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Scientific Investigation Committee 2017

Literature Abstract
Review 2017



AES



Michael Radu



Aad Zonnenberg, Chair



Jack Marincel



David Hancock

Scientific Investigation
Committee 2017



Warren Jesek

- ❖ Search results from NCBI (National Center for Biotechnology Information) at the NLM (US National Library of Medicine)
- ❖ Parameters of the search for new articles: From 2015/11/01 to 2016/11/01
- ❖ Search: dental occlusion OR temporomandibular joint disorders OR centric relation OR occlusal splints OR occlusal adjustment OR tooth abrasion OR bruxism. Filters: English, Dental journals

Search Results

- ❖ Search yielded 436 articles (418 in 2015)
- ❖ 37 articles had no abstract and were not followed upon
- ❖ 8, 9, 58, 94, 100, 128, 163, 193, 194, 195, 196, 223, 231, 256, 257, 260, 279, 306, 307, 310, 311, 319, 329, 330, 334, 335, 349, 350, 357, 362, 363, 369, 373, 374, 385, 393, 395
- ❖ 1 article had no abstract, but was followed upon
- ❖ **394 Barry Cooper editorial**

Levels of evidence

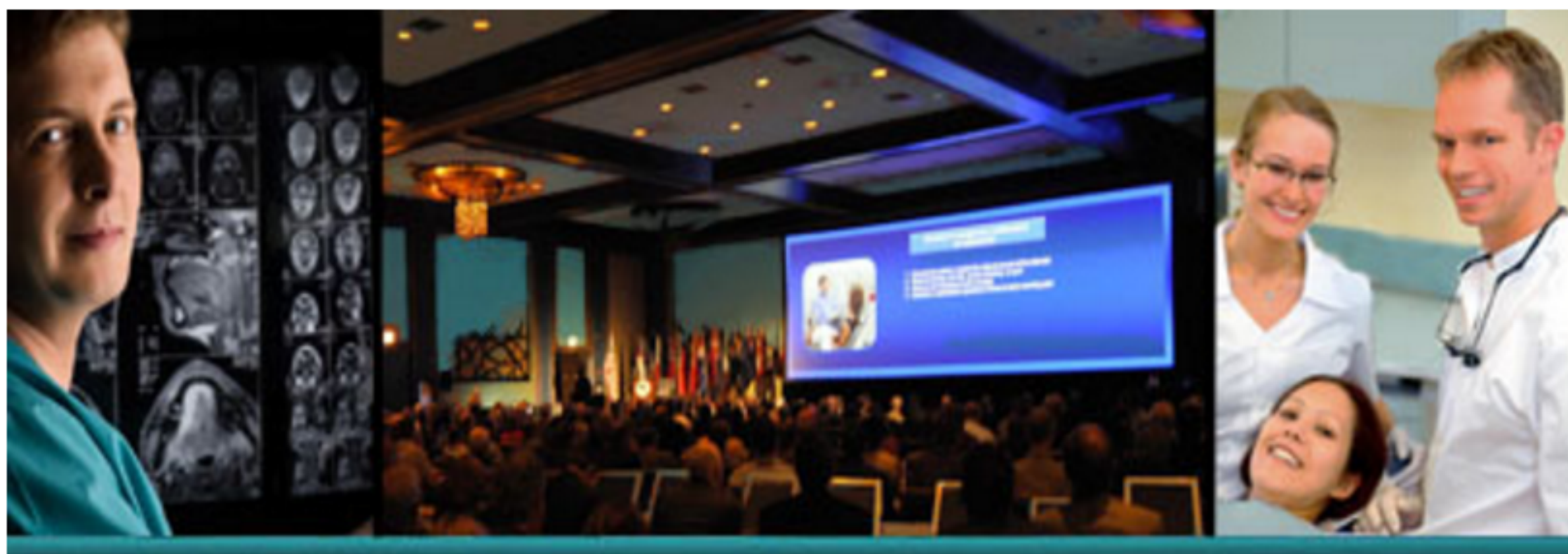
1. Meta-analysis / Systematic Review of RCTs
2. Randomized Controlled Trials (RCTs)
3. Controlled Clinical Trials (without randomization)
4. Cohort / Case-controlled Studies
5. Review of Quantitative or Descriptive Studies
6. Qualitative or Descriptive Studies
7. Opinion / Editorial / Case Report / Product
8. Animal / In vitro / Animal Study

Levels of evidence

1. Meta-analysis / Systematic Review of RCTs (13)
2. Randomized Controlled Trials (RCTs) (14)
3. Controlled Clinical Trials (without randomization) (10)
4. Cohort / Case-controlled Studies (61)
5. Review of Quantitative or Descriptive Studies (52)
6. Qualitative or Descriptive Studies (121)
7. Opinion / Editorial / Case Report / Product (89)
8. Animal / In vitro / Animal Study (22)

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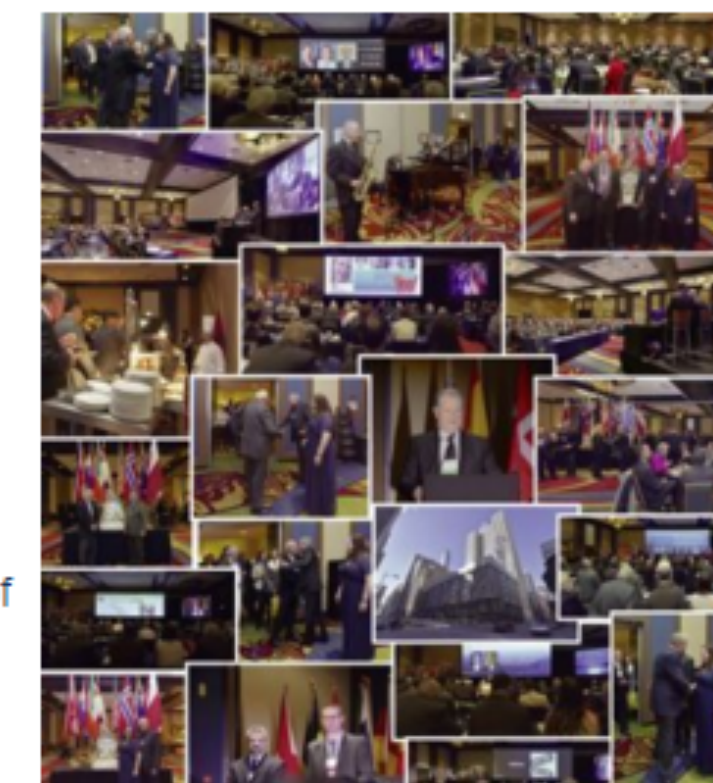
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- Reference
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The AES Scientific Investigation Committee is always looking for worthy research projects to support. For further information please contact committee chair Dr. Aad Zonnenberg at adriaanzonnenberg@me.com

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[Systematic Approach to Full-Mouth Reconstruction.](#)
Nazarian A.
Dent Today. 2015 Jun;34(6):92, 94, 96-7. No abstract available.
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12.  [The Basic Conservative Treatment of Temporomandibular Joint Anterior Disc Displacement Without Reduction--Review.](#)
Miernik M, Więckiewicz W.
Adv Clin Exp Med. 2015 Jul-Aug;24(4):731-5. doi: 10.17219/acem/35165. Review.
PMID: 26469120
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[Adv Clin Exp Med](#). 2015 Jul-Aug;24(4):731-5. doi: 10.17219/acem/35165.

The Basic Conservative Treatment of Temporomandibular Joint Anterior Disc Displacement Without Reduction--Review.

Miernik M¹, Wieckiewicz W¹.

Author information

Abstract

Temporomandibular joint derangement is a common disorder of the stomatognathic system. One type of these disorders is disc displacement without reduction with limited mouth opening, characterized by pain in affected TMJ and a decreased range of mouth opening. The natural course of closed lock is self-limiting. However, if there is no significant improvement after 12 weeks of following natural course of disc displacement without reduction, this is an indication that the therapy should be implemented. The article presents a review of the most commonly applied methods of basic conservative closed lock treatment. The most commonly applied methods of closed lock conservative management are: education and counseling, mandibular manipulation, splint therapy, exercise therapy and pharmacotherapy. The first choice method of treatment should be minimally invasive. The surgical management should be considered after unsuccessful conservative therapy. All presented methods of closed lock treatment seem to be effective in decreasing pain and reestablishing physiological range of motion.

PMID: 26469120 [PubMed - indexed for MEDLINE] [Free full text](#)



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[Longitudinal MRI follow-up of temporomandibular joint internal derar \[Dentomaxillofac Radiol. 2005\]](#)

[Review Timing interventions in relation to temporomandibular joint ck \[J Oral Rehabil. 2014\]](#)

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- ❖ from J Prosthet Dent are 10 articles
- ❖ from Cranio are 24 articles

Search to be mentioned

- ❖ Ref. # 7. Randomized Clinical Trial
- ❖ Lövgren A, Visscher CM, Häggman-Henrikson B, Lobbezoo F, Marklund S, Wänman A. **Validity of three screening questions (3Q/TMD) in relation to the DC/TMD.** J Oral Rehabil 2016; 43:729-36.
- ❖ Temporomandibular disorders (TMD) are common but seem to be largely undetected within general dental care. To improve dentists' awareness of these symptoms, three screening questions (3Q/TMD) have been introduced. **The results show that the 3Q/TMD is an applicable, cost-effective and valid tool for screening a general adult population to recognise patients in need of further TMD examination and management**

Search to be mentioned

- ❖ Ref. # 10. Systematic Review
- ❖ Story WP, Durham J, Al-Baghdadi M, Steele J, Araujo-Soares V. **Self-management in temporomandibular disorders: a systematic review of behavioural components.** J Oral Rehabil 2016; 43:759-70.
- ❖ The aim of this qualitative systematic review was to identify the behaviour change techniques most frequently employed in published temporomandibular disorder (TMD) self-management (SM) programmes. **If SM programmes published in the literature define their components through use of the behaviour change taxonomy, it would be easier for clinicians to replicate efficacious programmes.**

Search to be mentioned

- ❖ Ref. # 38. Cohort Study (**presented at the AES Annual Meeting 2016**)
- ❖ Saponaro PC, Yilmaz B, Heshmati RH, McGlumphy EA. **Clinical performance of CAD-CAM-fabricated complete dentures: A cross-sectional study.** J Prosthet Dent 2016; 116:431-5.
- ❖ The purpose of this retrospective study was to evaluate clinician experience with digital Complete Denture (CD) fabrication attempted in a 2-visit protocol. **The mean number of appointments needed to insert the prostheses in both groups was 2.39 visits--not 2 as claimed by the company.** The most common types of complications observed were lack of denture retention, inaccurate occlusal vertical dimension, and incorrect centric relation.

Search to be mentioned

- ❖ Ref. # 71. Narrative Review
- ❖ Manfredini D, Stellini E, Gracco A, Lombardo L, Nardini LG, Siciliani G. **Orthodontics is temporomandibular disorder-neutral.** Angle Orthod 2016; 86:649-54.
- ❖ Findings confirmed the substantial absence of clinically significant effects of orthodontics as far as TMD is concerned. **The very low correlation values of a negative or positive history of ideal or non-ideal orthodontics with the different TMD diagnoses suggest that orthodontic treatment could not have a true role for TMD.**

Search to be mentioned

- ❖ Ref. # 86. Systematic Review
- ❖ Bohner LO, Neto PT, Ahmed AS, Mori M, Laganá DC, Sesma N. **CEREC Chairside System to Register and Design the Occlusion in Restorative Dentistry: A Systematic Literature Review.** J Esthet Rest Dent 2016; 28:208-20.
- ❖ The aim of this review was to update the literature with regard to the digital methods available by CEREC Chairside system to register and design the occlusion, to report their efficacy and technical innovations in the field of Restorative Dentistry. **Digital technologies allow the design of occlusal surfaces of CAD-CAM fabricated prostheses using innovative approaches.** This systematic review aimed to update the literature to help dentists determine the most appropriate digital method to register and design the occlusal surface of CAD-CAM crowns.

Search to be mentioned

- ❖ Ref. # 89. Systematic Review
- ❖ **Bucci R, D'Antò V, Rongo R, Valletta R, Martina R, Michelotti A. Dental and skeletal effects of palatal expansion techniques: a systematic review of the current evidence from systematic reviews and meta-analyses. J Oral Rehabil 2016;43:543-64.**
- ❖ **The aim was to assess the quality and to summarise the findings of the Systematic Reviews (SRs) and Meta-Analyses (MAs) on the dental and skeletal effects of maxillary expansion (ME). With both RapidME and SlowME, significant increase of skeletal transversal dimension in the short-term is reported, and the skeletal expansion is always smaller than the dentoalveolar.**

Search to be mentioned

- ❖ Ref. # 200. Systematic Review
- ❖ Morell GC. **Manual therapy improved signs and symptoms of temporomandibular disorders.** Evid Based Dent 2016; 17:25-6.
- ❖ There was low to high quality evidence that upper cervical spine thrust manipulation or mobilisation techniques are more effective than control, while thoracic manipulations are not. **There is widely varying evidence that MT improves pain, MMO and PPT in subjects with TMD signs and symptoms, depending on the technique.**

Search to be mentioned

- ❖ Ref. # 201. Systematic Review
- ❖ de Almeida VL, Vitorino N de S, Nascimento AL, da Silva Júnior DC, de Freitas PH. **Stability of treatments for recurrent temporomandibular joint luxation: a systematic review.** Int J Oral Maxillofac Surg 2016; 45:304-7.
- ❖ A systematic review based on the PRISMA statement was proposed in an attempt to determine which therapeutic option results in the longest time to relapse. **There is no good quality evidence on which treatment options guarantee the long-term elimination of recurrent TMJ luxation.**

Search to be mentioned

- ❖ Ref. # 227. Randomized Clinical Trial
- ❖ Gerasimidou O, Watson T, Millar B. **Effect of placing intentionally high restorations: Randomized clinical trial.** J Dent 2016; 45:26-31.
- ❖ The aim of this study was to examine the behavior of posterior teeth restored with single-tooth restorations with intentionally high occlusal contacts. Consent was obtained from 17 patients who were seen a total of 5 times over 3.5 years. The restorations placed were all full occlusal coverage gold restorations. **Cementation of an intentionally high single-tooth restoration causes no increase in tooth mobility while occlusal adaptation re-establishes and restores the occlusal plane.**

Search to be mentioned

- ❖ Ref. # 230. Systematic Review
- ❖ Ahmed KE, Murbay S. **Survival rates of anterior composites in managing tooth wear: systematic review.** J Oral Rehabil 2016; 43:145-53.
- ❖ Included studies involved placement of 772 direct and indirect anterior composite restorations in 100 patients with follow-up periods between 5 months and 10 years. **There is evidence to support the use of anterior composite restorations at an increased vertical dimension of occlusion in the short/medium-term management of tooth wear.**

Search to be mentioned

- ❖ **Ref. # 251. Systematic Review (free to download)**
- ❖ **Abreu LG, Paiva SM, Pordeus IA, Martins CC. Breastfeeding, bottle feeding and risk of malocclusion in mixed and permanent dentitions: a systematic review. Braz Oral Res 2016;30.**
- ❖ **The aim of the present study was to search for scientific evidence concerning the association between breastfeeding and bottle feeding and risk of malocclusion in mixed and permanent dentitions. Risk of bias was high in most selected articles. These findings do not support an association between breastfeeding and bottle feeding and the occurrence of malocclusion in mixed and permanent dentitions.**

Search to be mentioned

- ❖ Ref. # 254. Narrative Review T-Scan
- ❖ Afrashtehfar KI, Qadeer S. **Computerized occlusal analysis as an alternative occlusal indicator.** Cranio 2016; 34:52-7.
- ❖ All disciplines of dentistry require that clinicians assess the articulation of the teeth/prosthesis with respect to simultaneous contacts, bite force and timing. **The reported advantages to accurately indicate occlusal contacts make the computerized occlusal analysis system a better occlusal indicator when compared with other non-digital convention indicator materials available.**

Search to be mentioned

- ❖ Ref. # 270. Descriptive study
- ❖ Dedem P, Türp JC. **Digital Michigan splint - from intraoral scanning to plasterless manufacturing.** Int J Comput Dent 2016; 19:63-76.
- ❖ To investigate whether the fully digital, plasterless fabrication of clinically usable Michigan splints can be accomplished in a time- and cost-efficient manner. Some of the main advantages of digital manufacturing of Michigan splints over traditional, conventional, impression-based manufacturing are **the time-efficient manufacturing process, the high material quality, and the possibility of manufacturing duplicate splints.**

Search to be mentioned

- ❖ Ref. # 275. Randomized Clinical Trial
- ❖ Pho Duc JM, Hüning SV, Grossi ML. **Parallel Randomized Controlled Clinical Trial in Patients with Temporomandibular Disorders Treated with a CAD/CAM Versus a Conventional Stabilization Splint.** Int J Prosthodont 2016; 29:340-50.
- ❖ This parallel randomized controlled trial (RCT) compared the efficacy of a computer-aided design / computer-assisted manufacture (CAD / CAM) splint versus a conventional stabilization splint in patients with temporomandibular disorders (TMD). **Both treatments were equally efficacious and no difference was found between them.**

Search to be mentioned

- ❖ Ref. # 289. Systematic Review
- ❖ da Silva CG, Pachêco-Pereira C, Porporatti AL, Savi MG, Peres MA, Flores-Mir C, Canto Gde L. **Prevalence of clinical signs of intra-articular temporomandibular disorders in children and adolescents: A systematic review and meta-analysis.** J Am Dent Assoc 2016; 147:10-18.
- ❖ The aim of this systematic review and meta-analysis was to assess the prevalence of clinical signs of temporomandibular joint (TMJ) disorders in children and adolescents. the authors included 11 articles that described studies in which 17,051 participants had been enrolled. One in 6 children and adolescents have clinical signs of TMJ disorders. **One in 6 children and adolescents have clinical signs of TMJ disorders. The results of this systematic research study can alert dentists about the importance of looking for signs of TMD in children and adolescents.**

Search to be mentioned

- ❖ **Ref. # 290. Narrative Review (open access)**
- ❖ **Caldas W, Conti AC, Janson G, Conti PC. Occlusal changes secondary to temporomandibular joint conditions: a critical review and implications for clinical practice. J Appl Oral Sci 2016; 24:411-9.**
- ❖ **The aim of this article is to present the most commonly occlusal changes secondary to TMD. All plans for irreversible therapy should be preceded by a meticulous analysis of TMD signs and symptoms in such a way that patients are not submitted to irreversible treatment, based on an untrue occlusal relationship, secondary to articular and/or muscular disorders. When present, TMD symptoms must always be controlled to reestablish a "normal" occlusion.**

Search to be mentioned

- ❖ Ref. # 322. Systematic Review
- ❖ Manfredini D, Segu M, Arveda N, Lombardo L, Siciliani G, Rossi A, Guarda-Nardini L. **Temporomandibular Joint Disorders in Patients with Different Facial Morphology. A Systematic Review of the Literature.** J Oral Maxillofac Surg 2016; 74:29-46.
- ❖ The present article aimed to review systematically the literature on the relation between facial skeletal structures and temporomandibular joint (TMJ) disorders. The quality of the available literature is not adequate, however, it seems reasonable to suggest that skeletal Class II profiles and hyper-divergent growth patterns are likely associated with an increased frequency of TMJ disc displacement and degenerative disorders.

Search to be mentioned

- ❖ Ref. # 423. Systematic Review
- ❖ Manfredini D, Ahlberg J, Winocur E, Lobbezoo F. **Management of sleep bruxism in adults: a qualitative systematic literature review.** J Oral Rehabil 2015; 42:862-74.
- ❖ This paper updates the bruxism management review published by Lobbezoo et al. in 2008 (J Oral Rehabil 2008; 35:509-23). It can be concluded that there is not enough evidence to define a standard of reference approach for SB treatment, except for the use of an oral appliance.

Search to be mentioned

- ❖ Ref. # 354. Descriptive study (open access)
- ❖ Matthys T, Ho Dang HA, Rafferty KL, Herring SW. **Bone and cartilage changes in rabbit mandibular condyles after 1 injection of botulinum toxin.** Am J Orthod Dentofac Orthop 2015; 148:999-1009.
- ❖ Temporary paralysis of the masseter muscle caused by botulinum toxin is a common treatment for temporomandibular disorders, bruxism, and muscle hypertrophy. Loss of masseter force is associated with decreased mandibular mineral density.
- ❖ Bone loss may be a risk factor for the use of botulinum toxin in jaw muscles.

Search to be mentioned

- ❖ Ref. # 367. Systematic Review
- ❖ Keenan JR. Unclear results for the use of botulinum toxin therapy for TMD pain. Evid Based Dent 2015;16:122.
- ❖ A comprehensive search was carried out on major databases. The inclusion criteria included randomized and quasi-randomized controlled trials. Five relevant studies were included in the review, which consisted of 117 participants. The dose of BTX ranged from 70U to 300U, the majority used to be 100-150U. No consensus could be reached on the therapeutic benefit of BTX on TMDs.

Search to be mentioned

- ❖ Ref. # 405. Systematic Review
- ❖ Castroflorio T, Bargellini A, Rossini G, Cugliari G, Rainoldi A, Deregibus A. **Risk factors related to sleep bruxism in children: A systematic literature review.** Arch Oral Biol. 2015; 60:1618-24.
- ❖ The aim of this article was to systematically review the literature to identify papers dealing with risk factors associated with sleep bruxism (SB) in children. SHS (second hand smoke) and sleep disturbances presented the strongest association with SB. **The most recurrent source of bias was the lack of blinding procedures. The evidence emerged from the considered studies was clinically relevant.**

Hand Searched Articles

Search to be mentioned

- ❖ Descriptive Study
- ❖ Goldstein G, Andrawis M, Choi M, Wiens J and Janal MN. **A survey to determine agreement regarding the definition of centric relation.** J Prosthet Dent 2016; Epub online, Ahead of publication, October 17, 2016.
- ❖ The definition of centric relation (CR) has been both controversial and divisive. Of 83 eligible Fellows of the ACP, 72 responded to the survey. Of those 7 responses were censored, yielding an analyzable sample of 65. **The most common definition received 19, the next 16, and the third 13, with the other 6 definitions reaching 2 to 5 votes.** Some variability in definition depended on the era of training.
- ❖ **Disagreement and confusion continues regarding the definition of centric relation.**

Search to be mentioned

- ❖ The **Glossary** contains **7 different definitions** (GPT 8, 2005)
- ❖ This **survey** supposes **9 different definitions**, including **the new definition in GPT 9, 20??**
- ❖ Call for research to end this confusion
- ❖ Anyone with research projects, ideas and forgotten papers on the subject, let us know and submit to the Chair of SIC at the AES website

Search to be mentioned

- ❖ Support DrBicuspid.com, published February 6, 2017
- ❖ **Meta-analysis (open access)**
- ❖ Kuzmanovic Spicer J, Dodic S, Lazic V, Trajkovic G, Milic N, Milicic B. **Occlusal stabilization splint for patients with temporomandibular disorders: Meta-analysis of short and long term effects.**
- ❖ In this study we sought to determine short and long term effects of stabilization splint (SS) in treatment of TMDs, and to identify factors influencing its efficacy. **SS presented short term benefit for patients with TMDs.** In long term follow up, the effect is equalized with other therapeutic modalities.

Search to be mentioned

- ❖ Descriptive study. Supported with an **AES Grant**
- ❖ Walker TF, Broadwell BK, Noujeim ME. **MRI assessment of temporomandibular disc position among various mandibular positions: a pilot study.** Cranio 2016; Epub online, Ahead of publication, March 30, 2016.
- ❖ The aim of this pilot study was to assess temporomandibular joint disc movement relative to the condyle among centric relation (CR), physiologic rest position (PRP), and maximal intercuspation position (MIP) in healthy patients without signs or symptoms of any temporomandibular disorder.
- ❖ **According to the results of this pilot study, the direction of movement of the TM disc does not correlate with the rotational movement of the condyle in hinge positions.**

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