

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



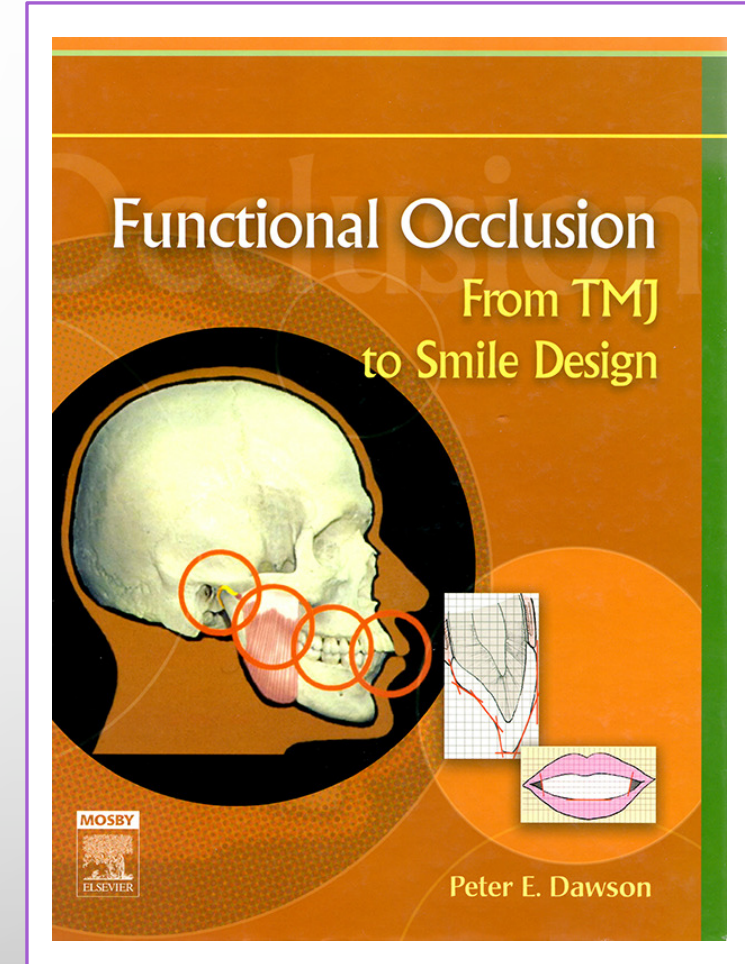
(OCCLUSION)



Ideal occlusion

Contents

1. What is ideal occlusion?
 2. History
 3. Late 19th century to early 20th century
 4. Balanced occlusion
 5. Late 20th century
 6. Mutually Protected Occlusion and Organic Occlusion
 7. Group Function Occlusion
 8. Guichet's criteria for proper occlusion
 9. The present
 10. Conclusion
- References



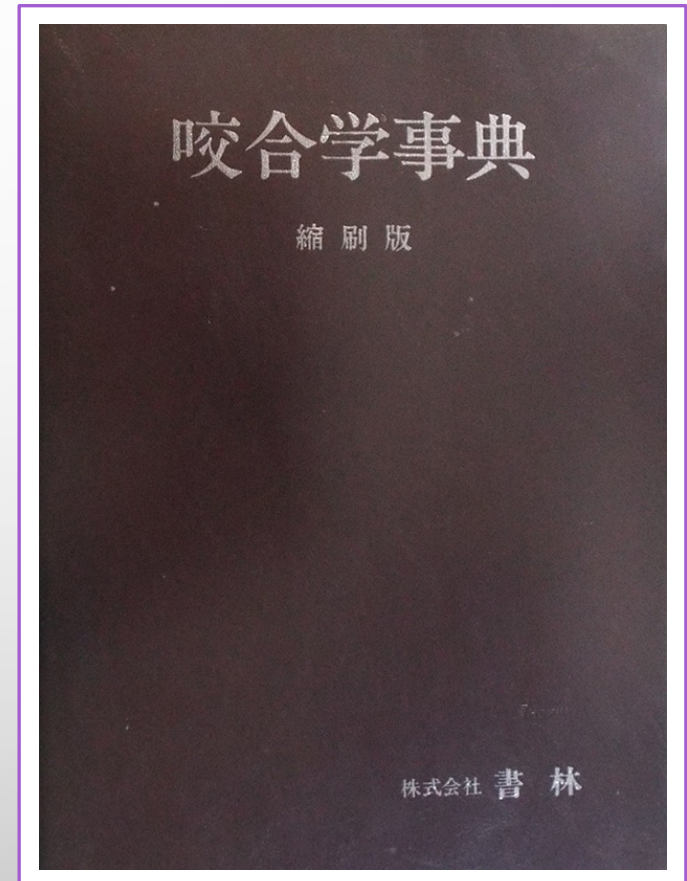
(IDEAL OCCLUSION)



1. What is ideal occlusion?

Ideal occlusion is the bite state assumed to be most appropriate for humans.

Ideal occlusion has been the subject of debate for the past 100 years or more. It includes Balanced Occlusion, Mutually Protected Occlusion, Organic Occlusion, and Group Function Occlusion.



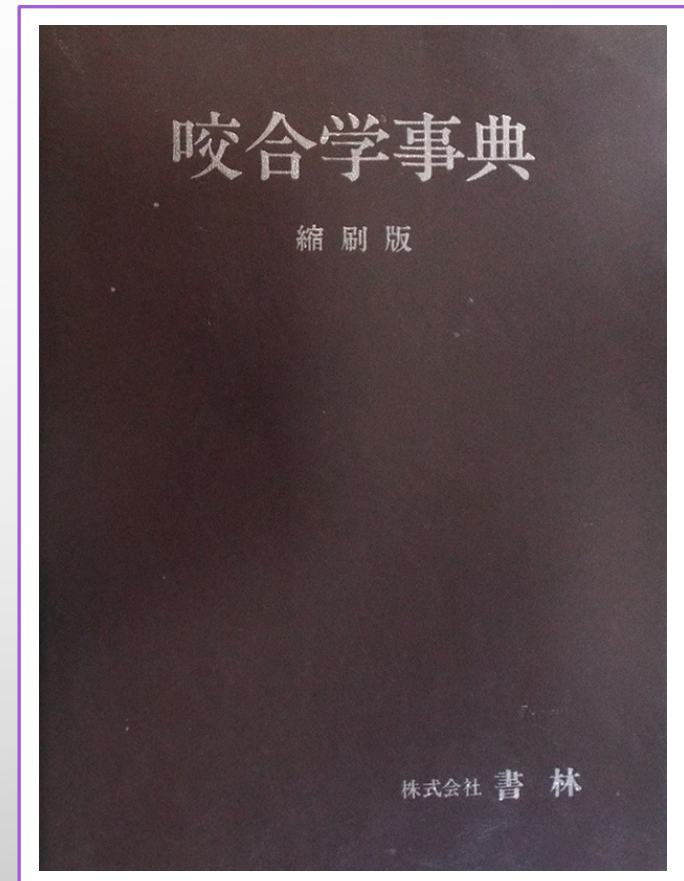
(IDEAL OCCLUSION)



2. History

The history of ideal occlusion is described in detail in four pages in Dr. Sumiya Homo's Encyclopedia of Articulation.

The history of ideal occlusion in the jaw with teeth can be divided into three major periods: the late 19th century, the early 20th century, the late 20th century, and the present.

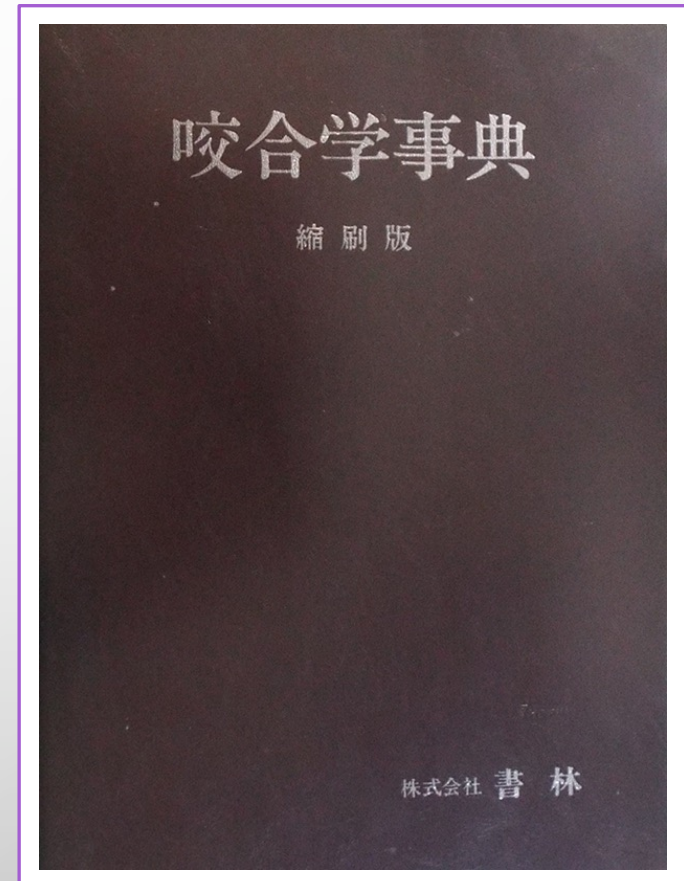


(IDEAL OCCLUSION)



3. Late 19th century to early 20th century

In the late 19th century, based on Bonwill's triangular, Spee's curved, and Monson's spherical theories, balanced occlusion was developed as the occlusion for complete dentures. Balanced occlusion was widely accepted as the ideal prosthetic occlusion for both the edentulous and jaws with teeth.



(IDEAL OCCLUSION)



4. Balanced occlusion

Balanced occlusion is a mode of occlusion in which all teeth are in contact simultaneously in all mandibular movements, including the intercuspal position.

Initially, balanced occlusion was established as the occlusion for full dentures. Later, it was also established as a treatment goal for jaw with teeth. However, in the 1950s, many dentists began to question balanced occlusion as the ideal occlusion for the jaw with teeth because the treatment of the majority patients who were given balanced occlusion failed. Today, balanced occlusion is no longer set for the jaw with teeth, but is considered the occlusion given to complete dentures.

(IDEAL OCCLUSION)



5. Late 20th century

Around 1950, Stallard and Stuart gave balanced occlusion to jaw with teeth patients for oral rehabilitation and found that the majority of their cases failed, leading them to question whether this occlusion was appropriate as an ideal occlusion. Subsequently, after a close examination of the oral cavity of healthy elderly patients, they discovered that the molar dentition does not contact during eccentric movement and the anterior teeth do not contact in the occlusal-occipital mating position. Based on this fact, Mutually Protected Occlusion was founded. Various improvements were made to this Mutually Protected Occlusion and the Organic Occlusion was founded.

(IDEAL OCCLUSION)



6. Mutually Protected Occlusion and Organic Occlusion

In 1949, Stallard founded the concept of Mutually Protected Occlusion. Mutually Protected Occlusion is a form of occlusion in which the intercuspal positions are aligned in the centric relation, the incisors protect the canines and molars in the anterior movement, and the canines protect the incisors and molars in the lateral movement. Gnathology has made various modifications to this Mutually Protected Occlusion and has founded the Organic Occlusion.

In Organic Occlusion, the molar dentition mates in a cusp-to-fossa relationship, with the functional cusp in three-point contact with the fossa of the opposing tooth, and the anterior teeth are about 25 microns apart at this time. When anterior movement begins, the maxillary anterior teeth guide the incisors of the mandibular incisors to disengage the molars. When lateral movement begins, the lingual surface of the maxillary canine on the working side guides the centric incisor of the mandibular canine and the proximal slope of the first premolar buccal cusp, and no other teeth make any contact. This is why it is also called a molar avulsion bite.

Mutually Protected Occlusion is considered the ideal occlusion of natural teeth, while Organic Occlusion is considered the elaborate prosthetic ideal occlusion created using Gnathological techniques.

(IDEAL OCCLUSION)



7. Group Function Occlusion

In 1961, Schuyler questioned the use of only the canine teeth to bear occlusal forces during lateral movement and proposed group function occlusion, in which the buccal cusps of all teeth on the working side are used as guides to disengage all teeth on the balancing side during lateral movement.

Group Function Occlusion releases all teeth on the balancing side using the buccal cusps of all teeth on the working side as guides during lateral movement. As a result, the lateral pressure of the occlusion is shared by all teeth from the central incisor to the last molar. In this mode of occlusion, a long-centered, i.e., anteroposterior, play between the centric relation and the intercuspal position mating position is established without any change in the vertical dimension.

Group Function Occlusion is considered today's most practical ideal occlusion as it does not cause disorders like Balanced Occlusion, is not as difficult to achieve in the edentulous jaw as Mutually Protected Occlusion or Organic Occlusion, and can be set by occlusal adjustment. It is considered to be the most practical ideal prosthetic occlusion today. It is also supported by many scholars because it is found in the majority of natural dentition.

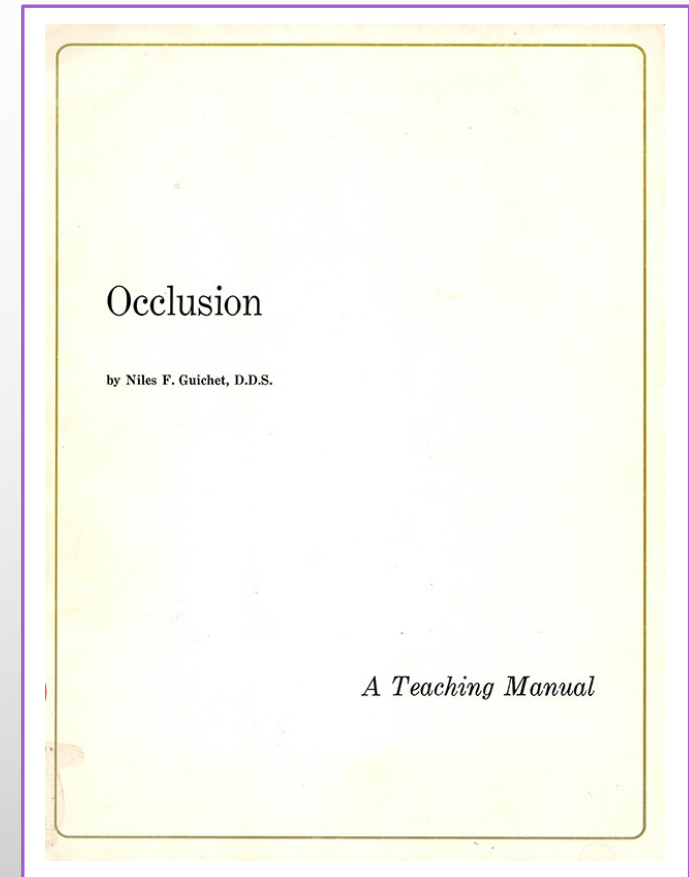
(IDEAL OCCLUSION)



8. Guichet's criteria for proper occlusion

Guichet argued that "there is no such thing as an appropriate occlusal pattern that is common to all patients" and that the most appropriate occlusal pattern for each patient should be selected by evaluating the merits of treatment based on the following criteria for appropriate occlusion.

- (1) Incorporate in the occlusion those factors which have to do with the reduction of vertical stress horizontal stress.
- (2) Provide for maximum intercuspation of the teeth with the condyles in centric relation.
- (3) Provide for horizontal movement of the mandible from the centric related intepcuspal position, horizontal load come into function.



(IDEAL OCCLUSION)



9. The present

Currently, ideal occlusion is sometimes set in occlusal splints. However, treatment strategies that modify the patient's original occlusion to the ideal occlusion are rarely employed in dental treatment. Ideal occlusion is used as an indicator of patient's occlusal analysis and diagnosis.

Guichet and Dawson have proposed a pattern or requirement for setting up a treatment plan, which is to select the most appropriate malocclusion for each patient instead of the ideal occlusion. Dawson lists five requirements for occlusal stability.

1. Stable stops on all teeth when the condyles are in centric relation
2. Anterior guidance in harmony with the border movement of the envelope of function
3. Disclusion of all posterior teeth in protrusive movements
4. Disclusion of all posterior teeth on the nonworking (balancing) side
5. Noninterference of all posterior teeth on the working side, with either the lateral anterior guidance, or the border movements of the condyle. The working-side posterior teeth may contact in lateral group function if they are in precise harmony with anterior guidance and condylar guidance, or they may be discluded from working-side contact by the lateral anterior guidance.

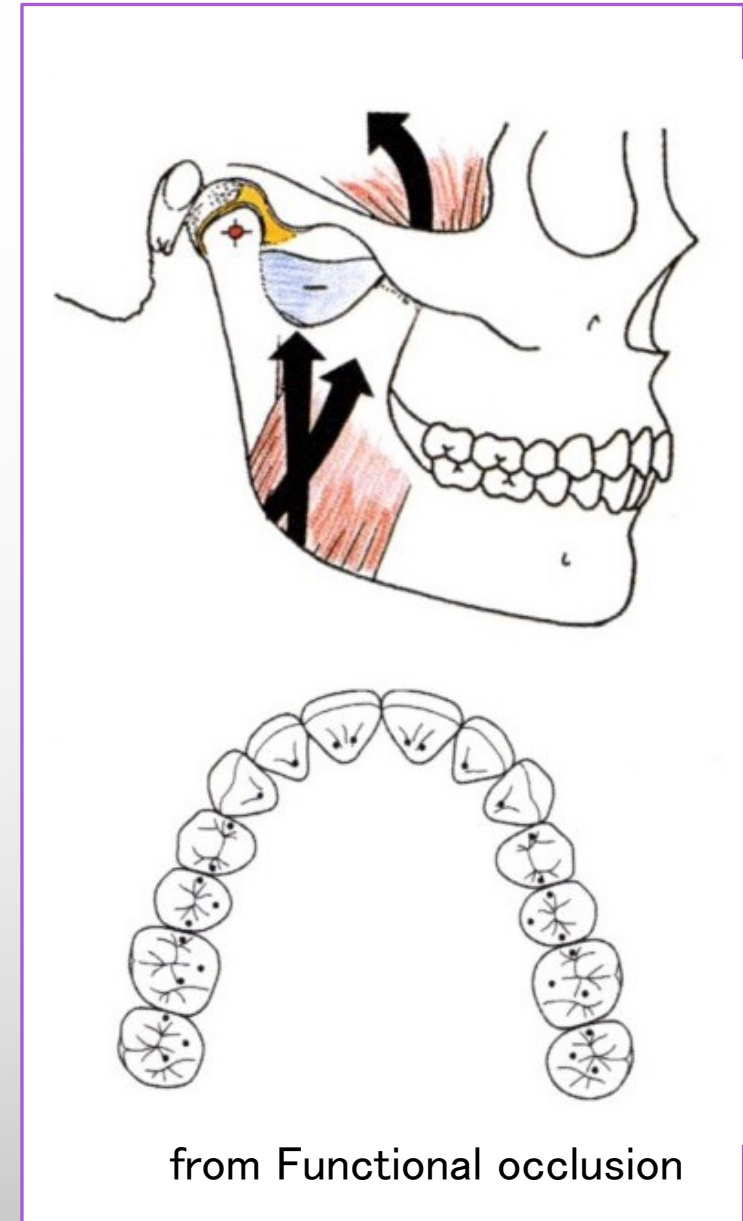
(IDEAL OCCLUSION)



10. Conclusion

In the past, ideal occlusion was adopted as the occlusal style to be given to the patient. Recently, however, it is increasingly being used as a diagnostic indicator for occlusal analysis. Furthermore, it seems that the bite to be given to the patient is changing from the ideal bite to a normal bite that is free from malocclusion.

For these reasons, ideal occlusion is rarely given to patients in clinical practice. However, mastery of the theory of ideal occlusion is necessary. By understanding ideal occlusion, dentists can dramatically improve their diagnostic ability in occlusal analysis.



(OCCLUSION)

Ideal occlusion



参考文献

- 1)保母須弥也:咬合学事典、書林、東京、1979.
- 2)Peter E. Dawson : Functional Occlusion From TMJ to Smile Design, MOSBY, St. Louis, 2007.
- 3)外川正:入門顎関節症治療のための咬合分析と診断, 金原出版, 東京, 2009.
- 4)外川正, 武田泰典, 加藤貞文, 阿部 隆, 千葉健一, 水間謙三, 岡田 弘:いわゆる「顎関節症」から分離して扱うべき疾患—とくに隣接医科との整合性を考慮して—, 日本歯科評論, 624:171~180, 1994.
- 5)Niles F. Guichet : Occlusion, Anaheim, Calif. , 1977.
- 6)最新医学大辞典, 医歯薬出版, 東京, 1987.
- 7)福井次矢:内科診断学第2版、医学書院、東京、2008.
- 8)Okeson JP : Long-term treatment of disk-interference disorders of the TMJ with anterior repositioning occlusal splints. J Prosthet Dent 1988 ; 60 : 611-616.
- 9)Dawson PE : Bad advice from flawed research. AGD Impact April : 30-31, 1995.

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

This is the end of the article of the occlusion. Thank you so much for your attention.