INFLUENCE OF THE HEAD POSITION ON THE ELECTRICAL ACTIVITY OF MASTICATORY MUSCLES IN SUBJECTS AFFECTED BY TEMPOROMANDIBULAR DISORDERS

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Aim: several studies have demonstrated a reciprocal influence between the activity of masticatory and cervical muscles in patients affected by Temporomandibular Disorders (TMD). The aim of this study is to assess whether there is a significant alteration in muscle activity based on head posture in patients with TMD using electromyography.

Methods: this study examined 15 patients with TMD, attending the Dentistry Department of San Raffaele Hospital in Milan, of different sexes and ages (mean age: 38±0.6; 8 men and 7 women), classified according to the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) Axis I. Surface electromyography was performed on each patient for the anterior temporalis and masseter muscles on both the right and left sides, initially with the head at rest, then tilted forward, and finally with the head resting on the dental chair. Statistical analysis was conducted by evaluating the following static variables: POC (Percent Overlapping Coefficient) of the temporalis, masseter, and average (mean of both muscles), asymmetry, activation, tors, average muscle percentage, and compass. During chewing, the following dynamic variables were evaluated on both sides: ellipse area, impact and working side.

Results: electromyographic data analysis showed no statistically significant differences between the head positions considered ($p > 0.05$).

Conclusions: different head inclinations in dysfunctional patients do not appear to significantly influence muscle electrical activity in individuals affected by temporomandibular disorders.

ELECTROMYOGRAPHIC ACTIVITY OF MASTICATORY MUSCLES IN SUBJECTS AFFECTED BY TECH NECK SYNDROME

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Aim: tech neck syndrome is characterized by painful symptoms in the neck related to daily use of technological devices that have developed considerably in the last decade. Several studies have shown a correlation between the activity of neck muscles and chewing muscles. The aim of this study is to evaluate the influence of the tech neck on the activity of chewing muscles.

Methods: in this study, the analysis of the electromyographic activity of 11 patients at the San Raffaele Dental Department in Milan who did not present tech neck was compared with that of 8 patients with tech neck (33 0.2; 8 men and 11 women). A statistical analysis was carried out to compare the two groups, using the U Mann-Whitney Test, in which the following variables were analysed: Percent Overlapping Coefficient of Temporal muscle (POC TA), of Masseter Muscle (POC MM) and the mean value between the two muscles (POC), Asymmetry (ASIM), Activation (ATT), laterodeviation of the mandible (TORS), activity of the masseter muscle of right and left (MM DX/SX) and ellipse area of right and left (AE DX/SX).

Results: the analysis of the electromyographic data showed that there is a significant difference between the two groups for the following variables: POC, ATT, TORS, MM DX and MM SX, AE SX.

Conclusions: tech neck syndrome seems to significantly affect the activity of the chewing muscles having a negative impact on quality of life, as it seems to favor the appearance of muscle tension and pain in the temporomandibular joint.

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EVALUATION OF MANDIBULAR CONDYLAR AND RAMAL ASYMMETRY IN UNILATERAL POSTERIOR CROSSBITE BEFORE AND AFTER FUNCTIONAL TREATMENT WITH FGB

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Aim: this study aimed to evaluate the effects of unilateral posterior crossbite (UPXB) treatment with the appliance Function Generating Bite (FGB) on the asymmetry of mandibular condyles and rami.

Methods: this retrospective study included 156 subjects: 52 patients with UPXB (F = 30, M = 22, mean age±SD = 7.9±1.5 [yr.mo]) treated with FGB, 104 age and gender-matched control subjects without the malocclusion (control – T0: N = 52, F = 30, M = 22, mean age±SD = 8.2±1.3; control – T1, N = 52, F = 30, M = 22, mean age±SD = 9.7±1.2). The asymmetry index of mandibular condyles and rami was evaluated on pre- (T0) and post-treatment (T1) orthopantomographies by measuring the height of the outlines of the condyles and rami and computing the percentage difference between the sides, following the method proposed by Habets *et al.* (1988).

Results: before treatment (T0), the asymmetry indexes of condyles and rami were significantly increased in UPXB patients compared to controls ($p < 0.0001$ and $p < 0.01$, respectively). After treatment with FGB (T1), there was no significant difference between the groups' asymmetry indexes of condyles and rami. The condylar asymmetry index in UPXB patients also showed a significant improvement between T0 and T1 ($p < 0.01$), i.e., it was significantly reduced.

Conclusions: functional treatment of UPXB with FGB was associated with a significant improvement in condylar asymmetry, indicating a rebalancing of mandibular growth in these growing patients.

MODULATION OF REFERRED SENSATION BY STRONG HETEROTOPIC NOCICEPTIVE STIMULI: CLINICAL IMPLICATIONS FOR PAIN MANAGEMENT

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Aim: Referred Sensations (RS) are common in musculoskeletal pain, yet their mechanisms remain unclear. RS location may shift with prolonged pain, but effects of brief trigeminal stimuli are unclear. This study assessed whether RS location from masseter palpation changes after a short hypertonic saline infusion.

Methods: 56 healthy participants (29 women, 27 men) completed a cross-over study in two sessions one hour apart. Baseline and post-infusion assessments of masseter sensitivity were performed using 0.5 kg and 2 kg forces. Participants received infusions of hypertonic (5%) or isotonic saline into the retromolar region. RS frequency and location were recorded. Exclusion criteria included orofacial pain, TMD, frequent headaches, and recent analgesic use.

Results: no significant differences were found in mechanical sensitivity or RS frequency pre- and post-infusion. However, RS location shifted significantly after hypertonic saline infusion, with an average displacement of 1.2 cm *versus* 0.4 cm for isotonic saline ($P < 0.05$). Vector analysis showed RS displacement was directed inferiorly toward the infusion site for hypertonic saline, while it was anterior for isotonic saline. RS location partially reverted after one hour.

Conclusions: RS location in the trigeminal system can be transiently altered by brief nociceptive input. While RS frequency and sensitivity remained unchanged, the displacement suggests central nociceptive processing involvement. Clinicians should consider this when assessing orofacial pain, as short-term stimuli may confound RS evaluation.

PERICAPSULAR POLYNUCLEOTIDE TMJ INJECTIONS COMPARED WITH PHYSIOTHERAPY FOR THE CLINICAL MANAGEMENT OF TMJ OSTEOARTHRITIS: A RANDOMIZED CLINICAL TRIAL

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Aim: joint viscosupplementation is an effective therapeutic approach against the degenerative signs and symptoms of osteoarthrosis/osteoarthritis of the mandibular condyle. Supplements are typically delivered inside the TemporoMandibular Joint (TMJ) via intra-articular infiltration. This study aims to evaluate the clinical effectiveness of pericapsular injection of PolyNucleotides (PN) and Hyaluronic Acid (HA) in patients with TMJ osteoarthrosis.

Methods: sixty patients suffering from TMJ osteoarthrosis were divided into two groups: the test group (n = 30), which received pericapsular injections, and the control group (n = 30), which performed self-administered physiotherapeutic exercises. For each patient, measurements of maximum opening, right and left lateral excursion, and visual analogue scale (VAS) scores were recorded at four different time points.

Results: all analyzed parameters showed progressive clinical improvement in both groups, with more marked results in the test group. The reduction in VAS score differed significantly between groups ($p < 0.0001$). Maximum opening showed a continuous increase from baseline (mean (SD) 37.70 (8.33) mm) to T3 (39.68 (7.64) mm), reflecting progressive improvement, although not statistically significant ($p = 0.089$ at T3 with respect to T0).

Conclusions: pericapsular injection of PN and HA proved to be a minimally invasive treatment that effectively reduces pain and improves mandibular kinematics.

COMPARISON OF MODIFIED OCCLUSAL SPLINT AND CONVENTIONAL PHYSICAL THERAPY IN MANAGEMENT OF TMJ DISC DISPLACEMENT WITH REDUCTION AND INTERMITTENT LOCKING: A RANDOMIZED CONTROLLED TRIAL

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Aim: to evaluate the effectiveness of standard splint protocol (G1), modified occlusal splint protocol (G2), and conventional physical therapy with exercises (G3) for the management of Temporomandibular joint disc displacement with reduction and intermittent locking.

Methods: patients were randomly assigned by computer-generated allocation sequence to receive rehabilitation by using conventional therapy approaches or modified occlusal splint protocol or disc re-modelling exercises. Follow-up appointments were scheduled after one month of therapy and at one, two, three and four years. Magnetic Resonance Imaging (MRI) image analysis involved the evaluation of morphology and function of intra-articular structures. The outcome was defined as the disappearance of the pain and the intermittent locking.

Results: 167 patients were identified as eligible, and 48 participants were recruited: 16 subjects were allocated to each of the three groups. At the end of the follow-up period no significant differences were observed between groups. However, there was a tendency for better outcomes in favor of the modified occlusal splint approach for the success rate of patients with clicking of the TMJ at mouth opening.

Conclusions: within the limitation of the present study, the modified mandibular splint seemed to show better results for disc displacement with reduction and intermittent locking treatment, with high patient tolerance, reduction in pain intensity and a significant decrease of the TMJ locking episodes, when compared to other conventional therapies.

EVALUATION OF A CUSTOMIZED BIOFEEDBACK DEVICE FOR NOCTURNAL BRUXISM: PRELIMINARY FINDINGS ON EFFECTIVENESS AND PATIENT OUTCOMES

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Aim: the study aims to test a customized device for detecting nocturnal contact bruxism in adult patients and to demonstrate the effectiveness of an already established biofeedback method integrated into the device.
Methods: research data were collected between November 2023 and January 2025 at the gnathology department of the Dental Clinic of San Gerardo Hospital in Monza. Adult patients of both sexes, with issues of nocturnal grinding or clenching, experiencing muscle fatigue upon waking, with or without previous bite prescriptions, with no night shifts and no young children to care for, were selected. Each patient was provided with a thermoformable device containing a biofeedback detector and a mobile phone to start the recording of nocturnal activity before going to sleep and to stop it in the morning.
All 12 participants signed the informed consent form.
Results: a significant reduction in nocturnal grinding activity was observed on the X, Y, and Z axes in patients using the AesyBite thermoplastic bite after its activation. However, data collection must continue to obtain broader statistical validation.
Conclusions: the preliminary data suggest that the introduction of a nocturnal device with biofeedback detectors may lead to an improvement in the patient's parafunction, as well as an overall better quality of sleep and life.

BOTULINUM TOXIN A FOR MASSETER HYPERTROPHY AND OROFACIAL PAIN: EFFECTS ON MUSCLE ACTIVITY, PAIN RELIEF, AND AESTHETIC OUTCOMES

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Aim: this study evaluates the effectiveness of Botulinum Toxin A (BTA) in reducing muscle pain associated with bruxism and moderating masseter volume in patients with masseter hypertrophy and orofacial pain. Surface ElectroMyoGraphy (sEMG) was used to analyse muscle activity changes before and after treatment.
Methods: six women, aged 40.8 on average, were examined. Each underwent a dental assessment and evaluation of pain symptoms in the masticatory, cervical, and facial muscles. An initial sEMG examination was performed, including cotton roll clenching and maximum bite force tests. BTA was then injected at three points in the masseter muscle.
Results: from T0 to T3, masseter muscle activity significantly decreased. At T4 and T5, activity increased slightly compared to T3. Muscle mass reduction led to improved facial aesthetics, which remained stable for five months. However, pain symptoms returned at T5, indicating a temporary effect of BTA.
Conclusions: BTA effectively reduces muscle activity, alleviates orofacial pain, and enhances facial aesthetics. However, its duration varies, and further studies are needed to assess long-term effects, including potential osteopenic changes at the condyles or muscle attachment sites.

INVESTIGATION INTO THE POTENTIAL ROLE OF PSYCHOLOGICAL DISORDERS IN DENTAL STUDENTS WITH TEMPOROMANDIBULAR DYSFUNCTIONS

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Aim: this study aims to evaluate the correlation between TemporoMandibular Disorders (TMDs) and psychological disorders.

Methods: 111 students were enrolled from the Faculty of Dentistry (University of Perugia), subjected to gnathological examination, and divided in healthy (controls) and TMDs subjects (cases). Then, participants completed a subjective psychological self-assessment questionnaire (CBA 2.0), consisting of 5 primary clinical scales (trait anxiety, somatic complaints, phobias, depressive manifestations, and obsessive-compulsive manifestations) and secondary scales related to phobias and obsessive-compulsive symptoms. Scores above 95 were considered clinically significant, while a score of 0 was not significant. Comparison between cases and controls was performed with Chi Square test. Association between CBA and gnathological diagnosis was verified by odds ratios and logistic regression models. Statistical analysis was conducted with R software version 4.4.2, considering significant $p < 0.05$.

Results: CBA was administered to 111 students (67 females, 44 males), 56 from case and 55 from control group. 21 questionnaires were invalidated for incomplete responses. 90 questionnaires were included, 45 showed clinical significance: 33 for one or more primary clinical scales, and 12 only for secondary clinical scales.

Conclusions: to fully understand the association under investigation, further studies considering a larger sample size and heterogeneous in terms of age, occupation and education are needed.

PROKINETICIN 2 AND TEMPOROMANDIBULAR DISORDERS

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Aim: TemporoMandibular Disorders (TMD) encompass various dysfunctions affecting the muscles and TemporoMandibular Joint (TMJ), including conditions like arthralgia and osteoarthritis. A significant cause of TMJ pain is temporomandibular synovitis, which involves inflammation of the TMJ's synovial membrane due to abnormal loading, leading to overstretching and sprains. This inflammation often coexists with internal derangement or osteoarthritis of the TMJ. Biomarkers such as cytokines and growth factors are released in synovial fluid during inflammation, promoting further inflammation and pain sensitization. Prokineticin 2 (PK2), a chemokine-like peptide, is highlighted for its role in modulating pain and inflammation and is linked to autoimmune diseases. Its potential involvement in osteoarthritis remains unclear. The study aims to explore the relationship between mechanical and inflammatory components in TMD, particularly whether addressing mechanical issues early can prevent inflammation and improve treatment outcomes.

Results and conclusions: in mild cases, restoring biomechanical function often alleviates symptoms, while chronic conditions may not fully resolve due to persistent inflammation and structural changes. The study will assess prokineticin levels in patients to determine correlations between local inflammation and disease severity, potentially identifying prokineticin as a prognostic marker for TMD progression. Understanding these relationships could enhance treatment strategies by addressing both mechanical and inflammatory factors in TMD management.

TEMPOROMANDIBULAR DISORDER TREATMENT WITH DIATHERMY STIMULATION TECHNIQUE: A PILOT STUDY

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Aim: to evaluate DC-TMD Questionnaire based results of Diathermy Stimulation (DSt) rehabilitation in patients with temporomandibular joint problems with no internal dislocation of the disc. Diathermy is one of the non-invasive medical treatment options in which controlled high-frequency energy is applied to generate heat on body tissues to treat osteoarthritis and muscle pain.

Methods: the DC-TMD Questionnaire documents were uploaded to a special question evaluation software and 47 questions (grouped in 8 categories) were automatically chosen to assess TMD-related pain, jaw mobility, and quality-of-life impact. All the patients received DSt scheduled once a week for five weeks (T0:1st diathermy simulation, T1:2nd session, T2:3rd session, T3:4th session, Tf:5th session). Pre- and post-treatment results from 47 questions were collected at each session and outcomes were assessed among them, using T0 as a baseline to evaluate improvements.

Results: 10 patients (8 women and 2 men) aged between 22 and 50 years were included. There was a tendency for improvement for each category and mean scores decreased over time. However, no significant difference was found in overtime for any category except for the Mandibular Functional Limitation Scale, which showed significant improvement and patients reported fewer limitations.

Conclusions: the outcomes obtained cannot be considered as complete recovery; however, according to the results, diathermy treatment appears to be beneficial in alleviating temporomandibular joint related disorders, potentially contributing to improve quality of life for affected patients.

ANALYSIS OF MANDIBULAR MUSCLE VARIATIONS FOLLOWING CONDYLAR FRACTURES: A SYSTEMATIC REVIEW

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Aim: this review analyzes muscle activity following mandibular condylar fracture with a focus on understanding the changes in masticatory muscles and temporomandibular joint functioning.

Methods: the review was conducted following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. A search was performed on online databases using the keywords "masticatory muscles" AND ("mandibular fracture" OR "condylar fracture"). The eligibility criteria included clinical trials involving human intervention and focusing on muscle activity following a condylar fracture.

Results: a total of 13 relevant studies were reviewed. Various studies evaluated muscle activity using clinical evaluation, bite force measurement, electromyography, magnetic sensors and radiological examinations to assess the impact of mandibular fractures on masticatory muscles.

Conclusions: mandibular condylar fractures can lead to significant changes in muscle activity, affecting mastication and TMJ functioning. EMG and computed tomography imaging play crucial roles in assessing muscle changes and adaptations following fractures, providing valuable information for treatment planning and post-fracture management. Further research is required to explore long-term outcomes and functional performance after oral motor rehabilitation in patients with facial fractures. Standardized classifications and treatment approaches may help improve the comparability of future studies in this field.

CAN TINNITUS BE RELATED TO TMJ?

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Aim: tinnitus, a persistent ringing or buzzing in the ears, significantly affects quality of life. Studies suggest a link between tinnitus and TemporoMandibular Disorders (TMDs), involving dysfunctions of the TemporoMandibular Joint (TMJ) and masticatory muscles, likely mediated by somatosensory and neuroplastic mechanisms. This review explores the TMD-tinnitus connection and potential treatments.
Methods: a systematic review following PRISMA guidelines analyzed studies from PubMed, Scopus, and Web of Science published in the last decade. Clinical and observational studies were included, while case reports, pediatric studies, and non-English publications were excluded. Data on study design, diagnostic criteria, interventions, and outcomes were extracted.
Results and discussion: a strong association between TMD and tinnitus was found, with jaw movement and muscle activity influencing tinnitus perception. Neuroplastic changes in auditory and trigeminal pathways seem involved. Therapies like manual therapy, occlusal splints, physiotherapy, and multidisciplinary approaches show promise, but inconsistent methodologies limit conclusions.
Methodological issues, including small sample sizes, inconsistent diagnostic criteria, and lack of standardized treatments, complicate understanding of the TMD-tinnitus link. Larger randomized controlled trials and objective measures are needed to clarify causality and refine treatments.
Conclusions: an interdisciplinary approach is essential for managing TMD-related tinnitus. Future research should focus on standardized diagnostics and treatments to improve outcomes.

THE ROLE OF GUT MICROBIOTA AND AUTONOMIC DYSFUNCTION IN OROFACIAL PAIN AND TEMPOROMANDIBULAR DISORDERS: A REVIEW

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Aim: to explore the role of gut microbiota, autonomic dysfunction, and the gut-brain axis in Orofacial Pain (OP) and TemporoMandibular Disorders (TMD), focusing on their influence on chronic pain mechanisms and the potential for targeted therapies.
Methods: a review of recent studies investigating the Gut-Brain Axis (GBA), the Vagus Nerve (VN), autonomic dysfunction, and gut microbiota in relation to TMD and OP. Relevant literature was analyzed to understand the connection between microbiota composition, stress, gastrointestinal disorders like Irritable Bowel Syndrome (IBS), and the modulation of chronic pain in these conditions.
Results: the gut microbiota, through its interaction with the vagus nerve and the central nervous system, plays a critical role in modulating chronic pain. TMD patients often exhibit altered autonomic function, with increased sympathetic and reduced parasympathetic tone, which correlates with pain severity. Dysbiosis and gastrointestinal issues such as IBS are common in TMD patients, and these conditions contribute to the chronic pain experience. Furthermore, stress and sleep disturbances exacerbate both gut dysbiosis and pain, suggesting a complex interplay of factors influencing pain management.
Conclusions: the gut-brain axis and autonomic dysfunction are key factors in the pathogenesis of TMD-related pain and OP. Understanding these interactions offers new opportunities for targeted therapies, including microbiota modulation and vagus nerve stimulation, to improve pain management. Further research is necessary to better understand the mechanisms and potential therapeutic strategies in chronic orofacial pain conditions.

CANINE GUIDANCE AND TEMPOROMANDIBULAR DISORDERS: A SYSTEMATIC REVIEW OF EXISTING EVIDENCE

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Aim: for many years, gnathological principles have upheld the belief that Canine Guidance (CG) is essential in preventing temporomandibular disorders. This systematic review seeks to examine the existing scientific literature to determine whether a definitive relationship exists between CG and TMD.

Methods: in August 2023, a thorough systematic search was performed using the PubMed and Scopus databases. The process followed PRISMA guidelines. Keywords used in the search were "Canine guidance" and "Temporomandibular disorders." Studies were included only if they were in English and provided abstracts. Two reviewers independently screened articles by title and abstract, resulting in 25 full-text articles being retrieved. Following the exclusion of duplicates and irrelevant studies, only four articles met the criteria for inclusion.

Results: the selected studies focused exclusively on adult populations, with a total of 688 participants. Three studies investigated the relationship between CG in healthy individuals versus those with TMD, while one study examined CG across patients with different TMJ conditions as determined by MRI. None of the studies identified a statistically significant association between CG and TMD.

Conclusions: although the notion of the need for a certain distribution of occlusal contacts as a needed requisite for preventing and treating TMD is still diffused in some clinical communities, this review did not identify any evidence in support of an association between CG and TMD. Despite the limited number of relevant studies seems to highlight the need for further investigation, the clinical and ethical implications of these findings cannot be neglected.

ACCURACY AND PRECISION OF ZEBRIS JMA-OPTIC: AN *IN VITRO* STUDY

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Aim: as jaw-tracking systems integrate into digital prosthetic workflows, their accuracy and precision remain unclear. This study aims to evaluate the in vitro accuracy and precision of the Zebris JMA-Optic System (Zebris Medical GMBH, Isny, Germany) by simulating a patient using two models and an articulator.

Methods: two models were mounted on a semi-individual values articulator (Artex CPR, Amann Girrbach AG, Mäder Austria) to simulate a patient, and a Zebris JMA-Optic system was set on it. The articulator was then set with known values for the Eminence angle (SCI) and the progressive Bennet angle (PSS). Mandibular movements were performed on the articulator and simultaneously recorded using the Zebris JMA-Optic System. A total of 40 recordings were conducted with the axiograph and subsequently compared with the settings on the articulator. The mean and standard deviation of the measurements were measured for data analysis, and the statistical analysis was performed using a t-test.

Results: the mean discrepancies for the SCI and PSS were 2.026° and -0,68°, respectively, with standard deviations of 1.64 and 2.75. The overall mean discrepancy was 0.67°, and the standard deviation was 2.64°, both showing statistical significance ($p < 0.0001$).
The analysis demonstrated the system's high accuracy and precision.

Conclusions: within the limitation of the study, it can be concluded that the Zebris JMA-optic System demonstrates accuracy and precision. However, further studies are needed to enhance the significance of the results.

ASSOCIATION BETWEEN DEFINITE AWAKE BRUXISM AND SLEEP BRUXISM: A CROSS-SECTIONAL STUDY

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Aim: the primary aim of the study was to establish the association between definite Awake Bruxism (AB) and Sleep Bruxism (SB) and their possible correlation.
Methods: twenty-three healthy individuals (95.65% females, mean age 25.39±2.1) underwent 24 hours electromyographic recording of their masseter muscle activity using Dia-BRUXO® device to obtain definite bruxism diagnose. The Personal Bruxism Index during both sleep and wakefulness were used to differentiate between subjects with and without AB and SB. Pearson's test and student's t-test were used to statistically analyze data.
Results: ten individuals were found to present with significant Sleep Bruxism; of these 4 (40%) also presented Awake Bruxism. Eight individuals were found to present with significant Awake Bruxism; of these 4 (50%) also presented Sleep Bruxism. Pearson's test (0.069) and student's t-test (0.318) did not show significant association nor correlation between AB and SB.
Conclusions: based on the preliminary data presented, Awake Bruxism and Sleep Bruxism do not appear to have significant association nor correlation; therefor it can be hypothesized that they are two different entities rather than two sides of the same coin.

ASSOCIATION BETWEEN SELF-REPORTED AND OBJECTIVE AWAKE AND SLEEP BRUXISM

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Aim: the primary aim of the study was to establish the association between self-reported bruxism and objective masticatory muscle activity.
Methods: twenty healthy individuals (95% females, mean age 25.45±2.19) filled in the oral behavioral checklist questionnaire from the Diagnostic Criteria for Temporomandibular disorders; and underwent consecutive 24h electromyography recording of masseter muscle activity using dia-BRUXO® device. Awake and sleep Masseter Time Index, Masseter Work Index, Bruxism Time Index, Bruxism Work Index and Bruxism Personal Index were used to obtain a definite bruxism diagnose.
Results: of the 20 individuals, 8 subjects self-reported Awake Bruxism (AB), of which 5 (62.5%) received a definite diagnosis. Nine subjects self-reported Sleep Bruxism (SB), of which 5 (55.6%) received a definite diagnosis. Eight subjects did not report any bruxism, of which 3 (37.5%) received a definite diagnosis.
Conclusions: no significant association was found between patient's subjective perception of bruxism and definite diagnosis.

RELIABILITY AND EDUCATIONAL SUITABILITY OF TIKTOK VIDEOS AS A SOURCE OF INFORMATION ON SLEEP AND AWAKE BRUXISM: A CROSS-SECTIONAL ANALYSIS

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Aim: TikTok contains many videos about bruxism. The present cross-sectional analysis aimed to systematically assess the reliability and educational suitability of TikTok videos as a source of information on bruxism.

Methods: videos were searched on TikTok until 6 March 2024, using the hashtags #bruxism, #grindingteeth and #jawclenching. Independent pre-calibrated operators conducted video inclusion and data collection, noting videos' characteristics, source, popularity, content, reliability (assessed through the DISCERN scoring system) and educational value (assessed through the Global Quality Score [GQS]). The Kruskal-Wallis test was adopted to compare videos from different sources. Videos with low and high educational value were compared using the Mann-Whitney U-test. Tests were considered significant when the p-value was <0.05.

Results: a total of 105 bruxism videos were analysed. Most videos covered bruxism management and clinical features, and more than 60% were uploaded by healthcare professionals. According to the DISCERN and GQS scoring, the videos' reliability and educational value were judged to be very poor and low, respectively, but on average they were higher for videos uploaded by healthcare professionals compared to those uploaded by laypeople. When comparing highly educational videos to less educational ones, differences emerged in popularity, content, and reliability.

Conclusions: the present results suggest the need for greater control of information disseminated on social media to fulfil its potential role in educating laypeople about bruxism.

PREVALENCE OF SIGNS AND SYMPTOMS OF TEMPOROMANDIBULAR DISORDERS AND THEIR ASSOCIATION WITH EMOTIONAL FACTORS AND WAKING-STATE ORAL BEHAVIORS ON UNIVERSITY STUDENTS: A CROSS-SECTIONAL STUDY

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Aim: this cross-sectional study assessed the prevalence of TemporoMandibular Disorders (TMD) among Italian university students and their association with emotional factors, parafunctional behaviors, and quality of life.

Methods: a total of 321 students from the University of Salerno participated. TMD signs and symptoms were evaluated using Diagnostic Criteria for TMD through clinical exams and self-report questionnaires: physical with Symptom Questionnaire, psycho-emotional with Patient Health Questionnaires (PHQ-9, PHQ-15, PHQ-4) and General Anxiety Disorder (GAD-7), and wake-state oral behaviors (Oral Behavior Checklist). The Mann-Whitney U test assessed associations between TMD, sociodemographic data, oral behaviors, and psychological vulnerability ($p < 0.05$).

Results: pain-related symptoms were found in 37% of students (male/female ratio 1:2.7), and joint dysfunction in 28% with no gender differences. Levels of anxiety, depression, and distress were generally higher in females compared to males and in students with pain compared with painless ones. OBC scores were significantly related to PHQs, GAD-7 scores and pain symptoms. Scientific faculty students showed higher OBC scores and pain prevalence than humanities ones.

Conclusions: this study found a high prevalence of TMD signs and symptoms, particularly pain-related, strongly linked to emotional factors and oral behaviors. Regular screenings, psychological support, and educational strategies are recommended for prevention and early management.

IMPACT OF PSYCHOSOCIAL DOMAINS ON MASTICATORY MUSCLES SENSITIVITY IN THE PEDIATRIC POPULATION

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Aim: assess the influence of psychosocial domains on the pressure pain threshold of the masticatory muscles and temporomandibular joints in children and adolescents.

Methods: this study involved 38 children and adolescents aged 6 to 17 years who met the inclusion criteria of having no signs or symptoms of TemporoMandibular Disorders (TMD), dental or muscular pain, and not undergoing orthodontic treatment. Participants completed functional questionnaires (3Q/TMD, JFLS-8) and psychosocial questionnaires assessing anxiety, stress, and pain catastrophizing (RCADS-SV, PSS-C, PCS-C). One parent (either mother or father) also completed the parent version of the Pain Catastrophizing Scale. Pressure Pain Threshold (PPT), defined as the minimum pressure at which a sensation becomes painful, was assessed using a digital algometer and dedicated software (Medoc AlgoMed®). PPT was measured according to a standardized protocol, with four recordings at one-minute intervals on the Anterior Temporalis (AT), Masseter (MM), TemporoMandibular Joint (TMJ), and Thenar eminence (TH) on one side only.

Results: no statistically significant correlation was found between PPT and perceived stress. However, significant correlations and associations emerged between PPT and anxiety, depression, and both children and parent pain catastrophizing, with statistically significant p-values.

Conclusions: anxiety, depression, and pain catastrophizing significantly influence pressure pain thresholds in healthy children and adolescents. These findings highlight the importance of psychological assessment in this population to prevent the development of pain-related conditions and to promote adaptive coping strategies.

IS ALEXITHYMIA ASSOCIATED WITH TMD, AND IS IT ASSOCIATED WITH INTERNET AND MOBILE PHONE ADDICTION?

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Aim: TemporoMandibular Disorders (TMD) significantly impact health status. Alexithymia is a psychological construct characterized by deficits in understanding, processing, and describing one's own and others' emotions. The increasing prevalence of Internet Addiction (IA) and Mobile Phone Addiction (MPA) has raised concerns about their potential mental and physical health consequences. This study aimed to investigate the association between alexithymia, TMD, IA and MPA.

Methods: a cross-sectional design was employed to examine data from 708 participants (75% female, mean age 44.5 years). Participants completed self-report questionnaires assessing Alexithymia (TAS-20), TMDs (3Q/TMD), IA (IDS-15), MPA (TMD-brief) and anxiety/depression (PHQ-4).

Results: outcomes indicated a significant positive correlation between all assessed variables. Individuals with alexithymia exhibited higher scores on measures of all questionnaires compared to those without alexithymia. Participants with TMD reported elevated levels of all variables. Binary regression analysis revealed individuals with alexithymia are 1.87 times more likely to develop TMD. Multiple regression analysis evidenced that higher TAS-20 scores are significantly associated with greater PHQ-4 and IDS-15 scores.

Conclusions: these results suggest that Alexithymia can be a warning sign in the management of TMD. Difficulties in emotional regulation and stress management associated with alexithymia may contribute to the development of TMD. IA and MPA may provide escape from emotional experiences and reinforce social isolation, exacerbating alexithymia.

EVALUATION OF MASTICATORY MUSCLE ACTIVITY DURING STANDARDISED TASKS IN ADULTS WITH DIFFERENT LEVELS OF ORAL PARAFUNCTION

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Aim: to evaluate the effect of both stressful and relaxing tasks on masseter muscle activity in individuals with different levels of self-reported oral parafunction.

Methods: a total of 319 individuals completed the Italian online version of the Oral Behavior Checklist (OBC) and the three screening questions for temporomandibular disorders (3Q/TMD). Based on their non-functional OBC scores, participants were divided into two groups: a high parafunction group (HPG, score ≥ 80th percentile) and a low parafunction group (LPG, score ≤ 20th percentile). The final sample consisted of 62 adults, with 31 in the HPG and 31 in the LPG. EMG activity of the masseter muscle was recorded for 7 minutes during three tasks: an arithmetic test, listening to a relaxing music playlist, and scrolling through social media. Contraction episodes were identified when activity exceeded 5% of the Maximum Voluntary Contraction (MVC) for at least 2 seconds. A two-way ANOVA was used to assess the effects of parafunction group (HPG vs LPG) and task type on the EMG variables, with the level of significance set at $P < 0.05$.

Results: the HPG showed a higher frequency ($P < 0.001$), longer duration ($P < 0.001$), and greater amplitude ($P < 0.001$) of contraction episodes compared to the LPG. Task comparison revealed that in the LPG, the type of task did not significantly influence the features of masseter contraction episodes. Conversely, in the HPG, the arithmetic test and social media scrolling induced a higher frequency and longer duration of contractions compared to music listening.

Conclusions: interactive and demanding tasks increase masseter muscle activity in individuals who report high levels of oral parafunction, but not in those with low levels.

THE IMPACT OF PAIN CATASTROPHIZING ON THE QUALITY OF LIFE IN PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS

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Aim: the aim of this study was to assess the impact of both parental and patients' catastrophizing on disease status, psychosocial functioning, and overall quality of life in children and adolescents with Juvenile Idiopathic Arthritis (JIA).

Methods: 119 JIA children and adolescents (92 females and 27 males), aged between 6 and 16 years, along with their 119 parents, were enrolled. Questionnaires including the Pain Catastrophizing Scale (PCS-C), the Perceived Stress Scale (PSS-C), the Revised Child Anxiety and Depression Scale-Short Version (RCADS-SV), the child's version of the Juvenile Arthritis Multidimensional Assessment Report (JAMAR), and the Jaw Functional Limitation Scale (JFLS-8) were provided to patients. Patients were also clinically examined for temporomandibular disorders. Parents were given the parental version of the Pain Catastrophizing Scale (PCS-P) and the parental version of the Juvenile Arthritis Multidimensional Assessment Report (JAMAR) questionnaires.

Results: compared to children, parents reported higher levels of pain catastrophizing. A positive correlation and association between catastrophizing in children and parents were also found. Furthermore, the analysis revealed that increased levels of pain catastrophizing in both parents and patients corresponded to poorer psychological functioning and affected the perceived impact of disease on children's quality of life, as evaluated by JAMAR.

Conclusions: the psychosocial status of both patients and parents can influence the disease course and its effects on the quality of life in children with JIA.

ELECTROMYOGRAPHIC ASSESSMENT OF MASTICATORY MUSCLE ACTIVITY IN CHILDREN: INFLUENCE OF ACTIVE AND PASSIVE SCREEN USE

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Aim: to evaluate masticatory muscle activity in children during standardized tasks involving screen use and non-screen activities.
Methods: thirty-four children (18 females, 16 males; mean age 12.56±3.02 years) participated in the study at the Orthodontic Clinic, University of Naples Federico II. Parents completed the Problematic Media Use Measure (PMUM), and children filled out the Perceived Stress Scale for Children (PSS-C). Electromyographic (EMG) recordings were collected for three 7-minute tasks: video gaming (active screen use), video watching (passive screen use), and coloring (screen-free), with 5-minute breaks between tasks in randomized order. Muscle activity was defined as contractions >5% of Maximum Voluntary Contraction (MVC) lasting ≥2 seconds. Frequency, amplitude (%MVC), and duration were analyzed using repeated measures ANOVA. Correlations with PMUM and PSS-C were assessed via Spearman's coefficient.
Results: muscle activity varied significantly between tasks. Frequency ($p = 0.002$) and amplitude ($p = 0.014$) were higher during gaming than coloring. Frequency was also higher during gaming than watching ($p = 0.010$), while amplitude was greater during watching than coloring ($p = 0.032$). No significant correlations were found between EMG data and PMUM or PSS-C scores.
Conclusions: active screen use (video gaming) is linked to increased masticatory muscle activity in children, especially in frequency, compared to screen-free activities.

JUVENILE IDIOPATHIC ARTHRITIS: ASSOCIATION BETWEEN SEROLOGY, JUVENILE ARTHRITIS DISEASE ACTIVITY SCORE AND TEMPOROMANDIBULAR DISORDERS

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Aim: to evaluate the correlation between serological variables and the main signs and symptoms of Temporomandibular joint Disorders (TMD) evaluated through the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) in patients with Juvenile Idiopathic Arthritis (JIA), and to check the possible influence of the questionnaire Juvenile Arthritis Disease Activity Score (JADAS-10) with the different TMD, or any serological variables.
Methods: this controlled cohort study included patients aged 5 to 16 diagnosed with JIA. The comorbidities, JADAS-10, and the initial serological tests were collected. Through the DC/TMD symptoms questionnaire, the headache, TMJ arthralgia, and joint noises were assessed. The clinical examination evaluated the mandibular movements, clicking, crepitus, arthralgia, and myalgia of the masticatory and additional muscles.
Results: 90 patients with JIA were divided into two groups: 51 with TMD symptoms and 39 controls without symptoms. Antinuclear antibodies were present in 78.4% of patients while rheumatoid factor and anti-cyclic citrullinated peptide antibodies were present in 5 and 1 of patients, respectively. The indicators of inflammation were evaluated with average values of 30 mm/h for the erythrocyte sedimentation rate and 4 mg/dL for the C-reactive protein. The JADAS-10 score mean values were 11 in the JIA group and 13 in controls. Tensive headache showed a significant correlation with a JADAS-10 score >20; no serological value was correlated with the other symptoms of TMD.
Conclusions: females with oligoarticular ANA+, RF-negative, and ACPA- subtypes are more at risk of TMJ arthritis in our cohort. Temporal headache showed a significant correlation with the JADAS-10 in JIA patients.

POSTURAL BALANCE AND FOOT LOAD CHANGES IN PROFESSIONAL ATHLETES FOLLOWING OCCLUSAL MODIFICATION

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Aim: to evaluate the change of foot load distribution in professional and semi-professional athletes after occlusal modification using a repositioning splint, with the aim of symmetrizing the propulsive force of the lower limbs.

Methods: 18 professional and semi-professional athletes were selected (mean age: 28.2 years; SD: 3.7; M:F = 8:1; 8 cross-country skiers, 6 cyclists, and 4 mountain bikers) with evident malocclusion and an altered cranio-mandibular spatial relationship. Foot load distribution was measured using a baropodometric platform both in habitual occlusion and with a mandibular repositioning splint that ensured the correction of the spatial cranio-mandibular relationship, not just the anteroposterior direction (as with a conventional repositioning bite). A statistical comparison using a paired t-test was conducted on the absolute difference in load distribution between the two feet in the tested conditions.

Results: in habitual centric occlusion the mean percentage difference of foot load was 8% (SD 6%), whereas with the repositioning splint the mean value was 2.4% (SD 2.2%), showing a highly significant statistical difference ($p = 0.0001$).

Conclusions: improving the cranio-mandibular relationship with a mandibular repositioning splint results in a partial or complete symmetrization of foot load distribution in static conditions. This finding is a fundamental premise for achieving better symmetry in the propulsive force exerted by the lower limbs during dynamic movement in technical execution.

TEMPOROMANDIBULAR DISORDERS AND PERSONALITY DISORDERS: AN OBSERVATIONAL STUDY

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Aim: the aim of the study is to investigate the correlation between TemporoMandibular Disorders (TMD) and personality disorders, emphasizing the role of psychological factors in pain control and assessing the need for a multidisciplinary therapeutic approach.

Methods: an observational case-control study was conducted including 134 subjects with TMD and 134 healthy subjects. All recruited subjects completed the Personality Inventory for DSM-5 Brief Form (PID-5-BF) in order to identify any dysfunctional personality traits. A statistical analysis was performed on the collected data to compare the two groups.

Results: patients with TMD showed higher and statistically significant PID-5-BF scores in the domains of negative affectivity, detachment, and antagonism compared to the control group. These results indicate a higher incidence of personality disorder traits in individuals with TMD, suggesting a possible psychological impact on the onset or chronicity of TMDs.

Conclusions: the results confirm the association between psychological factors and temporomandibular disorders. A multidisciplinary therapeutic approach could enhance treatment effectiveness and patients' quality of life.

EFFICACY OF A REDUCED PROTOCOL OF INTRA-ARTICULAR HYALURONIC ACID INFILTRATIONS IN THE TMJ FOR THE TREATMENT OF OSTEOARTHRITIS AND NON-REDUCIBLE DISLOCATION

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Aim: Osteoarthritis (OA) and non-reducible TMJ dislocation are degenerative conditions that impair mandibular kinematics and quality of life.

Arthrocentesis with Hyaluronic Acid (HA) viscosupplementation is a minimally invasive treatment with well-established efficacy, typically performed through 5 intra-articular infiltrations.

The aim of the study is to evaluate whether a protocol reduced to 3 HA injections, with an unchanged dose per session, can provide comparable efficacy to the standard protocol.

Methods: thirty patients with OA or unilateral non-reducible dislocation of the TMJ (diagnosed by MRI) were enrolled. The treatment involved arthrocentesis followed by 3 infiltrations of HA (Hyalgan® BIO 20mg/2ml), with the following protocol:

- local anesthesia with mepivacaine 3%;
- single-needle technique + joint lavage (NaCl 0.9%);
- intra-articular injection of 2 ml of HA per session.

Patients were reassessed at 1 week and 1 month.

Clinical assessments included:

- mandibular kinematics (maximum mouth opening, protrusion and laterality) measured with a caliper;
- pain at rest and during function (phonation, chewing, swallowing) with NRS scale.

Results: the reduced protocol resulted in:

- 84.35% reduction in pain at rest;
- 65.84% reduction in pain during function;
- progressive improvement in mandibular kinematics.

Conclusions: the 3-infiltration HA protocol demonstrated equivalent efficacy to the standard 5-infiltration protocol in terms of symptom reduction and functional restoration, reducing the number of treatment sessions and enhancing patient compliance.

OROFACIAL CLICKING SOUND NOT RELATED TO THE TEMPORO-MANDIBULAR JOINT: A CASE REPORT

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Aim: orofacial clicking sounds are generally related to the TemporoMandibular Joint (TMJ). This study describes a case of an asymptomatic click independent of TMJ.

Methods: a 21-year-old female presented for evaluation describing an asymptomatic clicking sound occurring independently of mandibular position. A comprehensive history taking was performed. Patients were healthy and reported no allergies nor medication use. Clinical examination revealed no cranial nerve abnormalities; and no pain upon palpation of the masticatory muscles or TMJ. No TMJ sounds were identified.

Results: upon intraoral examination, an intermittent contraction of the soft palate and uvula was observed, resulting in contact with the posterior pharyngeal wall, which produced a click-like sound. This phenomenon occurred independently of mandibular position and was not associated with pain or other symptoms. Patient was instructed; and no treatment was administered.

Conclusions: oromandibular dystonia of the soft palate and uvula may create contact with the posterior wall of the pharynx, resulting in a sound that mimics an articular click but independent of jaw movements.

AN INNOVATIVE APPROACH FOR THE MANAGEMENT OF TEMPOROMANDIBULAR DISORDER THROUGH THE COMBINED USE OF TWO OCCLUSAL SPLINT (BY-TE REALI AND RA.DI.CA): A CASE REPORT

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Aim: the study aimed to rebalance the TMJ in a patient with a reducible disc dislocation and intermittent locking and to retrospective evaluate a treatment described for the first time in the literature, which simultaneously used two occlusal splints: By-Te Reali and RA.DI.CA.

Methods: a 20-year-old male patient requested a gnathological visit due to pain and joint noises that had progressively worsened over the previous six months and were exacerbated by chewing hard or rubbery foods. He underwent biobehavioral gnathological therapy combined with the use of a distraction splint (RA.DI.CA) and a distraction-repositioning bite (By-Te Reali). The treatment also included home exercises performed with both devices. Magnetic Resonance Imaging (MRI) and condylography were performed before and after the treatment to assess structural and functional changes.

Results: a complete remission of painful symptoms was observed, along with the disappearance of joint noises - particularly during chewing -, rebalancing of the internal joint structures with improved disc positioning as demonstrated by follow-up MRI, and symmetry in functional activity as revealed by condylography, which is fundamental for long-term treatment stability. Moreover, the pre-existing occlusal condition was preserved.

Conclusions: despite limitation, this study showed how the combined use of two occlusal splints, together with a structured program of physiotherapeutic exercises, can yield promising results in reducing pain and other symptoms related to the TMJ. This approach appears effective in the management of TMDs with internal derangement by promoting a new condyle-disc balance and restoring the integrity of the other internal TMJ structures, with particular attention to their functional relationships during mandibular movements, in line with the most recent literature.