

# Maxilla to Mandible

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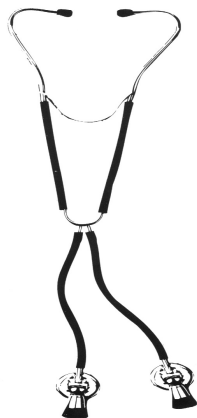
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## Editorial

I recently attended the 45<sup>th</sup> Annual Scientific Meeting of the American Headache Society. I thought it may be helpful to pass on some of the information presented.

The pharmacology of pain and analgesia exhibits plasticity in different pain states. Understanding this plasticity may lead to improved therapies for the two major types of pain, neuropathic and inflammatory pain, where nerve and tissue damage leads to alterations of both peripheral and central levels.

At the level of the peripheral nerve, there is a far better knowledge of the nociceptor and receptors for the various chemicals released after tissue damage. The new generation of NSAIDs, COX-2 inhibitors, which lack gastric actions, are examples of how therapy can be improved.

Calcium channels that are essential for transmitter release are a major link between primary sensory neurones and spinal transmission. Gabapentin may act on these changed channels.

In the spinal cord, the release of peptides and glutamate causes activation of numerous receptors. Of major importance is the N-methyl-D-aspartate (NMDA) receptor for glutamate in persistent pain states which, in concert with other spinal systems, generates spinal hypersensitivity.

Blocking the generation of excitability is one approach but increasing inhibitions may also provide novel analgesics. Opioids, GABA and adenosine are all key regulators of excitability.

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Descending controls from the brain are important and the multitude of receptors for 5HT lends hope for future analgesic agents in pain.

At higher brain levels there is a better understanding of how pain leads to affective and emotional changes that impact on the quality of life. There is clear evidence from both preclinical and clinical studies that both peripheral and central hyperexcitability play important roles in determining the level of pain perceived. Rightly, much emphasis has been put on spinal cord mechanisms in central excitability but it now becoming clear that this can be regulated by descending pathways from the brain.

More tidbits next issue...



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### Adhesion in the TMJ: Formation Significance

After examining deranged TMJs of 75 patients arthroscopically, the authors concluded that intra-articular adhesions form during internal

derangement as a result of hemorrhage and trauma to the condyle and eminence.

During the early phase of ID, these adhesions are not related to reduced condyle movement. As the adhesion matures, vascular infiltration occurs within two years. After two years, these adhesions become attached. Jaw opening becomes restricted and only improves if the adhesions are released. Arthroscopic lysis and lavage is recommended to treat adhesions if non-surgical methods have failed.

Austral Dent J 47 (2): 163-169, 2002

### Changes in Articular Eminence Inclination During the Craniofacial Growth Period

Understanding the way in which the articular eminence grows is important for developing more biological orthodontic treatment methods, especially for Class II malocclusion. Silicone impressions were taken of both left and right articular fossae from 90 dried skulls, with various stages of dentition, to calculate the inclination of each section trigonometrically.

The data showed that the articular eminence inclination had a symmetrical pattern of growth, closely resembling that of the face. The inclination acquired 40 to 50% of its final value by the age of two, 71% by the age of 10, and 92% by the age of 20. Because it takes such a long time to achieve final inclination, any growth changes after age 20 are probably adaptation to altered functions, which can be treated therapeutically.

Angle Orthodont 72 (3): 258-264, 2002

## Physiotherapeutic Approach to Craniomandibular Disorders

In this case report a 19 year old female was treated for mandibular fractures after an auto accident. She developed a unilateral weakness in the right masseter muscle as shown by electromyography, resulting in a mandibular deviation to the right during opening. The patient was treated with neuromuscular electrical stimulation twice a week for 18 sessions. She received transcutaneous electrical nerve stimulation for articular pain and ultrasound for muscular tension.

After this treatment, the electrical activity of the right masseter muscle increased during function, and the mandibular deviation disappeared. For patients with this type of muscular imbalance as the main symptom, EMG can be used to manage the evaluation and physiotherapeutic treatment as well as help determine when the therapeutic goals are reached.

J Oral Rehabil 29: 268-273, 2002

## Comparative Study of the Fraankel (FR-2) and Bionator Appliances in the Treatment of Class II Malocclusion

This is one of the first studies to compare the soft tissueborne FR-2 directly with the Balters' bionator, a primarily dentally-borne device. Twenty-two patients were used for each device. Both devices showed significant increases in mandibular growth and mandibular protrusion, with greater increases in patients treated in the bionator

group. The latter was attributed to the group's older age.

There were no significant changes in growth direction, while the bionator group had a greater increase in posterior facial height. Both appliances produced similar labial tipping and protrusion of the lower incisors, lingual inclination, retrusion of the upper incisors, and a significant increase in mandibular posterior dentoalveolar height. Thus, it was concluded that either appliance can achieve Class II correction.

M J Ortod Dentofacial 121: 458-466, 2002

## Asymptomatic Cervical Spine Dysfunction in Patients with Internal Derangement of the Temporomandibular Joint

Even when TMD patients do not report any neck problems, this area should be examined since this study found that dysfunctions of the vertebral joints and increase muscle tenderness were found in such patients not complaining of any symptoms. Muscle tenderness was greatest in the upper cervical spine. The latter was attributed to a close functional coupling between the cervical and TMJ regions. Therefore, a thorough physical examination of the cervical spine and appropriate physical therapy are recommended for TMD patients.

J. Craniomandib Prac 20:192-197, 2002

## Myofascial Pain Syndrome Misdiagnosed as Odontogenic Pain: A Case Report

Dental pain is not always caused by the teeth as this case of a 41 year old female with

orofacial pain illustrates. The patient experienced pain in first her right maxillary first molar and then her right maxillary second premolar tooth. Both teeth were removed since pain was not relieved after initial treatment. Since she was still suffering from pain, as well as headaches, the patient underwent a second examination at a TMD clinic. She also reported the habit of teeth clenching, nail biting, and frequent use of chewing gum.

Myofascial pain syndrome was finally diagnosed based on muscle palpation that produced the same dental pain and the identification of trigger points with referred pain to the teeth. Therapy included educating the patient about her bad habits and normal jaw muscle function, and a physical therapy home program involving self-massage of painful muscles. During treatment, the patient's pain gradually decreased and after six months most of the symptoms had completely disappeared. No pain was reported in either the muscle or dentoalveolar area after a year.

J. Craniomandib Prac 20:307-311, 2002.

## Incidence of Temporomandibular Disorders in Senior Dental Students in Taiwan

Using a questionnaire adapted from the American Dental Association, the authors found that the most prominent symptom suggesting TMD was the presence of clicking sound in both sexes, followed by an awareness of stress in females and teeth sensitivity in males. The type of symptoms and the frequency of TMDs were higher in females than in males. Such questionnaires appear to be useful as a screening tool for general practice and clinical b o t h studies.

J Oral Rehabil 29:1206-1211, 2002



## Hostility in TMD/Bruxism Patients and Controls

There are few, if any, studies about the relationships between hostility, TMD and oral habits. In an effort to fill this gap, the authors compared a group of 110 TMD/bruxism patients to a group of 40 controls. The Cook-Medley Inventory and the Beck Depression Inventory were used to assess levels of hostility and depression. Although there were no differences found in the levels of depression between the three groups of bruxers, there was a significant difference between bruxers and the controls.

Major differences were also found in the level of hostility between the moderate and severe bruxer groups and the controls. Bruxers with moderate to severe depression demonstrated a hostility level at about 23 compared to a level of about 17 for the minimal to mild depression group. Thus, TMD patients may develop depression and an increase in hostility, which should be considered during management and treatment of such patients.

J. Craniomandib Prac 20:282-288, 2002.

## The Evaluation of Temporomandibular Joint Disc Position in TMJ Disorders Using MRI

Magnetic resonance imaging (MRI) was used to examine 126 TMJs, with 112 of these having internal derangement as disc displacement. When the degree of anterior displacement from the superior position was between  $11^\circ$  and  $80^\circ$ , the discs were reducing. For displacements over  $80^\circ$ , the discs were nonreducing. The degenerative changes were also more severe with a higher degree of anterior displacement.

Int J Oral Maxillofac Surg 31: 603-607, 2002.