OCCLUSION

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Osteoarthritis of TMJ
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Disease of retrodiscal tissue (provisional name)
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(OCCLUSION)

Determining of centric relation

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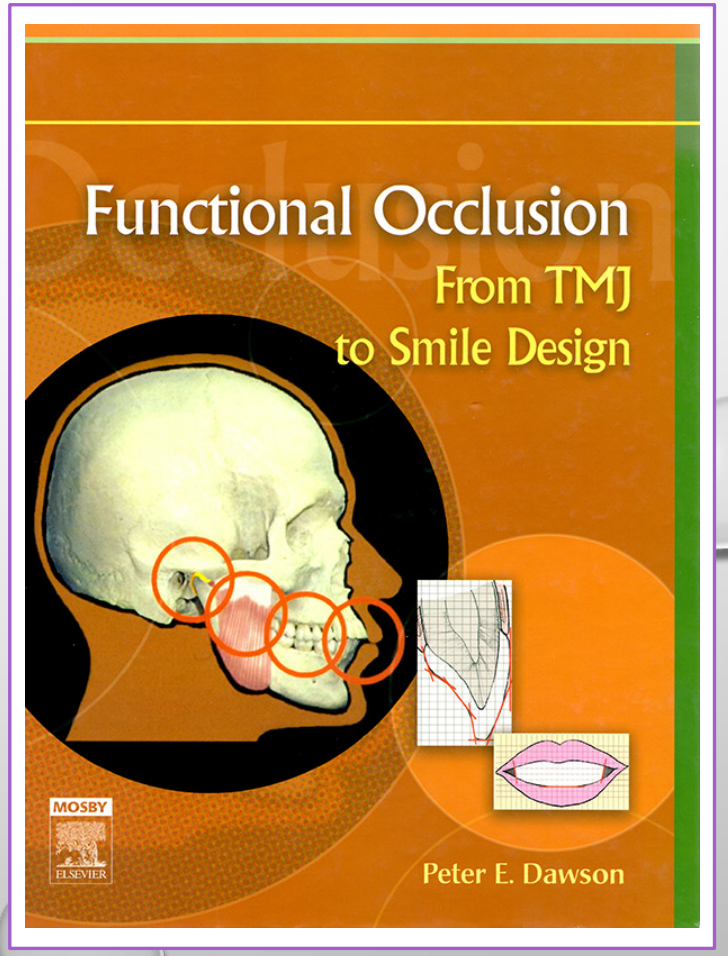
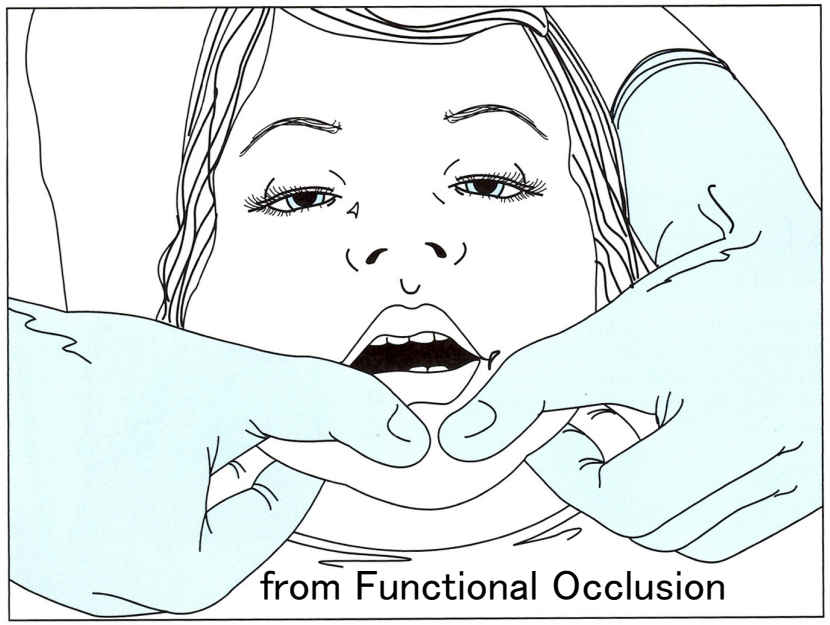


(Determining of centric relation)

What is bilateral manipulation



The centric relation has a theoretical underpinning, and the theory has been developed by dentists and researchers around the world for over 80 years. Mastering the theory of the centric relation is not an easy task for the average dentist. However, more important to us general dentists than discussing the theory is to accurately identify the centric relation of our patients, show them the cause of malocclusion, and help patients suffering from TMD.

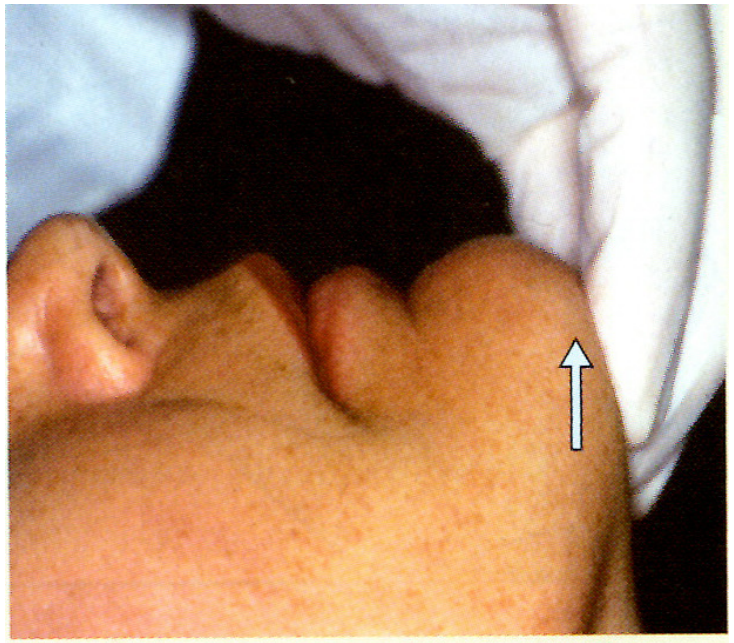
In this article, I will explain specifically how to obtain the centric relation as described in Dawson's Functional Occlusion.

(Determining of centric relation)

Bilateral manipulation

Step 1

Recline the patient all the way back. Point the chin up.

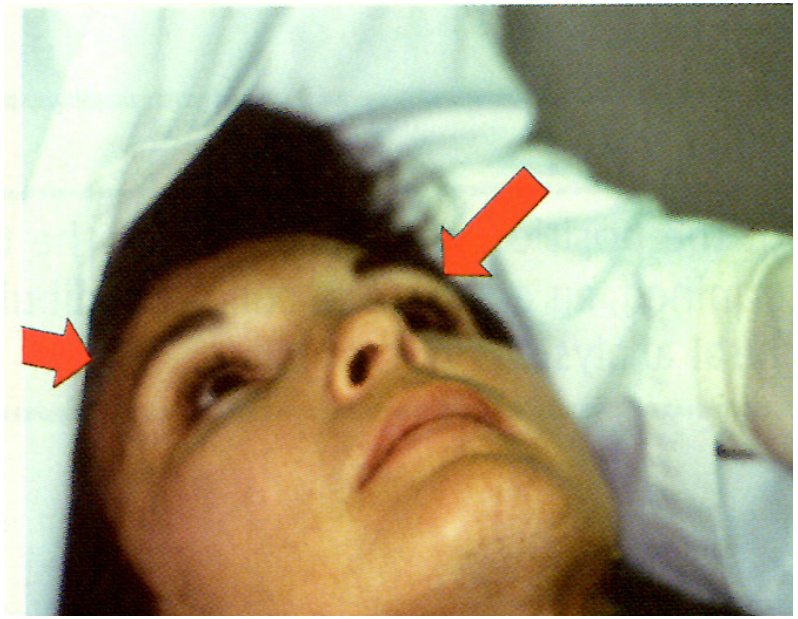


from Functional Occlusion

(Determining of centric relation)

Bilateral manipulation
Step 2

Stabilize the head. Lower the patient's head enough so you can cradle it between your rib cage and forearm. Some dentists find it more comfortable to position the top of the patient's head in the center their abdomen. This has some disadvantages in that there is a tendency to pull back on the mandible. It is also more difficult to see in the mouth from that position and is a bit awkward for the assistant in four-handed procedures. Nevertheless, it can be learned effectively with practice.

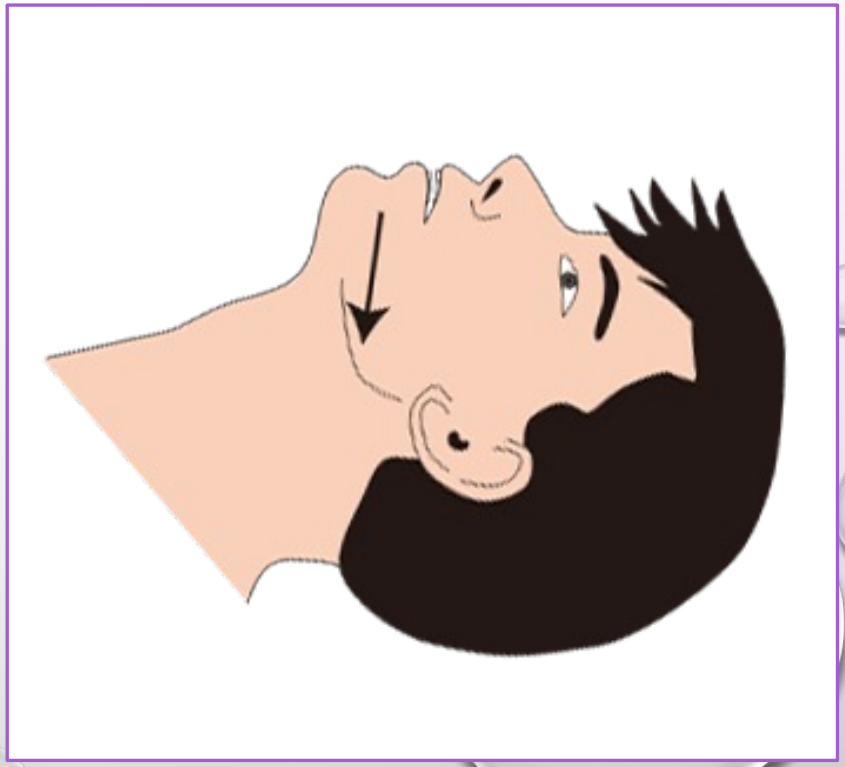


from Functional Occlusion

(Determining of centric relation)

Bilateral manipulation
Step 3

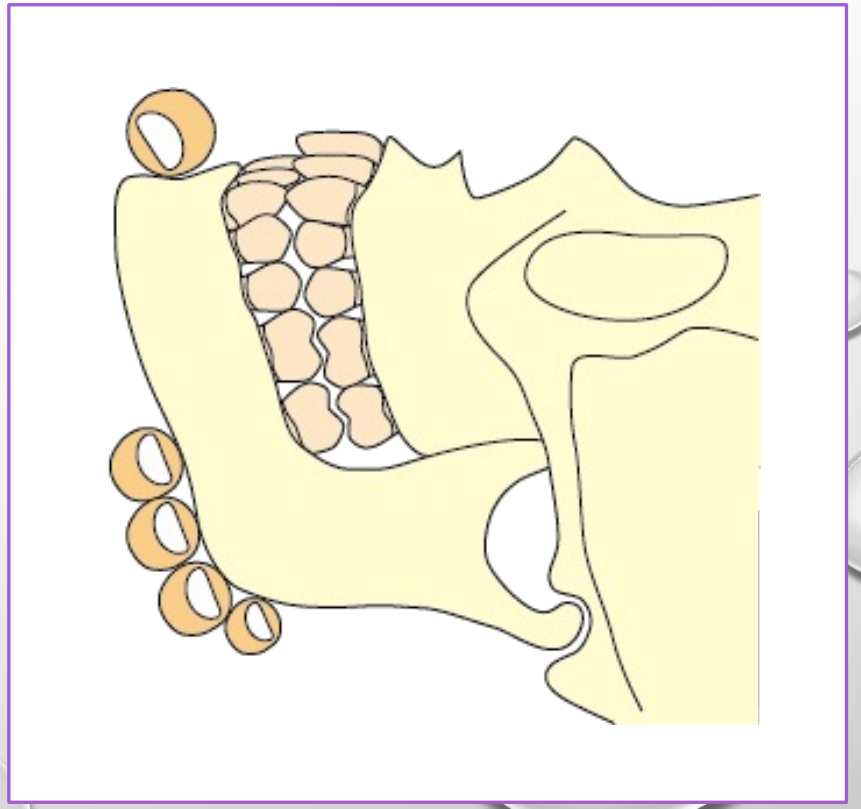
After the head is stabilized, life the patient's chin again to slightly stretch the neck. By stretching the anterior skin of the neck, the lower jaw is naturally drawn backward.



(Determining of centric relation)

Bilateral manipulation
Step 4

Gently position the four fingers of each hand on the lower border of the mandible. The little finger should be slightly behind the angle of the mandible. Position the pads of your fingers so they align with the bone, as if you were going to left the head. Keep all four fingers tighly together.

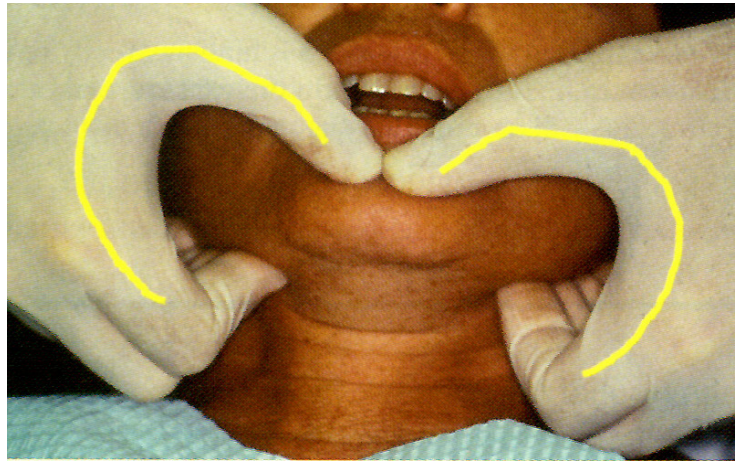


(Determining of centric relation)

Bilateral manipulation

Step 5

Bring the thumbs together to form a C with each hand. The thums should fit in the notch above the symphysis. No pressure should be applied at this time. All movements should be made gently.



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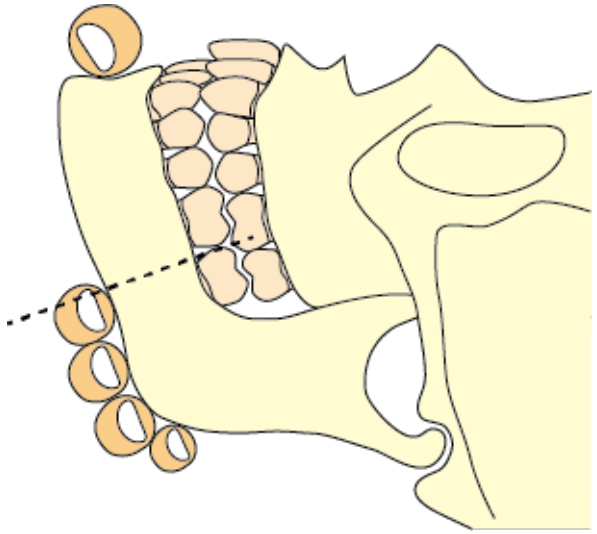
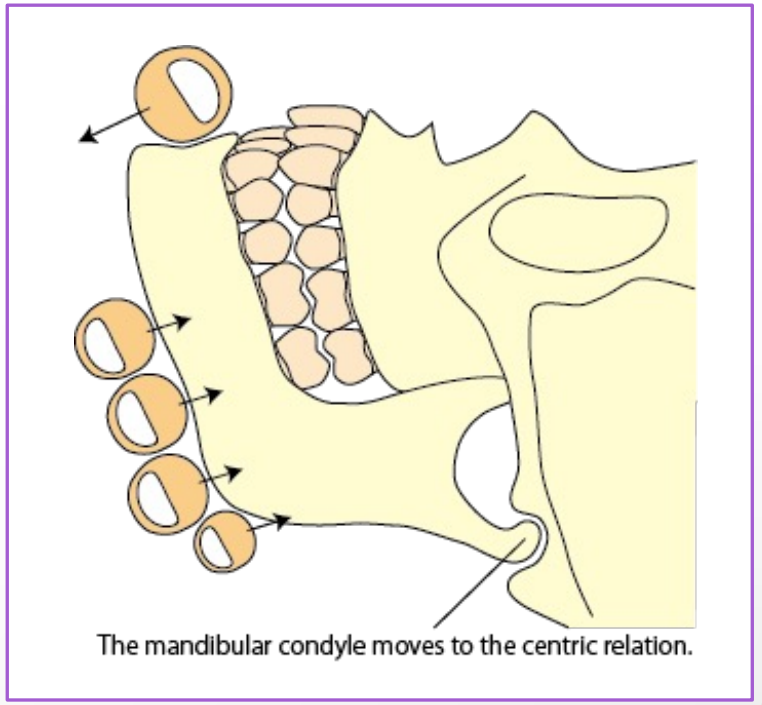


(Determining of centric relation)

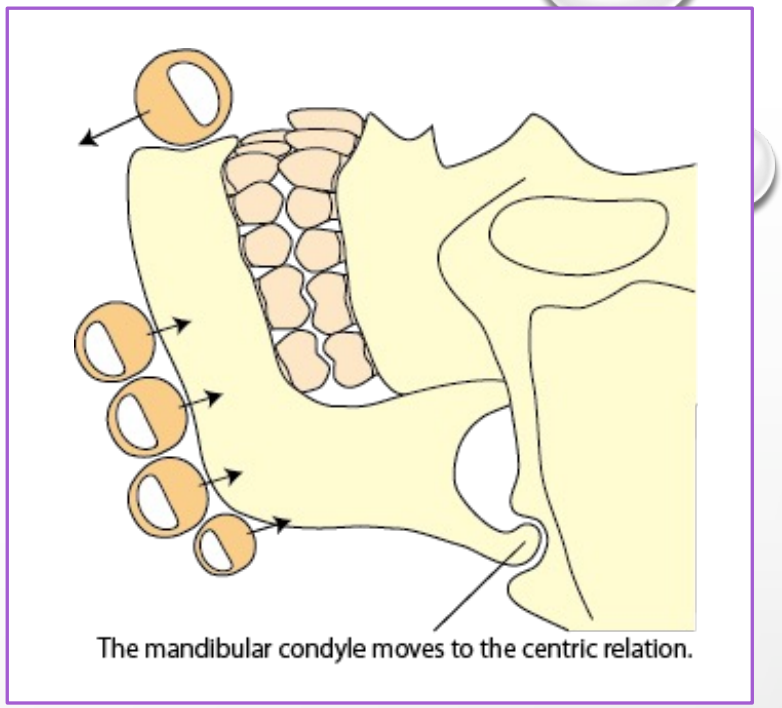
Bilateral manipulation
Step 6



With a very gentle touch, manipulate the jaw so it slowly hinges open and closed. As it hinges, the mandible will usually slip up into centric relation automatically if no pressure is applied. Any pressure applied before the condyles are completely seated will be resisted by the lateral pterygoid muscles. The contracted muscles will be stretched by the pressure and will respond with greater muscle contraction (stretch reflex reaction). Once these positioner muscles have been stimulated to contraction, it is extremely difficult to seat the condyles into centric relation. The key at this point is delicacy. There should be no pressure and no jiggling, as this also activates muscle response. Use slow hingeing movements so the muscle are not triggered into contraction.

（Determining of centric relation ）

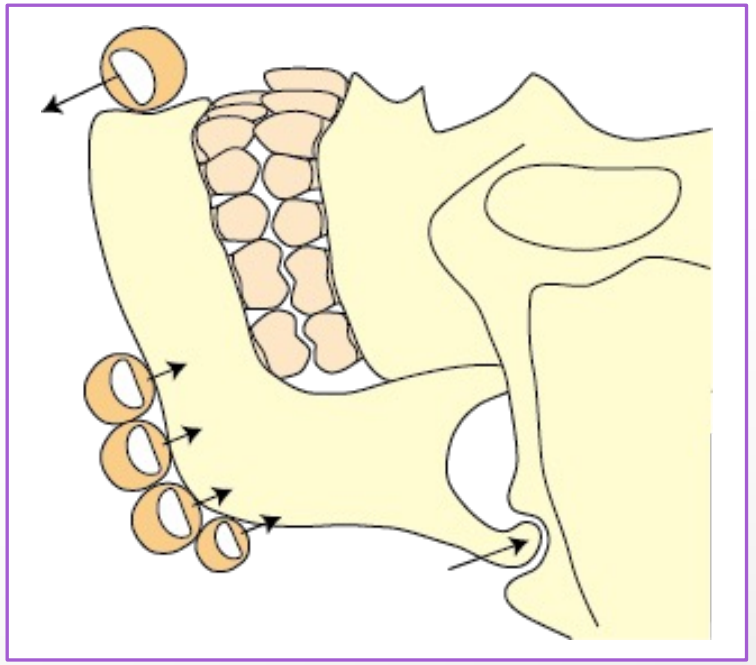
Bilateral manipulation
Step 7



After the mandible feels like it is hingeing freely and the condyles seem to be fully seated up in their fossae, most experienced clinicians will assume that the mandible is in centric relation.

(Determining of centric relation)

Load testing



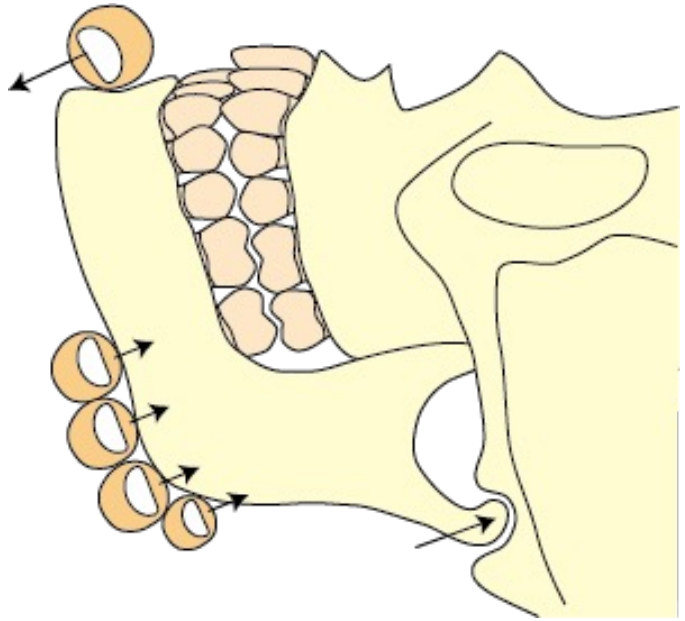
The load testing is a test in which the mandible is guided into a centric relation and pressure is artificially applied from the mandibular condyle to the mandibular fossa. As the figure on the right shows, the dentist applies upward pressure from the mandibular condyle to the mandibular fossa by applying upward pressure with four fingers placed on the posterior portion of the patient's mandible and downward pressure on the chin with the thumb. It is important to avoid contact between the upper and lower teeth. When performing this overload test, pressure should be applied gently at first, then gradually increased. The reason for this is that if the articular disk is displaced, sudden application of too much pressure can damage the posterior tissues of the disk and cause considerable pain. Therefore, when performing an overload test, I always ask the patient, "Do you feel any pain or discomfort in your TMJ?"

（Determining of centric relation）

Significance of load testing

Load testing involves a manual evaluation of the TMJ by the dentist, intended to eliminate the influence of occlusion. If pain arises during load testing, it indicates an underlying organic disorder within the TMJ.

When no pain or discomfort is noted in the TMJ subsequent to the overload test, the mandibular position is categorized as centric relation. Essentially, if the tissues within the TMJ capsule are healthy and the mandibular head is in centric relation, applying firm pressure through the overload test shouldn't induce pain or discomfort in the TMJ.



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Determining of centric relation

References
1)Dawson PE : Bad advice from flawed research. AGD Impact April : 30-31, 1995.
2)Okeson JP : Long-term treatment of disk-interference disorders of the TMJ with anterior repositioning occlusal splints. J Prosthet Dent 1988 ; 60 : 611-616.
3)Peter E. Dawson : Functional Occlusion From TMJ to Smile Design, MOSBY, St. Louis, 2007.
4)Niles F. Guichet : Occlusion, Anaheim, Calif. , 1977.
5)保母須弥也:咬合学事典、書林、東京、1979.
6)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.
7)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ーとくに隣接医科との整合性を考慮してー, 日本歯科評論, 624:171～180, 1994.
8)最新医学大辞典, 医歯薬出版, 東京, 1987.
9)福井次矢:内科診断学第2版、医学書院、東京、2008.

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

The next topic will be "Malocclusion".