

The Universal/Digestive Jaw - An important solitary cranial fault related to an underrated dysfunction of the Cranio-Mandibular System

The Balance Treatment Concept

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Original abstract

The Universal Jaw and the Digestive Jaw were first described by Ferreri as a syndrome of the Cranio-Mandibular System (CMS) with relationships to peripheral dysfunctions. These are serious intestinal disorders, i.e., dysfunction of digestive valves, rachipathy and myopathy on skeletal muscles. These local, mostly asymptomatic CMS disorders are triggered by improper forces acting on a single mandibular tooth, on mandibular tooth groups, or on the mandible itself. The awareness of the presence of malfunction is conveyed into the central nervous system by the high number of afferent fibers of the trigeminal nerve in the region in question. In an attempt to support local CMS function, compensatory muscle activity takes place within the entire body resulting in the serious symptoms noted above. This new hypothesis has serious implications for all dental specialties. The contraindication of using rigid prosthetic bridges that cross the upper jaw mid-suture or that extend up to the second or third upper molar is due to the cranio-sacral importance of motion in maxillary and palatine sutures. But in the lower jaw, the situation is even more critical, due to the described disorder in which all kinds of lower jaw rigid bridges as well as even one rigid connection between two mandibular teeth are contraindicated. No rigid fixation in the lower jaw between implants, ankylosed teeth or normal teeth are tolerated by the body without resulting in either symptomatic or asymptomatic compensatory muscle activity. Removable partial dentures must also permit the normal range of dental motion within the normal actions of the mouth and motions of the Cranio-Sacral System (CSS). Many orthodontic procedures should be modified in order to follow this principle. The author first presented this concept at the ICAK-World congress, in Freiburg, Germany in 2002.

Key words: Universal jaw, Digestive Jaw, Mandibular biomechanics, peripheral pathologic effects, TMJ-dysfunction, Cranio-Sacral System, Cranio-Mandibular System

Introduction

Carl Ferreri, a chiropractor from New York, was the first to describe the following groups of symptoms in relation to this special type of mandibular dysfunction (4,8):

Digestive problems due to dysfunction of valves in the digestive tract such as acid indigestion and acid reflux

Respiratory deficits related to dysfunction of the diaphragm

Widespread weakness of muscles located caudally from the diaphragm, with particular involvement of the pelvic floor musculature supporting the bladder, the uterus and the prostate

Susceptibility to hiatal hernias, uterine prolapse, prostate dysfunction and bed wetting

With the help of kinesiological tests, Ferreri found that these common medical problems often derive from a particular TMJ-dysfunction. As such interactions are not always the same, Ferreri defined two slightly differing terms: Universal Jaw and Digestive Jaw. The Digestive Jaw describes a condition in which all the muscles involved are located caudally from the diaphragm, while the Universal Jaw presents similar symptoms as those found in a Universal Cranial Fault. The relationship between physical symptoms and TMJ dysfunction can be neither entirely confirmed nor denied in this presentation, as that is not the goal of this paper. However, several neurological and orthopaedic disorders have been discovered and ultimately resolved by treating local pathogenetic factors of the Universal or Digestive jaw problem.

To diagnose the Universal Jaw using Applied Kinesiology (AK), Ferreri recommended a bilateral Therapy Localisation (TL), placing the patient's fingers over both TMJs with a closed mouth and testing the integrity of the gluteus medius muscle. Conversely, to diagnose the Digestive Jaw, Ferreri recommended the same testing procedure but with an open mouth.

Ferreri supposed that the underlying TMJ malfunction is the result of faulty stress-management and lack of physical stress-processing ability. Such imbalances lead to a chronic hypertonicity of the masseter muscles and, in his opinion, lead further to a *medial* compression of the mandibular articular condyles. However, in similar cases we have found instead a *lateral* compression of the mandibular articular condyles. From our experience, the Digestive Jaw represents a lighter form of the same functional problem that results in the Universal Jaw. We often find, when testing for an Universal Jaw, a simultaneous Digestive Jaw is also present, whereas a Digestive Jaw is possible without the presence of an Universal Jaw.

In addition to Ferreri's results in diagnosis and treatment, we would like to introduce the Universal and Digestive Jaw from an orthodontic perspective and propose specific solutions for CMS dysfunction.

The complex symptoms represented by the Universal and Digestive Jaw can be caused by:

- neurological tooth
- neurological tooth-group
- neurological bone areas

The above situations are manifestations of improper physical forces resulting in heightened afferent trigeminal nerve activity and input to the central nervous system. Under such circumstances, jaw and tooth mobility play an important role in postural organisation or, conversely, postural disorganisation. The jaw is physiologically protected from possible adverse muscle activity, mechanical overload, and mechanical sudden occlusal tooth contacts by a reflex

feed-back system stimulated by periodontal tissues and by proprioceptive and nociceptive receptors located inside the joint. During physiological functions, such as chewing, clenching, or opening of the mouth, the body of the mandible measurably deforms elastically in a clockwise direction on its left side and in a counter-clockwise direction on its right side (2). Consequently, all the lower back teeth and parts of the alveolar bone move orally in relation to the rotation axis line.

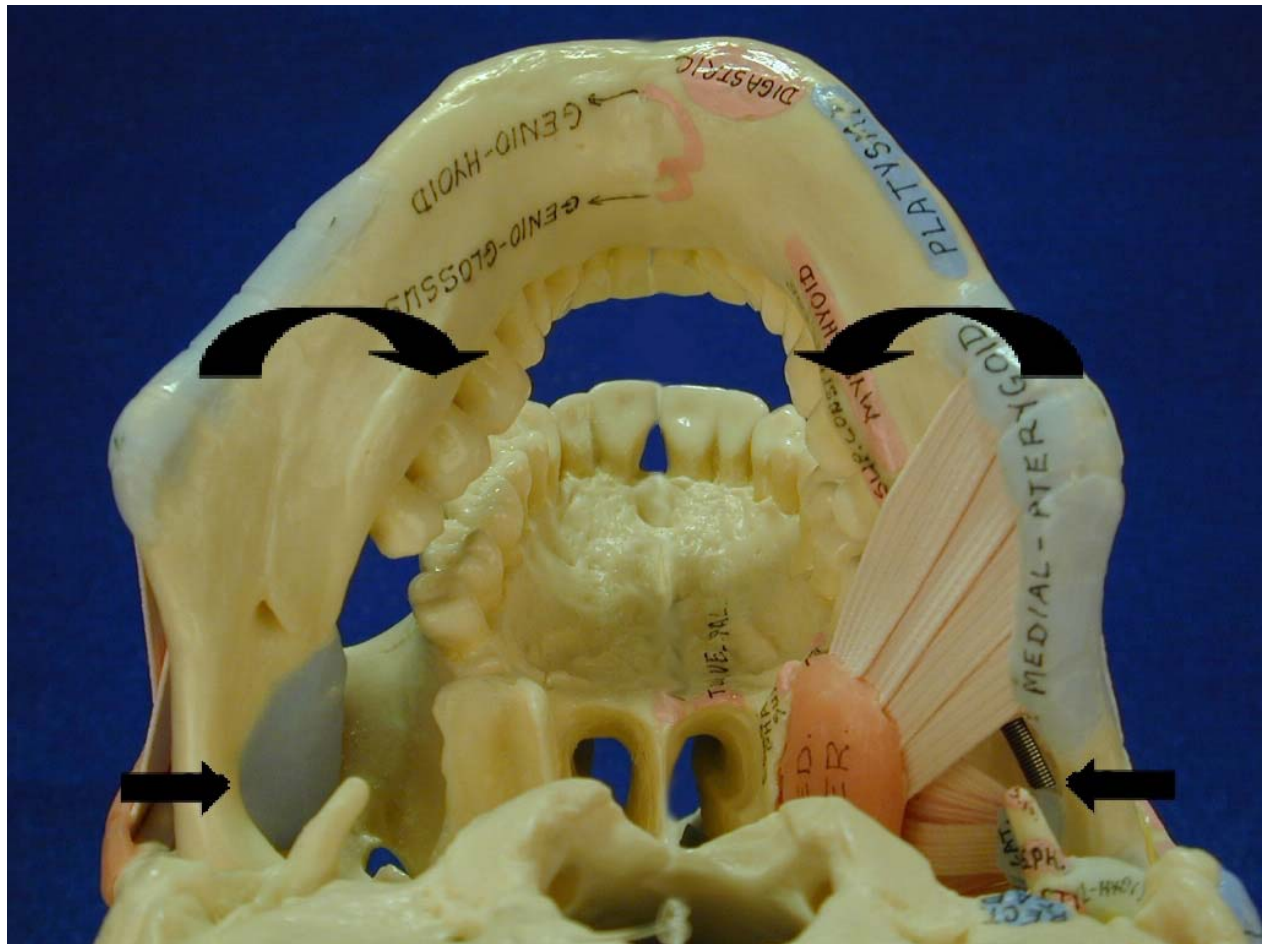


Fig. 1: Biomechanics of the mandible during jaw opening

In mouth opening, the lower jaw at the level of the 1st permanent molar narrows on average approximately 0.35 mm (1). In protrusion or lateral shifts of the mandible, the lower jaw narrows on average approximately 0.7 mm (1). With the absence of teeth, these values increase by approximately 0.2mm (1). These deformations are physiologically necessary to allow correct TMJ-function to occur. Patients with a narrow mandibular symphysis, decreased bone-density, or elongated mandibular bodies present with a larger lower arch contraction. It is important to note that these type presentations endure extreme forces during mouth-opening (2). These maxillofacial problems could explain the variable sensitivity among different patients who suffer Universal or Digestive jaw symptoms.

During clenching of the teeth with central occlusion, a physiological distortion of the lower jaw also takes place. Lower arch narrowing of between 0.46 and 1.06 mm at the level of the 6-year molar have been recorded (1).

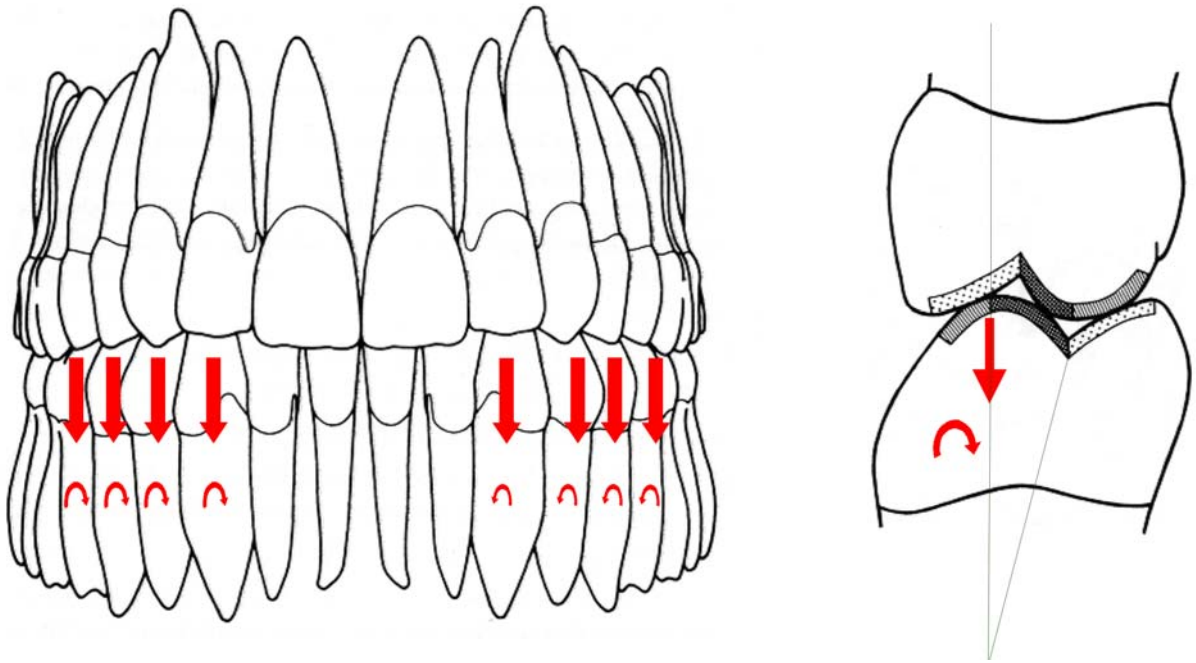


Fig. 2: Correct occlusal forces, vectors and contacts with normal occlusion in order to prevent occurrence of the Universal/Digestive Jaw syndrome

A certain degree of physiological dental mobility under muscular load is particularly important for the physiological stimulation of the periodontal receptors. Periodontal receptors, like muscle-receptors of the surrounding musculature, are responsible for the feed-back control of the lower jaw while chewing and swallowing.

These facts have been known in general dentistry for several decades. However, they have been constantly ignored due to the underrating of the consequences on postural organisation of the body. Rigid prosthodontic constructions connecting right and left sides of the jaw are often used, despite the fact they lead to a malfunction of the normal distortion of the jaw, particularly during motion. For example, stiff telescope-prostheses, stiff bridges, or partial prosthesis with a stiff sublingual wire can result in a mostly local, asymptomatic CMS - malfunction, which however leads to the Universal or Digestive jaw compensatory syndrome and the associated symptoms. Similar problems also occur when a fixed orthodontic retainer is incorporated in the lower jaw.

Currently traditional dental and orthodontic constructions are often used under the false and unproven assumption that periodontal fibres are flexible enough to compensate for iatrogenic rigid teeth-blocking and therefore allow normal function. These standard dental constructions very rarely create CMS-symptoms, but are commonly related to complaints in peripheral areas. These peripheral symptoms are probably related to the neurologically dominating CMS. Due to the compensation for CMS dysfunction, peripheral muscles can become painful. According to my interpretation of Darwin's Theory of Evolution, the CMS must be kept as free as possible of physiological stress to allow its effective and efficient function and therefore to contribute to the survival of the organism. With Darwin's concept in mind, it makes sense to consider the Universal or Digestive Jaw - and other occlusal and TMJ disturbances as being responsible for the development of postural changes, and organ dysfunction.

Cuspid physiological contacts in central occlusion and the appropriate transversal curve are very important factors when considering functional force control of the lower jaw. The lower teeth are loaded from net-vector forces as well as from axial forces from the upper teeth and directed medially, whereas the upper teeth are loaded from net-vector forces from the lower teeth and are directed laterally.

It is unclear as to whether the fault found by Ferreri is identical to that described by us due to our differing kinesiological tests. The challenge applied in the treatment differs also. In order to achieve a permanent change, Ferreri recommended, for example, a manual mandibular expansion in the lower dental root area, whereas according to our experience, a compressing challenge in the alveolar process negates any positive AK results as long as the patient does not swallow or does not allow the teeth to make contact. Possibly, different challenges have different neurological effects on the basis of different force application. Despite these differences, we decided to keep the name that Ferreri has chosen for the description of this kind of CMS dysfunction.

The examination with Applied Kinesiology

Upper jaw:

Maxillary and cranial compression

Basically, any normoreactive muscle can be useful in carrying out a reliable muscle test. According to our experience, tonic muscles like gluteus medius or tensor fascia lata show more sensitivity than phasic muscles. Cranial compression due to a maxillary, which is a separate fault from the disorders described in this article can be tested in exhalation by asking the patient to place his/her thumb over the palatine suture (TL or Therapy Localisation of palatine suture).



Fig. 3: Configuration of AK - Test for maxillary and cranial compression in exhalation

This test should be performed before further AK- tests for Universal Jaw or Digestive Jaw. If positive, it should be challenged by manual palatal expansion *before* proceeding to tests for Universal Jaw or Digestive Jaw to avoid interference. The effect of this challenge lasts only until the next swallow, so be sure to prevent the patient from swallowing until all tests are completed.



Fig. 4: Manual challenge against cranial and maxillary compression by manual expansion of maxilla. The effect lasts only until the next swallow!

Lower Jaw

Universal Jaw and Digestive Jaw

Again, the gluteus medius muscle is recommended as the test muscle. According to Ferreri, the Universal Jaw should be tested using a double TL located on the skin at both mandibular condyles, with closed mouth and without breathing instructions. The Digestive Jaw should be tested in the same manner but with an opened mouth.

I propose a more efficient modification. Testing occurs in the same manner as recommended by Ferreri, but in exhalation. This considerably increases the positive test results, therefore making it clinically more significant. If the test is positive, I use a manual challenge compressing the crowns of the lower molars lingually. If this challenge negates the previous positive test result, I establish the diagnosis of Universal or Digestive jaw. This test indicates the force vectors of the lower teeth are functionally impaired. This challenge relates a medial torsion of the mandible as mentioned above, which should occur with normal function.

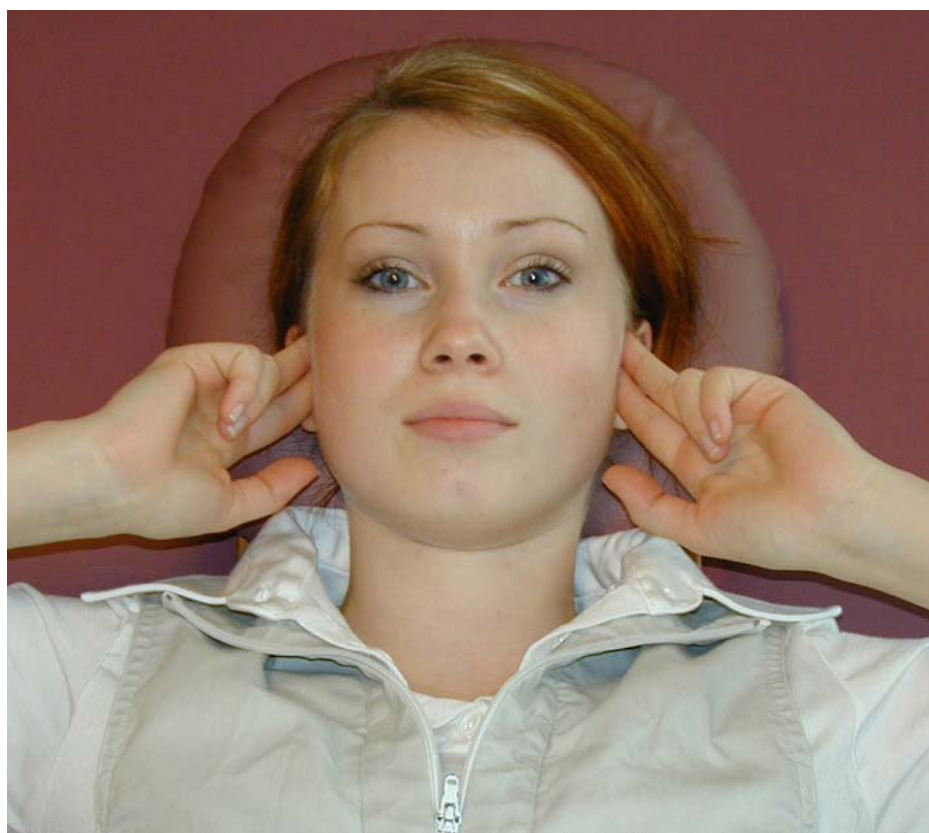


Fig. 5: Configuration of AK – Test for the Universal Jaw in exhalation



Fig. 6: Configuration of AK – Test for the Digestive Jaw in exhalation

Therapy

The first indispensable measure to be taken is to remove all rigid tooth connections in the lower jaw, for example, rigid multidental prosthetic bridges or orthodontic retainers, particularly if they can be identified using kinesiological challenges as possible triggers. Afterwards, the occlusion contacts are checked by TL tests on the teeth. If the patient is still neurologically dysfunctional, equilibration or reconstruction with acrylic build up of dental cusps of neurological teeth are required.

Lack of, or false, canine contact can evoke neurological dysfunction. A long-term stable occlusion can be achieved by alternative prosthetic care using implants or new non rigid bridges equipped with stress-breakers.

This suggests to us that many commonly used orthodontic technologies, especially in the field of retention, need to be modified. This important topic is, however, not the object of this presentation and will be published later (Balance-retainer®).

Case reports

1. Patient G.V. came into our practice and reported severe lower backaches. Intraoral examination revealed a recently renewed rigid bridge from the first premolar to the second molar in the right lower quadrant. Clinical examination showed a postural deficiency (Cat II: SOT) with associated difference in functional leg length and Universal Jaw syndrome. The therapy with the

Craniomandibular Orthopaedic Positioning Appliance (COPA) could not solve this problem. Only after removing the connecting part of the lower bridge was the problem solved.

2. Patient M.W. introduced herself reporting severe TMJ-pain, backaches and numbness in the legs. She had several single crowns as well as two rigid bridges in the right upper and lower quadrants. The COPA was used and the problems clearly improved. During further treatment, however, the patient suddenly complained about numbness in the right side of the lower lip, which radiated to the right hand over the following two months. The right foot and toes were also affected. An extensive neurological examination with CT, MRI and EEG was performed. No positive results were found. Within a few hours of sectioning the connecting part of the lower bridges, the facial pain and the numbness in the extremities disappeared. The patient reported further improvement after additionally removing all amalgam from her teeth. After a successful combined orthodontic and surgical maxillofacial treatment in order to correct her severe malocclusion, the patient felt fine. However, after inserting a rigid lower jaw retainer from tooth 33 to tooth 43, an immediate relapse of numbness in the extremities occurred. These symptoms were treated with homeopathic injections into the upper jaw, as well as by removing the lower fixed rigid retainer.

Since 1996, I have been investigating and discovering these relationships between asymptomatic jaw faults and physical symptoms. In many cases, the astonishing recovery of patients who were affected by various symptoms throughout the entire body could be directly related to the treatment of the Universal or Digestive Jaw.

Some common symptoms that have been involved include:

- Backache of different localizations, that were therapy-resistant to manual or dental treatment
- Severe paresthesia in the extremities, usually unilateral, that do not fit any neurological pattern or diagnosis and are consequently considered to be psychosomatic in nature.
- Symptoms similar to angina pectoris which could not be verified with cardiological examinations
- Painful TMJ disorders

Conclusions

General physicians normally know little about the CMS despite the CMS's overpowering influence throughout the entire body. As dentists similarly are not thoroughly trained in general medicine, it is interesting to consider that dentistry still claims to be the only reasonable authority in treating problems in this field.

However, Hans Garten (7) claims that the kinesiological tests concerning the Universal Jaw and Digestive Jaw are similar to fingermodes and therefore represent no universally valid projections. I would like to contradict this position. His comment does not reflect the overall importance of clinical inputs that come from the described syndrome. As far as I know, the described clinical relationships are neither described by other AK-test procedures nor published in any other AK-literature.

I must emphasize that the correct performance of these AK-tests is not as simple as it sounds. Details not described in this article are very important for general reliability. The AK-test for the Universal Jaw or Digestive Jaw should be trained under supervision in professional in-practice hands-on courses. I am convinced that in the presence of correct test performance, this orthodontic-orthopaedic analysis has the same reliability for all experienced AK-clinicians. The author invites interested clinicians for hands-on courses in his clinic.

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