

# 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 equilibration**  
Examinations and diagnosis of occlusal equilibrations

Method of occlusal equilibrations  
Case of occlusal equilibrations  
Occlusal plane  
Vertical dimension  
Smile design  
Anterior guidance  
Long centric  
Bruxism  
Noise of TMJ  
Occlusal splint  
Ideal occlusion



( OCCLUSION )

# Occlusal equilibration

## Contents

### Introduction

1. Types of occlusal equilibration
2. Dawson's teachings
3. Theory and technique of occlusal equilibration
4. Goals of occlusal equilibration
5. Principles of occlusal equilibration
6. Significance of the principle of occlusal equilibration
7. Principles of occlusal equilibration of mandibular anterior teeth

### References



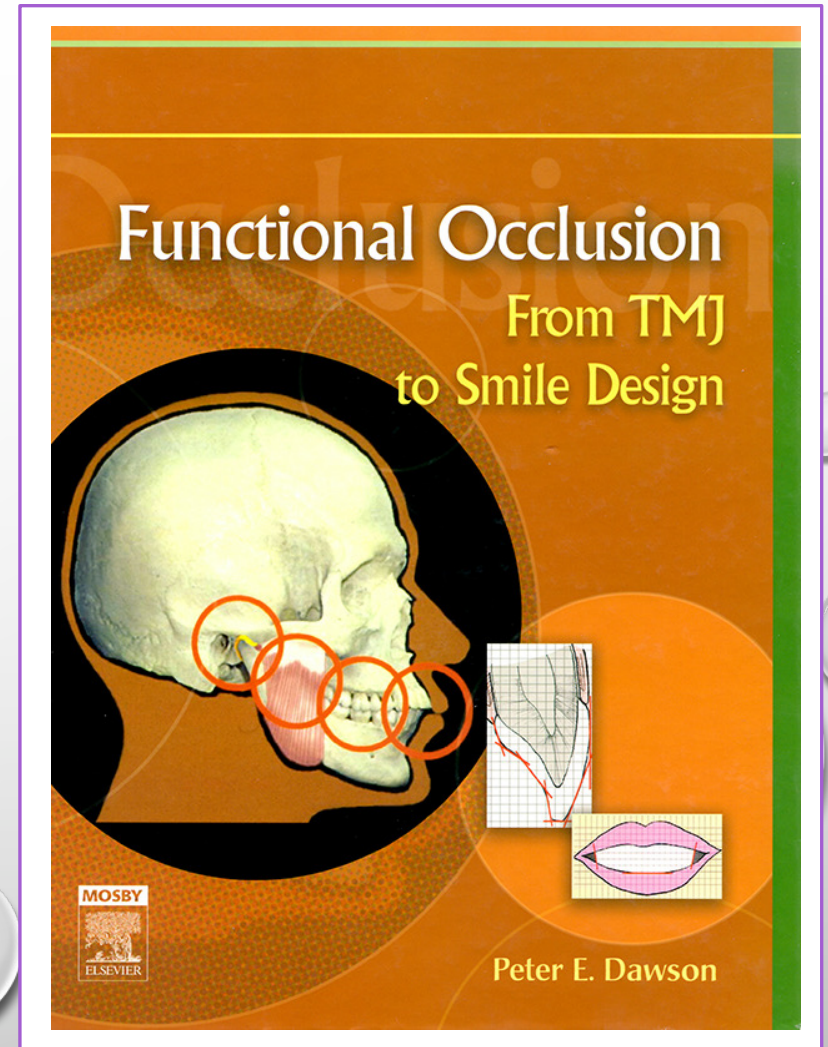
# ( Occlusal equilibrations )

## Introduction

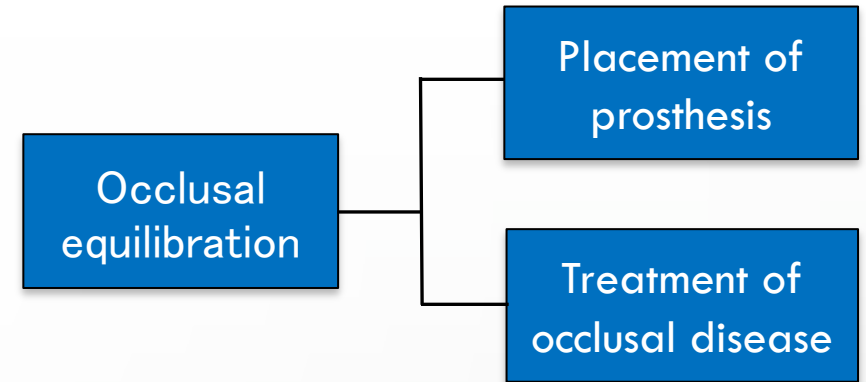
Dawson explains the theory and technique of occlusal equilibration in Chapter 33, page 25 of Functional Occlusion.

An occlusal equilibration is performed when a patient has been diagnosed with an occlusal disease, i.e., when it is clear that the cause of the disease is malocclusion.

In this article, we will explain what occlusal equilibration is based on principle of occlusion with an awareness of the function of the temporomandibular joint.



# ( Occlusal equilibration )



## 1. Types of occlusal equilibration

As shown in the upper chart on the right, there are two types of occlusal equilibrations: occlusal equilibration at the time of prosthetic placement and occlusal equilibration in the treatment of occlusal disease.

The occlusal equilibration at the time of prosthetic placement is performed by unilaterally grinding the occlusal surface of the prosthesis to bring it into alignment with the patient's intercuspal position. Since the goal of treatment is the current occlusal state, the technique is relatively simple.

occlusal equilibration in occlusal disease treatment is performed when it is clear that the cause of the disease is malocclusion. In other words, based on the patient's occlusal analysis, it is determined which teeth and which portion of the teeth should be ground down and to what extent, and the final treatment goal is set before the occlusal equilibration is initiated. Therefore, the occlusal analysis and diagnosis of the patient's occlusion are indispensable for occlusal equilibration in occlusal disease treatment. In addition, when shaving the occlusal surfaces, one of the occlusal interferences between the upper and lower jaws must be selected for shaving. This makes the technique complex and difficult.

On the other hand, Dawson states that crown prosthesis placement should be done as appropriately as occlusal adjustments are done for occlusal disease.



# ( Occlusal equilibration )

## 2. Dawson's teachings

At the beginning of Chapter 33 of functional occlusion, Dawson indicates the following.

### PRINCIPLES

- (1) Don't equilibrate if the outcome is in doubt.
- (2) A successful outcome can be determined in advance.

Occlusal equilibrations are a less invasive and conservative method of treatment. On the other hand, however, inadvertent occlusal equilibration is a treatment that can lead to a variety of disorders. Therefore, we dentists need to take this short teaching by Dawson to heart. Dawson asserts that "Doing a poor job of equilibration is far worse than leaving the malocclusion."

Dentists should not start occlusal equilibration in the dark with a "try it out" attitude.



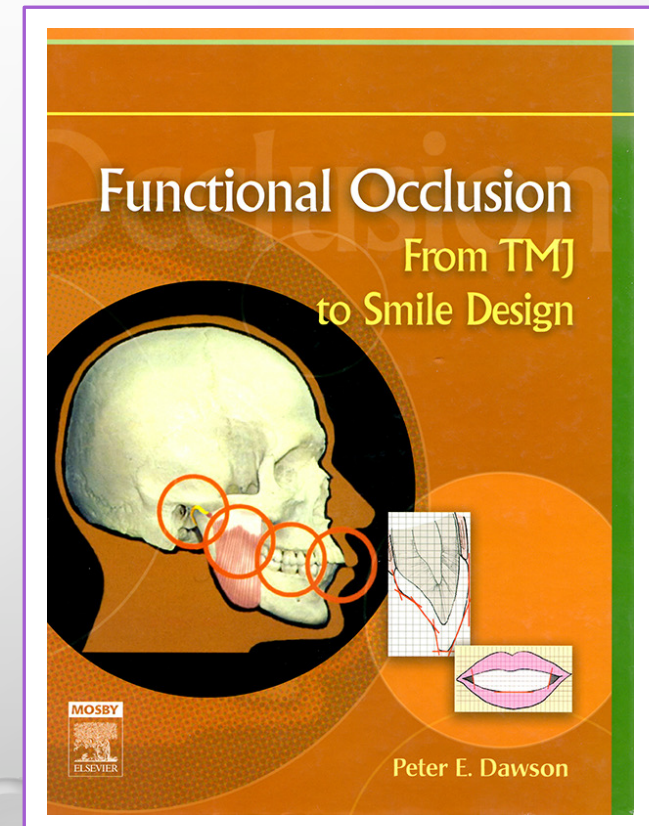
## ( Occlusal equilibration )

### 3. Theory and technique of occlusal equilibration

Occlusal equilibration is the most widely indicated treatment to resolve occlusal disharmony, and its therapeutic effect is clear and immediate. Patients suffering from occlusal disharmony immediately state that their bite is easier after receiving an appropriate occlusal equilibration based on a proper diagnosis.

Occlusal adjustments are based on the principle of occlusal, the functional anatomy of the occlusal surfaces of the teeth. The principle of occlusal is not a new discipline; it began in the late 19th century with the work of Bonwill and Spee and has been developed and refined by dentists and scholars around the world.

In this article, we will introduce Dawson's theory and techniques for occlusal adjustment, which is a compilation of occlusal theories.



## ( Occlusal equilibration )

### 4. Treatment Goals of Occlusal Adjustment

Dawson lists five requirements for occlusal stability.

- (1) Stable holding contacts on all teeth when the condyles are in centric relation.
- (2) Anterior guidance in harmony with the envelope of function.
- (3) Immediate disclusion of all posterior teeth the moment the mandible moves forward of centric relation.
- (4) Immediate disclusion of all posterior teeth on the non working side.
- (5) Non-interference of all posterior teeth on the working side with either the lateral anterior guidance or the border movements of the condyles. (Immediate disclusion is ideal if achievable)

The dentist identifies malocclusions that interfere with these requirements. Occlusal adjustments are then made with the goal of eliminating those malocclusions.



## ( Occlusal equilibration )

### 5. Principles of occlusal equilibration

In order to eliminate occlusal interference, it is necessary to selectively grind the interfering tooth on either the upper or lower jaw where interference is occurring. The following principles are used to determine which of the upper and lower teeth should be grinded.

- (a) For cusps vs. fossae, the fossa is grinded.
- (b) For functional vs. non-functional cusps, the non-functional cusp is grinded.
- (c) For functional vs. functional cusp, the one that does not change the vertical dimension is grinded.
- (d) For incisal vs. lingual, the lingual surface is grinded.
- (e) For incisal to incisal, the one that does not affect the esthetic appearance is grinded.



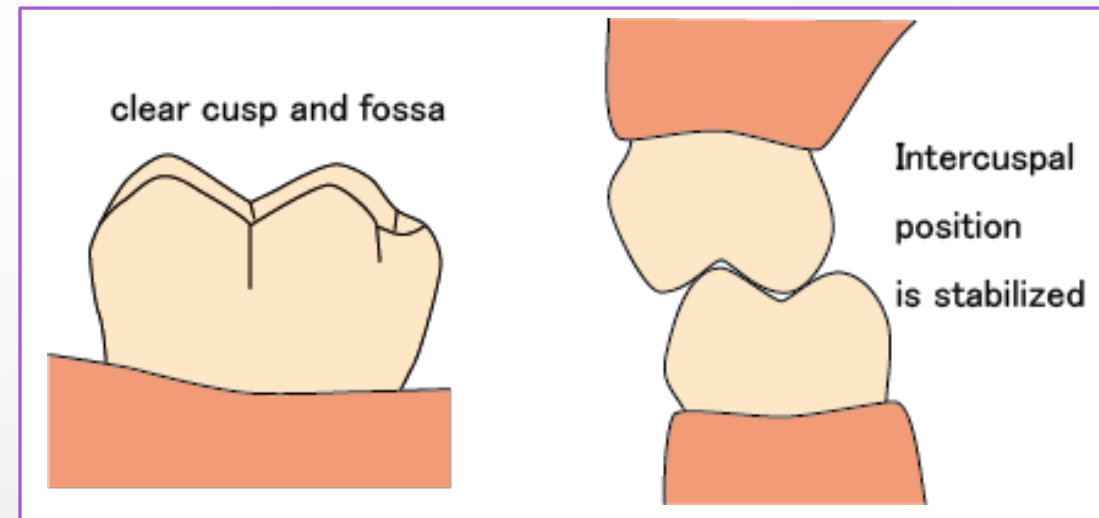


## ( Occlusal equilibration )



### 6. Significance of the principle of occlusal equilibration

By adhering to the principle of grinding the occlusal interferences, as shown in the illustration on the right, the occlusal surfaces of the molars will have a clear cusp and fossa without any change in the vertical dimension. As a result, the intercuspital position is stabilized and the masticatory function of the molars is improved. If the cusp of the molar is grinded without following this principle, the occlusal surface of the molar will be flat.



When the occlusal surfaces of the molars become flat, the occlusal surfaces of the upper and lower molars come in contact with each other face to face, resulting in poor masticatory function. In addition, the intercuspital position becomes unstable, and patients complain that they do not know where to bite, which worsens the occlusal disease.

# ( Occlusal equilibration )



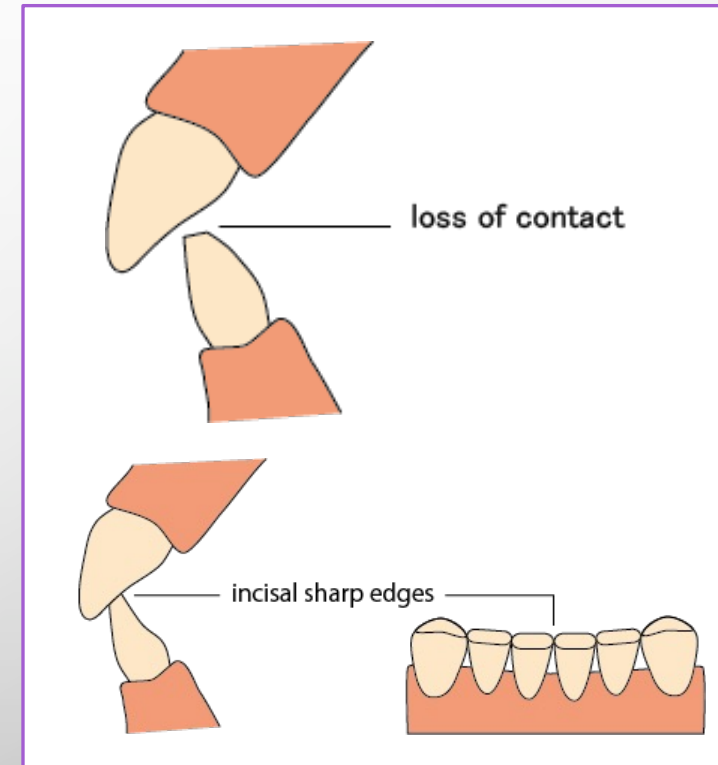
## 7. Principles of occlusal equilibration of mandibular anterior teeth

(1) As a rule, the cutting edge of the mandibular anterior teeth is not grinding.

The cutting edge of the mandibular anterior teeth is the base of occlusal guidance. As shown in the upper right illustration, grinding the cutting edges of the mandibular anterior teeth can result in loss of contact between the maxillary and mandibular anterior teeth.

(2) The incisal sharp edges of the mandibular anterior teeth should be preserved.

As shown in the lower right illustrations, if the angle of the labio-lingual transition at the mandibular anterior incisor margin is sharply angled due to occlusal wear, the angle should not be shaved to make it transitional. This sharp angle serves an effective function in cutting food.



( OCCLUSION )

# Occlusal equilibration



## 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.

The next topic will be “ Examinations and diagnosis of occlusal equilibrations ”.