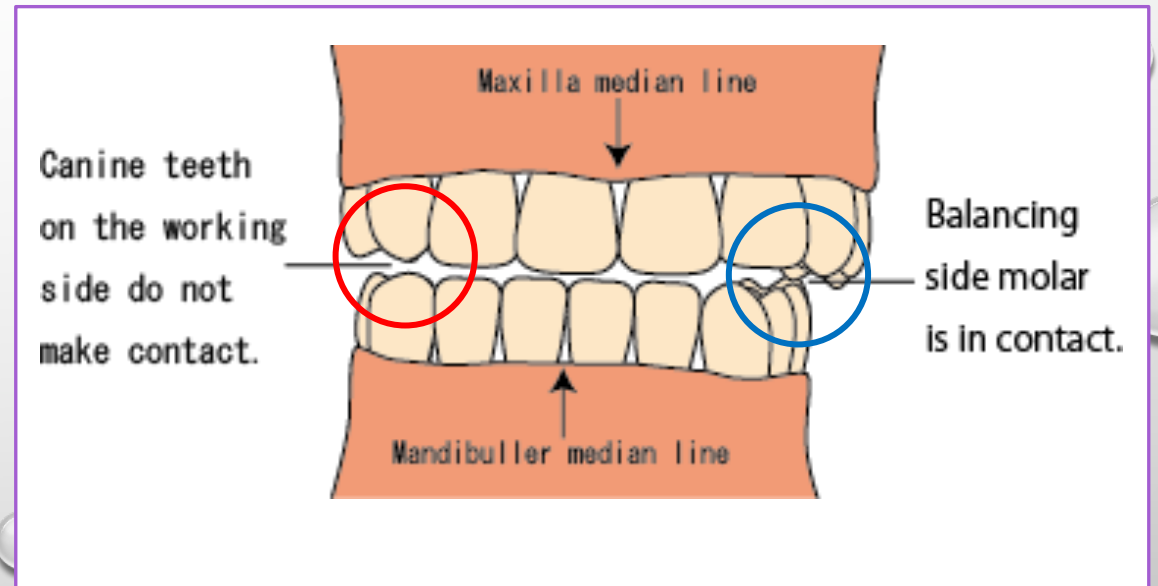


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4. Classification of functional malocclusion

(b) Occlusal interference on the balancing side in the lateral position of mandible

As shown by the red circle mark in the right illustration, this occlusal interference is the inability of the upper and lower canines on the working side to make contact. The cause is that the balancing side molars cause premature contact when the mandible is moved laterally to bite with the canines on the working side, as shown by the blue circle mark in the right illustration.



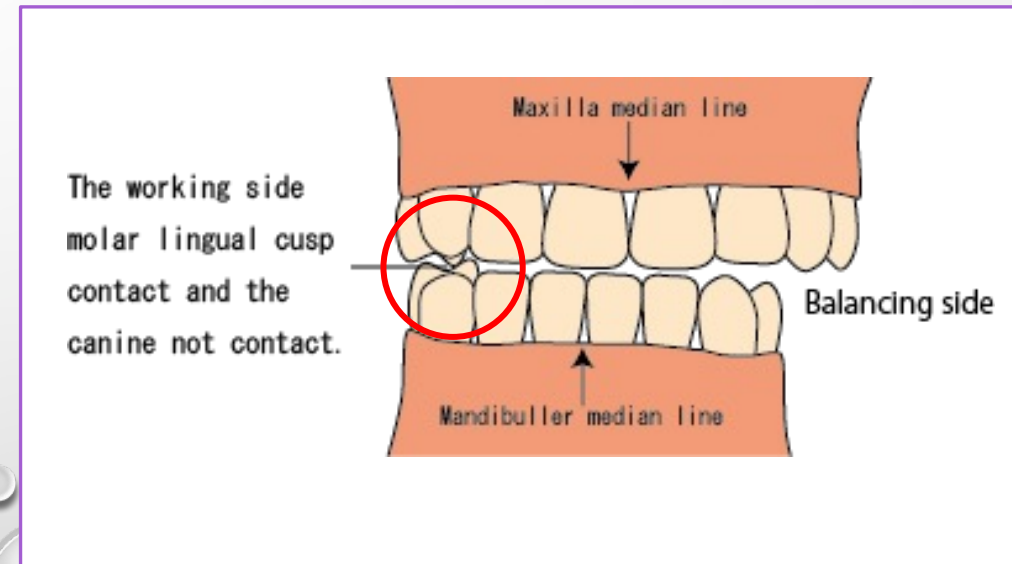
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4. Classification of functional malocclusion

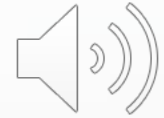
(c) Occlusal interference on the working side in the lateral position of mandible

As shown by the red circle mark in the right illustration, this occlusal interference is the inability of the upper and lower canines on the working side to make contact. The cause is that the working side molars cause premature contact when the mandible is moved laterally to bite with the canines on the working side.

This functional malocclusion occurs when the lingual cusps of the mandibular molars or the buccal cusps of the maxillary molars are too high and induce grinding of the teeth. It is relatively easy to treat and can be resolved by shaving the lingual cusps of the lower molars or the buccal cusps of the upper molars.



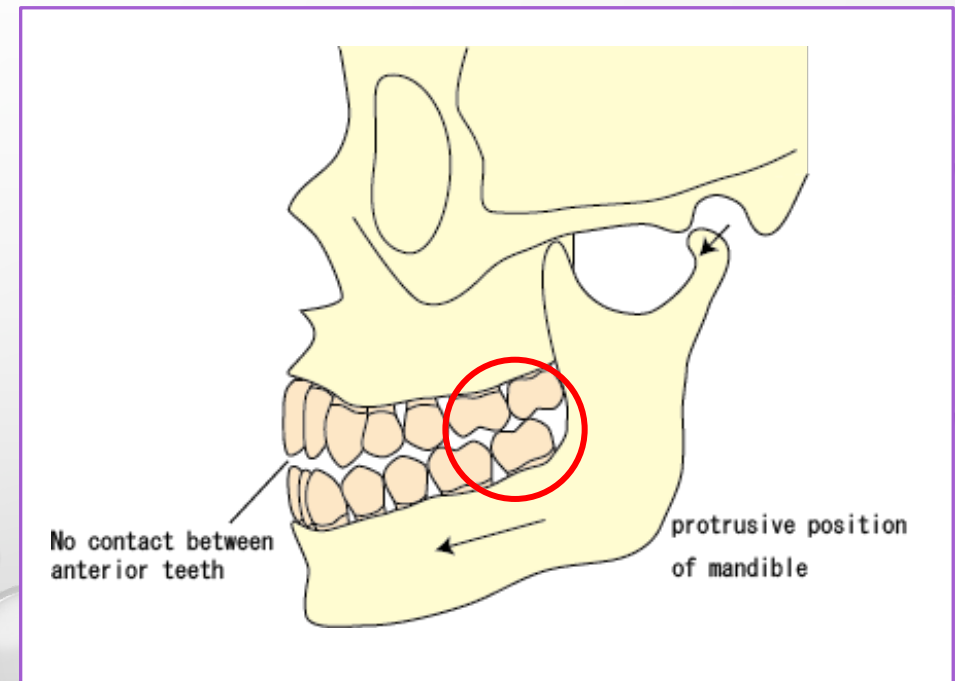
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4. Classification of functional malocclusion

(d) Occlusal interference on the protrusive position of mandible

In this functional malocclusion, when the mandible is thrust forward, the molars make contact and the front teeth do not, as indicated by the red circle mark in the right illustration. If this malocclusion exists, the patient will not be able to bite through noodles with the front teeth. This results in strong clenching of the teeth, which can cause various disorders.



(OCCLUSION)

Malocclusion

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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 “ Occlusal analysis ”.