

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)

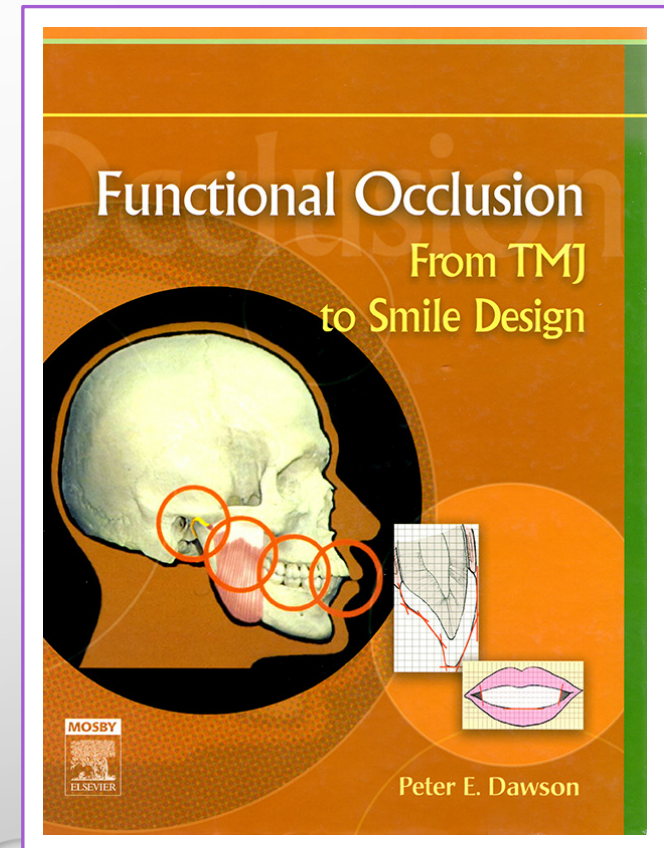
Method of occlusal equilibration

Occlusal equilibrations are made according to the following procedures

1. Occlusal analysis and diagnosis using study cast
2. Removal of interference in the centric relation
3. Removal of interference in the lateral position
4. Removal of interference in the protrusive position
5. Harmonization of anterior guidance

Each of these will be explained.

References



(Method of occlusal equilibration)



1. Occlusal analysis and diagnosis using study cast

Occlusal disease may be treated by simple occlusal equilibration alone, after an oral examination reveals the site of malocclusion. In most cases, however, treatment of occlusal disease requires occlusal analysis and occlusal diagnosis using a model mounted on a semi-adjustable articulator. Especially in the case of complex malocclusions, it is essential to set treatment goals as revealed by trial occlusal equilibrations on the study cast. These complex malocclusions include extensive malocclusions in which the patient complains of not knowing where to bite, malocclusions after orthodontic treatment, malocclusions after large crown prostheses, and malocclusions that develop after the placement of implant superstructures.



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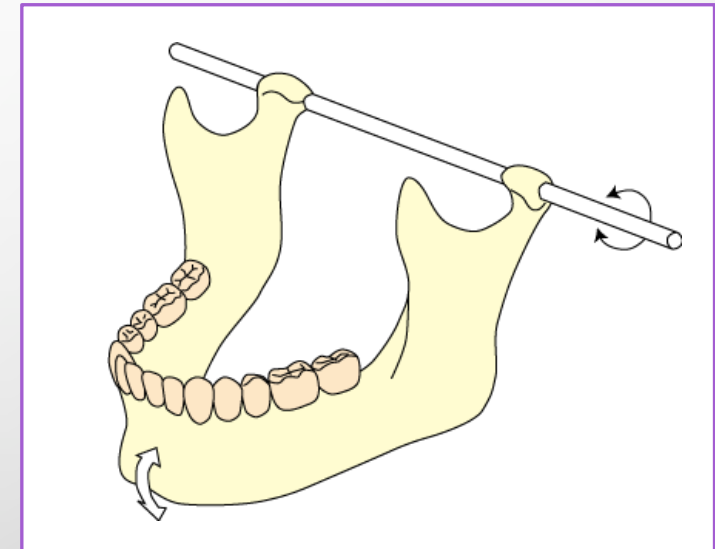


2. Removal of occlusal interference in the centric relation

Removal of occlusal interference in the centric relation is performed according to the procedure described below.

- (a) Guiding the mandible to the centric relation
- (b) Check for occlusal interference in the centric relation
- (c) Explain the centric relation to the patient
- (d) Check for occlusal interference in the centric relation using articulating paper
- (e) Grinding the occlusal interferences
- (f) Confirm the patient's occlusal feeling after equilibration

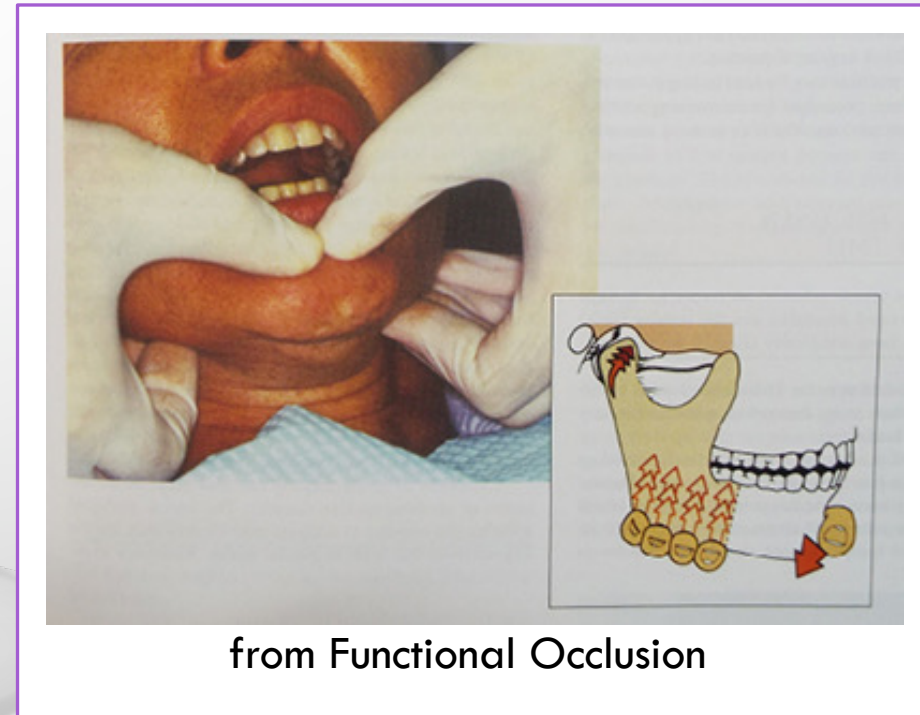
The following is an explanation of each of these points.



(Method of occlusal equilibration)

2. Removal of occlusal interference in the centric relation
 - (a) Guiding the mandible to the centric relation

Using bilateral manipulation to guide mandible into a centric relation.



(Method of occlusal equilibration)

2. Removal of occlusal interference in the centric relation
 - (b) Check for occlusal interference in the centric relation

When the dentist guides the mandible into the central position, he or she asks the patient, “Which hits first, the right or the left?”

By asking such a question, the approximate site of occlusal interference can be predicted.



(Method of occlusal equilibration)

2. Removal of occlusal interference in the centric relation
 - (c) Explain the centric relation to the patient

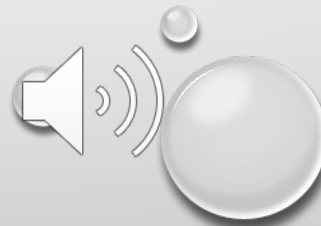
After guiding the mandible to the centric relation, the dentist tells the patient, "This is the most convenient (natural) position for the joint" while performing the hinge movement of the mandible. By having the patient understand the centric relation in this way, it becomes easier to guide the patient to the centric relation, and furthermore, the detection of interference areas becomes more accurate. As a result, proper occlusal equilibration is possible.



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2. Removal of occlusal interference in the centric relation
 - (d) Check for occlusal interference in the centric relation using articulating paper

The dentist uses an articulating paper to record the occlusal interference in the centric relation. As shown in the right photo, there is centric relation occlusal interference at the proximal marginal ridge of the upper left fourth of the study cast.



(Method of occlusal equilibration)

2. Removal of occlusal interference in the centric relation

(e) Grinding the occlusal interferences



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.

- (1) For cusps vs. fossae, the fossa is grinded.
- (2) For functional vs. non-functional cusps, the non-functional cusp is grinded.
- (3) For functional vs. functional cusp, the one that does not change the vertical dimension is grinded.
- (4) For incisal vs. lingual, the lingual surface is grinded.
- (5) For incisal to incisal, the one that does not affect the esthetic appearance is grinded.



(Method of occlusal equilibration)

2. Removal of occlusal interference in the centric relation
 - (f) Confirm the patient's occlusal feeling after equilibration

After performing an occlusal equilibration, the dentist asks the patient if the bite has changed. If the patient responds "no change" or "worsened," another occlusal analysis and diagnosis should be performed. When the occlusal analysis and diagnosis and occlusal equilibration are properly performed, the patient will respond that his or her bite has become easier. This communication with the patient confirms the suitability of the treatment.



(Method of occlusal equilibration)

3. Removal of interference in the lateral position

As shown in the right photo, the dentist guides the patient's mandible in a lateral position and records the occlusal interference area with articulating paper. The removal of occlusal interference in the mandibular aspect is performed according to the procedure shown below.

- (a) Guiding to the lateral position of mandible
 - (b) Removal of occlusal interference on the balancing side
 - (c) Removal of occlusal interference on the working side
- Each of these will be explained.

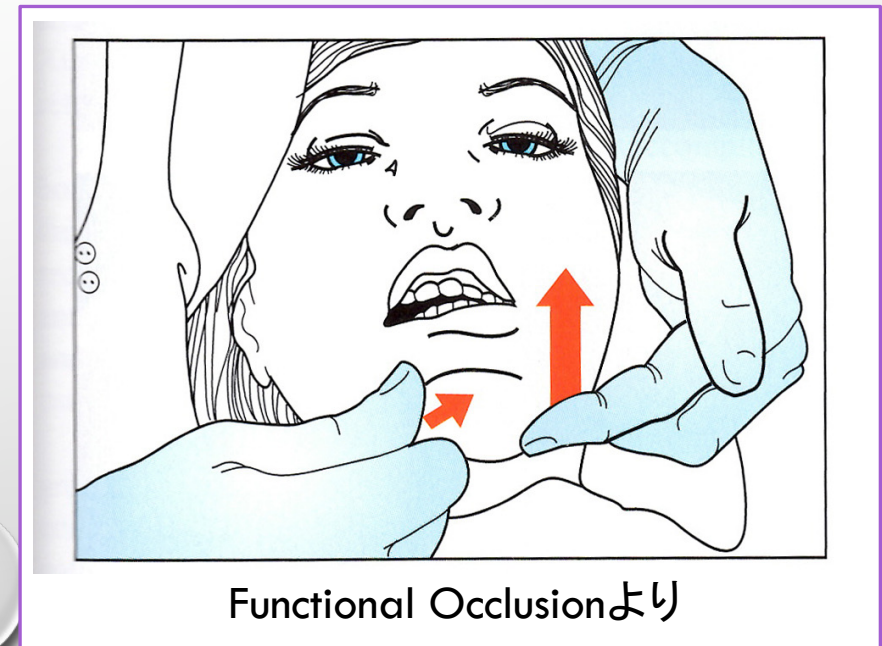


(Method of occlusal equilibration)

3. Removal of interference in the lateral position

(a) Guiding to the lateral position of mandible

As shown in the right illustration, induction of the mandible into the lateral position involves guiding the mandible laterally with both hands, with the thumb on the working side away from the mandibular region. Induction to this mandibular lateral marginal movement for healthy individuals is not very difficult. However, inducing patients with occlusal disease to the mandibular lateral limit position is very difficult due to factors such as tension in the masticatory muscles and improper habits of mandibular movement caused by malocclusion. Therefore, it is necessary to guide them patiently.



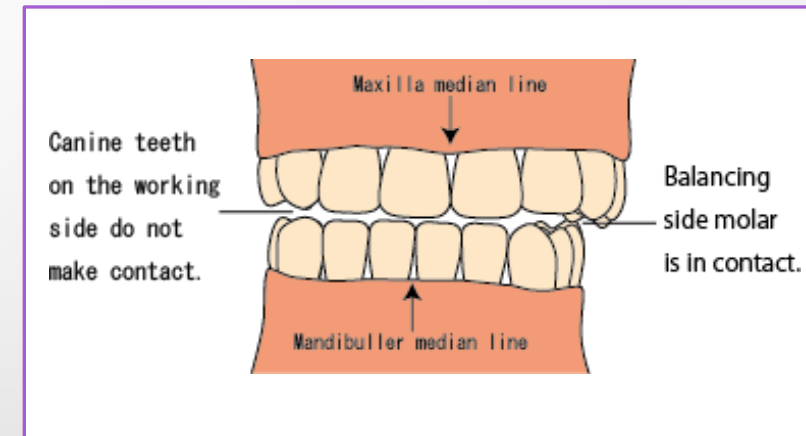
(Method of occlusal equilibration)

3. Removal of interference in the lateral position

(b) Removal of occlusal interference on the balancing side

Once the dentist is able to guide the mandible into a lateral position, the upper and lower teeth are brought into contact as gently as possible. As shown in the right illustration, if the canines and molars on the working side are not in contact at this stage, we suspect occlusal interference on the balancing side. Check for occlusal interference by placing a piece of articulating paper on the balancing side molars.

If occlusal interference exists on the balancing side, the occlusal interference on the balancing side is removed until the anterior teeth on the working side can make contact. Since the contact site of the interference is the functional cusp in both the upper and lower jaws, careful occlusal equilibration is necessary to prevent the vertical dimension from becoming too low. Only one of the teeth should be ground at a time, and not both upper and lower teeth should be ground at the same time.



(Method of occlusal equilibration)

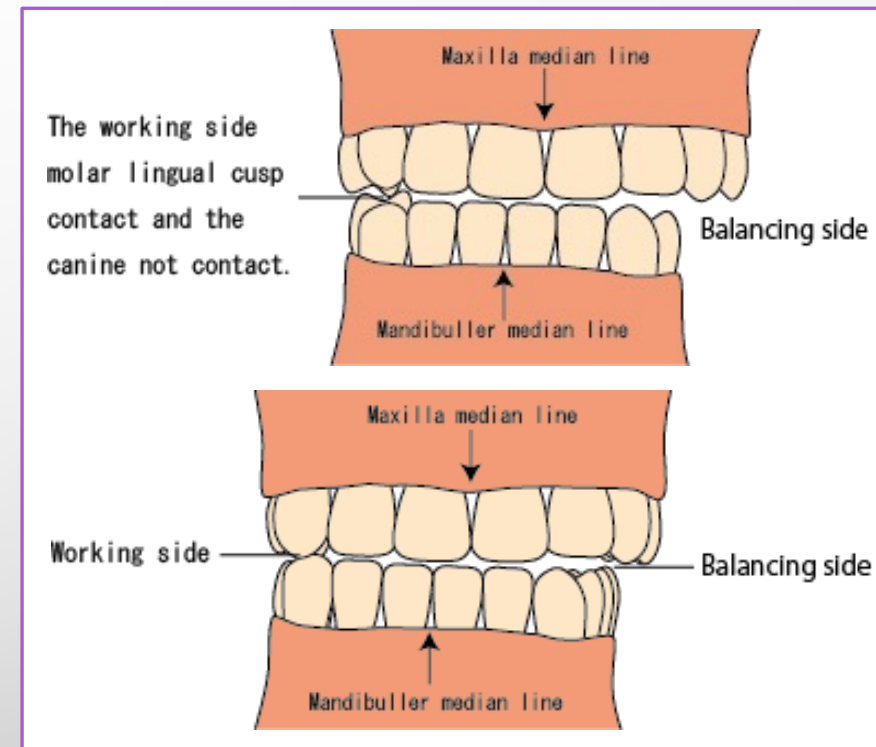


3. Removal of interference in the lateral position

(c) Removal of occlusal interference on the working side

As shown in the upper right illustration, the mandible is guided in the lateral position. If the canine teeth on the working side do not make contact and no occlusal interference is observed on the balancing side molars, occlusal interference of the working side molars is suspected. Check for occlusal interference by placing a piece of articulating paper on the working side molars.

As shown in the lower right illustration, the occlusal interference area on the intra-occlusal slope of the lingual side of the mandibular molar or the intra-occlusal slope of the buccal side of the maxillary molar is ground and adjusted so that occlusal guidance of the working anterior teeth can be established. This occlusal interference occurs when the non-functional cusp of the working molar is too high.



(Method of occlusal equilibration)

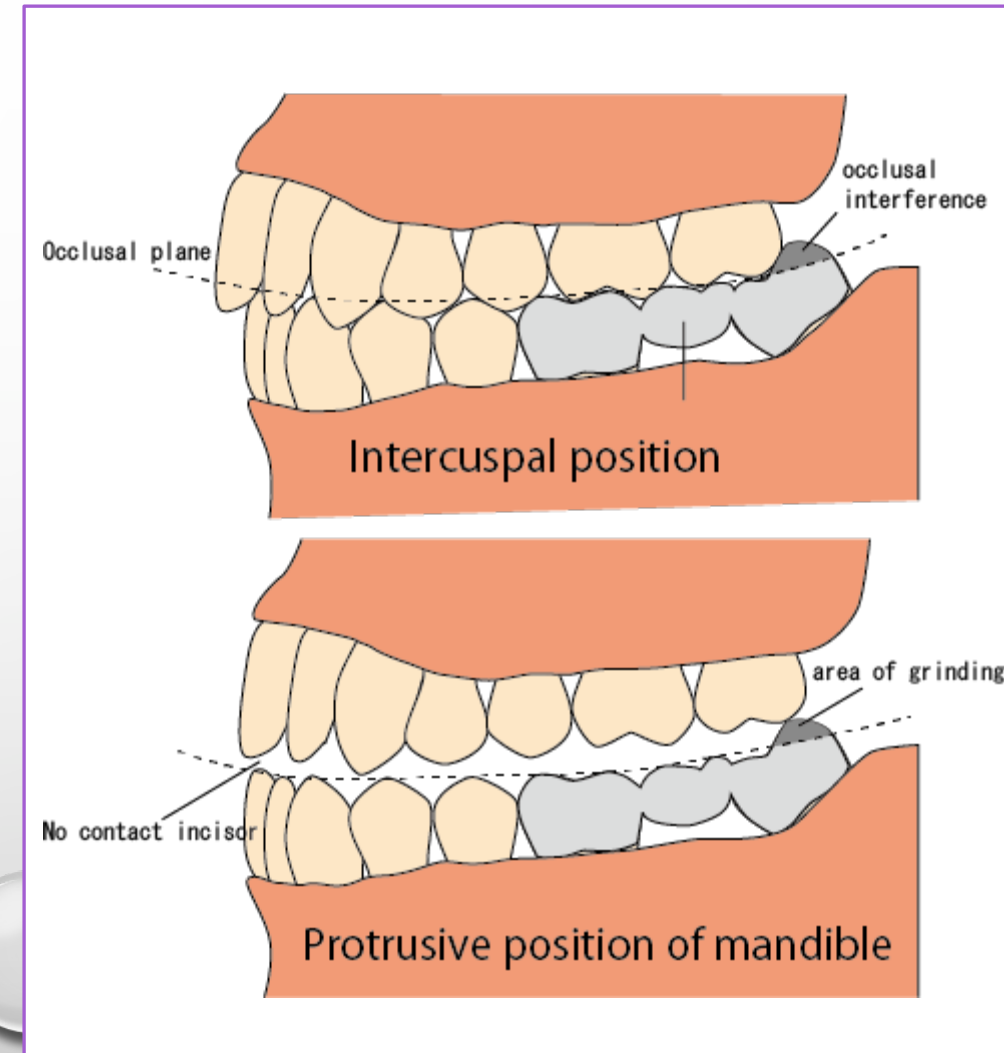


4. Removal of interference in the protrusive position

Remove occlusal interference in the protrusive position mandibular.

As shown in the upper right illustration, the presence of occlusal interference in the protrusive position of mandible results in strong contact between the molars and no contact between the anterior teeth when the mandible is thrust forward. The Patients complain that they cannot bite through noodles such as ramen noodles with their front teeth.

If mandibular protrusive position occlusal interference is present, the occlusal interference area of the molars is identified and ground down. As shown in the lower right illustration, when the patient thrusts the mandible forward, the occlusal interferences are ground down until the anterior teeth come into contact.



(Method of occlusal equilibration)

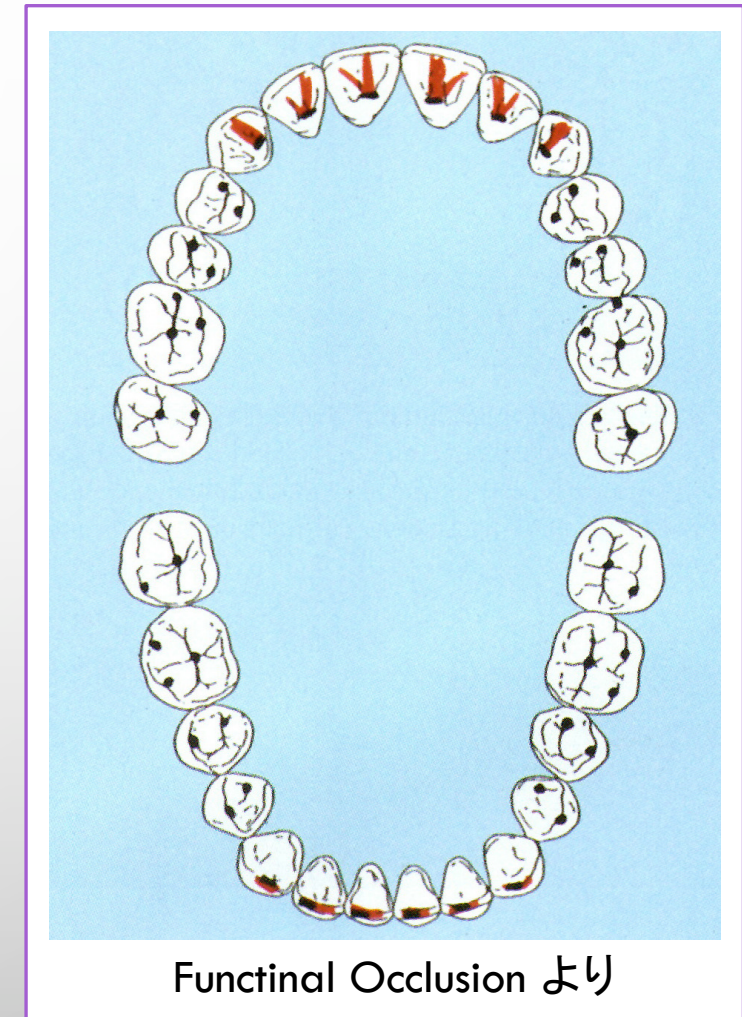


5. Harmonization of anterior guidance

Finally, the harmony of the anterior occlusal guidance is checked. The illustration on the right shows the pattern of ideal occlusal guidance. This pattern cannot be given to the patient as it is through occlusal equilibration, but can be used as a reference when constructing the patient's occlusion.

Specifically, the patient is allowed to freely perform mandibular movements, and the dentist observes the patient's condition to identify directions that are unconsciously avoided during the movements, unnatural movements, and the presence of trapped areas. Next, occlusal paper is interposed between the upper and lower jaw teeth to reproduce the movement to identify the area of occlusal interference, and then the area is ground.

Finally, the dentist adjusts and polishes them to complete the occlusal equilibration.



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Method of occlusal equilibration

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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 “Case of occlusal equilibration”.