EVALUATION OF A CUSTOM-MADE MANDIBULAR ADVANCEMENT APPLIANCE FOR THE TREATMENT OF OBSTRUCT

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Aim: Treacher Collins Syndrome (TCS) is an autosomal dominant condition of varying severity, affecting the tissues of the first and second branchial arches. These patients often require a combined orthodontic-orthognathic approach to correct their malocclusion. This is most often characterized by a short posterior vertical height and an anterior open bite. We describe the craniofacial and dental characteristics of a 10-year-old Caucasian Italian boy with both the typical and less common findings of TCS syndrome.

Methods: given the conflicting reports in the literature regarding the extent of anterior-posterior and vertical (superior-inferior) dysplasia of the cranial base, maxilla, and mandible, this study was designed to provide a comprehensive lateral cephalometric assessment of the craniofacial morphology of unoperated patient with TCS.

Results: in particular, one TCS patient underwent oral and dental examination, as well cephalometric studies, including orthopantomography and lateral and anteroposterior cephalography, as part of their preparation for bimaxillary surgery. Cephalometric parameters assessing the relationships of the skull base, maxilla, and mandible were analyzed and compared with age- and sex-matched control data.

Conclusions: the goal of the orthodontic therapeutic program in the TCS patient is the balance restoration of the entire stomatognathic system, represented by the primary triad: temporomandontium joint, mandibular joint, neuro-muscular system.

TEMPOROMANDIBULAR DISORDERS AND MAXIMUM INTERCUSPATION-CENTRIC RELATION DISCREPANCY

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Aim: the purpose of the present investigation is to assess if a correlation exists between Temporo-Mandibular Disorders (TMD) and Maximum Intercuspation (MI)/Centric Relation (CR) discrepancy in pre-treated orthodontic patients.

Methods: the present case-control study involved 101 pre-treated orthodontic patients divided into a Study (SG) and Control Group (CG). The SG was composed by 41 patients (mean age 20,5±16,9 yr) with TMD; CG counted 60 patients (mean age 15,1±10,9 yr) without TMD. Clinical examination was performed by a single skilled specialist in orthodontics to establish the presence or absence of signs and symptoms TMD.

Dental casts were mounted in CR in a Panadent® semi-adjustable articulator using a CR bite record according to Roth's Power Centric with anterior and posterior waxes (Delar Bite Wax®); the upper model was transferred with a face bow parallel to Frankfurt Horizontal plane. The MI-CR discrepancy was measured with a AD2 CPI (Condilar Position Indicator) marking left side, right side and tranverse discrepancy.

Results: considering MI-CR discrepancy, Y and X-axis positive value greater than 1 mm in the vertical plane and 0.5 mm in the sagittal and transverse planes, a MI-CR discrepancy of 60.97% was found in the SG and 58,3% in the CG. Chi-square test did not identify statistically significant differences in the incidence of CR-MI discrepancy between the groups (N = 101, $\chi^2 = 0.0097$, $p < .05$).

Conclusions: in accordance with the available evidence, no significant correlation has been demonstrated between TMD and MI-CR discrepancy in pretreated orthodontic patients.

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FUNCTIONAL TREATMENT IMPROVES CONDYLAR ASYMMETRY IN UNILATERAL POSTERIOR CROSSBITE

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Aim: to evaluate the asymmetry of mandibular condyles in orthopantomographic images (OPG) of developing patients with unilateral posterior crossbite (UPXB) before and after orthognathodontic treatment with Function Generating Bite (FGB).

Methods: this study included 102 patients: 51 UPXB patients (right-sided malocclusion N = 32; left-sided malocclusion N = 19; F = 30, M = 21; mean age at T_0±SD = 8.1±1.6 yr.mo; mean age at T_1±SD = 9.1±1.7) and 51 control subjects (F = 25, M = 26; mean age at T_0±SD = 9.5±1.3; mean age at T_1±SD = 10.7±1.4).

The asymmetry of mandibular condyles was assessed on OPGs exposed before the beginning of treatment (T_0) and after malocclusion correction with FGB (T_1), following the method described by Habets et al. (1988). Linear measurements were transformed into percent difference between the left and right sides (asymmetry index); values >6% were considered indicative of asymmetry.

Results: at T_0, patients with UPXB showed a condylar asymmetry index of 9.8% (4.3-15.5); at T_1, after treatment with FGB, the condylar asymmetry index was 5.6% (3.1-10.9). The comparison of these values was significant ($p < 0.05$). In control subjects, the condylar asymmetry index was 3.1% (1.7-5.8) at T_0 and 4.1% (2.6-8.9) at T_1; no significant difference was shown.

Conclusions: this is the first study to show that functional treatment with FGB can significantly improve the condylar asymmetry associated with UPXB. While OPG imaging gives no indication about condylar morphology, it provides reliable measurements in the vertical dimension in the posterior regions.

CORRELATION BETWEEN MANDIBULAR CONDYLAR VOLUME AND SKELETAL PATTERNS IN ADULT PATIENTS

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Aim: this study aims to evaluate if the Mandibular Condylar Volume (MCV), calculated on CBCT scans, shows any correlation with facial skeletal structure assessed through to orthodontic parameters (skeletal classes I, II and III, intermaxillary divergence and mandible growth rotation patterns).

Methods: 73 patients were selected with these inclusion criteria: Caucasian adults, no systemic diseases and genetic syndromes, no previous orthodontic treatment or maxillo-facial surgery, no TMJ pathologies, CBCTs performed with a standardized protocol (0.4 mm slice thickness, 16 x 22 cm field of view, 20s scan time). Condylar volumes and 3D cephalometric tracings were calculated using the Mimics™ software (Materialize, Leuven, Belgium). Random-intercept linear regression models were used to study left and right variables together.

Results: MCV was 141 mm^3 greater in males (F: 701±241 mm^3; M: 842±256 mm^3). A statistically significant correlation with intermaxillary divergence and rotational growth pattern was found: smaller condyles were associated with intermaxillary hyperdivergence and clockwise-rotational growth pattern.

Conclusions: the correlation between MCV and vertical parameters appears to be statistically significant. Hyperdivergent patients tend to have smaller condyles than normodivergent or hypodivergent patients.

BRUXISM AND ITS ASSOCIATION WITH LIFESTYLE AND DIETARY HABITS: A CASE CONTROL STUDY

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Aim: the aim of this study is to identify potential associations of bruxism with psychological variables, lifestyle patterns and health issues.

Methods: a case-control study was conducted selecting 65 participants (38 F, 27 M; 26.04 Years ± 4.26) from students and postgraduates attending Vita-Salute San Raffaele University. After a clinical examination, using a severity-based approach, in accordance with the protocol described in "DC/TMD: Assessment Tools", they were divided into three groups: a control group of healthy individuals (n = 33), a case group of individuals presenting pain upon palpation of masticatory muscles and TMJ (n = 23), and a third group of individuals with spontaneous pain (n = 9). All participants completed two anonymous questionnaires on painful symptoms, functional limitations, parafunctional behaviours, psychological variables, lifestyle, gastroesophageal reflux disease and familiarity with bruxism. Data collected were statistically analysed by means of ANOVA and Chi-Square test.

Results: this study showed a statistically significant association of bruxism with female gender, gastroesophageal reflux disease (37% bruxers *vs* 8% non-bruxers), anxiety and stress (78% bruxers *vs* 30% non-bruxers), while a higher consumption of high-fat foods was observed in the control group (52% non-bruxers *vs* 22% bruxers).

Conclusions: obtained results confirmed existing evidence in literature about the association of bruxism with female gender, GERD, stress and anxiety, whereas the consumption of high-fat food may have a protective role against the manifestation of bruxism.

MANDIBULAR ASYMMETRY INDEX IN TREATED PATIENTS AFFECTED BY TEMPOROMANDIBULAR DISORDERS

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Aim: to evaluate any changes in condylar and mandibular ramus height in adult patients affected by TemporoMandibular Disorders (TMD) treated with an upper occlusal splint.

Methods: this retrospective observational study included 48 patients between 18 and 70 years old diagnosed with TMD according to DC/TMD criteria. They were treated with an occlusal splint in the upper arch for about 12 months. For each patient, the digital dental models were studied to define the occlusal Class according to Angle and cross-bite. OPTs were analyzed using the Habets method to calculate the asymmetry index between the condyles and mandibular branches pre- and post-treatment with the upper occlusal splint. For the statistical analysis, the Shapiro-Wilk normality tests, t-tests, or Wilcoxon tests were used on collected data with R studio.

Results: the sample presented the absence of dental crossbite in 62.5%, specifically, bilateral in 12.5%, while unilateral crossbite in 22.9% on the right, and 2.1% on the left side.
Condylar height showed a statistically significant difference (p = .022), showing a reduction in condylar asymmetry at T_1. The measurement of the condylar branch, likewise, showed a statistical significance (p = .037), revealing an improvement of the mandibular symmetry in the vertical direction after treatment.

Conclusions: patients with TMD treated with an upper occlusal splint, showed a statistically significant improvement in the asymmetry index of the mandibular condyle and rami pre- and post-treatment, while no clinical differences were found regarding the occlusal characteristics.

EFFECT OF DIFFERENT INSOMNIA SUBTYPES IN OROFACIAL PAIN

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Aim: good sleep quality is key factor underlying pain control. Different insomnia subtypes have been suggested to impact differently disease progression. However, the effects of different insomnia subtypes on chronic orofacial pain (OFP) remain explored. Aim of this study was to assess the impact of different insomnia subtypes in OFP.

Methods: OFP diagnosis (based on ICOP Classification), demographics, insomnia symptoms (assessed via ISI), pain intensity and pain interference (assessed through the GCP Scale) were collected from 450 OFP adult patients (82.2% female; mean age 44.6±16) seeking treatment at a university-affiliated OFP clinic. Patients with high insomnia symptomatology were classified as suffering from Sleep Onset Latency (SOL) insomnia if they reported difficulty falling asleep. They were classified as suffering from Early Morning Awakening (EMA) insomnia if they reported difficulty with waking up too early. T-test was used to compare differences between patients with different insomnia subtypes.

Results: muscle pain was the most common primary diagnosis (73%). Patients SOL-insomnia (N = 76) reported higher pain intensity ($p < 0.001$), and pain interference ($p < .001$) compared to those without SOL-insomnia. Those with EMA-insomnia (N = 71) did not significantly differ from those without EMA-insomnia on any of the variables. Differences remained significant after adjusting for demographic and pain variables.

Conclusions: SOL-insomnia subtype is associated with higher pain intensity and greater pain interference in OFP patients. This highlights the importance of sleep examination.

IMPACT OF OBESITY ON OROFACIAL PAIN

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Aim: obesity is associated to several musculoskeletal pain conditions like low back pain and hip pain; as well as to increased odds of chronic migraine, neck pain and chronic widespread pain.

Few studies have investigated the relationship between pain intensity and obesity in orofacial pain (OFP) patients. This study aimed to assess associations of obesity with pain intensity, insomnia symptoms, and OFP diagnosis in a population of OFP patients.

Methods: a cross-sectional study was conducted in consecutive adults seen at a large university-affiliated Orofacial Pain Clinic. Demographics, pain diagnosis (International Classification of Orofacial Pain criteria), biometric data, insomnia symptoms, pain intensity and pain-related interference (Graded Chronic Pain Scale) were extracted. Independent t-tests were used to compare obese (BMI >30) *vs* non-obese patients (BMI <30).

Results: of 440 patients (44.63±15.98 y/o, 82.2% females), 31.14% present with obesity. Compared to non-obese patients, obese patients reported significantly higher pain-related interference (34.44±29.57 *vs* 27.62±29.10, $p = .025$) and marginally higher pain intensity (53.44±23.96 *vs* 50.87±22.29, $p = .276$). Even after controlling for pain intensity, obesity explained an additional 6% of the variance in pain interference. There were no significant differences on pain intensity or insomnia symptoms. Also, there were no significant differences in BMI by primary OFP diagnosis.

Conclusions: obesity was associated with greater pain interference. Future research should explore mechanisms underlying these relationships.

INSOMNIA AND PAIN INTENSITY IN OROFACIAL PAIN PATIENTS

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Aim: the existence of a bidirectional relationship between poor sleep and pain has been shown, suggesting that poor sleep may contribute to greater pain. Aims of this study were to assess associations of insomnia symptomatology with pain intensity, pain interference, and general medical health in a population of orofacial pain (OFP) patients.

Methods: data were collected from 450 OFP adult patients (82.2% female; mean age 44.6±16) seeking treatment at a large university-affiliated OFP clinic. Demographics, anamnestic data, insomnia symptoms (assessed via Insomnia Severity Index, ISI), pain duration, pain intensity and pain interference (assessed through the Graded Chronic Pain Scale) were assessed. OFP diagnoses were based on International Classification of Orofacial Pain guidelines. T-tests compared differences between patients with and without insomnia symptomatology.

Results: the sample largely consisted of patients with primary diagnosis of muscle pain (73%). Compared to patients without insomnia, those with elevated insomnia symptomatology (45.1%) reported higher pain intensity (60.70±20.61 *vs* 44.15±21.69; p <.001) and interference (43.81±29.84 *vs* 18.40±23.43; p <0.001), and higher number of medical comorbidities (6.72±5.37 *vs* 4.37±4.60; p <.001). Differences remained significant after adjusting for age, sex and primary OFP diagnosis.

Conclusions: patients with insomnia experienced higher pain intensity, greater pain interference and poorer general health than patients without insomnia, thus highlighting the importance of sleep examination in OFP patients.

MASTICATION IN BILATERAL POSTERIOR CROSSBITE PATIENTS

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Aim: bilateral posterior crossbite (BPXB) is a severe malocclusion involving an inverse occlusal relationship on both sides of the dental arches and maxillary hypoplasia. The effects of BPXB malocclusion on mandibular kinematics during chewing have not been investigated. This study's aim was to evaluate the masticatory function in BPXB patients by the percentage of reverse chewing cycles (RCCs) during soft and hard bolus chewing.

Methods: this observational study included 89 participants: 49 patients with BPXB (F = 26, M = 23), median age 9.6 (8.2-13) [yr.mo] and 40 controls (F = 25, M = 15, median age 10.2 (9.4-11.6)). Masticatory patterns were recorded with the K7-I® kinesiograph using standardized soft and hard boluses. The number of RCCs was divided by the total number of chewing cycles and then multiplied by 100 to obtain the percentage of RCCs; this analysis was performed separately for left and right-sided mastication and soft and hard bolus chewing.

Results: the percentage of RCCs was significantly increased in all BPXB patients compared to controls during both soft and hard bolus chewing (p <0.00001). In BPXB patients, the percentage of RCCs was significantly increased during hard bolus chewing, compared to soft bolus chewing (p <0.001).

Conclusions: BPXB was associated with altered mandibular kinematics during chewing, as shown previously in unilateral posterior crossbite patients during chewing on the crossbite side. This study's results highlight the influence of occlusion on the masticatory function.

CAN PARENTAL CATASTROPHIZING AFFECT CHILD'S LIFE QUALITY IN JUVENILE IDIOPATHIC ARTHRITIS?

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Aim: as parental pain coping styles and behaviours have an important impact upon children and their experience of chronic pain-causing diseases such as Juvenile Idiopathic Arthritis (JIA), this research aimed to investigate the influencing role of parental pain catastrophizing on psychological aspects, quality of life and perception of disease in JIA children.

Methods: the sample included 73 children diagnosed with JIA (mean age 12.2±2.8; range 6-16) and one of their parents. Parents completed the catastrophizing questionnaire and the Juvenile Arthritis Multidimensional Assessment Report (JAMAR). Self-reported questionnaires were also answered by youth to assess psychological factors (catastrophizing, stress, anxiety, depression), overall disease status including quality of life through JAMAR, and jaw functional limitation. Patients also underwent a clinical examination according to the diagnostic criteria for temporomandibular disorders (DC/TMD).

Results: findings showed higher parental catastrophizing compared to children catastrophizing, with the two variables being correlated and associated. No differences in the evaluation of disease were found between children and parents, however parental catastrophizing was associated with worse children's reported impact on their quality of life. Additionally, the level of parental catastrophizing was also correlated to anxiety and stress in children with TMD signs and symptoms.

Conclusions: finally, parental pain catastrophizing influenced pain catastrophizing, anxiety, stress and quality of life of children with JIA.

ANALYSIS OF BREECH LOAD IN SUBJECTS WITH PREVAILING UNILATERAL CHEWING

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Aim: this study aims to evaluate the association between occlusion and posture analyzing changes in breech support in rest position and mandibular centric occlusion correlating it with the preferred chewing side.

Methods: 40 healthy patients from 21 to 32 years old were recruited. For breech load evaluation was used a Freemed baropodometric platform associated with Freesteps software (Sensor Medica srl, Rome, Italy). From the recordings, breech load, breech surface area, breech and body load center and breech axis values were obtained.

Results: the reported data show that 80% of subjects in rest position (p-value 0.01) and 70% in centric occlusion (p-value 0.05) have a greater breech load in the contralateral foot than on the chewing side, and 77% of subject in rest position and 72% in centric occlusion have a more open breech axis on the same side than on the chewing side (p-value 0.05). The breech angle data weren't statistically significant.

Conclusions: there would appear to be a functional correlation between occlusion and posture justified by the increased activity of the flexion chain on the chewing side, which is associated with lateral trunk flexion. This results in a variation of the body center of gravity offset by external rotation of the ipsilateral leg and foot. In addition, body flexion creates an ipsilateral short leg, which explains the contralateral excess podalic load.

ASSESSMENT OF PSYCHOSOCIAL FACTORS IN ITALIAN PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS

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Aim: the aim of this study was to assess the influence of psychosocial aspects in relation to general clinical issues and those specifically related to Temporomandibular Disorders (TMD) in patients with Juvenile Idiopathic Arthritis (JIA).

Methods: the study comprised a total of 73 JIA patients, including 56 females and 17 males (mean age 12.2±2.8 years old; range 6-16). They were examined according to the diagnostic criteria for temporomandibular disorders (DC/TMD). The psychosocial aspects considered in this study included stress, anxiety, depression, and catastrophizing. All these aspects were evaluated using self-report questionnaires: JAMAR, RCADS-SV, PCS, PSS-C, JFLS-8, Orofacial Pain Questionnaire. Pearson r coefficient, linear regression models and T-test for unpaired data was used to analyze the collected data. The level of significance was set at $p < 0.05$.

Results: this study identified numerous associations between elevated overall JIA disease activity and diminished quality of life, alongside other psychosocial aspects, with a predominant influence of catastrophizing and anxiety. In the regression analysis catastrophizing and anxiety showed a constant and significant association with the severity of the JIA condition and with the quality of life. The involvement of temporomandibular joint did not exacerbate the psychosocial domains but only affected the functional aspects of the patient.

Conclusions: psychosocial factors including anxiety, stress, catastrophizing, and depression, have an impact on the quality of life, symptomatology, and disease activity in patients with JIA. In particular, catastrophizing and anxiety were identified as the two aspects that most significantly influenced quality of life.

INFLUENCE OF MOUTHGUARD USE IN RUGBY ATHLETES: ELECTROMYOGRAPHIC ANALYSIS

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Aim: the purpose of the study is to analyze the oral, gnathological, and postural health status of rugby players in order to assess by electromyographic examination any performance changes following the use of mouthguard, analyzing how it may affect masseter and temporalis muscles contraction and recruitment.

Methods: 13 professional rugby players were included, male, aged 19 to 25 years, and having previous trauma to the craniofacial compartment. The sample underwent postural assessment and gnathological clinical examination. Then, using motion capture system (SMART-DX) and surface electromyography (FREEEMG and Teethan), performance parameters were recorded while executing technical movements (Squat jump, Quadruped Jump and Takle).

Results: the presence of the mouthguard causes greater engagement of the masseter muscle during all movements, particularly in the dominant side during tackle: Activation Level of 20% without the bite, and of 50% with the device. As for the temporal, there is greater muscle recruitment with the mouthguard during tackle (37%). Thus, there is a co-contraction of masseter and temporalis for stabilization of the cranial compartment, avoiding recruitment of the sternocleidomastoid.

Conclusions: the mouthguard does not considerably affect sports performance, but has shown increased muscle recruitment at the stomatognathic level. The application of these devices after careful multidisciplinary evaluation, in a sport with high contact and risk of trauma, plays a key role in injury prevention, and rehabilitation after trauma.

CORRELATION BETWEEN TEMPOROMANDIBULAR DISORDERS AND PSYCHOPATHOLOGICAL CONDITIONS

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Aim: the study aims to evaluate the possible correlation between temporomandibular disorders (TMDs) and psychological disorders, also defining the significance of the relation.

Methods: the pilot study involved a multidisciplinary team and enrolled 38 students of the faculty of Dentistry (University of Perugia), from 20 to 26 years old. A sample of 40 subjects was selected according to the inclusion criteria: the presence of TMD after gnathological examination. Students were divided into three groups according to the nature of the pathological condition (muscular, articular or mixed). Subsequently, a subjective psychological self-assessment (CBA 2.0) questionnaire was administered.

Results: from data analysis, 8 tests were excluded. The clinical scales recording highest values are: somatic complaint and depressive manifestation (8/30 students); phobias, specifically social criticism or rejection, and obsessions and compulsions with intrusive and persistent thoughts (7/30 subjects); and anxiety (6/30 students). Out of 30 subjects, 19 complain of marked problem in sleep hygiene. In addition, 8 subjects have thought about suicide at least once in his or her life. Only 2 subjects were non-pathological in all scales and in the qualitative survey.

Conclusions: to date, therefore, it is clear that although the study has revealed some correlation between TMDs and psychopathological states, the significance of this correlation has yet to be defined. Therefore, in line with other recent studies in the literature, it is necessary to obtain more data by involving a larger sample of subjects.

DENTAL APPROACH TO A MULTIDISCIPLINARY POSTURAL PROTOCOL VALIDATION IN SPORTS PATIENTS

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Aim: this study proposes the implementation of an integrated postural analysis protocol combining gnathology, optometry, physiotherapy, and osteopathy approaches for the evaluation and treatment of postural dysfunction, to identify gnathological parameters that influence posture, examine mandibular position, cervicofacial musculature, occlusal dysfunction and posture correlation.

Methods: a sample of 30 professional swimmers, aged 15 to 20 years, who had been regularly swimming for at least three years, was recruited. The enrolled individuals underwent multidisciplinary examination: the occlusion, the position of the mandible, the presence of dental misalignments and any temporomandibular dysfunction were assessed; cervicofacial muscle tension was measured with manual palpation and electromyography; posture examination was conducted by osteopath and physiotherapist and opthalmological examination by optometrist.

Results: preliminary data collected show that in 72% of athletes with skeletal-muscular disorders in the craniofacial district, disorders also occur in the trapezius or pelvis. Spatial perception and visual ability influence posture by 78%, affecting head position, and in the development of joint and muscle structures of the shoulders, back, and pelvis.

Conclusions: analyzed similarities in the relationships between districts in the athlete, multidisciplinary examination protocol leads the way for new therapeutic strategies to optimize the health and well-being of patients, especially in high-level sports settings.

CERVICAL RANGE OF MOTION IN BRUXISM: ACCELEROMETRY FOR DIAGNOSIS

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Aim: this study looks into the usefulness of accelerometry in measuring Cervical Range Of Motion (CROM) in bruxism patients, both before and after oral splint intervention. The main goal is to see if there are any noticeable improvements in CROM and a corresponding decrease in cervical muscular pain, with a particular focus on the sternocleidomastoid muscle.

Methods: patients diagnosed with bruxism who also showed reduced cervical range of motion (CROM) and experiencing muscle pain, particularly focusing on muscles involved in bruxism, such as the masseter, temporalis, and with special attention to the sternocleidomastoid muscle, which are common bruxism triggers. The measurement instrument used for evaluating CROM in flexion, extension, rotation, and lateral inclination positions was accelerometry. Assessment were carried out prior to and around two months after oral splint application.

Results: initial data analysis revealed that patients with bruxism displayed restricted CROM and experienced cervical muscle pain prior to intervention. Following the utilization of oral splints for a period of about two months, an enhancement in CROM and a notable reduction in cervical muscle pain, especially in the sternocleidomastoid, were observed.

Conclusions: the implementation of accelerometry as a diagnostic modality facilitated the accurate and objective assessment of CROM in bruxism patients. Findings indicate that the utilization of oral splints led to a considerable alleviation of cervical muscular pain, particularly focusing on the sternocleidomastoid muscle, and a concurrent enhancement in CROM. These results underscore the efficacy of oral splints in addressing cervical muscle discomfort and restricted CROM, two prevalent conditions associated with bruxism.

EVALUATION OF PATIENT-REPORTED OUTCOMES IN PATIENTS WEARING 3D PRINTED OCCLUSAL SPLINT

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Aim: with the advent of digital technologies, the production of different devices has been converted in a full digital workflow. The purpose of this study was to evaluate the experience of the patients while wearing 3D printed occlusal splints.

Methods: adult patients requiring an occlusal splint therapy were included. Occlusal splints were produced with CAD/CAM techniques using LCD 3D printer and soft resin. A written questionnaire including NRS scales was used to collect information regarding dental and soft tissue pain, unpleasantness, stability and easiness in device removal. Chair-time was measured in minutes. Data were collected when the device was delivered (T_0) and at 1-month follow-up (T_1). Data are reported as means±standard deviations and/or frequencies.

Results: 12 patients (2 males, 10 females, mean age: 48.2±18.3 years) were recruited. At T_0, 4 patients reported pain while wearing the appliance, but the average pain was less than 2. At T_1, the average pain reported while wearing the device in the previous month was irrelevant (NRS 0.5±0.7 for dental pain and NRS 0.9±1.4 for soft tissue pain). Overall, patients reported the devices to be stable and easy to remove. Average chair-time was of 10.9 minutes at T_0 and 2.7 minutes at T_1. All the individuals reported a wearing time of the device of >20 days in a month.

Conclusions: considering the limitations of the sample, the experience of the patients with 3D printed splint was overall positive. Next steps include the comparison with patients wearing traditional occlusal splints.

DENTAL AND JOINT ANALYSIS OF THE FUNCTIONAL ANGLES OF MASTICATORY LATERALITY WITH CBCT

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Aim: the study aims to seek a direct correspondence between anteromedial condylar guidance and contralateral Canine Guidance (CG) during lateral movements by detecting functional angles in CBCT sections

Methods: 97 CBCTs from patients (18-61 years), without TMD were analysed. We measured the angle obtained between the Frankfurt plane and the tangent to the plane of the Eminence (E) obtained on parasagittal sections parallel to the long axis of the external pterygoid, and the angle obtained between the Frankfurt plane and the tangent to the palatal surface of the contralateral canine. The statistical analysis is addressed with a normality test with a null hypothesis of the Shapiro-Wilk test and with the significance test using the Pearson correlation index.

Results: the difference between the right E with left CG and between the left E with right CG were calculated with a standard deviation of 12.8 and 10.7 respectively and a mean of 8.1 and 10. The hypothesis nothing is accepted with the S-W test with a significance of 95% and a p-value 0.7823 was calculated, the hypothesis is accepted. The Pearson index is ρXY 0.32 and expresses a positive/direct correlation of moderate degree ($0.3 < \rho XY < 0.7$) between the average values of the two angles.

Conclusions: there is a statistical significance between the angulation of the plane of the E in the anteromedial direction and the angulation of the palatal surface of the contralateral upper canine, an expression of a functional synergy in the management of CG during the lateral movement

T-SCAN EVALUATION OF PATIENT TREATED WITH ORTHODONTIC CLEAR ALIGNERS: A PILOT STUDY

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Aim: the treatment with orthodontic clear aligners is increasing in recent years thanks to a better scientific knowledge and a more precise digital planning. Despite its diffusion, knowledge about the effects of these devices on the biomechanics of mandibular movements is lacking. Therefore, the aim of the present study was to evaluate changes in the timing of mandibular kinematics after treatment with clear aligners.

Methods: seventeen patients treated with orthodontic clear aligners were enrolled in the study. The T-scan taken before (T_0) and after treatment (T_1) were retrieved and variables such as: time of total opening, time of the first dental contact, time of maximum force, time of minimum force, time of maximal intercuspation, time of the first force decrease after the maximum force and total time of the whole measuring were collected. A statistical analysis with a T-test was performed to assess changes between T_0 and T_1 variables.

Results: the statistical analysis showed no statistically significant differences between the variables measured at T_0 and at T_1.

Conclusions: treatment with orthodontic clear aligners does not have an impact on the time of opening and closure of the mouth, however, considering the small sample size analyzed further investigations will be needed.