TEMPOROMANDIBULAR DISORDERS - TRUTHS AND MISCONCEPTIONS

Iva Alajbeg*
*Department of Prosthodontics, School of Dental Medicine, University of Zagreb, Zagreb, Croatia

Corresponding Author:
Iva Alajbeg
Department of Prosthodontics, School of Dental Medicine, University of Zagreb, Croatia
e-mail: ialajbeg@sfzg.hr

Abstract
Recognition and treatment of temporomandibular disorders (TMD) is still a problem, mainly because the term encompasses many symptoms of different etiology. Classification on joint and muscle disorders facilitated the diagnosis and treatment of TMD. However, in the absence of a validated pathophysiological model, there is still a need for acquiring new knowledge. Furthermore, the diagnosis and treatment of TMD usually require a multidisciplinary approach. Orthodontic treatment is sometimes associated with the occurrence of signs and symptoms of TMD. The recent scientific literature, however, considers such association unfounded, and some clinical studies even show reduction in TMD symptoms subsequent to orthodontic treatment. Besides causing confusion in scientific world, such contradictory information creates problems to practitioners in their daily work when treating patients suffering from orofacial pain. Through the presentation of clinical cases, this lecture will try to answer how to clearly recognize the signs of TMD as well as patients who are at increased risk of their occurrence. It will describe the procedures and guidelines recommended for practitioners in their daily work when treating patients suffering from orofacial pain. Through the presentation of clinical cases, this lecture will try to answer how to clearly recognize the signs of TMD as well as patients who are at increased risk of their occurrence. It will describe the procedures and guidelines recommended for treating these disorders in a simple manner, comprehensible to the practitioner, with an emphasis on the description of occlusal splints fabrication.

TURNER SYNDROME - CHALLENGE FOR EARLY DIAGNOSIS AND ORTHODONTIC TREATMENT

Cvetanka Bajraktarova Misevska*
*PHO University Dental Clinical Centre St. Pantelejmon, Clinic Of Orthodontics, Skopje, FYR of Macedonia

Corresponding Author:
Cvetanka Bajraktarova Misevska
PHO University Dental Clinical Centre St. Pantelejmon, Clinic Of Orthodontics, Skopje, FYR of Macedonia
e-mail: cmisevska@yahoo.com

Abstract
Turner syndrome is one of the most frequent genetic anomalies affects approximately 1 in 2500 live female births worldwide. With different clinical expression, this syndrome is a challenge for monitoring and research, both from medical and dental aspect. The developmental specifics in 40 Turner syndrome children were studied over analysis of craniofacial and dental morphology, assessing the prevalence of malocclusion, skeletal and dental maturity, and compared with 40 healthy female controls. The results showed that the craniofacial complex was reduced in size and was characterized by an altered morphology. The curvature of the frontal bone was significantly increased, the diameters of the head were reduced while the flexion of the cranial base was increased. Both the maxilla and mandible were retrognathic, posteriorly rotated and reduced in antero-posterior length in the study group. The most frequent oral findings were small teeth, early eruption of the secondary teeth and short roots. The prevalence of malocclusion was high and comprised distal molar occlusion, teeth crowding, lateral crossbite and deep bite. Skeletal maturity was retarded but dental maturity was accelerated. Early diagnosis of dental manifestations is of utmost importance in Turner syndrome patients and should be accompanied by an early treatment of dental abnormalities. Orthodontic treatment plans must take into consideration the physiological and morphological characteristics, to achieve optimal results. Orthodontist needs to know the clinical expression of this condition and understand the skeletal characteristics of the craniofacial complex before beginning with orthodontic treatment. Skeletal, dental and chronological ages must be determined to make the correct diagnosis and treatment plan.

THE “MANDIBULAR RESPONSE” AND HOW THE TWEED DIAGNOSIS, TREATMENT PLAN AND MECHANICS CAN INFLUENCE IT

Giovanni Biondi*
*C.H. Tweed Foundation for Orthodontic Research and Education, Italy

Corresponding Author:
Giovanni Biondi
C.H. Tweed Foundation for Orthodontic Research and Education, Italy
e-mail: air.giove@tiscali.it
Abstract
The “Mandibular Response” consists in the repositioning of the mandible along the occlusal plane due to the skeletal growth and to the change in position caused by the change in the occlusal plane. A reviewing of the Gebeck - Merrifield’s article “Analysis: concepts and values” gives us a chance to point up the importance of the control of the occlusal plane and of the verticality to stimulate the mandibular response in Class II cases.

ORTHOGNATHIC SURGERY: PIEZOOSTEOTOMY VERSUS CONVENTIONAL OSTEOTOMY

Paolo Biondi*
*GVM Care and Research group
Maria Cecilia Hospital, Cotignola, Ravenna, Italy

Corresponding Author:
Paolo Biondi
GVM Care and Research group
Maria Cecilia Hospital, Cotignola, Ravenna, Italy
e-mail: drpaolobiondi@gmail.com

Abstract
Introduction: In recent years piezoelectric devices are suggested as an alternative to rotary drilling instruments in oral and maxillofacial surgery. Piezoelectric waves for orthognathic surgery are used only in recent years. Piezoosteotomy was assessed as alternative osteotomy method in orthognathic surgery regarding handling, post-operative pain, nerve and vessel impairment.

Patients and Methods: In our comparative clinical experience eighty-two patients are included in our study, Le Fort I and bilateral split osteotomies were performed in all the patients. In thirty-eight patients osteotomies were performed by piezoelectric device and in the control group, forty-four patients, the conventional saw and bur were used. The blood lost was measured directly in ml during surgery. The integrity of the inferior alveolar nerve was examined by the sensitivity of the lower lip and chin in three ways: a light touch test, a pin prick test and a test of discrimination between two points. The post-operative pain was analyzed by VAS scale. Statistical analysis was performed.

Results: The blood loss, a continuous variable with a normal distribution, was analyzed by a T Student test. We calculated mean and standard deviation, t=7.441 and P<0.0001. Blood loss was significantly lower in the piezo group. For the alveolar inferior nerve sensitivity and for the pain we used a non-parametric test. Pain was significantly lower (P<0.0001) and the sensitivity of the inferior alveolar nerve was significantly better (P<0.0001) in the piezo group than the control group.

Conclusion: In our clinical experience piezoosteotomies appears very useful in orthognathic surgery. Using a piezoelectric device we have observed a reduction of postoperative pain, improved sensitivity of the inferior alveolar nerve after 30 days and less blood loss during surgery. In conclusion, the piezosurgery is an excellent substitute for conventional osteotomies in orthognathic surgery with less morbidity for the patient.

COMMUNICATION SKILLS AND PSYCHOLOGICAL APPROACH IN DENTAL PATIENT CARE

Gordana Buljan Flander*
*Psychologist and psychotherapist, Child Protection Center of Zagreb, Zagreb, Croatia

Corresponding Author:
Gordana Buljan Flander
Child Protection Center of Zagreb, Zagreb, Croatia
e-mail: Gordana.Flander@poliklinika-djeca.hr

Abstract
Contemporary science supports the biopsychosocial approach to health problems and treatment, as well as the importance of multidisciplinary approach in health care. Working in dental practice inevitably implies engaging with patients and therefore comprises numerous psychological aspects of relating and communicating with them, as well as the difficulties that can arise within. The main goal of the lecture is to introduce the basic skills in approaching and communicating with patients from a psychological perspective. The content comprises the importance of establishing a good initial contact with patients, aspects of informing patients about their dental problems, as well as communication skills, with an emphasis on practical suggestions aiming to make the communication more intelligible. Part of the lecture refers to specific communication with patients of different age groups (children, adolescents, elderly) and different communication capabilities. The lecture covers the basic psychological principles of dental anxiety and phobias, as well as the fundamental principles of the psychology of pain. Good communication in dental patient care can not only improve treatment, but can also make both parties feel more comfortable. In the context of multidisciplinary approach, emphasis will be made on understanding the psychological aspects of successful communication that can contribute to the quality of work in dental patient care.
NON)ACCIDENTAL DENTOFACIAL INJURIES IN CHILDREN – HOW TO MANAGE IT CORRECTLY?

Ivana Čuković Bagić*

*Department of Paediatric and Preventive Dentistry, School of Dental Medicine, University of Zagreb, Zagreb, Croatia

Corresponding Author:
Ivana Čuković Bagić
Department of Paediatric and Preventive Dentistry, School of Dental Medicine, University of Zagreb, Zagreb, Croatia
e-mail: ivana.bagic@gmail.com

Abstract
Dentofacial injuries in children represent a public health problem because of its prevalence and expensive treatment. Globally, the prevalence of dentofacial injuries is high in primary (one third of preschool children), as well as in permanent dentition (one fourth of school children). In addition, approximately 60% of the symptoms of physical abuse are found in the craniofacial region, which means that in differential diagnosing, a possibility of non-accidental injuries should be considered. In the case of non-accidental injury, dentist is obliged to inform the Center for Social Services about a suspicion of abuse. Dentists have a professional and ethical responsibility to assess the type of injury (accidental/non-accidental) and to choose the appropriate method of treatment. Optimal treating results can be achieved only if a contemporary algorithm of procedure is followed. It begins at the moment of the first visit, and consists of three basic parts: history taking, clinical examination and radiological examination. Firstly, the medical and dental history from the child/parent should be taken. It is essential for an assessment of a cause and circumstances of the injury, a location and shape/pattern of an injury, as well as a child-parent behavior in dental office. The next step is clinical examination, which should include: inspection of the face, lips and oral muscles; palpation of facial skeleton, and dental examination (palpation, percussion, mobility and vitality/sensitivity test). Clinical examination is followed by radiological examination that includes conventional, intraoral and extraoral techniques. In the case of a more complex injury, contemporary three-dimensional (CBCT) imaging methods should be applied. Clinical photography of the injury is an additional part of a documentation that is often required and very valuable for possible litigation process. Accurate diagnosis and appropriate method of treatment are based on the parameters mentioned above. Long-term prognosis and treatment planning especially for intrusion (as the most common trauma of deciduous teeth) and avulsion (as the most challenging trauma of young permanent teeth) requires a multi-disciplinary approach and collaboration between a paedodontist, an orthodontist and an oral surgeon.

ORTHODONTIC-SURGEON COLLABORATION IN THE TREATMENT OF SKELETAL ANOMALIES

Benjamin Bejtović1, Enita Nakaš2

1 Maxillofacial Surgery Department, Clinical Center University of Sarajevo, Sarajevo, Bosnia and Herzegovina
2 School of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Corresponding Author:
Benjamin Bejtović
Maxillofacial Surgery Department, Clinical Center University of Sarajevo, Sarajevo, Bosnia and Herzegovina
e-mail: b.bejtovic@gmail.com

Abstract
For many years now, it is well know that severe skeletal anomalies can not be treated without multidisciplinary approach. However still there is no consensus regarding exact treatment protocol, and orthodontic - surgeon collaboration varies from place to place. Aim of this lecture is to present how, when well establish, orthodontic - surgeon collaboration is key to success, and how to make one. In other to define a good collaboration, we must seek the answers about limits and liability of surgeon and orthodontist.

MIXED BUT NOT FIXED: THE ROLE OF INTERCEPTIVE ORTHODONTICS

Alberto Caprioglio*

*Department of Orthodontics, University of Insubria, Varese, Italy

Corresponding Author:
Alberto Marcello Caprioglio
Corso Strada Nuova, 27100, Pavia, Italy
e-mail: alberto.caprioglio@uninsubria.it

Abstract
A thorough background in craniofacial growth and development is necessary for every orthodontist. A conscientious practitioner may be able to manipulate craniofacial growth for the benefit of the patient. Several outstanding orthodontists emphasized how concentration on exploiting the pubertal peak runs the risk of treatment being too late, as most growth has already taken place. The largest amount of growth occurs in the first few years of life but the fact is that many orthodontists begin treatment when the child is aged 12 and when 90% of the facial growth has been completed. Interceptive orthodontics is strictly correlated with skeletal growth. Its effects will be related to the proper timing of treatment, the kind of malocclusion and the treatment options. Interceptive orthodontics may be carried out with or without
the use of orthodontics appliances and it exploits the patient’s facial growth as well as possible through early treatment. By correcting growth, which is altered in its expression or pattern, through suitable absolute or temporal increments that would be capable to correct the malocclusion, it is possible to obtain anatomical and functional conditions in order to promote a later and natural craniofacial growth process. The challenge to an effective treatment in mixed dentition is to use the skeletal growth potential at an early stage. Different strategies and treatment plans to solve problems in the mandible and in the maxilla will be presented. Innovative research aspects will show the functional modifications that can be obtained in order to underline the principal modifications from a metabolic point of view and its consequences on the overall growth.

ORTHODONTIC ASPECTS IN DENTAL TRAUMATOLOGY

Alberto Caprioglio*
*Department of Orthodontics, University of Insubria, Varese, Italy

Corresponding Author:
Alberto Marcello Caprioglio
Corso Strada Nuova, 27100, Pavia, Italy
ej-mail: alberto.caprioglio@uninsubria.it

Abstract
Orthodontics has an important role to play in the treatment of patients with dental traumas when one considers the manifold consequences to dental development and various treatment options presently available.

Due to the frequency of dental traumas in infancy and youth, traumatized teeth with various long-term prognoses pose a problem when planning orthodontic treatment. The high prevalence of previous dental trauma in an orthodontic patient population has recently been reported with 10% of patients sustaining dental injuries before the onset of orthodontic treatment. Treatment planning for patients with traumatized teeth involves a detailed evaluation of both the prognosis for the injured teeth and treatment of the malocclusion. A coordinated treatment plan, incorporating clinical and radiographic findings of healing and of complications, must be established before orthodontic treatment begins. The traditional relationship between dental trauma and orthodontic treatment concerned the most appropriate time of initiating routine orthodontic treatment will be highlighted. This “cooling off” period is recommended to reduce the possibility of collateral damage, particularly root resorption that might occur when orthodontic loading of normally acceptable force levels is applied to the affected teeth. Different strategies and treatment plans to manage these problems will be presented.

TREATMENT EFFECTS ON ANTERO-POSTERIOR JAW RELATIONSHIP AFTER MAXILLARY PROTRACTION THERAPY IN PATIENTS WITH CLASS III MALOCCLUSION

Sofija Carceva Salja*
*Faculty of Dentistry Ss. Cyril and Methodius University in Skopje, Skopje, FYR of Macedonia

Corresponding Author:
Sofija Carceva Salja
Faculty of Dentistry Ss. Cyril and Methodius University in Skopje, Skopje, FYR of Macedonia
ej-mail: sofijacarcevasalja@yahoo.com

Abstract
Aim: The purpose of this study was to evaluate the effects of maxillary protraction therapy on craniofacial skeleton in Class III growing patients.

Material and methods: The sample consisted of 49 patients (25 boys and 24 girls) ranging from 6 to 12 years of age, who had a Class III malocclusion with an anterior crossbite and a component of maxillary deficiency. 28 of them were treated with protraction Delaire type of face-mask (petit type), and the other 21 were presenting the control group consisted of untreated Class III patients who were observed in the period of 24 months. Changes in sagittal jaw relationship and facial profile were detected by using lateral cephalograms before and after therapy and the mean treatment time was 13 months.

Results: The effect of maxillary protraction therapy was improvement of skeletal antero-posterior jaw relationship and increase of profile convexity mostly as a result of forward displacement of the maxilla (SNA p<0.05), increasing of maxillary length (Co-A p<0.05) mandibulary retroposition (SNB p<0.05) and posterior rotation of the mandible which significantly increases vertical cephalometric angles and measurements SN/GoGn, SN/Gn, Sna to Me).

Conclusion: These findings indicate that antero-posterior jaw relationship in patients with Class III malocclusion can be improved after maxillary protraction therapy which positively affects psychological development of the child in the most vulnerable period of life important for building self confidence and normal socializing in the community.
RELATIONSHIP BETWEEN THE CENTRIC RELATION - CENTRIC OCCLUSION DISCREPANCY AND SIGNS AND SYMPTOMS OF TEMPOROMANDIBULAR DYSFUNCTION, AS MEASURED BY THE CONDYLAR POSITION INDICATOR INSTRUMENT, AND EFFECT OF SPLINT THERAPY ON TEMPOROMANDIBULAR DYSFUNCTION

Kenan Demirović¹, Maja Ovsenik²
¹ Private Practice for Dentofacial Orthopedics and Orthodontics «Demirovic», Sarajevo, Bosnia and Herzegovina
² Department of Orthodontics, Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia

Corresponding Author:
Kenan Demirović
Private Practice for Dentofacial Orthopedics and Orthodontics “Demirovic”, Sarajevo, Bosnia and Herzegovina
e-mail: kenandemirovic@hotmail.com

Abstract
Introduction: The importance of occlusion as an etiologic factor in signs and symptoms of temporomandibular dysfunction (TMD) has been a source of controversy. Very few studies have compared CR - CO discrepancy using CPI instrumentation and its correlation with signs and symptoms of TMD.

Aim: The aim of this study was to evaluate the effect of repositioning splint therapy on TMD and to determine if there is a relationship between condylar axis position as determined by the occlusion and signs and symptoms of TMD, using the condylar position indicator (CPI III).

Materials and methods: A sample consisted of 35 untreated subjects (age between 14 and 32) with moderate or severe symptoms of TMD. A centric relation (CR) bite registration was taken twice for each patient, according to power centric relation registration technique described by Roth. All subjects underwent repositioning splint therapy during average period of 8 months for the stabilization of temporomandibular condyles in centric relation (CR). The comparison was based on written patient histories, clinical exams, and CPI measurements. The condylar displacements for 35 subjects were measured in vertical, sagittal and transversal components from mounted models using CPI III system.

Results and discussion: Pretreatment and posttreatment examination scores were compared after splint therapy, and 90% reduction in TMD symptoms was found. A high correlation (p<0.001) between signs and symptoms of TMD and CPI values was documented. Since condylar axis position is dictated upon closure of the dentition into maximum intercuspation and since condylar axis position was shown in this study to be strongly correlated with TMD symptomatology, we can conclude that a statistically significant relationship exists between occlusion - dictated condylar position and signs and symptoms of TMD.

Conclusion: In patients with signs and symptoms of TMD, and significant discrepancy between centric relation (CR) and centric occlusion (CO), repositioning splint therapy is indicated prior to treatment with orthodontic appliances. In this way, a stable centric condylar position is achieved as a predisposition for correct orthodontic treatment planning.

ORTHODONTIC MINISCREW: A USEFUL DEVICE FOR MOLAR DISTALIZATION IN NO COMPLIANCE PATIENT AND ADULT INTERDISCIPLINARY TREATMENT

Nicola Derton*
*C.H. Tweed Foundation for Orthodontic Research and Education, Italy

Corresponding Author:
Nicola Derton
C.H. Tweed Foundation for Orthodontic Research and Education, Italy
e-mail: studioderton@libero.it

Abstract
In the last years, miniscrews have become the most used device to provide absolute anchorage without patient compliance; their utilize can be very useful for molar distalization, in fact there is scientific evidence that skeletal anchorage systems are more effective for distalization than conventional methods; moreover, miniscrew utilize is critically advantageous for interdisciplinary adult treatment. Nowadays orthodontics is not only for children and adolescents. For the past three decades increasing numbers of adults have been referred to orthodontists to correct their malocclusion; often interdisciplinary approach seems to be the suitable way to make prudent treatment decision for these patients. A team or orthodontist, oral surgeon, periodontist and restorative dentist must interact to achieve the best goals in adult complex cases. Case reports, with some clinical application in which the use of miniscrew contributes to reach better outcomes will be described (upper molar distalization in no-compliance patient without loss of anchorage, orthodontic extrusion and lower molar uprighting without bonding any tooth).

OBSTRUCTIVE SLEEP APNEA

Davorin Đanić¹,²
¹ Department of Otorhinolaryngology Head and Neck Surgery, Medical School, J.J. Strossmayer University of Osijek, Osijek, Croatia
² Department of Otorhinolaryngology Head and Neck Surgery, General Hospital Slavonski Brod, Slavonski Brod, Croatia
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Corresponding Author:
Davorin Đanić
Department of Otorhinolaryngology Head and Neck Surgery, Medical School, J.J. Strossmayer University of Osijek, Osijek, Croatia
e-mail: davorin.djanic@sb.t-com.hr

Abstract
Obstructive sleep apnea (OSA) is a syndrome characterized by recurrent episodes of apnea and hypopnea during sleep that are caused by repetitive upper airway collapse and often result in decreased blood oxygen levels and arousal from sleep. Treatment for OSA depends on the underlying pathology, but may include lifestyle modifications, weight loss, avoidance of alcohol, sleeping position, intraoral devices, positive airway pressure ventilation and various types of surgery. CPAP is considered to be gold standard treatment for OSA. Surgery is typically reserved for cases (generally moderate to severe) where other less invasive options have failed. Several techniques have been introduced as outcome predictors tools for these non-CPAP therapies. The most common surgical procedure performed for OSA is uvulopalatopharyngoplasty (UPPP). Introduced by Fujita et al in 1981, UPPP involves tonsillectomy (if not previously performed), trimming and reorientation of the posterior and anterior tonsillar pillars and excision of the uvule and posterior palate. The reported success of UPPP as a treatment of OSA is between 16% and 83%, depending on the definition of a positive outcome. Often, UPPP is combined with other nasopharyngeal or oropharyngeal procedures. Expansion sphincter pharyngoplasty (by Pang and Woodson, 2007) is a reconstructive technique and variant of UPPP, used in isolation or in combination with other surgical maneuvers. The procedure is conceptually based on repositioning the underlying muscular structures of the pharyngeal isthmus and palate to enlarge the pharyngeal airway as well on advancing and superiorly positioning the margin of the soft palate. The major contributing factors to retrolingual collapse in OSA patients are macroglossia, hypotonia, retragnathia and lingual tonsillar hyperplasia. The ideal procedure would allow large volume reduction, have low risk of alteration in tongue function and be single stage and low risk for morbidities.

Use of multilevel or stepwise surgery as a combined procedure or as stepwise multiple operations, is acceptable in patients with narrowing of multiple sites in the upper airway, particularly if they have failed UPPP as a sole treatment.

Drug induced sleep endoscopy (DISE), first described by Croft and Pringle in 1991, can add valuable information about location of flutter and collapse of upper airway, degree of narrowing and direction of collapse (anteroposterior, lateral, concentric). Its has shown its value in optimizing patient selection for surgery therapy, since the key to surgical success is good patient selection.

SELECTIVE GRINDING OF PRIMARY TEETH AS INTERCEPTIVE ORTHODONTIC PROCEDURE
Vildana Đžemidžić*
*Department of Orthodontics, School of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Corresponding Author:
Vildana Đžemidžić
School of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina
e-mail: vdzemidzic@hotmail.com

Abstract
Preventive orthodontics procedures are aiming to promote development of normal occlusion. Interceptive orthodontics procedures are procedures aiming to restore normal occlusion in cases with early malocclusion. Malocclusion are widespread and because of that very important in public health issues. So early measurements that can be done by general dentist is of much importance. Studies have show that prevalence of malocclusion in primary dentition is relatively high.

One of the procedures that can help in preserving normal occlusion is selective grinding of primary tooth. This lecture is aiming to explain when, how and why to perform selective grinding of primary teeth?

NEW IDEAS AND DEVELOPMENTS BY DISTRACTION OSTEGENESIS IN CLINICAL ORTHODONTICS
Nejat Erverdi*
*Orthodontic Department, Marmara University, Istanbul, Turkey

Corresponding Author:
Nejat Erverdi
Orthodontic Department, Marmara University, Istanbul, Turkey
e-mail: erverdi@tnn.net

Abstract
Distraction osteogenesis is a well-known clinical procedure in medicine and dentistry. Bone elongation is easily achieved and another advantage is to obtain soft tissue coverage at the same time together with the elongating bone. Distraction osteogenesis is used in orthodontics for the treatment of some orthopedic abnormalities and congenital malformations. Cleft lip and palate problem is a serious congenital situation and the prevalence is one in every one thousand birth. Cleft lip and palate treatment requires a team approach and the treatment is done in preoperative and postoperative periods. Postoperative cleft lip and palate treatment aims to correct the malocclusion that is present.
Major characteristics for this kind of problem are the maxillary sagittal, transversal and vertical discrepancy. In the first part of this presentation, a novel method which was characterized by vector controlled distraction osteogenesis will be introduced. Method will be discussed on some treated cleft palate cases. Skeletal Class II treatment is one of the popular subjects in clinical orthodontics. Treatments of this kind of problems are done by different clinical approaches selected according to the age of the patient. Functional jaw orthopedics is a commonly used clinical procedure in the treatment of growing patients. For the treatment of adult patients orthognathic surgery is a widely used procedure. Orthognathic surgery has some disadvantages like surgery complications and postoperative relapse. To overcome those kinds of problems mandibular distraction osteogenesis could be an alternative and a safe method. In this part of the presentation a method characterized by distraction osteogenesis developed for the treatment of Class II division I problem will be introduced. Our method is noninvasive, and easily carried out under local anesthesia. An appliance and a special distractor that was developed for the arch wise distraction of the segments will be introduced. Some treated cases will be presented and the method will be discussed. Distraction osteogenesis is a commonly used method in implantology to gain some alveolar bone for the placement of dental implants. In this part of the presentation, some cases treated with distraction osteogenesis for the placement of dental implants will be presented.

GENOMIC ANTHROPOLOGY APPLICATIONS TOORTHODONTICS

Felice Festa*

*Specialty School in Orthodontics at “G. d’Annunzio” Chieti - Pescara University, Chieti - Pescara, Italy

Corresponding Author:
Felice Festa
Specialty School in Orthodontics at “G. d’Annunzio” Chieti - Pescara University, Chieti - Pescara, Italy
e-mail: f.festa@unich.it

Abstract
Genomic Anthropology helps understanding progressive adaptation of humans to erect posture. This adaptation has happened with a change of expression of genes regulating striated muscles strength and consequently cartilages and bones structure, particularly in craniofacial complex and upper quarter. Also structure of deambulation, breathing and vocalization adapted of to changing environment.

In this lecture is shown how to improve step by step Orthodontics/ TMJ diagnostic management and clinical outcomes utilizing Genomic Anthropology: 3D Diagnostic Tools, as 3D CBCT Craniofacial Volume and 3D Alfa Segmentation Analysis, Individualized Treatment Plans and Biomechanics (self-ligating low friction, linguals, active and passive aligners, TADs, Orthognathic Surgery, Second Class Resolver).

ODDS RATIOS OF AGENESIS OF MANDIBULAR THIRD MOLARS BASED ON MINERALIZATION STAGES BY DEMIRJIAN ON SECOND MANDIBULAR MOLARS OF CHILDREN AND ADOLESCENTS IN BOSNIA AND HERZEGOVINA

Ivan Galić 1, Amir Jasarevic2, Goran Gašpar3, Oliver Božić4, Samir Prohic5, Tomislav Lauc6
1 Department of Maxillofacial surgery, Clinical Hospital Centre Split, Split, Croatia
2 Resident on Department of Maxillofacial surgery, Sarajevo, Bosnia and Herzegovina
3 Dental clinic Split, Split, Croatia
4 Private practice “A-NOVODENT”, Grude, Bosnia and Herzegovina
5 Department of Oral Surgery, School of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina
6 Department of Anthropology, Faculty of Social Sciences and Humanities, University of Zagreb, Zagreb, Croatia

Corresponding Author:
Ivan Galić
Department of Maxillofacial surgery, Clinical Hospital Centre Split, Split, Croatia
e-mail: ivan.galic.st@gmail.com

Abstract
Introduction: The effect of third molar retention on incisor crowding has been investigated for over 140 years. There are still some controversies in literature about relationship between third molars development and incisor crowding. It is important to take advantage of assessing the development of the second molar to predict agenesis of the third molars.

Aim: The aim of this study is to calculate the odds ratios of agenesis of third molars to each development stage of the development of the second molar.

Material and Methods: On a representative sample of 2553 panoramic images of children and adolescents aged 5-23 years from Bosnia and Herzegovina. The mean values and ranges of age at developmental stages (A-H), by Demirjian, Goldstein and Tanner (1973), of eight teeth on the left side of the mandible were calculated. A range of developmental stages of the second molar to the crypt of the third molars, and odds ratios of agenesis of third molars to each development stage of the second molar is calculated.

Results: The average age of third molar crypt stage was 9.08 years [range 5.52 to 12.67] in boys and 9.36 years [range 6.14 to 13.28] in girls (p=0.158). When third molar was at crypt stage,
the range of second molar stages was from stage C up to G, the most common being for stage D and E. By the time when second molar was reached stage F, 96.68% of individuals had at least a visible crypt of third molar. Odds ratio of third molar absence at second molar stage G was 0.07 [99%CI 0.04, 0.10].

INDICATIONS FOR EXTRACTION OF PERMANENT TEETH DURING FIXED ORTHODONTIC TREATMENT

Zuhalj Gavaz¹, Dinela Kandić¹, Anisa Čehajić³, Dževada Avdagić², Alisa Tiro²

¹ Resident in Orthodontics, Department of Orthodontics, Faculty of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina
² Department of Orthodontics, Faculty of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Corresponding Author:
Zuhalj Gavaz
Resident in Orthodontics department, Faculty of Dentistry, Sarajevo, Bosnia and Herzegovina
e-mail: zuhalrama@gmail.com

Abstract
Introduction: Key question in planning orthodontic treatment for over 100 years is “to extract or not to extract the tooth?”. Two main reasons are crowding and camouflage of skeletal Class II and III. Although alternatives exist (such as arch expansion, correction of intermaxillary relations, surgical treatment etc.) in some cases extraction of one or more teeth is the best solution. Orthodontic indications for tooth extraction are crowding, compensation (camouflage) and others (due to caries complications, structure, number or position anomalies).

Aim: Is to determine most common indication for extraction of permanent teeth during fixed orthodontic treatment.

Materials and methods: Analysis is conducted using documentation of patients treated on orthodontic department Faculty of dentistry University of Sarajevo. We randomly selected 100 patients, in which teeth were extracted during fixed orthodontic treatment, ages 12 to 18, from which 68 girls and 32 boys.

Results: From 100 (100%) patients treated with fixed orthodontic treatment which included extraction of permanent teeth 42 (42%) had crowding, 28 (28%) had extracted teeth because of camouflage and 30 (30%) had to extract teeth due to caries complications, trauma or asymetric extractions.

Conclusion: Planning of orthodontic treatment, after completing diagnostic protocol, may include decision of tooth extraction. When indication and cases are precise therapy can be done by the plan. In other cases you have to adapt your treatment plan to the presented situation in patients mouth (poor root canal treatment, previous extractions, trauma etc.) and create new indications for extraction.
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The oral examination of the children was performed by four, previously calibrated, dentists. Oral examination included: occlusal anteroposterior relationship (Angle's classification), overjet, overbite, midline shift, transverse buccal relationships, presence of premature contact and diastema. For statistical analysis of data we used univariate analysis to calculate frequency distribution.

Results: Out of 400 children (209 males and 191 females) examined, 227 or 56.7% had some malocclusion. Majority of these children (79.2%) had Angle's Class I malocclusion, 12.8% had Class II malocclusion and 8% Class III malocclusion.

Conclusion: Malocclusion prevalence in the present study was high. Due to its high prevalence malocclusion can be considered as a public health problem, and urge to be included in preventive programs.

DIGITAL ALIGNERS. KEY FACTORS FOR THE SUCCESSFUL ALIGNER TREATMENT AND FUTURE PERSPECTIVES

Gabor Hermann*

*Private practice, Budapest, Hungary

Corresponding Author:
Gabor Hermann
Private practice, Budapest, Hungary
e-mail: drhermann.g@gmail.com

Abstract

Aligners have made a great impact on orthodontics over the last 10-15 years. A new treatment alternative has been introduced to the specialty, what not only expanded the treatment options for doctors, but greatly impacted the orthodontic market too. Aligners can be analyzed from 2 perspectives. The one is their application in the everyday practice. What are the typical indications and what are the key factors to be successful in treating cases with aligners. On the other hand we can analyze what changes aligners made to the orthodontic market. After the long hegemony of Invisalign on the market, over the last 5 years competitor laboratories have been opening all over the World. How can one decide which lab to select and how will the spread of the aligners impact the future of orthodontics?

Disclosure: The author is part of a craniofacial functional team, which has been developing an international functional franchise under the name www.dsmiletraining.com

WHAT DOES FUNCTIONAL ORTHODONTICS MEAN IN 2014?

Gabor Hermann¹, Joy L. Moeller², Licia Coceani Paskay², Marc Richard Moeller², Virginia Marie Johnson³

¹ Private practice, Budapest, Hungary
² Academy of Orofacial Myofunctional Therapy, Pacific Palisades, USA
³ The Osteopathic Cranial Academy, Santa Monica, USA

Corresponding Author:
Gabor Hermann
Private practice, Budapest, Hungary
e-mail: drhermann.g@gmail.com

Abstract

Introduction: Orthodontic specialty has gone through an interesting metamorphosis over the last decades. Although there has been obvious technological changes, but some important core questions still have been unanswered. What is the reason of orthodontic relapse? Why haven’t we able to develop standardization in diagnostics and treatment? In the meantime significant amount of papers proved that orthodontic treatment is highly related to several craniofacial and body functions like breathing, orofacial myofunction and cervical/body posture. In the light of this interdependence the author will examine how functional orthodontics can be redefined.

Content: The poster tries to collect the scientific arguments, which support that in order to answer the vital questions of the orthodontic specialty one has to take the complexity of the human body into consideration. Sleep studies show that in order to open airways the expansion of the maxilla and the advancement of the mandible. A cranial base study showed an evident impact of high orthodontic forces and inappropriate force directions on the cranial base and the cervical spine. Root resorption, gingival recessions are also side effects of applied high orthodontic forces and inappropriate force directions. Open bite studies show that untreated orofacial myofunctional problems will lead to relapse. When looking at the literature evidence based orthodontics has very little information on diagnostics, so we need to redefine what we call orthodontics. Is this a cosmetic treatment, structural reconstruction, or a comprehensive functional treatment?

Discussion: Orthodontic specialty has arrived to a very important phase. Based on the available functional evidences we have to redefine several terms. Into the objective of the orthodontic treatment we have to involve the craniofacial health and appropriate function. Also we have to come to the conclusion that we have to categorize orthodontic treatments. We have to introduce new orthodontic categories, like: cosmetic orthodontic treatments, structural reconstructive orthodontic treatment, and functional orthodontic treatments. The poster introduces definitions of the categories above, including the definition of modern functional orthodontics. In short modern functional orthodontics is introduced like: functional orthodontic treatment will change structures according to the functional needs.

General treatment directions should follow the airway and
embryological needs (maxillary development and mandibular advancement); Applied forces and force directions should not cause side effect on facial muscles, facial and cranial bones and cervical spine; The applied appliance should not prevent but enhance the correction of the orofacial myofunction; Based on the functional interdependence orthodontic specialty must accept that we have to work in a team and the orthodontic treatment plan has to be a part of an interdisciplinary plan. Learning outcomes: we have to: categorize orthodontic treatments, like cosmetic, structural reconstructive and functional; Define modern functional orthodontics as not being equal to the application of a functional appliance. According to new researches we have to redefine modern functional orthodontics as a new paradigm, especially as an orthodontic activity that works in an interdisciplinary functional team.

Disclosure: The author is part of a craniofacial functional team, which has been developing an international functional franchise under the name www.dsmiletraining.com

DAMON SYSTEM - FACE DRIVEN ORTHODONTICS

Mirna Herzer Klemenčić
*Department of Orthodontics, Clinic of Dental Medicine Zagreb, Zagreb, Croatia

Corresponding Author:
Mirna Herzer Klemenčić
Department of Orthodontics, Clinic of Dental Medicine Zagreb, Zagreb, Croatia
e-mail: mirnaherzer@gmail.com

Abstract
Thanks to passive self-ligation brackets, low frictional forces, high-tech technology archwires and light early elastics, Damon system gives us more possibilities in treating our patients according to the patient's face. By utilizing high and low bracket torque couples, gradual torque expression can be achieved with the recommended edgewise archwire progression, resulting in a positive impact on bone and tissue. It also has a positive impact on the midface and facial profile. Therefore our results are not only the straight teeth; they combine good function followed by good facial aesthetics. With dentoalveolar compensation we are able to avoid most of extractions if they are not desirable for the facial expression. However, in cases with patients who have adequate posterior arch width and severe bimaxillary protrusive dentitions and profiles, extractions are needed. The low force treatment has a positive impact on tongue position and airway, and these „biologically sensible“ forces have a positive impact on periodontal structures and bone. Case report will present patients from own practice, the influence of therapy on facial expression in both adolescent and adult patients. We were able to achieve very satisfying results thanks to dentoalveolar compensation in patients with skeletal disproportion who refused surgical treatment. Main duty of every orthodontist is not only to create straight teeth and good function in occlusion, but also a good aesthetics. Our work focuses on the midface, therefore we have a great responsibility for the future aesthetic aspect of each patient, especially with younger patient who are still in the growing and development process. Physiological resorption of alveolar bone, which will appear after extraction, has to be anticipated and avoided if possible. We can't overlook the social factor of dental aesthetics. Good function must be followed by significant or at least slight improvement of facial appearance, so that we would be able to say that the orthodontic treatment was successful.

Disclosure: Dr. Herzer Klemenčić has served as a consultant to “Ormco” company.

PREVALENCE OF TRAUMATIC INJURIES, TOOTH WEAR AND TEMPOROMANDIBULAR DISORDER SYMPTOMS IN ATHLETES

Amir Jašarević1, Dženana Jašarević2, Vildana Džemidžić3
1 Resident in Maxillofacial Surgery, Maxillofacial Surgery Department, Clinical Center University of Sarajevo, Sarajevo, Bosnia and Herzegovina
2 Primary health care Sarajevo, Sarajevo, Bosnia and Herzegovina
3 Orthodontic Department, School of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Corresponding Author:
Amir Jašarević
Jadranska 13, Sarajevo, Bosnia and Herzegovina
e-mail: amirjasarevic1987@gmail.com

Abstract
Aim: The aim of this research was to examine the presence of: tooth wear, and the presence of parafunctional habits, and tooth injuries in athletes.

Method and materials: The study included 45 participants, combat sport (n=15), non-combat sport (n=15), control group (n=15). Participants were males older than 18 years who were not treated orthodontically and had no prosthodontics restoration. All participants filled in a questionnaire (previous injuries, clenching, grinding, and muscle ache). Clinical examination included dental abrasion scoring scale (1= minimal or no abrasion, 2= abrasion of enamel, 3= abrasion of dentin) and TMJ examinations of the subjects.

Results: The prevalence of parafunctional habits in the control group was 26% (n = 5), non-combat sports 60% (n = 9), combat sports 66.6% (n = 10). Abrasion is higher among subjects who are engaged in non-combat sports 73%; and in 66.6% of the martial arts group. The presence of TMJ clicking in the control group accounted for 13%; the same percentage appeared in both groups of athletes at 33%. Crepitation is present in small percentages in both groups of athletes and is 6.6%. Sports
related injuries to the head were reported at 53% among the non-combat sports group; 33% in the combat sports group; control group had no head injuries.

Conclusion: Given the degree teeth wear as well as subjective and objective symptoms, more attention and protection of the teeth and TMJ is required in patients who participate in sports, especially in sports where direct contact is intended.

PERCEPTION OF SMILE AESTHETICS

Dženana Jašarević1, Manuela Brajdić2, Amir Jašarević3, Rubina Smajić4
1 Primary health care Sarajevo, Sarajevo, Bosnia and Herzegovina
2 Undergraduate student, School of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina
3 Resident in Maxillofacial Surgery, Maxillofacial Surgery Department, Clinical Center University of Sarajevo, Sarajevo, Bosnia and Herzegovina
4 Pediatric Dentistry, School of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Corresponding Author:
Dženana Jašarević
Primary health care Sarajevo, Bosnia and Herzegovina
e-mail: dzenanaze@hotmail.com

Abstract
Introduction: Many authors described the characteristics which determine attractiveness of a person. Perception of aesthetics varies from person to person and is under the influence of experience and their environment.
Aim: The aim of this study was to examine perception of smile aesthetic.
Material and method: Material was photographs of natural smiles. The photo is made in black and white and matte, so the color did not affect the perception (Zachrisson). 50 examiners graded one photo on a scale of 1-10 (1 being the least attractive smile; 10 being the most attractive smile)
Results: Highest grade 10 was in 22%, grade 8 was given in 30%, the lowest grade given was 2 in 2%.
Conclusion: This study show that perception of the smile is subjective.

ENDODONTIC TREATMENTS FOR DECIDUOUS AND YOUNG PERMANENT TEETH IN PREORTHODONTICS

Hrvoje Jurić*
*Department of Paediatric and Preventive Dentistry, School of Dental Medicine, University of Zagreb, Zagreb, Croatia

Corresponding Author:
Hrvoje Jurić
Department of Paediatric and Preventive Dentistry, School of Dental Medicine, University of Zagreb, Zagreb, Croatia
e-mail: juric@sfzg.hr

Abstract
Endodontic procedures in pediatric dentistry encompass pulp treatments of primary and young permanent teeth. Success in treatment of dental pulp pathology in children demands high dentist skills. This treatments demand fast and accurate diagnosis as well as precise treatment in rather demanding circumstances. Children's mouths are small size and the cooperation is limited. The purpose of these therapeutic procedures in primary teeth is to preserve teeth, as chewing units, thus ensuring the masticatory, developmental, phonetic and esthetic function until its natural exfoliation. This therapy is also important for orthodontist because the preservation of teeth in dental arch facilitates future orthodontic treatment. Underlying reason for endodontic treatment of young permanent teeth is to ensure proper growth and development of the tooth root and its function. If the long-term prognosis for a particular tooth is poor, endodontic treatment can provide delaying of extraction, which will benefit the proper formation of dental arch for further orthodontic, surgical or prosthodontics treatment. Therefore planning of endodontic therapy in children involves short-term and long-term consequences of therapeutic procedures. These consequences should always be considered when making a final decision of therapeutic interventions usually in consultation with orthodontist.

METHODS TO ACHIEVE EXCELLENCE IN ORTHODONTIC TREATMENT

Roberto Justus*
*World Federation of Orthodontics

Corresponding Author:
Roberto Justus
World Federation of Orthodontics
e-mail: rojustus@mexis.com

Abstract
The objective of this topic is to inform orthodontists on both how to increase their standard of orthodontic care by using the American Board of Orthodontics' updated criteria for case approval, and also how to apply these criteria in daily practice. You will learn why the ABO uses: A “Discrepancy Index Form” to score the complexity of a case, using the initial orthodontic records. An Objective Grading System to score candidates’ finishing dental casts and panoramic radiographs. A Case Management Form to score candidates’ final skeletal, dental
and facial results, including the quality of the orthodontic records. You will learn why: Lewis brackets are more efficient in rotating teeth, and also in over-correcting rotated teeth, than twin brackets. Fiberotomy is effective in minimizing/diminishing rotational relapse. Removable night-time retainers hold mandibular alignment better than fixed canine-to-canine retainers. Direct bonding of 2nd molar tubes is important to achieve ideal alignment. Glass ionomer cement is more effective for bonding second molar tubes than resin. 1st and 3rd order wire bends are essential to achieve excellence, even though pre-adjusted brackets are used. Ideal root parallelism is important, and how to achieve it. You will learn how: The ABO determines a cut-off score for approval/rejection of a candidate’s case. The ABO trains and calibrates its examiners. The ideal maxillary and mandibular retainers should be designed.

DEPOTRINEIZATION OF TOOTH ENAMEL SURFACES TO PREVENT WHITE SPOT LESIONS AND BRACKET BOND FAILURE: A REVOLUTION IN ORTHODONTIC BONDING

Roberto Justus*

*World Federation of Orthodontics

Abstract
Orthodontic treatment success is jeopardized by the risk of development of white spot lesions (WSLs) around orthodontic brackets. Unfortunately, the formation of WSLs still remains a common complication during treatment in patients with poor oral hygiene. Nearly 75% of orthodontic patients are reported to develop enamel decalcification because of prolonged plaque retention around brackets. It is the orthodontist’s responsibility to minimize the risk of patients having enamel decalcifications as a consequence of orthodontic treatment. This can be achieved by using hybrid, fluoride releasing, glass ionomer cement to bond brackets, with deproteinization of the enamel surface prior to phosphoric acid etching. You will learn why: enamel is protected from white spot lesions when brackets are bonded with hybrid, fluoride releasing, glass ionomer cement. Enamel de-proteinization with Clorox (5.25% Sodium Hypochlorite), prior to etching, increases bracket shear bond strength (Justus R et al, Seminars in Orthodontics, March 2010). Incidence of bracket bond failure is diminished when the enamel surface is de-proteinized before etching and bonding brackets, both with composite resin and also with glass ionomer cement. You will learn how to: de-proteinize the enamel surface. Bond brackets with hybrid glass ionomer cement.

PREVENTION OF PERIODONTAL DETERIORATION/DAMAGE

Roberto Justus*

*World Federation of Orthodontics

Abstract
Alterations in the mucogingival complex can occur during orthodontic tooth movement. In terms of changes in the position of the soft tissue margin and in gingival dimensions, the important factors to consider are the direction of the tooth movement and the bucco-lingual thickness of the gingiva. Lingual tooth movement will result in an increased bucco-lingual thickness of the tissue at the facial aspect of the tooth, which results in coronal migration of the soft tissue margin (decreased clinical crown height). Facial tooth movement, on the other hand, will result in a reduced bucco-lingual tissue thickness and thereby a reduced height of the free gingival portion and an increased clinical crown height. You will learn why: incisor proclination may damage the periodontium and jeopardize stability. Arch length increase to alleviate crowding is the least stable orthodontic treatment. You will learn how to: avoid lower incisor proclination and still achieve ideal alignment. Maintain ideal alignment long-term. You will learn the indications for extraction of: one lower incisor, four first bicuspids, two mandibular second bicuspids and two maxillary first bicuspids.

THE ANTERIOR OPEN BITE: CONSERVATIVE ORTHODONTIC TREATMENT WITH STABILITY

Roberto Justus*

*World Federation of Orthodontics

Abstract
The high relapse incidence of anterior open-bite malocclusion is frequently due to an anterior tongue rest posture. A maxillary fixed intraoral appliance with spurs is recommended to modify tongue posture. Research with this appliance in a large sample of anterior open-bite patients demonstrated long-term stability post-retention.
You will learn why: long-term stability of open bite closure is no better than 80%. Myofunctional therapy with oral exercises
is ineffective in closing open-bites; TADs used for anterior open-bite closure might not have a stable outcome; Fixed intraoral spurs are recommended to establish a normal tongue rest posture; Spurs modify tongue posture and also interrupt digit-sucking habits; The anterior open-bite closes with spurs, without using brackets/wires; Long-term stability post-retention is achieved when spurs are used; Spurs are indicated/contraindicated; Early correction of open-bite protects roots from resorbing; Intraoral spurs do not provoke psychological problems. You will learn the: risk factors for anterior open-bite, in-office construction of the spur appliance.

**TREATMENT OUTCOMES ASSOCIATED WITH PALATAL EXPANSION AND MANDIBULAR ADVANCEMENT AT NASOPHARYNGEAL OBSTRUCTION**

Gabriela Kjurcheva Chuchova*

*PHO University Dental Clinical Centre St. Pantelejmon, Clinic Of Orthodontics, Skopje, FYR of Macedonia

**Abstract**

Nasopharyngeal obstruction is an important etiologic factor in the development of an extreme vertical growth facial pattern, and insufficient transversal growth of the maxilla. Based on the respiratory functional demands, extension of the head will lift the head away from the hyo-mandibular complex, as a functional response facilitating oral breathing to compensate for nasal obstruction. The main issue of orthodontists in treatment planning are impaired nasal breathing cause malocclusion, or vice versa, dentofacial anomalies became factor for narrower the pharyngeal dimension. The treatment outcomes associated with applied rapid palatal expansion in the literature mainly discussed in terms of changes in dentofacial morphology without special reference to changes in the pharyngeal airway, the position of the mandible, hyoid bone and the tongue. The purpose of this lecture is to show the effects of the use of appliances for palatal expansion and mandibular advancement, not only by morphological changes, but also by changing the position of the mandible and tongue creating conditions for myofunctional balance and proper development of craniofacial complex. Treatment of patients with impaired naso-respiratory functions with those appliances these deliver outstanding results, allowing patients to change the capacity of the pharyngeal airway, and thus establish normal function and breathing.

**BIOMECHANICS OF SELF-LIGATING SYSTEMS**

Sunčana Kišić Merlo*

*Dental clinic “NIKA”, Zadar, Croatia

**Corresponding Author:**

Sunčana Kišić Merlo
Dental clinic “NIKA”, Zadar, Croatia
e-mail: suncana.kisic@zd.t-com.hr

**Abstract**

For many years biomechanical planning in fixed orthodontics was based on two-dimensional perspective. The final force vectors in fixed appliance were usually assumed as a sum of single force distribution on different teeth or dental arch areas. However, there are many difficulties in creating highly accurate experimental model for simulation activity of orthodontic appliance. Recent studies published by Hirashima Badawia (Canada) explained many biomechanical doubts and gave the scientific basis for traditional clinical protocols. This lecture provides an overview of the latest improvements in biomechanics with an emphasis on self-ligating systems with many original clinical cases.

**Disclosure:** Dr. Kišić Merlo has served as a consultant to “Ormco” company.

**UPDATE IN LINGUAL THERAPY WITH SELF-LIGATING BRACKETS**

Hatto Loidl*

*Private orthodontic practice, Berlin, Germany

**Corresponding Author:**

Hatto Loidl
Private orthodontic practice, Berlin, Germany
e-mail: info@westendkfo.de

**Abstract**

**Introduction:** To describe correct bracket placement with the new SMART CAP Method which is a modification to the well-known Hiro – System and to show the features of active self-ligating lingual brackets in combination with the SMART CAP System. **Material and Method:** Evolution SLT–Brackets have been transferred to teeth with the SMART CAP method. Special features of both systems starting with laboratory procedures and continuing with clinical handling are demonstrated. **Results:** A number of different patients treated with the new systems are presented, illustrating the technical properties and clinical handling of active self-ligating brackets. **Conclusion:** Integrating lingual treatment in a greater number of orthodontic offices can only be realized if this technique can be operated and handled as simple as possible and the chair
time can be reduced in order to fit into the schedules of busy orthodontic offices. Self-ligating technology is a big approach towards these objectives.

Disclosure: Dr. Loidl has served as a consultant to “Adenta” company.

ORTHODONTIC MATERIALS – BIOMECHANICAL ASPECTS

Senka Meštrović*
*Department of Orthodontics, School of Dental Medicine, University of Zagreb, Zagreb, Croatia

Corresponding Author:
Senka Meštrović
Department of Orthodontics, School of Dental Medicine, University of Zagreb, Zagreb, Croatia
e-mail: mestrovic@sfzg.hr

Abstract
Optimal force is the amount of force resulting with the fastest tooth movement without damage of periodontal tissue, root and bone resorption and discomfort to the patient. Most orthodontists apply light forces in their clinical work. It is important to achieve light force, because too heavy force cause hyalinization or necrosis of PDL and alveolar bone, usually lasts about 2 or 3 weeks. After elimination of the hyaline zone, further tooth movement is possible. Important task for orthodontist is to have optimal or suboptimal force level in the period between the two visits. The most important force element in orthodontic is archwire. In clinical work, selection of an archwire requires consideration of not only its chemical and physical properties, but also factors such as the severity of malocclusion and treatment plan. The archwires should be sufficiently elastic, formable, not affected by oral environment (pH changes), esthetic and have good price. Selection of the archwire depends on the purpose that you want to achieve. The most important criteria for the archwire selection are load/deflection rate, working range and springback. Beside the wires there is variety of other active elements that can be used in clinical work, such as elastics and coil springs. From the standpoint of friction, ligation method has important role in orthodontic treatment. From a clinical perspective, good knowledge of the biomechanical properties of materials enables aesthetically and functionally best treatment results.

PERIODONTAL EVALUATION BEFORE ORTHODONTIC THERAPY

Haviye Nazlıel-Erverdi*
*Department of Periodontology, Hacettepe University, Ankara, Turkey

Corresponding Author:
Haviye Nazlıel-Erverdi
Valikonagi Cad. 159/5, Nistansi-Istanbul, Turkey
e-mail: haviye@ttmail.com

Abstract
Orthodontic therapy in the presence of periodontal inflammation and/or periodontal attachment loss can lead to rapid and irreversible breakdown of periodontium. Therefore, orthodontic movements should be carried out on teeth with healthy periodontium. Thus, as a general rule, periodontal therapy is completed before the initiation of any kind of orthodontic treatment. Nowadays, an increasing number of adults are undergoing orthodontic treatment to enhance their smile or masticatory function. However, periodontal disease affects most of the patients over 45 years. Over two-thirds of adults have radiographic bone loss even before orthodontic therapy. Therefore, before orthodontic therapy, full-mouth periodontal evaluation is required for the patients 18 years
and older, and younger patients with signs and symptoms of periodontal involvement. A contemporary orthodontist must be able to recognize periodontal susceptibility and involvement. The aim of this presentation is to put forward the importance of the periodontal evaluation during the initial examination of the patient.

THE MTM NO TRACE LINGUAL SYSTEM: INDIRECT BONDING

Emanuele Paoletto*

*Italian Academy of Technical Orthodontics

Abstract

The MTM No Trace system is one of the major innovations for the aesthetic orthodontic treatment. It is a simplified lingual technique, which is designed to correct misalignments of the upper and lower frontal teeth using the latest generation of self-ligating brackets.

The brackets application in the lingual technique has always been one of the critical points of the system. Like all buccal orthodontic brackets, even the MTM No Trace brackets can be applied either with a direct or indirect bonding. Even if the direct application may appear to the clinician more immediate, fast and simple, there are some difficulties that characterize it as limited access, the anatomical variability of the lingual surface of the teeth, the difficulty in maintaining a dry field and uncomfortable work position, that make the direct bonding procedure not only more difficult, but also less precise. In contrast, the indirect bonding makes the application easier, faster and more accurately.

DIVERGENCE IN PREVALENCE OF MALOCCLUSION CAUSED BY DIFFERENT DIAGNOSTIC CRITERIA

Amar Piknjač*, Džana Hadžihasanović*

* Undergraduate student, School of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Abstract

Introduction: Malocclusion is a misalignment of teeth and/or incorrect relation between the teeth of two dental arches. There are several commonly used methods for determination of presence of malocclusion.

Aim: The aim of this study was to define the incidence of malocclusion in dependence of different diagnostic criteria.

Subjects and methods: 110 adults over 16 years, females (n=31) males (n=79).

Subjects were examined according to Angle's classification of occlusion and IOTN index (the index of the need for orthodontic treatment). Variables examined were: overjet, overbite, midline, crossbite, presence of premature contact, presence of diastema, crowding and rotated teeth.

Results: The Results of IOTN index showed that 72 respondents have some form of malocclusion, from mild to severe. Mild need for treatment had 47 patients, moderate need 21 patients, while severe need was observed in two patients. The results showed that 3% had Angle's Class III, open bite was observed in 10%, absence of diastema was found in 55% of observed adults. Overbite was found in 12%, mandibular overjet was observed in 7%. Crossbite was found in 23%, and rotation of teeth was observed in 60%, while crowding was found in 60%. Results of the IOTN aesthetic component of the index shows that without the need for treatment are 92% of respondents, borderline cases make up 6%, and required need for treatment is present in 2% of patients.

Conclusion: The use of different diagnostic criteria gave different frequency need for orthodontic treatment. Our findings indicate high prevalence of malocclusion in adults, only 4% of examinees show no deviations. Greater attention is needed to reduce the prevalence of malocclusions.

TWIN BLOCK - REVIEW OF CLASS II TREATMENT

Martina Poldrugač*

*Dental clinic “Dr Zubovic”, Zagreb, Croatia

Abstract

Class II malocclusion, whether it concerns Class II division 1 or Class II division 2, poses a problem, among others, due to the patient cooperation. There are many appliances for correction of such malocclusions and it is necessary to choose the right one for a certain problem. Research shows that, after Herbst appliance, Twin Block is the most effective appliance if the patient is treated at the pubertal growth spurt. This lecture will focus on the appliance design that is patient friendly and can be easily worn for 24 hours a day. Many researches point out the importance of the treatment during puberty, but the expansion, which is often necessary in Class II patients, should be performed at an earlier age. This lecture will also cover the
OF EARLY CROSSBITE CORRECTION - A THREE DIMENSIONAL EVALUATION

Jasmina Primožič*
*Department of Orthodontics and Jaw Orthopaedics, Medical Faculty, University of Ljubljana, Ljubljana, Slovenija

Corresponding Author:
Jasmina Primožič
Department of Orthodontics and Jaw Orthopaedics, Medical Faculty, University of Ljubljana, Ljubljana, Slovenija
e-mail: jasminaprmozic@gmail.com

Abstract

Unilateral functional crossbite is one of the most prevalent malocclusions in the primary and early mixed dentition phases. The prevalence increases from the primary to the mixed dentition phase and the malocclusion, if not treated, has a tendency to worsen throughout the development. Unilateral functional crossbite commonly arises as a result of a narrow maxilla, which forces the mandible to displace laterally into an abnormal position due to the presence of tooth interferences. Furthermore, several functional malocclusion traits, i.e. low tongue posture are seen among children with functional crossbite. Treatment of unilateral functional crossbite in the primary dentition period is still questionable in respect to cost–effectiveness and it has been claimed that the main indication for correction in the primary dentition is the correction of the functional asymmetry in order to prevent adverse skeletal mandibular growth. It has been shown, by the use of three-dimensional laser scanning technique that children with functional crossbite have a significantly greater facial asymmetry and this asymmetry has a tendency to increase in the transition from primary to the early and late mixed dentition phases. Furthermore, three-dimensional ultrasound analysis of tongue posture revealed a low tongue posture occurring more frequently among children with functional crossbite than in non-crossbite children. Moreover, the morphology of chewing cycles recorded with a Sirognathograph computer analyzing system was significantly different and the frequency of reverse chewing cycle was significantly higher in crossbite children as compared to non-crossbite children. After rapid maxillary expansion in the primary dentition phase facial symmetry, tongue posture and the chewing pattern improved. Therefore, treatment of unilateral functional crossbite in the primary dentition phase re-establishes proper conditions for normal growth and development of the orofacial structures and it prevents adverse dental and facial development.

A SYSTEMATIC REVIEW OF EFFECTIVENESS OF FUNCTIONAL APPLIANCES IN TREATMENT OF SKELETAL CLASS II MALOCCLUSION

Ivana Šćepan1, Branislav Glišić1, Evgenija Marković1, Jovana Juloski1

1 Clinic of Orthodontics, School of Dental Medicine, University of Belgrade, Belgrade, Serbia

Corresponding Author:
Ivan Šćepan
Clinic of Orthodontics, School of Dental Medicine, University of Belgrade, Belgrade, Serbia
e-mail: ivana.scepan@stomf.bg.ac.rs

Abstract

Effectiveness of functional appliances treatment in patients with Class II malocclusions is one of the most controversial topics in contemporary orthodontics. There are many of removable and fixed functional appliances aimed to stimulate sagittal and vertical mandibular growth by forward posturing of the mandible. Although many studies in animals have demonstrated that posturing the mandible forward can produce skeletal mandibular changes, the effects on humans are more equivocal and controversial. Many treatment protocols, sample sizes, and research approaches have led to disparate outcomes in studies on human subjects.

Evidence suggests that favorable growth is not always a consequence of functional appliances treatment. Some authors suggest an increase in the total length of the mandible, while others believe that the length of the mandible can not be change with this kind of treatment. Many studies have confirmed that most of the correction is achieved by dentoalveolar changes, some authors argue that there is no noticeable effect on the position of the upper jaw. Many of these opposite viewpoints are the result of a retrospective design with studies, or methodological limitations such as small sample, inadequate control groups, inadequate age in the control and experimental group at the beginning of treatment, and different lengths of treatment. Therefore, the aim of this lecture is to analyze the results of controlled clinical studies in the literature related to the treatment of skeletal Class II malocclusion with functional appliances, as well as to determine the effectiveness of these devices to change the amount of mandibular growth.
ANTIMICROBIAL EFFECT OF 0.12% CHLORHEXIDINE IN ORTHODONTIC PATIENTS

Elma Tankosić1, Suada Dautović1, Azra Lonić1, Jasmina Bejtović1, Amila Zukanović2, Enes Pašić3

1 Resident in Orthodontics, Department of Orthodontics, Faculty of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina
2 Department of Paedodontics, Faculty of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina
3 Department of Oral Medicine, Faculty of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Corresponding Author:
Jasmina Bejtović
Resident in Orthodontics, Department of Orthodontics, Faculty of Dentistry, University of Sarajevo, Sarajevo, Bosnia and Herzegovina
e-mail: b.bejtovic@gmail.com

Abstract

Introduction: Insertion of fixed orthodontic appliance increase a risk in enamel demineralization. Preventive efforts in these patients should be focused on suppression of the cariogenic microflora. Chlorhexidine (CHX) is the potent antimicrobial agent against mutans streptococci and dental caries.

Aim: The aim of this research was to compare level of Streptococcus mutans and Lactobacillus acidophilus before and after the use of 0.12% chlorhexidine mouth rinse. Quantity of S.mutans and lactobacilli were observed at two stages, before and 2 weeks after administration of 0.12% chlorhexidine mouth rinse. Quantity of S.mutans and lactobacilli were determined by CRT® bacteria test (selective medium for the detection S.mutans and lactobacillus). The changes in levels of S.mutans and lactobacilli were analyzed by Wilcoxon test.

Results: Changes in level of S.mutans (p=0.329) and lactobacilli (p=0.557) two weeks after the administration of 0.12% CHX showed no statistically significant difference.

Conclusion: The data indicate that the use of CHX, in addition to poor regular oral hygiene habits, was not effective in reducing bacteria level in patients undergoing fixed orthodontic treatment.

ORTHOGNATHIC SURGERY – ESTHETICS OR FUNCTION?

Vedran Uglešić*
*Clinical Hospital Dubrava, Zagreb, Croatia

Corresponding Author:
Vedran Uglešić
Clinical Hospital Dubrava, Zagreb, Croatia
e-mail: vuglesic@kbd.hr

Abstract

Craniofacial bone deformities are the most common deformities in population. Recently, thanks to new surgical approach and treatment planning based on computerized technology, planning and treatment of bone deformities have been much improved. Multidisciplinary approach is a priority in orthognathic surgery and careful coordination between maxillofacial surgeon, orthodontist, oral surgeon and dentist is essential. Proper time for diagnostics, treatment planning and surgery is crucial for the treatment success. Orthognathic surgery combines esthetics and function. This lecture will present indication for surgical treatments and results with complications of mono- and bilateral osteotomy and genioplastics.

WHEN TO REFER A PATIENT TO AN ORTHODONTIST?

Suzana Varga*
*Croatian Society of Orthodontics

Corresponding Author:
Suzana Varga
Croatian Society of Orthodontics
e-mail: suzana.varga1@gmail.com

Abstract

The estimation is that 35 to 65% of population has some kind of orthodontic problem. Although there is no age limit for orthodontic treatment, in some cases, there is an age that is considered optimal for starting the therapy. Therefore, the successful orthodontic treatment is dependent on the adequate recognition of the orthodontic anomalies by the general dentists as well as on their cooperation with the orthodontist. The detection of certain orthodontic problems can also enable the general dentists to refer the patients on their possibilities and rights within the Croatian regulations as well as to initiate the interdisciplinary cooperation for the best result in each and every case. In this lecture it will be presented how to recognize orthodontic anomalies and their classification as a tool for better understanding orthodontic problems of our patients. The optimal time for referring the patient to a specialist will also be presented.

FACIAL TYPOLOGY AND INTERCEPTIVE ORTHODONTIC EXTRACTIONS

Branislav Vidović*
*Private practice “Ortis”, Novi Sad, Serbia

Corresponding Author:
Branislav Vidović
Private practice “Ortis”, Novi Sad, Serbia
e-mail: ortis.co@gmail.com
Abstract
The more we learn about growth and its potentials as well as about the influences of functions on the development of dentition, the more we understand when and how to react in order to help nature reach its maximum in the individual orofacial system development of our every patient. A complete diagnosis that includes a clinical examination, patients' medical history, a complete space analysis along with a facial proportion analysis and patients' dental age analysis enable us to reduce the time spent wearing orthodontic appliances, patient discomfort caused by the treatment, potential iatrogenic treatment consequences, the treatment price as well as the loss of time of our patients, parents and our orthodontic practice by applying timely tooth extractions. Correcting anomalies at an early age, before the sensitive period of puberty, reduces the possibility of their unfavorable influences upon the child's mental development, and establishing a stable neuromuscular balance encourages the remaining growth potentials, which enable achieving more harmonious dentoalveolar and skeletal relations. It is evident that the procedure of guidance of occlusion by tooth extractions is an excellent method if applied carefully, properly and on appropriately selected patients as suggested in the paper.

MANAGEMENT OF HORIZONTALLY IMPACTED MAXILLARY CANINES - CASE REPORT
Vojka Zgombić Popović*, Silvija Kanižaj*
*Dental clinic "Orthonova", Zagreb, Croatia

Abstract
Introduction: Orthodontists usually hesitate to treat horizontally placed impacted canines. There are many reasons for that. Some of them include: cites about unsuccessful treatment, previous lack of good diagnostic X-ray. A therapy based on poor diagnostic procedures, can lead to unwanted treatment outcome. However, in recent years, CBCT images provide very precise data on the shape of the impacted teeth, its inclination and obstacles if presents. Also it is well known more about type of bone quality, so the surgical approach can also be improved. Case report: eighteen-year-old patient refers to our office. Clinical examination reveals presence of primary maxillary canines (53; 63). X-ray (ortopantomograph) findings show impacted 13 and 23 with horizontally placed with crown tip mesial to the root of lateral incisors. After initial examination we proceed to orthodontic treatment protocol, additional X-rays, and reach successful end of the treatment.

TREATMENT OF CLASS III MALOCCLUSION USING REVERSE TWIN BLOCK – CASE REPORT
Vojka Zgombić Popović*, Silvija Kanižaj*
*Dental clinic "Orthonova", Zagreb, Croatia

Abstract
Introduction: W.J. Clark introduced Twin Block appliance in 1977. Since introduction it gain popularity in treatment of Class II in growing patients. However, in reverse form it can be used in treating Class III malocclusion. Reverse twin blocks are designed to encourage maxillary development by the action of reverse occlusal inclined planes cut at a 70° angle. It is easily worn for 24 hours per day, and correction can be achieved within 6-8 months.
Case report: thirteen years old patient refers to our office. Clinical examination showed Class III malocclusion, reverse overjet, crowding. Based on clinical findings and orthodontic diagnostic protocol we make a following treatment plan: 1st Phase – revers twin block appliances 2nd Phase – full fixed appliance (Damon braces)
Conclusion: Class III Twin Block is very useful appliance for the first phase of treatment in growing patients.