

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



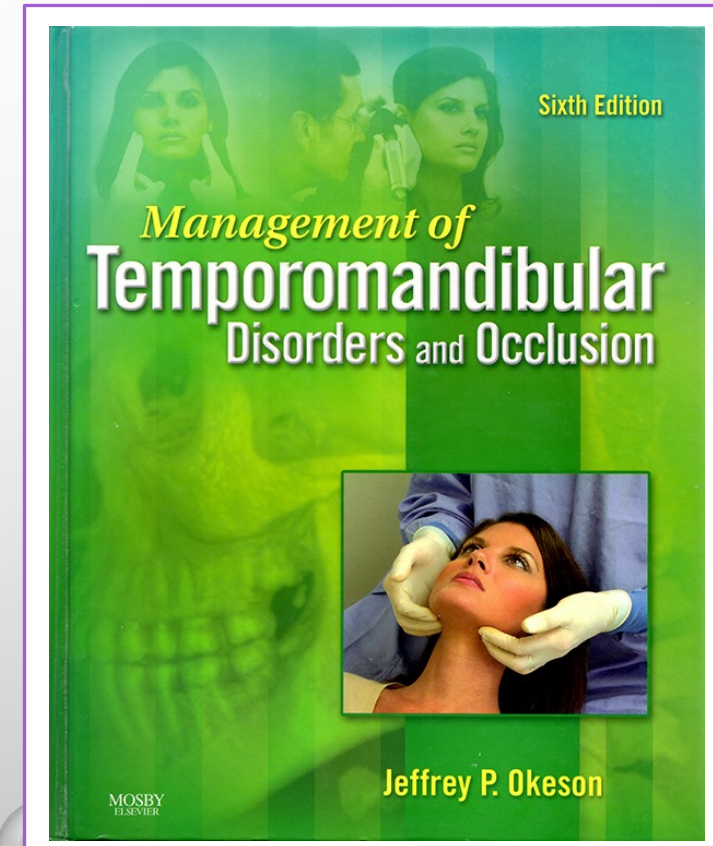
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Examinations and diagnosis for occlusal equilibration

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References



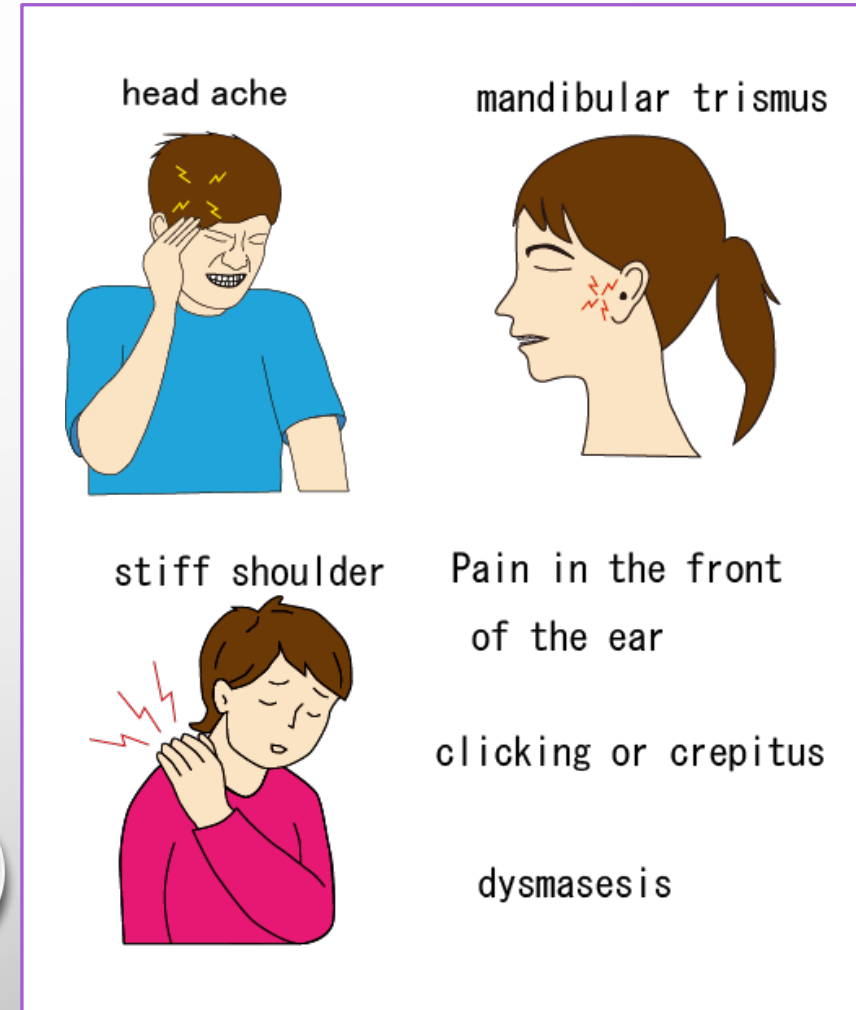
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1. Symptoms of occlusal disease

Occlusal disease is a target of treatment for occlusal equilibrations. The main symptoms of occlusal disease include pain and discomfort in and around the temporomandibular joint, difficulty opening the mouth, pain and noise when moving the jaw, headaches, and dizziness. In addition, symptoms can range from mild discomfort to pain so intense that one would rather die. Therefore, they cannot be considered the same disease. Because of the diversity of symptoms, it is reasonable to assume that occlusive diseases include several diseases with different pathologies and organs affected.

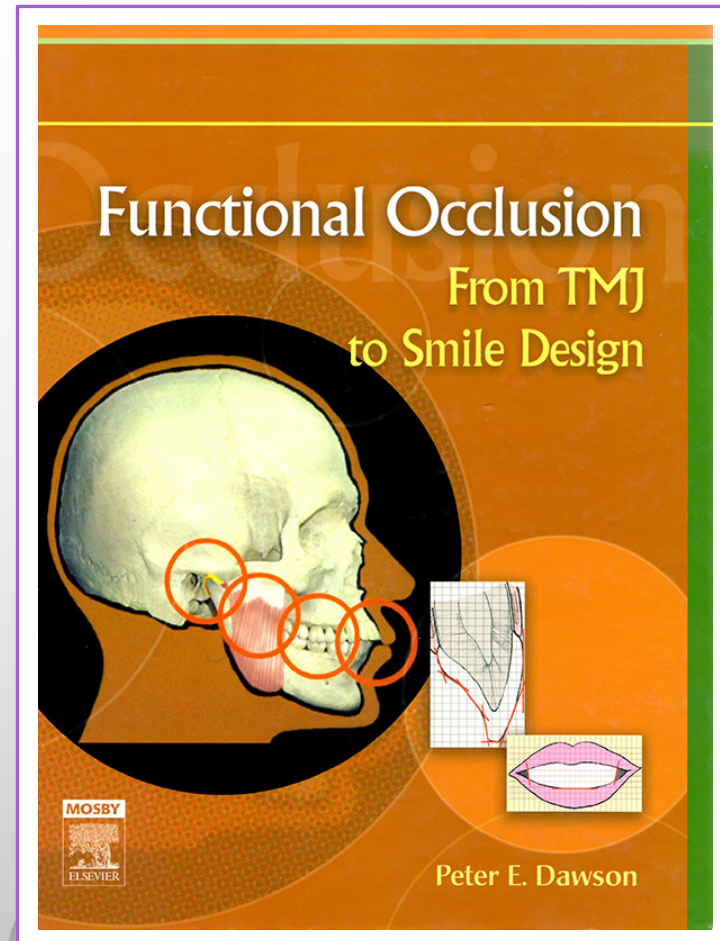
Therefore, the examination and diagnosis for occlusal equilibrations is complicated because it is necessary to identify the cause and treatment method as well as the name of the disease.



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2. Examination and diagnosis for occlusal disease

If a patient is suspected of having occlusal disease, an occlusal analysis is performed, which includes a medical interview and various other examinations. The occlusal analysis will confirm the presence and location of malocclusion and its pathophysiology. The next step is to determine if the malocclusion is the cause of the patient's occlusal disease. If it is confirmed that malocclusion is the cause of the patient's occlusal disease, a causative therapy is planned to eliminate the malocclusion. As a result, the patient's diagnosis is confirmed. The dentist will explain the diagnosis and treatment plan to the patient and, with his/her approval, will begin treatment for the occlusal disease.



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3. Negative diagnosis of occlusal disease

The negative diagnosis of occlusal disease is necessary in patients suffering from other diseases that can easily be mistaken for occlusal disease, because it indicates that the patient's occlusion is normal and prevents the error of misdiagnosing and treating occlusal disease. The reason for this is that by demonstrating that the patient's occlusion is normal, it prevents the error of misdiagnosing and treating a patient with occlusal disease and provides the basis for referring the patient to the appropriate department.

Departments to request a consultation include psychiatry, psychosomatic medicine, neurology, and otorhinolaryngology. The request for examination should include a clear description of the examination findings and evidence that the patient does not have occlusal disease.



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4. Methods of occlusal analysis

Occlusal analysis can be performed in the patient's mouth. However, to obtain detailed occlusal analysis information for setting a treatment plan, it is essential to perform the occlusal analysis on a study cast mounted on a semi-adjustable articulator.

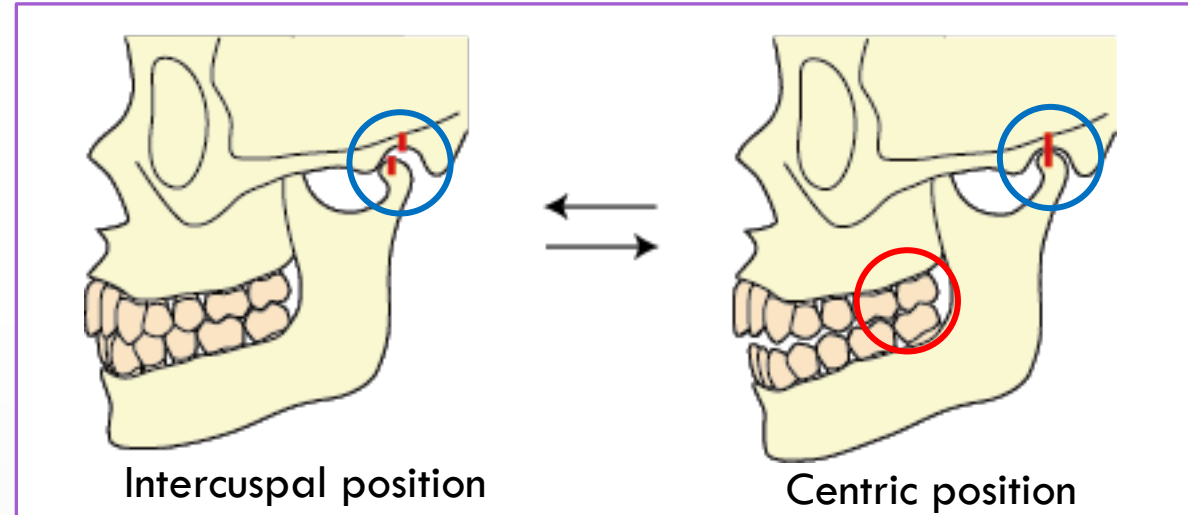
In this article, I will explain the method of occlusal analysis based on the following items.

- (a) Occlusal analysis of the centric relation
- (b) Relationship between the centric relation and the intercuspal position
- (c) Occlusal analysis of the lateral position of mandible
- (d) Occlusal analysis of the protrusive position of mandible



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4. Methods of occlusal analysis (a) Occlusal analysis of the centric relation



The centric relation is the most appropriate mandibular position for the TMJ, controlled by the TMJ. In a normal occlusion, when the mandible is guided to the centric relation and bites into the mandible, many teeth are in contact and stable. There is little or no misalignment between the centric relation and the intercuspal position.

On the other hand, if premature contact exists in the centric relation, as shown in the upper right illustration, the mandibular condyle will be displaced from the centric relation of the mandibular fossa when the occlusion is made in the occlusal condyle mating position. On the other hand, when the mandible is guided into occlusion in the centric relation, only some of the upper and lower teeth are in contact with each other and no other teeth are in contact. The occlusal analysis of the centric relation is to find and record the contact points indicated by the red circles in the upper right illustration.

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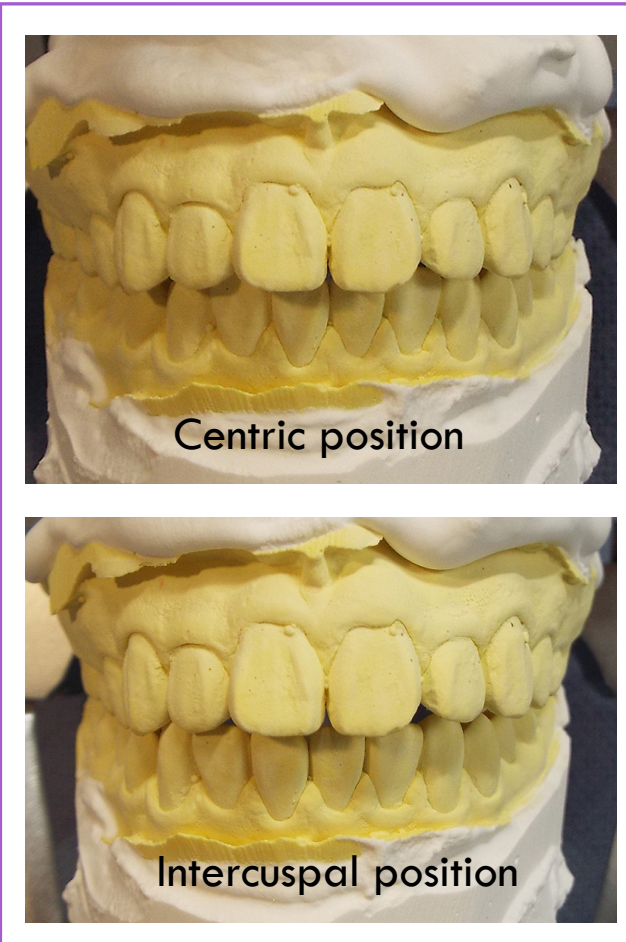
4. Methods of occlusal analysis

(b) Relationship between the centric relation and the intercuspal position

The upper right study cast shows the mandible guided to the centric relation. Generally, when the patient's mandible is guided to the centric relation, the median line of the upper and lower jaws are aligned. After that, I ask the patient to bite firmly to get the intercuspal position. If there is no misalignment between the upper and lower jaws, and the centric relation and intercuspal position fit together, the occlusion is considered normal.

On the other hand, after instructing the patient to "bite firmly," the median line of the upper and lower jaws may shift as shown in the lower right study cast. In such cases, we check in which direction and how many mm the intercuspal position is shifted from the centric relation.

The occlusal analysis between the centric relation and the intercuspal position is to measure and record the existence, direction and distance of the "deviation". For example, "the intercuspal position is displaced by X mm from the centric relation in the direction of Y" is recorded.



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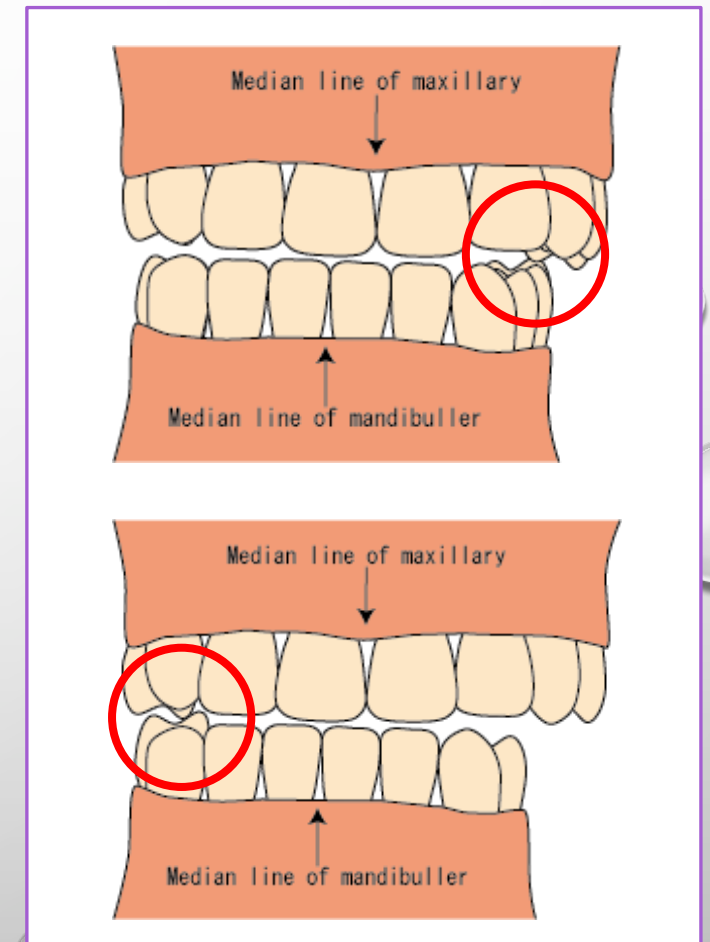
4. Methods of occlusal analysis

(c) Occlusal analysis of the lateral position of mandible

A person with normal occlusion can bite through threads and meat by bringing the upper and lower canines into contact when the mandible is moved laterally.

However, as shown in the upper right illustration, if there is occlusal interference on the balancing side when the mandible is moved laterally, the canines on the working side do not make contact. On the other hand, as shown in the lower right illustration, if occlusal interference exists on the working side molars, the canines on the working side do not make contact. In other words, if occlusal interference exists in the lateral position of mandible, the canines on the working side will not contact.

Occlusal analysis in lateral position of the mandible is to identify and record the areas of occlusal interference that occur when the mandible is guided in lateral position.



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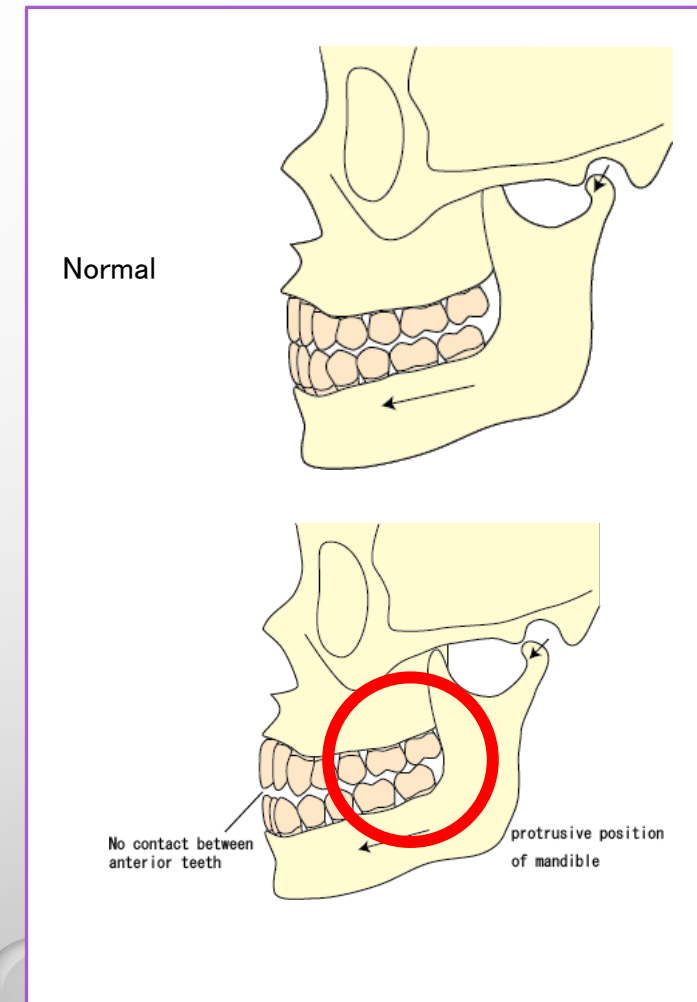
4. Methods of occlusal analysis

(d) Occlusal analysis of the protrusive position of mandible

As shown in the upper right illustration, in normal occlusion, when the mandible is thrust forward, the incisors of the upper and lower anterior teeth make contact, allowing the patient to chew through noodles and other foods.

As shown in the lower right illustration, if occlusal interference exists in the protrusive position of mandible, the anterior teeth will not make contact when the mandible is thrust forward. As a result, patients are unable to bite through noodles with their front teeth. It also induces nocturnal bruxism, which impairs the lateral pterygoid muscle.

The occlusal analysis of the protrusive position of mandible to find and record the molar occlusal contact points marked by the red circle in the lower right illustration, which prevent contact of the anterior teeth when the mandible is thrust forward.



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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 “Method of occlusal equilibration”.