

Ikke-kirurgisk behandling for personer med temporomandibular dysfunksjon

Notat fra Kunnskapssenteret
Systematisk litteratursøk med
sortering
Desember 2012

Tittel Ikke-kirurgisk behandling for personer med temporomandibular dysfunksjon –Systematisk litteratursøk

English title Non-surgical treatment for people with temporomandibular joint dysfunction – systematic literature search

Institusjon Nasjonalt kunnskapssenter for helsetjenesten

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ISBN 978-82-8121-508-5

Notat 2012

Prosjektnummer 716

Publikasjonstype Systematisk litteratursøk med sortering

Antall sider 39

Oppdragsgiver Helsedirektoratet

Nøkkelord Temporomandibular, TMD, behandling, systematisk litteratursøk

Sitering Strøm V, Dalsbø TK, Lund Håheim L, Kirkehei I. Ikke-kirurgisk behandling av temporomandibular dysfunksjon – systematisk litteratursøk med sortering. Notat 2012. Oslo: Nasjonalt kunnskapssenter for helsetjenesten, 2012.

Nasjonalt kunnskapssenter for helsetjenesten fremskaffer og formidler kunnskap om effekt av metoder, virkemidler og tiltak og om kvalitet innen alle deler av helsetjenesten. Målet er å bidra til gode beslutninger slik at brukerne får best mulig helsetjenester. Kunnskapssenteret er formelt et forvaltningsorgan under Helsedirektoratet, men har ingen myndighetsfunksjoner og kan ikke instrueres i faglige spørsmål.

Nasjonalt kunnskapssenter for helsetjenesten
Oslo, desember 2012

Hovedfunn

Nasjonalt kunnskapssenter for helsetjenesten fikk i oppdrag fra Helsedirektoratet å utføre et systematisk litteratursøk med påfølgende sortering av relevante publikasjoner om effekt av ikke-kirurgiske behandlingsmetoder på smerte og funksjon hos personer med kjeveleddsdysfunksjon (temporomandibulær dysfunksjon; TMD).

Dette notatet presenterer resultatene fra et litteratursøk etter systematiske oversikter som har oppsummert effekt av ett eller flere ikke-kirurgiske tiltak, publisert i perioden fra 2000 til og med mai 2012.

Hensikten med søket er å gi en oversikt over forskningen på området.

Vi identifiserte totalt 406 referanser. Av disse vurderte vi 51 referanser som relevante for problemstillingen. Vi sorterte de systematiske oversiktene i følgende behandlingskategorier: Akupunktur (n=7), fysioterapi (n=9), injeksjonsbehandling (n=9), kiropraktikk (n=2), medikamentell behandling (n=5), okklusal behandling (n=10), psykologisk behandling (n=4), tverrfaglig behandling (n=1) og 1 studie som omhandlet ulike typer behandling.

I notatet er de systematiske oversiktene listet opp, men vi har ikke vurdert den metodiske kvaliteten eller sammenstilt funn og konklusjoner.

Tittel:

Ikke-kirurgisk behandling for personer med temporomandibular dysfunksjon – systematisk litteratursøk

Publikasjonstype:

Systematisk litteratursøk med sortering

Systematisk litteratursøk med sortering er resultatet av å

- søke etter relevant litteratur ifølge en søkestrategi og
- eventuelt sortere denne litteraturen i grupper presentert med referanser og vanligvis sammendrag

Svarer ikke på alt:

- Ingen kritisk vurdering av studienes kvalitet
- Ingen analyse eller sammenfatning av studiene
- Ingen anbefalinger

Hvem står bak denne publikasjonen?

Kunnskapssenteret har gjennomført oppdraget etter forespørsel fra Helsedirektoratet

Når ble litteratursøket utført?

Søk etter studier ble avsluttet mai 2012.

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Forord

Nasjonalt kunnskapssenter for helsetjenesten fikk i mars 2012 i oppdrag fra Helse-
direktoratet å oppsumme tilgjengelig forskning om effekt av behandling for pasien-
ter med kjeveleddsdisfunksjon (temporomandibulær disfunksjon; TMD). Dette
notatet gir en oversikt over hva som finnes av oppsummert forskning om effekt av
ulike ikke-kirurgiske behandlingstiltak ved TMD. Effekt av kirurgiske behandlings-
tiltak foreligger i en egen kunnskapsoppsummering.

Oppdraget er utført internt ved Kunnskapssenteret, med en prosjektgruppe
bestående av:

- Vegard Strøm, prosjektleder
- Therese Kristine Dalsbø, seniorrådgiver
- Lise Lund Håheim, seniorforsker
- Ingvild Kirkehei, forskningsbibliotekar

Gro Jamtvedt
Avdelingsdirektør

Liv Merete Reinar
Seksjonsleder

Vegard Strøm
Prosjektleder

Problemstilling

Følgende problemstilling ligger til grunn for litteratursøket:

Hva finnes av oppsummert forskning om effekt av ikke-kirurgisk behandling på smerte og funksjon hos personer med temporomandibulær dysfunksjon (TMD).

Innledning

Temporomandibulær dysfunksjon (TMD), eller kjeveledds-dysfunksjon, er en fellesbetegnelse på en sammensatt gruppe av tilstander som involverer kjeveleddet (temporomandibulærleddet), kjeveleddsmuskulaturen og de omkringliggende strukturer.

Forekomsten av symptomer og tegn på TMD er forholdsvis vanlig i den generelle befolkningen. Det er rapportert at opp mot 75 % har minst ett objektivt tegn på TMD, og at mellom 5 % og 33 % rapporterer subjektive symptomer [1,2]. I Norge er forekomsten av TMD ikke kartlagt, men det antas at om lag 60-80 personer er plaget med invalidiserende TMD (Helsedir., personlig meddelelse).

TMD karakteriseres ved en rekke kliniske tegn, som muskel- og/eller kjeveleddsmerte, ømhet i tyggemuskulaturen, kjeveleddslyder (klikkelyder) og begrenset eller avvikende gapeevne [2]. Unilateral ansiktssmerte og redusert bevegelse og funksjon i underkjeven er de vanligste rapporterte symptomene ved TMD [3]. Smertene er ofte utstrålende mot ører og nakke, som gjerne utløses av bevegelser i kjeven. Symptomene går oftest over av seg selv etter en tid. Men hos 5-10 % av de som er plaget, er tilstanden så alvorlige at det er behov for behandling [3,4].

Behandlingen av TMD er i hovedsak innrettet mot å minske smerte og ubehag, gi de som er rammet støtte til å mestre smerten, korrigere belastningsforholdene i kjeveleddet, forbedre funksjons- og bevegelseevnen i kjeveleddet, samt redusere risikoen for at sykdommen kommer tilbake [5]. Ikke-kirurgiske behandlingsmetoder omfatter gjerne fysioterapi, farmakoterapi, injeksjonsbehandling, fysikalsk medisinsk behandling, tannregulering/bittjustering, avspennings- og avlastningsterapi, atferdsterapi, eller kombinasjoner av disse.

I dette notatet gir vi en oversikt over oppsummert forskning, dvs. systematiske oversikter, om ikke-kirurgiske behandlingsmetoder ved TMD som er publisert fra og med 2000. Oversikten vil kunne gi et bedre beslutningsgrunnlag for valg av tiltak.

Metode

Litteratursøking

Vi søkte etter systematiske oversikter i følgende databaser:

- Embase
- Medline
- Cochrane Library

Forskningsbibliotekar (IK) planla og utførte samtlige søk. Den fullstendige søkestrategien for alle databasene og med søkeordene som ble benyttet er tilgjengelig i vedlegg til dette notatet. Søk etter studier ble avsluttet i mai 2012.

Vi la bestillingen til grunn ved utarbeiding av litteratursøket og søkte etter systematiske oversiktsartikler som oppfylte våre inklusjonskriterier for populasjon og intervensjon. Det ble brukt filter for studiedesign i søkene. Kun referanser fra og med år 2000 ble tatt med.

Inklusjonskriterier

Populasjon:	Pasienter med temporomandibular dysfunksjon
Tiltak:	Behandling med ikke-kirurgiske tiltak
Sammenlikning:	Annen behandling
Utfall:	Ikke presisert
Studiedesign	Systematiske oversikter
Språk / publikasjonsår:	Ikke avgrenset / 2000-2012

Artikkelutvelging

Tre personer fra prosjektgruppa (VS, TKD og LLH) gikk, i lesepar, gjennom alle titler og sammendrag for å vurdere relevans i henhold til inklusjonskriteriene. Vurderingene ble gjort uavhengig av hverandre og sammenlignet i etterkant. Der det var uenighet om vurderingene, ble inklusjon eller eksklusjon avgjort ved konsensus.

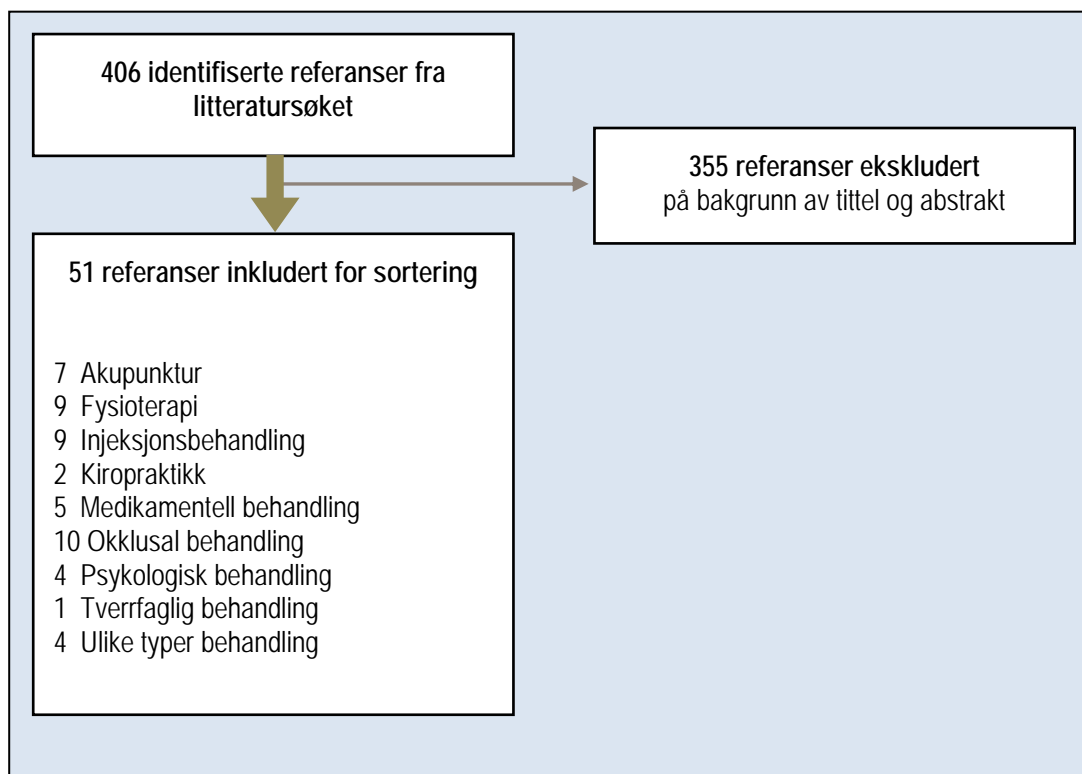
Resultat

Resultat av litteratursøk

Søket i de ulike databasene resulterte i 406 referanser. Vi vurderte 51 av de identifiserte referansene til å være mulig relevante i henhold til inklusjonskriteriene [6-56]. Sammendrag av de inkluderte referansene finnes i Vedlegg 2.

I flytskjemaet nedenfor fremgår det forenklet hvor mange treff vi fikk og hvordan vi grupperte/sorterte dem.

Hovedårsakene til eksklusjon av referansene var at oversiktene ikke undersøkte effekt av behandlingstiltak, at det i sammendraget ikke var redegjort for en systematisk metode for identifisering av litteratur, eller at det ikke var redegjort for at det ble brukt en metode for kritisk å vurdere kvaliteten til den inkluderte forskningen.



Figur 1. Flytskjema over identifisert og sortert litteratur

Sortering av de relevante inkluderte referansene

De relevante inkluderte referansene ble sortert i ni kategorier ut fra type behandling (se Tabell 1).

Tabell 1: Inkluderte systematiske oversiktsartikler sortert alfabetisk etter behandlingstype

Behandlingstype	Antall referanser	Se side
Akupunktur	7	10
Fysioterapi	9	12
<i>Biofeedback</i>	1	
<i>Fysisk trening</i>	2	
<i>Lasertterapi</i>	3	
<i>Ulike typer</i>	3	
Injeksjonsbehandling	9	15
<i>Botulinumtoxin</i>	2	
<i>Hyaluronsyre (sodium hyaluronate)</i>	5	
<i>Ulike typer</i>	2	
Kiropraktikk	2	19
Medikamentell behandling	5	19
<i>Antidepressiva</i>	1	
<i>NSAID's</i>	1	
<i>Ulike typer</i>	3	
Okklusal behandling	10	21
<i>Bittjustering</i>	5	
<i>Stabiliseringsskinner</i>	5	
Psykologisk behandling	4	25
Tverrfaglig behandling	1	27
Ulike typer behandling	4	28

Sammendrag av inkluderte oversiktsartikler

Nedenfor følger sammendrag av de inkluderte studiene, alfabetisk ordnet etter behandlingstype med nyeste referanse først innen hver gruppe.

- [6] **Jung A, Shin B-C, Lee MS, Sim H, Ernst E. Acupuncture for treating temporomandibular joint disorders: A systematic review and meta-analysis of randomized, sham-controlled trials. Journal of Dentistry 2011;39(5):341-50.**
Abstract: Objective: The aim of this article was to assess the clinical evidence for or against acupuncture and acupuncture-like therapies as treatments for temporomandibular joint disorder (TMD). Data: This systematic review includes randomized clinical trials (RCTs) of acupuncture as a treatment for TMD compared to sham acupuncture. The search terms were selected according to medical subject heading (MeSH). Sources: Systematic searches were conducted in 13 electronic databases up to July 2010; Medline, PubMed, The Cochrane Library 2010 (Issue 7), CINAHL, EMBASE, seven Korean Medical Databases and a Chinese Medical Database. Study selection: All parallel or cross-over RCTs of acupuncture for TMD were searched without language restrictions. Studies in which no clinical data and complex interventions were excluded. Finally, total of 7 RCTs met our inclusion criteria. Conclusions: In conclusion, our systematic review and meta-analysis demonstrate that the evidence for acupuncture as a symptomatic treatment of TMD is limited. Further rigorous studies are, however, required to establish beyond doubt whether acupuncture has therapeutic value for this indication. 2011 Elsevier Ltd. All rights reserved. Notes: DB – Embase
- [7] **Cho SH, Whang WW. Acupuncture for temporomandibular disorders: a systematic review. J Orofac Pain 2010;24(2):152-62.**
Abstract: AIMS: To assess the effectiveness of acupuncture for the symptomatic treatment of temporomandibular disorders (TMD) from a review of studies using randomized controlled trials (RCTs). METHODS: Electronic databases were systematically searched for articles reporting RCTs investigating acupuncture for TMD. The methodological qualities of eligible studies were assessed using the criteria described in the Cochrane Handbook. RESULTS: Nineteen reports were systematically reviewed. There was moderate evidence that classical acupuncture had a positive influence beyond those of placebo (three trials, 65 participants); had positive effects similar to those of occlusal splint therapy (three trials, 160 participants); and was more effective for TMD symptoms than physical therapy (four trials, 397 participants), indomethacin plus vitamin B1 (two trials, 85 participants), and a wait-list control (three trials, 138 participants). Only two RCTs addressed adverse events and reported no serious adverse events. CONCLUSION: This systematic review noted moderate evidence that acupuncture is an effective intervention to reduce symptoms associated with TMD. There is a need for acupuncture trials with adequate sample sizes that address the long-term efficacy or effectiveness of acupuncture
Notes: DB - Embase
- [8] **La Touche R, Goddard G, De-La-Hoz JL, Wang K, Paris-Aleman A, Angulo-Diaz-Parreno S, et al. Acupuncture in the treatment of pain in temporomandibular disorders: A systematic review and meta-analysis of randomized controlled trials. Clin J Pain 2010;26(6):541-50.**
Abstract: Objectives: The aim of this study is to perform a qualitative and quantitative analysis of the scientific literature regarding the use of acupuncture in the treatment of pain associated with temporomandibular disorders (TMDs). Methods: By using electronic databases, the goal was to search and evaluate all the randomized controlled trials (RCTs) in which acupuncture was used in the management of pain attributed to these clinical entities. For the meta-analysis, an adequate description of the results' statistical data was required along with a comparison of the treatment with a control group using a placebo or sham. Two independent reviewers evaluated the quality of the studies using the Jadad scale. Results: A total of 8 RCTs were selected, and the quality of only 4 was considered acceptable. These 4 studies showed positive results such as reducing pain, improving masticatory function, and increasing maximum interincisal opening. By combining the studies (n=96) and analyzing the results, it was concluded that acupuncture is more effective than placebo in reducing pain intensity in TMD (standardized mean difference 0.83; 95% confidence interval, 0.41-1.25; P=0.00012). Discussion: The results of this meta-analysis suggest that acupuncture is a reasonable adjunctive treatment for producing a short-term analgesic effect in patients with painful TMD symptoms. Although the results described are positive, the relevance of these results was limited by the fact that substantial bias was present. These findings must be confirmed by future RCTs that improve the methodologic deficiencies of the studies evaluated in this meta-analysis. 2010 Lippincott Williams & Wilkins. Notes: DB - Embase
- [9] **La Touche R, Angulo-Diaz-Parreno S, De-La-Hoz JL, Fernandez-Carnero J, Ge H-Y, Linares MT, et al. Effectiveness of acupuncture in the treatment of temporomandibular disorders of muscular origin: A systematic review of the last decade. Journal of Alternative and Complementary Medicine 2010;16(1):107-**

12.

Abstract: Objective: The purpose of this review is to evaluate the effectiveness of using acupuncture treatment for temporomandibular disorders (TMD) of muscular origin according to research published in the last decade. **Methods:** The information was gathered using the MEDLINE, EMBASE, CINAHL, and CISCOP databases. The inclusion criteria for selecting the studies were the following: (1) only randomized controlled trials (RCTs) were selected; (2) studies had to be carried out on patients with TMD of muscular origin; (3) studies had to use acupuncture treatment; and (4) studies had to be published in scientific journals between 1997 and 2008. Two (2) independent reviewers analyzed the methodological quality of the studies using the Delphi list. A total of four RCTs were chosen once the methodological quality was judged as being acceptable. All of the studies included in the review compared the acupuncture treatment with a placebo treatment. All of them described results that were statistically significant in relation to short-term improvement of TMD signs and symptoms of a muscular origin, except one of the analyzed studies that found no significant difference between acupuncture and sham acupuncture. **Conclusions:** In the authors' opinion, research into the long-term effects of acupuncture in the treatment of TMD is needed. We also recommend larger samples sizes for future studies, so the results will be more reliable. 2010, Mary Ann Liebert, Inc. 2010. Notes: DB - Embase

[10] **Itoh K, Kitakoji H. Acupuncture for chronic pain in Japan: A review. Evidence-based Complementary and Alternative Medicine 2007;4(4):431-8.**

Abstract: Many Japanese reports of acupuncture and moxibustion for chronic pain are not listed in medical databases such as Medline. Therefore, they are not easily accessible to researchers outside of Japan. To complement existing reviews of acupuncture and moxibustion for chronic pain and to provide more detailed discussion and analysis, we did a literature search using 'Igakyo Chuo Zasshi Wed' (Japan Centra Revuo Medicina) and 'Citation Information by National Institute of Information' covering the period 1978-2006. Original articles and case reports of acupuncture and moxibustion treatment of chronic pain were included. Animal studies, surveys, and news articles were excluded. Two independent reviewers extracted data from located articles in a pre-defined structured way, and assessed the likelihood of causality in each case. We located 57 papers written in Japanese (20 full papers, 37 case reports). Conditions examined were headache (12 trials), chronic low back pain (9 trials), rheumatoid arthritis (8 trials), temporomandibular dysfunction (8 trials), katakori (8 trials) and others (12 trials). While 23 were described as clinical control trials (CCTs), 11 employed a quasi-random method. Applying the 5-point Jadad quality assessment scoring system, the mean score was 1.5 +/- 1.3 (SD). Eleven (52%) of the CCTs were conducted to determine a more effective procedure for acupuncture; these compared a certain type of acupuncture with another type of acupuncture or specific additional points. In particular, the trigger point acupuncture was widely used to treat chronic low back pain in Japan. Many reports of chronic pain treatment by acupuncture and moxibustion are listed in Japanese databases. From the data, we conclude that there is limited evidence that acupuncture is more effective than no treatment, and inconclusive evidence that trigger point acupuncture is more effective than placebo, sham acupuncture or standard care. 2007 The Author(s)

Notes: DB - Embase

[11] **Fink M, Rosted P, Bernateck M, Stiesch-Scholz M, Karst M. Acupuncture in the treatment of painful dysfunction of the temporomandibular joint: a review of the literature. Forschende Komplementarmedizin 2006;13:109-15.**

Notes: Cochrane ID: DARE-12006003636. Provisional abstract.

Record Available: <http://www.mrw.interscience.wiley.com/cochrane/cldare/articles/DARE-12006003636/frame.html>

[12] **Rosted P. Practical recommendations for the use of acupuncture in the treatment of temporomandibular disorders based on the outcome of published controlled studies. Oral Dis 2001;7(2):109-15.**

Abstract: OBJECTIVE: The objective is to analyse the treatment procedures used in the individual studies to identify any similarities of therapeutic approaches and subsequently present recommendations for a standard acupuncture procedure for the treatment of temporomandibular disorders (TMD). MATERIALS: Literature searches performed by the Royal Society of Medicine and the University Library, Copenhagen were able to identify 74 publications regarding the use of acupuncture in dentistry. Among them 14 papers concerned the use of acupuncture in the treatment of TMD. To ensure reasonable methodological soundness of the involved studies, only randomised and blinded studies were included, which reduced the number of papers to six. Among these six papers three concerns the same study and were counted as one. One paper was a follow-up of a previous study and for this purpose counted as one. METHODS: All publications were analysed for the following information: acupuncture points used, type of stimulation,

number of treatments, duration of the individual treatment and the interval between the individual treatments. MAIN OUTCOME: Acupuncture has in three out of three randomised controlled trials (RCT) proved effective for the treatment of TMD. The following local acupuncture points are recommended for the treatment of TMD: ST-6, ST-7, SI-18, GV-20, GB-20, BL-10. As a distant point LI-4 is recommended. After inserting the needles they should be manipulated manually to achieve the De-qui sensation and left in situ for 30 min. Treatment should be given weekly and a total number of six treatments is recommended. Notes: DB - Embase

Fysioterapi

Biofeedback

- [13] **Crider A, Glaros AG, Gevirtz RN. Efficacy of biofeedback-based treatments for temporomandibular disorders. Applied Psychophysiology & Biofeedback 2005;30(4):333-45.**

Abstract: Bibliographic searches identified 14 controlled and uncontrolled outcome evaluations of biofeedback-based treatments for temporomandibular disorders published since 1978. This literature includes two randomized controlled trials (RCTs) of each of three types of biofeedback treatment: (1) surface electromyographic (SEMG) training of the masticatory muscles, (2) SEMG training combined with adjunctive cognitive-behavioral therapy (CBT) techniques, and (3) biofeedback-assisted relaxation training (BART). A detailed review of these six RCTs, supplemented with information from non-RCT findings, was conducted to determine the extent to which each type of intervention met treatment efficacy criteria promulgated by the Association for Applied Psychophysiology and Biofeedback (AAPB). We conclude that SEMG training with adjunctive CBT is an efficacious treatment for temporomandibular disorders and that both SEMG training as the sole intervention and BART are probably efficacious treatments. We discuss guidelines for designing and reporting research in this area and suggest possible directions for future studies. [References: 30] Notes: DB - Ovid MEDLINE(R)

Fysisk trening

- [14] **Friction J, Velly A, Ouyang W, Look JO. Does exercise therapy improve headache? A systematic review with meta-analysis. Current Pain and Headache Reports 2009;13(6):413-9.**

Abstract: Therapeutic exercise is one of the most common physical medicine treatments and is recommended by many clinicians for a variety of musculoskeletal conditions. Many forms of therapeutic exercise have been evaluated and described in the scientific literature, including range of motion, isometric, postural, relaxation, strengthening, and aerobic. They are designed to stretch, relax, and improve posture and strength of the muscles, with the goal of improving tenderness, pain, function, and health [17]. However, the use of exercise to manage headaches is low, perhaps because of the lack of understanding of the effectiveness and mechanism of exercise for headache disorders such as tension-type headache (TTH). Yet, a number of studies have examined exercise to improve both TTH and temporomandibular disorder (TMD) muscle pain, which can provide us some answers. This commentary presents the results of a systematic review of randomized controlled trials (RCTs) that help shed light on whether exercise will improve headache and TMD muscle pain. 2009 by Current Medicine Group LLC
Notes: DB - Embase

- [15] **Chortis AG, Chorti AG, Forrester G, Georgoudis G. Therapeutic exercise in the management of anterior disc displacement of the temporomandibular joint. Physical Therapy Reviews 2006;11:117-23.**

CRD summary: This review concluded that therapeutic exercise may be of value in terms of pain, functional impairment and joint sounds, but there is insufficient evidence to determine its efficacy in the management of anterior disc displacement. The authors' cautious conclusions appear to be supported by the limited evidence presented. Authors' objectives: To assess the efficacy of exercise for the management of anterior disc displacement of the temporomandibular joint. Searching: The Cochrane Library (Issue 4, 2005), MEDLINE and CINAHL were searched for English language articles from 1990 to November 2005; the search terms were reported. The reference lists of retrieved articles were screened for additional studies. Study selection: Studies comparing any type of therapeutic exercise aimed at the conservative management of anterior disc displacement, with placebo or no intervention, were eligible for inclusion. The authors did not specify which types of outcomes or studies were eligible for inclusion. Participants had to have a diagnosis of anterior disc displacement, with or without reduction of the temporomandibular joints; diagnoses based purely on clinical examination were excluded from the review. Studies were also excluded if exercise was used pre- or post-operatively or combined with other interventions. The included studies compare a single exercise intervention with

no interventions, or active and passive exercise/correction of posture and relaxation techniques, with a waiting list control. Follow-up was either 3 or 6 months, and both males and females with a mean age of 33.1 or 37.3 years (where stated) were included. Two studies included patients with anterior disc displacement with reduction (ADDWR) and one with anterior disc displacement without reduction (ADDWoR). The reported outcomes included disappearance of clicking, reduction in pain, improvements in function, and adverse events. The authors did not state how the papers were selected for the review, or how many reviewers performed the selection. Validity assessment: The validity of the studies was assessed using a modified version of the Downs and Black checklist. This checklist comprises 27 criteria assessing the quality of reporting, external validity, internal validity (bias and confounding) and statistical power. Two reviewers independently assessed validity and any disagreements were resolved through consensus. Data extraction: The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Methods of synthesis: The studies were summarised using a narrative synthesis and data tables. Some differences between the studies were evident from the data tables and text. Results of the review: Three studies (n=92), comprising one randomised controlled trial (RCT) and two before-and-after studies, were included in the review. The RCT (n=42) fulfilled 17 of the 27 quality criteria, and the two before-and-after studies both fulfilled 6 criteria. All three studies reported that exercise was beneficial in patients with ADDWR (two studies) or ADDWoR (one study). The RCT of ADDWR, reported a reduction in reciprocal clicking and a greater success rate (61.9% versus 0%) compared with a no intervention control. A second ADDWR study reported an overall success rate of 75% for exercise, with pain and functional impairment being significantly reduced both after exercise and after 6 months' follow-up. The study of ADDWoR reported an overall success rate of 85%, with significant improvements in jaw functioning and mouth opening after exercise. Cost information: This review answered a clear question, though eligible outcome measures and study designs were not defined. An adequate search for published material was carried out, but there may be some risk of publication and language bias, owing to the exclusion of non-English language reports and the lack of any specific searches for unpublished material. Some attempts were made to reduce the risk of reviewer error and bias whilst assessing the validity of the studies, but it is unclear whether similar care was taken when selecting studies and extracting the study data. Given the small number of included studies and the different populations, interventions and study designs, a narrative synthesis appears appropriate. Overall, given the limited evidence available, the authors' cautious conclusions and recommendations for further research appear reliable. **Authors' conclusions:** Therapeutic exercise may be of value in terms of pain, functional impairment and joint sounds, but there is insufficient evidence to determine its efficacy in the management of anterior disc displacement. CRD commentary: This review answered a clear question, though eligible outcome measures and study designs were not defined. An adequate search for published material was carried out, but there may be some risk of publication and language bias, owing to the exclusion of non-English language reports and the lack of any specific searches for unpublished material. Some attempts were made to reduce the risk of reviewer error and bias whilst assessing the validity of the studies, but it is unclear whether similar care was taken when selecting studies and extracting the study data. Given the small number of included studies and the different populations, interventions and study designs, a narrative synthesis appears appropriate. Overall, given the limited evidence available, the authors' cautious conclusions and recommendations for further research appear reliable. Implications of the review for practice and research Practice: The authors stated that the current evidence only supplies a small insight for clinical practice. A definite, optimal therapeutic approach for physiotherapy practice could not be determined. Research: The authors stated that further well-designed RCTs are needed to determine the methods of providing exercise treatment and which types of exercise are most beneficial in anterior disc replacement. Funding: Not stated. Record status: This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn. CRD database number: DARE-12006008596. Index terms Medical Subject Headings (MeSH) [Subject indexing assigned by CRD]. Record Available: <http://www.mrw.interscience.wiley.com/cochrane/cldare/articles/DARE-12006008596/frame.html>

Laserterapi

- [16] **Daia H, Crow HC, Mang TS. Review of the literature: Low level laser therapy in the treatment of temporomandibular disorders. Lasers in Surgery and Medicine 2011;Conference(var.pagings):967.**

Abstract: Background: Low level laser therapy (LLLT) has been used for over two decades in the treatment of temporomandibular disorders (TMD). This review of the literature evaluates the current evidence for the use of LLLT as a treatment modality in treating patients with TMD. Study: The literature was searched for published clinical trials or retrospective studies including participants with one or more TMD diagnoses, and using LLLT in the treatment. Twenty studies

were identified, 2 retrospective studies and 17 clinical trials. These studies were evaluated and discussed. Results: All retrospective studies and 9 out of the 17 clinical trials had positive results. Studies with negative results are most likely due to insufficient dosing or improper design. Conclusion: LLLT can be considered as an alternative physical medicine modality in treating patients with TMD. State of the art dosing is suggested. More studies are needed to define the ultimate dose specific to each TMD condition
Notes: 70640323. English. Journal: Conference Abstract

- [17] **Petrucci A, Sgolastra F, Gatto R, Mattei A, Monaco A. Effectiveness of low-level laser therapy in temporomandibular disorders: a systematic review and meta-analysis. J Orofac Pain 2011;25(4):298-307.**

Abstract: To assess the scientific evidence on the efficacy of low-level laser therapy (LLLT) in the treatment of temporomandibular disorders (TMD). The databases of PubMed, Science Direct, Cochrane Clinical Trials Register, and PEDro were manually and electronically searched up to February 2010. Two independent reviewers screened, extracted, and assessed the quality of the publications. A meta-analysis- was performed to quantify the pooled effect of LLLT on pain and function in patients with chronic TMD. The literature search identified 323 papers without overlap between selected databases, but after the two-phase study selection, only six randomized clinical trials (RCT) were included in the systematic review. The primary outcome of interest was the change in pain from baseline to endpoint. The pooled effect of LLLT on pain, measured through a visual analog scale with a mean difference of 7.77 mm (95% confidence interval [CI]: -2.49 to 18.02), was not statistically significant from placebo. Change from baseline to endpoint of secondary outcomes was 4.04 mm (95% CI 3.06 to 5.02) for mandibular maximum vertical opening; 1.64 mm (95% CI 0.10 to 3.17) for right lateral excursion and 1.90 mm (95% CI: -4.08 to 7.88) for left lateral excursion. Currently, there is no evidence to support the effectiveness of LLLT in the treatment of TMD. Notes: DB – Embase

- [18] **Bjordal JM, Couppe C, Chow RT, Tuner J, Ljunggren EA. A systematic review of low level laser therapy with location-specific doses for pain from chronic joint disorders. Australian Journal of Physiotherapy 2003;49(2):107-16.**

Abstract: We investigated if low level laser therapy (LLLT) of the joint capsule can reduce pain in chronic joint disorders. A literature search identified 88 randomised controlled trials, of which 20 trials included patients with chronic joint disorders. Six trials were excluded for not irradiating the joint capsule. Three trials used doses lower than a dose range nominated a priori for reducing inflammation in the joint capsule. These trials found no significant difference between active and placebo treatments. The remaining 11 trials including 565 patients were of acceptable methodological quality with an average PEDro score of 6.9 (range 5-9). In these trials, LLLT within the suggested dose range was administered to the knee, temporomandibular or zygapophyseal joints. The results showed a mean weighted difference in change of pain on VAS of 29.8 mm (95% CI, 18.9 to 40.7) in favour of the active LLLT groups. Global health status improved for more patients in the active LLLT groups (relative risk of 0.52; 95% CI 0.36 to 0.76). Low level laser therapy with the suggested dose range significantly reduces pain and improves health status in chronic joint disorders, but the heterogeneity in patient samples, treatment procedures and trial design calls for cautious interpretation of the results. Notes: DB - Embase

Ulike typer

- [19] **McNeely ML, Olivo SA, Magee DJ. A systematic review of the effectiveness of physical therapy interventions for temporomandibular disorders. Physical Therapy 2006;86(5):710-25.**

Abstract: Background and Purpose. The purpose of this qualitative systematic review was to assess the evidence concerning the effectiveness of physical therapy interventions in the management of temporomandibular disorders. Methods. A literature search of published and unpublished articles resulted in the retrieval of 36 potential articles. Results. Twelve studies met all selection criteria for inclusion in the review: 4 studies addressed the use of therapeutic exercise interventions, 2 studies examined the use of acupuncture, and 6 studies examined electrophysical modalities. Two studies provided evidence in support of postural exercises to reduce pain and to improve function and oral opening. One study provided evidence for the use of manual therapy in combination with active exercises to reduce pain and to improve oral opening. One study provided evidence in support of acupuncture to reduce pain when compared with no treatment; however, in another study no significant differences in pain outcomes were found between acupuncture and sham acupuncture. Significant improvements in oral opening were found with muscular awareness relaxation therapy, biofeedback training, and low-level laser therapy treatment. Discussion and Conclusion. Most of the studies included in this review were of very poor methodological quality; therefore, the findings should be interpreted with caution. Notes: DB - Embase

- [20] **Medlicott MS, Harris SR. A systematic review of the effectiveness of exercise, manual therapy, electrotherapy, relaxation training, and biofeedback in the management of temporomandibular disorder. *Physical Therapy* 2006;86(7):955-73.**
 Abstract: Background and Purpose. This systematic review analyzed studies examining the effectiveness of various physical therapy interventions for temporomandibular disorder. Methods. Studies met 4 criteria: (1) subjects were from 1 of 3 groups identified in the first axis of the Research Diagnostic Criteria for Temporomandibular Disorders, (2) the intervention was within the realm of physical therapist practice, (3) an experimental design was used, and (4) outcome measures assessed one or more primary presenting symptoms. Thirty studies were evaluated using Sackett's rules of evidence and 10 scientific rigor criteria. Four randomly selected articles were classified independently by 2 raters (interrater agreement of 100% for levels of evidence and 73.5% for methodological rigor). Results. The following recommendations arose from the 30 studies: (1) active exercises and manual mobilizations may be effective; (2) postural training may be used in combination with other interventions, as independent effects of postural training are unknown; (3) mid-laser therapy may be more effective than other electrotherapy modalities; (4) programs involving relaxation techniques and biofeedback, electromyography training, and proprioceptive re-education may be more effective than placebo treatment or occlusal splints; and (5) combinations of active exercises, manual therapy, postural correction, and relaxation techniques may be effective. Discussion and Conclusion. These recommendations should be viewed cautiously. Consensus on defining temporomandibular joint disorder, inclusion and exclusion criteria, and use of reliable and valid outcome measures would yield more rigorous research. Notes: DB - Embase
- [21] **Jedel E, Carlsson J. Biofeedback, acupuncture and transcutaneous electric nerve stimulation in the management of temporomandibular disorders: a systematic review. *Physical Therapy Reviews* 2003;8(4):217-23.**
 Abstract: The aim of this systematic review was to assess the efficacy of biofeedback, acupuncture and transcutaneous electric nerve stimulation in the management of temporomandibular disorders. Articles evaluating the efficacy of biofeedback, acupuncture and transcutaneous electric nerve stimulation in temporomandibular disorders were obtained from the databases Medline, Cinahl, Embase, PsycINFO and Cochrane Controlled Trials register up to May 2002. Seven controlled clinical trials met the criteria for inclusion. The patients included in the studies ranged from 19-100. Three studies assessed the efficacy of biofeedback, three studies assessed the efficacy of acupuncture and one study assessed the efficacy of transcutaneous electric nerve stimulation. A criteria list was used to assess the internal validity of these studies. The studies were considered to be of high quality if at least five of the ten criteria were fulfilled and otherwise were considered to be low quality. The results of the studies were considered positive, negative or indifferent based on the statistical significance of between-group differences. None of the seven studies were of high quality. An analysis of the degree of evidence of the results revealed no evidence for the efficacy of biofeedback, acupuncture or transcutaneous electric nerve stimulation in the management of temporomandibular disorders
 Notes: DB - AMED

Injeksjonsbehandling

Butolinumtoxin

- [22] **Linde M, Hagen K, Stovner LJ. Botulinum toxin treatment of secondary headaches and cranial neuralgias: a review of evidence. *Acta neurologica Scandinavica* 2011;Supplementum.(191):50-5.**
 Abstract: Recent scientific data support an effect of botulinum neurotoxin (BoNT) on pain and headache. We sought to conduct a systematic review of BoNT in the secondary headaches and cranial neuralgias. MEDLINE, EMBASE, Cochrane, ClinicalTrials.gov and reference lists were searched up to December 2010 to identify all relevant publications. Only two papers were rated as highest evidence (Level 1). The absolute majority (30/38, 79%) of identified publications yield only low evidence (Level 4). No treatment recommendations of Grade A or Grade B can be made based on available research. Grade C treatment recommendations in support of BoNT can be made for chronic headache attributed to whiplash injury, cephalalgic alopecia areata, headache and facial pain in blepharospasm, trigeminal neuralgia, occipital neuralgia and nummular headache. As a result of studies being troublingly inconsistent or inconclusive, only the weakest rank of recommendations (Grade D) can be made for using BoNT in medication overuse headache, cervicogenic headache, headache attributed to craniocervical dystonia, pain in masticatory hyperactivity and headache or facial pain attributed to temporomandibular disorder. At present, BoNT cannot be firmly recommended as an evidence-based treatment in secondary headaches or cranial neuralgias. 2011 John Wiley & Sons A/S. Notes: DB – Embase

- [23] **Sin G, Banks R. Botulinum toxin A for the treatment of trigeminal neuralgia and temporomandibular joint dysfunction: a review of the clinical-effectiveness.: Canadian Agency for Drugs and Technologies in Health (CADTH); 2009.**
Notes: Cochrane ID: HTA-32011001252

Hyaluronatsyre

- [24] **Colen S, Haverkamp D, Mulier M, Van Den Bekerom MPJ. Hyaluronic acid for the treatment of osteoarthritis in all joints except the Knee: What is the current evidence? BioDrugs 2012;26(2):101-12.**

Abstract: Background: The use of intra-articular hyaluronic acid (HA) is a well known treatment in patients with knee osteoarthritis (OA). In other joints, less evidence is available about the efficacy of treatment with intraarticular HA. HA is also used intra-articularly in the metatarsophalangeal-1 joint, the ankle, the hip, the sacroiliac joint, the facet joints, the carpometacarpal-1 joint, the shoulder and the temporo-mandibular joint. In this systematic review we include all prospective studies about the effects of intra-articularHAin the above-mentioned joints. Its use in the knee joint, however, will be discussed in a separate article in this journal. Methods: A systematic review was conducted using databases including MEDLINE, Cochrane Database of Systematic Reviews, Cochrane Clinical Trial Register, and EMBASE. Results: After performing a solid systematic review using a rigid methodology and trying to pool the outcomes of different studies, we noticed that, compared with baseline, there is statistical evidence for a positive effect of intra-articular HA. However, there is limited evidence HA is superior to placebo and no evidence that intra-articular HA is better than corticosteroids or other conservative therapies. Conclusion: Our recommendation for future research is that one should focus on adequately powered randomized trials comparingHAtreatment with other types of intra-articular or conservative treatment.We think it is useless to further perform and publish (large) non-comparative prospective studies about the use of HA in the treatment of problems caused by OA. It is well perceived that HA exerts positive effects in the treatment of OA, but up to now there is no (strong) evidence available that HA is superior to other treatments of OA such as corticosteroids, physiotherapy or other conservative measures. 2012 Adis Data Information BV. All rights reserved. Notes: DB – Embase

- [25] **Li C, Zhang Y, Jia Y, Lu J, Li L, Shi ZD. [Hyaluronate sodium treatment for internal derangement of temporomandibular joint: a systematic review based on randomized controlled trials]. [Chinese]. Hua Xi Kou Qiang Yi Xue Za Zhi 2011;29(5):488-93.**

Abstract: OBJECTIVE: To assess the efficacy and safety of hyaluronate sodium (HS) for internal derangement of temporomandibular joint by means of systematic review on relevant randomized controlled trials. METHODS: After identifying the study question of the efficacy and safety of HS for internal derangement of temporomandibular joint, Medline, Cochrane Controlled Trials Register, EMBASE, OPEN SIGLE and CBM were searched electronically till October 3rd 2010. Hand-searching covering 19 dental journals in Chinese were also performed. Risk of bias assessment, with Cochrane Collaboration's tool, and data extraction of included studies were conducted by two reviewers in duplicate. Meta analysis was done with Revman 5.0.23 and the quality of evidence was evaluated by GRADE. RESULTS: 10 randomized controlled trials met the eligibility criteria and were included. All these studies had unclear risk of bias. When compared with negative control, HS showed a significant advantage on maximal mouth opening in short and long-term ($P < 0.05$), and clinical overall assessment in short-term ($P < 0.05$), but its effect on pain control and long-term effect on clinical overall assessment had no extra benefit ($P > 0.05$). Additionally, when compared with glucocorticoids, the participants who received HS injection would get a better clinical overall assessment in short-term and less adverse drug reactions ($P < 0.05$), but presented a similar temporomandibular joint pain relief and maximal mouth opening ($P > 0.05$). CONCLUSION: To a certain extent, HS had good efficacy and better safety than controls when treating internal derangement of temporomandibular joint. However, as the quality of some included studies were limited, more randomized controlled trials are needed to reinforce the conclusion. Notes: DB - Ovid MEDLINE(R)

- [26] **Escoda-Francoli J, Vazquez-Delgado E, Gay-Escoda C. Scientific evidence on the usefulness of intraarticular hyaluronic acid injection in the management of temporomandibular dysfunction. Med Oral Patol Oral Cir Bucal 2010;15(4):e644-e648.**

Abstract: Hyaluronic acid (HA) is found in high concentrations in cartilage and synovial fluid, and is an important component of the extracellular matrixes-exerting joint lubrication and buffering actions thanks to its viscoelastic properties. The present study examines the scientific evidence found in the current literature on the usefulness of the intraarticular injection of HA in patients with temporomandibular dysfunction. A literature search was made up until May 2008 in the fol-

lowing databases: PubMed / MEDLINE. Of the articles found in the literature, the present review included 18 relevant studies on the application of HA in the temporomandibular joint (TMJ). The quality, level of evidence and strength of recommendation of the articles was evaluated based on the "Strength of Recommendation Taxonomy" criteria. It is concluded that type A level of recommendation exists in favor of the intraarticular injection of HA in dysfunction of the TMJ. However, further studies are needed to establish the true therapeutic effects and to identify the best dosing regimen. Notes: DB - Ovid MEDLINE(R)

- [27] **Manfredini D, Piccotti F, Guarda-Nardini L. Hyaluronic acid in the treatment of TMJ disorders: a systematic review of the literature. *Cranio : the journal of craniomandibular practice* 2010;28(3):166-76.**

Abstract: Hyaluronate acid (HA) injections are gaining attention as a treatment option to manage symptoms of temporomandibular joint (TMJ) disorders, but updated evidence-based data on their effectiveness are actually lacking. The present paper aims to summarize and review systematically the clinical studies on the use of hyaluronic acid injections to treat TMJ disorders performed over the last decade. On November 9, 2009, a systematic search in the National Library of Medicine's PubMed (<http://www.ncbi.nlm.nih.gov/pubmed>) database was performed by means of a combined MeSH and word terms to identify all peer-reviewed papers published in the English literature dealing with the hyaluronic acid infiltration in patients affected by TMJ disorders. The selected papers were assessed according to a structured reading of articles format, which provided that the study design was methodologically evaluated in relation to four main issues, viz., population, intervention, comparison, and outcome. Nineteen (N=19) papers were selected for inclusion in the review, twelve (N=12) dealt with the use of hyaluronic acid in TMJ disk displacements and seven (N=7) dealt with inflammatory-degenerative disorders. Only nine groups of researchers were involved in the studies, and less than half of the studies (8/19) were randomized and controlled trials (RCTs). All studies reported a decrease in pain levels independently by the patients' disorder and by the adopted injection protocol. Positive outcomes were maintained over the follow-up period, which was varied among studies, ranging between 15 days and 24 months. The superiority of HA injections was shown only against placebo saline injections, but outcomes are comparable with those achieved with corticosteroid injections or oral appliances. The available literature seems to be inconclusive as to the effectiveness of HA injections with respect to other therapeutic modalities in treating TMJ disorders. Studies with a better methodological design are needed to gain better insight into this issue and to draw clinically useful information on the most suitable protocols for each different TMJ disorder
Notes: DB - Embase

- [28] **Shi Z, Guo C, Awad M. Hyaluronate for temporomandibular joint disorders. *Cochrane database of systematic reviews (Online)* 2003;(1):CD002970.**

Abstract: BACKGROUND: Temporomandibular joint disorders (TMD) refer to a group of heterogeneous pain and dysfunction conditions involving the masticatory system, reducing life quality of the sufferers. Intra-articular injection of hyaluronate for TMD has been used for nearly two decades but the clinical effectiveness of the agent has not been summarized in the form of a systematic review. OBJECTIVES: To assess the effectiveness of intra-articular injection of hyaluronate both alone and in combination with other remedies on temporomandibular joint disorders. SEARCH STRATEGY: Intensive electronic and handsearches were carried out. The Oral Health Group's Trials Register (September 2001), The Cochrane Library CENTRAL database (Issue 3, 2001), MEDLINE (1966- May 2001), PubMed (up to March 2002), EMBASE (1974 - August 2001), SIGLE (1980 - December 2001), CBMdisc (1983 - July 2001, in Chinese) and Chinese Medical Library were searched. All the Chinese professional journals in the oral health field were handsearched and conference proceedings consulted. There was no language restriction. SELECTION CRITERIA: Randomized or quasi-randomized controlled trials (RCTs), with single or double blind, design testing the effectiveness of hyaluronate for patients with temporomandibular joint disorders. DATA COLLECTION AND ANALYSIS: Two reviewers independently extracted data, and three reviewers independently assessed the quality of included studies. The first authors of the selected articles were contacted for additional information. MAIN RESULTS: Seven studies were included in the review. Three studies, including 109 patients with temporomandibular disorders, compared hyaluronate with placebo. Long term effects (three months or longer) are in favour of hyaluronate for the improvement of clinical signs/overall improvement of TMD (RR=1.71, 95%CI: 1.05, 2.77) from two of the studies (n=71). However, this conclusion was not stable enough at sensitivity analysis. Three studies provided data from 124 patients for the comparison of hyaluronate with glucocorticoids (one study also included a placebo group). Hyaluronate had the same short term and long term effects on the improvement of symptoms, clinical signs or overall conditions of the disorders as glucocorticoids. When comparing the effect of arthroscopy or arthrocentesis with and without hyaluronate, results were inconsistent. Hyaluronate had a potential in improving arthroscopic evaluation scores. Mild and transient adverse reactions such as discomfort or pain at the injection site were reported in the hyaluronate groups. No quality of life data were reported REVIEWER'S CONCLUSIONS: There

is insufficient, consistent evidence to either support or refute the use of hyaluronate for treating patients with TMD. Further high quality RCTs of hyaluronate need to be conducted before firm conclusions with regard to its effectiveness can be drawn. Notes: DB - Embase

Ulike typer

- [29] **de Souza RF, Lovato da Silva CH, Nasser M, Fedorowicz Z, Al-Muharraqi MA. Interventions for the management of temporomandibular joint osteoarthritis. Cochrane Database Syst Rev 2012;4:CD007261.**
Abstract: BACKGROUND: Osteoarthritis (OA) is the most common form of arthritis of the temporomandibular joint (TMJ), and can often lead to severe pain in the orofacial region. Management options for TMJ OA include reassurance, occlusal appliances, physical therapy, medication in addition to several surgical modalities. OBJECTIVES: To investigate the effects of different surgical and non-surgical therapeutic options for the management of TMJ OA in adult patients. SEARCH METHODS: We searched the following databases: the Cochrane Oral Health Group Trials Register (to 26 September 2011); CENTRAL (The Cochrane Library 2011, Issue 3); MEDLINE via OVID (1950 to 26 September 2011); EMBASE via OVID (1980 to 26 September 2011); and PEDro (1929 to 26 September 2011). There were no language restrictions. SELECTION CRITERIA: Randomised controlled trials (RCTs) comparing any form of non-surgical or surgical therapy for TMJ OA in adults over the age of 18 with clinical and/or radiological diagnosis of TMJ OA according to the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) guideline or compatible criteria. Primary outcomes considered were pain/tenderness/discomfort in the TMJs or jaw muscles, self assessed range of mandibular movement and TMJ sounds. Secondary outcomes included the measurement of quality of life or patient satisfaction evaluated with a validated questionnaire, morphological changes of the TMJs assessed by imaging, TMJ sounds assessed by auscultation and any adverse effects. DATA COLLECTION AND ANALYSIS: Two review authors screened and extracted information and data from, and independently assessed the risk of bias in the included trials. MAIN RESULTS: Although three RCTs were included in this review, pooling of data in a meta-analysis was not possible due to wide clinical diversity between the studies. The reports indicate a not dissimilar degree of effectiveness with intra-articular injections consisting of either sodium hyaluronate or corticosteroid preparations, and an equivalent pain reduction with diclofenac sodium as compared with occlusal splints. Glucosamine appeared to be just as effective as ibuprofen for the management of TMJ OA. AUTHORS' CONCLUSIONS: In view of the paucity of high level evidence for the effectiveness of interventions for the management of TMJ OA, small parallel group RCTs which include participants with a clear diagnosis of TMJ OA should be encouraged and especially studies evaluating some of the possible surgical interventions. Notes: DB - Ovid MEDLINE(R)
- [30] **Li C, Zhang Y, Lv J, Shi Z. Inferior or double joint spaces injection versus superior joint space injection for temporomandibular disorders: A systematic review and meta-analysis. J Oral Maxillofac Surg 2012;70(1):37-44.**
Abstract: To compare the effect and safety of inferior or double temporomandibular joint spaces drug injection versus superior temporomandibular joint space injection in the treatment of temporomandibular disorders. MEDLINE (via Ovid, 1948 to March 2011), CENTRAL (Issue 1, 2011), Embase (1984 to March 2011), CBM (1978 to March 2011), and World Health Organization International Clinical Trials Registry Platform were searched electronically; relevant journals as well as references of included studies were hand-searched for randomized controlled trials comparing effect or safety of inferior or double joint spaces drug injection technique with those of superior space injection technique. Risk of bias assessment with the tool recommended by Cochrane Collaboration, reporting quality assessment with CONSORT and data extraction, were carried out independently by 2 reviewers. Meta-analysis was delivered with RevMan 5.0.23. Four trials with 349 participants were included. All the included studies had moderate risk of bias. Meta-analysis showed that inferior or double spaces injection technique could significantly increase 2.88 mm more maximal mouth opening ($P = .0001$) and alleviate pain intensity in the temporomandibular area on average by 9.01 mm visual analog scale scores ($P = .0001$) compared with superior space injection technique, but could not markedly change synthesized clinical index ($P = .05$) in the short term; nevertheless, they showed more beneficial maximal mouth opening ($P = .002$), pain relief ($P < .0001$), and synthesized clinical variable ($P < .0001$) in the long term than superior space injection. No serious adverse events were reported. Inferior or double temporomandibular joint spaces drug injection technique shows better effect than superior space injection technique, and their safety is affirmative. However, more high-quality studies are still needed to test and verify the evidence. 2012 Published by Elsevier Inc on behalf of the American Association of Oral and Maxillofacial Surgeons. All rights reserved. Notes: DB - Embase

Kiropraktikk

- [31] **Bronfort G, Haas M, Evans R, Leininger B, Triano J. Effectiveness of manual therapies: The UK evidence report. Chiropractic and Osteopathy 2010;18:3**
Abstract: Background: The purpose of this report is to provide a succinct but comprehensive summary of the scientific evidence regarding the effectiveness of manual treatment for the management of a variety of musculoskeletal and non-musculoskeletal conditions. Methods: The conclusions are based on the results of systematic reviews of randomized clinical trials (RCTs), widely accepted and primarily UK and United States evidence-based clinical guidelines, plus the results of all RCTs not yet included in the first three categories. The strength/quality of the evidence regarding effectiveness was based on an adapted version of the grading system developed by the US Preventive Services Task Force and a study risk of bias assessment tool for the recent RCTs. Results: By September 2009, 26 categories of conditions were located containing RCT evidence for the use of manual therapy: 13 musculoskeletal conditions, four types of chronic headache and nine non-musculoskeletal conditions. We identified 49 recent relevant systematic reviews and 16 evidence-based clinical guidelines plus an additional 46 RCTs not yet included in systematic reviews and guidelines. Additionally, brief references are made to other effective non-pharmacological, non-invasive physical treatments. Conclusions: Spinal manipulation/mobilization is effective in adults for: acute, subacute, and chronic low back pain; migraine and cervicogenic headache; cervicogenic dizziness; manipulation/mobilization is effective for several extremity joint conditions; and thoracic manipulation/mobilization is effective for acute/subacute neck pain. The evidence is inconclusive for cervical manipulation/mobilization alone for neck pain of any duration, and for manipulation/mobilization for mid back pain, sciatica, tension-type headache, coccydynia, **temporomandibular joint disorders**, fibromyalgia, premenstrual syndrome, and pneumonia in older adults. Spinal manipulation is not effective for asthma and dysmenorrhea when compared to sham manipulation, or for Stage 1 hypertension when added to an antihypertensive diet. In children, the evidence is inconclusive regarding the effectiveness for otitis media and enuresis, and it is not effective for infantile colic and asthma when compared to sham manipulation. Massage is effective in adults for chronic low back pain and chronic neck pain. The evidence is inconclusive for knee osteoarthritis, fibromyalgia, myofascial pain syndrome, migraine headache, and premenstrual syndrome. In children, the evidence is inconclusive for asthma and infantile colic. 2010 Bronfort et al; licensee BioMed Central Ltd. Notes: DB - Embase
- [32] **Hestbaek L, Stockkendahl MJ. The evidence base for chiropractic treatment of musculoskeletal conditions in children and adolescents: The emperor's new suit? Chiropractic and Osteopathy 2010;18:15**
Abstract: Five to ten percent of chiropractic patients are children and adolescents. Most of these consult because of spinal pain, or other musculoskeletal complaints. These musculoskeletal disorders in early life not only affect the quality of children's lives, but also seem to have an impact on adult musculoskeletal health. Thus, this is an important part of the chiropractors' scope of practice, and the objective of this review is to assess the evidence base for manual treatment of musculoskeletal disorders in children and adolescents. Randomized, quasi-randomized and non-randomized clinical studies were included if they investigated the effect of manual therapy on musculoskeletal disorders in children and/or adolescents. The MEDLINE and MANTIS databases were searched, and studies published in English, Danish, Swedish or Norwegian were included. Only three studies were identified that in some way attempted to look at the effectiveness of manual therapy for children or adolescents with spinal problems, and none of these was a randomized controlled clinical trial. As for the rest of the musculoskeletal system, only one study **of temporomandibular disorder** was identified. With this review, we have detected a paradox within the chiropractic profession: Although the major reason for pediatric patients to attend a chiropractor is spinal pain, no adequate studies have been performed in this area. It is time for the chiropractic profession to take responsibility and systematically investigate the efficiency of joint manipulation of problems relating to the developing musculoskeletal system. 2010 Hestbaek and Stockkendahl; licensee BioMed Central Ltd. Notes: DB – Embase

Medikamentell behandling

Antidepressiva

- [33] **Cascos-Romero J, Vazquez-Delgado E, Vazquez-Rodriguez E, Gay-Escoda C. The use of tricyclic antidepressants in the treatment of temporomandibular joint disorders: Systematic review of the literature of the last 20 years. Med Oral Patol Oral Cir Bucal 2009;14(1):E3-E7.**
Abstract: Many therapies have been proposed for the management of temporomandibular disorders, including the use of different drugs. However, lack of knowledge about the mechanisms

behind the pain associated with this pathology, and the fact that the studies carried out so far use highly disparate patient selection criteria, mean that results on the effectiveness of the different medications are inconclusive. This study makes a systematic review of the literature published on the use of tricyclic antidepressants for the treatment of temporomandibular disorders, using the SORT criteria (Strength of recommendation taxonomy) to consider the level of scientific evidence of the different studies. Following analysis of the articles, and in function of their scientific quality, a type B recommendation is given in favor of the use of tricyclic antidepressants for the treatment of temporomandibular disorders. *Medicina Oral S. L. C.I.F*
Notes: DB - Embase

NSAID's

- [34] **Senye M, Mir CF, Morton S, Thie NM. Topical nonsteroidal anti-inflammatory medications for treatment of temporomandibular joint degenerative pain: a systematic review. *J Orofac Pain* 2012;26(1):26-32.**

Abstract: AIMS: To evaluate the efficacy of topical nonsteroidal anti-inflammatory drugs (NSAID) to relieve temporomandibular joint (TMJ) degenerative joint disease (DJD) pain. METHODS: A search of the literature was made using electronic databases complemented with a manual search. Clinical trials comparing topical NSAID with either placebo or an alternative active treatment to treat TMJ DJD pain were identified. Outcomes evaluated were pain reduction/pain control and/or incidence of side effects. RESULTS: A single study (double-blind randomized placebo-controlled trial) with 20 patients was identified that evaluated the efficacy of a topically prepared NSAID over a 12-week duration, measuring functional pain intensity, voluntary and assisted mouth opening, pain disability index, and a brief pain inventory analysis. This study revealed a pain intensity decrease within treatment groups but no significant difference between treatment groups. CONCLUSION: Presently, there is insufficient evidence to support the use of topically applied NSAID medications to palliate TMJ DJD pain. Notes: DB - Ovid MEDLINE(R)

Ulike typer

- [35] **Mujakperuo HR, Watson M, Morrison R, Macfarlane TV. Pharmacological interventions for pain in patients with temporomandibular disorders. *Cochrane database of systematic reviews (Online)* 2010;(10):CD004715.**

Abstract: Temporomandibular disorders (TMD) are a group of disorders affecting the temporomandibular joints and the muscles of mastication. TMDs are treated with a wide range of drugs. The extent to which the use of these drugs is based upon evidence is unknown. To assess the effectiveness of pharmacological interventions both alone and in combination with non-pharmacological therapy in relieving pain in patients with chronic TMD. Electronic searches of the Cochrane Oral Health Group's Trials Register (2 August 2010), CENTRAL (The Cochrane Library 2010, Issue 3), MEDLINE via OVID (1950 to 2 August 2010), EMBASE via OVID (1980 to 2 August 2010) and CINAHL via EBSCO (1981 to 2 August 2010) were conducted. Reference lists of articles and previous reviews were scanned for relevant articles and authors were contacted for further information where appropriate. Randomised controlled trials (RCTs) in which a pharmacological agent was compared with placebo for the management of pain in patients with TMD. Parenteral routes of administration were excluded. Duplicate data extraction and assessment of risk of bias in included studies was performed. Eleven studies were included with a total of 496 participants. The primary outcome of most of the studies was pain. The risk of bias in the included studies was variable. Whilst four studies showed significant pain relief for the active treatment, three were of poor quality. Most adverse effects were mild to moderate in severity. Four studies reported withdrawals due to severe adverse reactions, but insufficient information was provided regarding the trial groups from which the withdrawals occurred. No meta-analysis was conducted due to lack of similarities across the included studies. There is insufficient evidence to support or not support the effectiveness of the reported drugs for the management of pain due to TMD. There is a need for high quality RCTs to derive evidence of the effectiveness of pharmacological interventions to treat pain associated with TMD
Notes: DB - Embase

- [36] **List T, Axelsson S, Leijon G. Pharmacologic interventions in the treatment of temporomandibular disorders, atypical facial pain, and burning mouth syndrome. A qualitative systematic review. *J Orofac Pain* 2003;17(4):301-10.**

Abstract: To carry out a systematic review of the literature in order to assess the pain-relieving effect and safety of pharmacologic interventions in the treatment of chronic temporomandibular disorders (TMD), including rheumatoid arthritis (RA), as well as atypical facial pain (AFP), and burning mouth syndrome (BMS). Methods: Study selection was based on randomized clinical trials (RCTs). Inclusion criteria included studies on adult patients (greater than or equal to 18 years) with TMD, RA of the temporomandibular joint (TMJ), AFP, or BMS and a pain duration of

> 3 months. Data sources included Medline, Cochrane Library, Embase, and PsychLitt. Results: Eleven studies with a total of 368 patients met the inclusion criteria. Four trials were on TMD patients, 2 on AFP, 1 on BMS, 1 on RA of the TMJ, and 3 on mixed groups of patients with TMD and AFP. Of the latter, amitriptyline was effective in 1 study and benzodiazepine in 2 studies; the effect in 1 of the benzodiazepine studies was improved when ibuprofen was also given. One study showed that intra-articular injection with glucocorticoid relieved the pain of RA of the TMJ. In 1 study, a combination of paracetamol, codeine, and doxylamine was effective in reducing TMD pain. No effective Pharmacologic treatment was found for BMS. Only minor adverse effects were reported in the studies. Conclusion: The common use of analgesics in TMD, AFP, and BMS is not supported by scientific evidence. More large RCTs are needed to determine which pharmacologic interventions are effective in TMD, AFP, and BMS

Notes: J. English Review. List, T (reprint author), Malmo Univ, Dept Stomatognath Physiol, Orofacial Pain Unit, SE-21421 Malmo, Sweden .69 41 QUINTESSENCE PUBL CO INC CAROL STREAM 551 NORTH KIMBERLY DR, CAROL STREAM, IL 60188-1881 USA J OROFAC PAIN FAL Discipline: Dentistry, Oral Surgery & Medicine 740KX

[37] **Sommer C. Pharmacotherapy of orofacial pain. [German]. Schmerz 2002;16(5):381-8.**

Abstract: Objectives. Pharmacotherapy of chronic orofacial pain is unsatisfactory. Here we set out to prepare a systematic review of randomized controlled clinical trials (RCTs) on pharmacotherapy of facial pain. Methods. The diagnostic groups "temporomandibular disorders" (TMDs), "atypical facial pain," and "trigeminal neuralgia" were included. RCTs published between 1966 and August 2001 were identified by Medline search, from review articles, and from the Cochrane and Bandolier databases. The quality of the trials was judged according to established criteria. Good or excellent pain reduction or >50% pain reduction were used as endpoints for successful treatment. Numbers needed to treat (NNTs) and their 95% confidence intervals were calculated where dichotomous data were available. Results. Twelve studies were identified for the TMDs, 11 for trigeminal neuralgia, four for atypical facial pain. Many studies had methodological problems and small numbers of patients. There was sufficient evidence of efficacy of carbamazepin in trigeminal neuralgia, also for baclofen and lamotrigine. In the TMD studies, there was evidence of a moderate effect of muscle relaxants/tranquilizers. Two studies of atypical facial pain showed a moderate effect of antidepressants. Conclusions. Apart from studies in trigeminal neuralgia, there is little evidence of efficacy of pharmacotherapy in orofacial pain. High quality studies with sufficient numbers of patients using operational definitions of disease entities are warranted. Notes: DB - Embase

Okklusal behandling

Bittjustering

[38] **Luther F, Layton S, McDonald F. Orthodontics for treating temporomandibular joint (TMJ) disorders. Cochrane database of systematic reviews (Online) 2010;7:CD006541.**

Abstract: BACKGROUND: Temporomandibular disorders (TMD) relate to discomfort of the temporomandibular joint (TMJ). The disorder is multifactorial with a degree of psychogenic influence varying throughout an individual's life with phases of symptoms affecting the quality of life. In an attempt to treat this complex group of disorders many treatment modalities have been identified some of which are also considered in other Cochrane reviews. The disorder also has a normal cycle of events appearing to spontaneously improve without treatment. OBJECTIVES: To establish the effectiveness of orthodontic intervention in reducing symptoms in patients with TMD (compared with any control group receiving no treatment, placebo treatment or reassurance) and to establish if active orthodontic intervention leads to TMD. SEARCH STRATEGY: The Cochrane Oral Health Group's Trials Register, CENTRAL, MEDLINE and EMBASE were searched. Handsearching of orthodontic journals and other related journals was undertaken in keeping with the Cochrane Collaboration handsearching programme. No language restrictions were applied. Authors of any studies were identified, as were experts offering legal advice, and contacted to identify unpublished trials. Most recent search: 13th April 2010. SELECTION CRITERIA: All randomised controlled trials (RCTs) including quasi-randomised trials assessing orthodontic treatment for TMD were included. Studies with adults aged equal to or above 18 years old with clinically diagnosed TMD were included. There were no age restrictions for prevention trials provided the follow-up period extended into adulthood. The inclusion criteria required reports to state their diagnostic criteria for TMD at the start of treatment and for participants to exhibit two or more of the signs and/or symptoms. The treatment group included treatment with appliances that could induce stable orthodontic tooth movement. Patients receiving splints for 8 to 12 weeks and studies involving surgical intervention (direct exploration/surgery of the joint and/or orthognathic surgery to correct an abnormality of the underlying skeletal pattern) were

excluded. The outcomes were: how well were the symptoms reduced, adverse effects on oral health and quality of life. DATA COLLECTION AND ANALYSIS: Screening of eligible studies, assessment of the methodological quality of the trials and data extraction were conducted in triplicate and independently by three review authors. As no two studies compared the same treatment strategies (interventions) it was not possible to combine the results of any studies. MAIN RESULTS: The searches identified 284 records from all databases. Initial screening of the abstracts and titles by all review authors identified 55 articles which related to orthodontic treatment and TMD. The full articles were then retrieved and of these articles only four demonstrated any data that might be of value with respect to TMD and orthodontics. After further analysis of the full texts of the four studies identified, none of the retrieved studies met the inclusion criteria and all were excluded from this review. AUTHORS' CONCLUSIONS: There are insufficient research data on which to base our clinical practice on the relationship of active orthodontic intervention and TMD. There is an urgent need for high quality randomised controlled trials in this area of orthodontic practice. When considering consent for patients it is essential to reflect the seemingly random development/alleviation of TMD signs and symptoms. Notes: DB – Embase

- [39] **Stapelmann H, Turp JC. The NTI-tss device for the therapy of bruxism, temporomandibular disorders, and headache - where do we stand? A qualitative systematic review of the literature. BMC Oral Health 2008;8:22.**

Abstract: BACKGROUND: The NTI-tss device is an anterior bite stop, which, according to the manufacturer, is indicated for the prevention and treatment of bruxism, temporomandibular disorders (TMDs), tension-type headaches, and migraine. The aim of this systematic review was to appraise the currently available evidence regarding the efficacy and safety of the NTI-tss splint. METHODS: We performed a systematic search in nine electronic databases and in NTI-tss-associated websites (last update: December 31, 2007). The reference lists of all relevant articles were perused. Five levels of scientific quality were distinguished. Reporting quality of articles about randomized controlled trials (RCTs) was evaluated using the Jadad score. To identify adverse events, we searched in the identified publications and in the MAUDE database. RESULTS: Nine of 68 relevant publications reported about the results of five different RCTs. Two RCTs concentrated on electromyographic (EMG) investigations in patients with TMDs and concomitant bruxism (Baad-Hansen et al 2007, Jadad score: 4) or with bruxism alone (Kavakli 2006, Jadad score: 2); in both studies, compared to an occlusal stabilization splint the NTI-tss device showed significant reduction of EMG activity. Two RCTs focused exclusively on TMD patients; in one trial (Magnusson et al 2004, Jadad score: 3), a stabilization appliance led to greater improvement than an NTI-tss device, while in the other study (Jokstad et al 2005, Jadad score: 5) no difference was found. In one RCT (Shankland 2002, Jadad score: 1), patients with tension-type headache or migraine responded more favorably to the NTI-tss splint than to a bleaching tray. NTI-tss-induced complications related predominantly to single teeth or to the occlusion. CONCLUSION: Evidence from RCTs suggests that the NTI-tss device may be successfully used for the management of bruxism and TMDs. However, to avoid potential unwanted effects, it should be chosen only if certain a patient will be compliant with follow-up appointments. The NTI-tss bite splint may be justified when a reduction of jaw closer muscle activity (e.g., jaw clenching or tooth grinding) is desired, or as an emergency device in patients with acute temporomandibular pain and, possibly, restricted jaw opening. Notes: DB - Ovid MEDLINE(R)

- [40] **Koh H, Robinson PG. Occlusal adjustment for treating and preventing temporomandibular joint disorders. Cochrane database of systematic reviews (Online) 2003;(1):CD003812.**

Abstract: BACKGROUND: There has been a long history of using occlusal adjustment in the management of temporomandibular disorders (TMD). It is not clear if occlusal adjustment is effective in treating TMD. OBJECTIVES: To assess the effectiveness of occlusal adjustment for treating TMD in adults and preventing TMD. SEARCH STRATEGY: We searched the Cochrane Oral Health Group's Trials Register (April 2002); the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library Issue 2, 2002); MEDLINE (1966 to 8th April 2002); EMBASE (1980 to 8th April 2002) and handsearched journals of particular importance to this review. Additional reports were identified from the reference lists of retrieved reports and from review articles of treating TMD. There were no language restrictions. Unpublished reports or abstracts were considered from the SIGLE database. SELECTION CRITERIA: All randomised or quasi-randomised controlled trials (RCTs) comparing occlusal adjustment to placebo, reassurance or no treatment in adults with TMD. The outcomes were global measures of symptoms, pain, headache and limitation of movement. DATA COLLECTION AND ANALYSIS: Data were independently extracted, in duplicate, by two reviewers, Holy Koh (HK) and Peter G Robinson (PR). Authors were contacted for details of randomisation and withdrawals and a quality assessment was carried out. The Cochrane Oral Health Group's statistical guidelines were followed and relative risk values calculated using random effects models where significant heterogeneity was detected ($P < 0.1$). MAIN RESULTS: Over 660 trials were identified by the initial search. Six of these trials, which reported results from a total of 392 patients, were suitable for

inclusion in the review. From the data provided in the published reports, symptom-based outcomes were extracted from trials on treatment. Data on incidence of symptoms were extracted from trials on prevention. Neither showed any difference between occlusal adjustment and control group. REVIEWER'S CONCLUSIONS: There is an absence of evidence, from RCTs, that occlusal adjustment treats or prevents TMD. Occlusal adjustment cannot be recommended for the management or prevention of TMD. Future trials should use standardised diagnostic criteria and outcome measures when evaluating TMD. Notes: DB - Embase

- [41] **Kim MR, Graber TM, Viana MA. Orthodontics and temporomandibular disorder: a meta-analysis. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2002;121(5):438-46.**

Abstract: As the importance of evidence-based health care has grown, meta-analysis has become more widely used in the medical and dental fields. In this meta-analysis, the relationship between traditional orthodontic treatment, including the specific type of appliance used and whether extractions were performed, and the prevalence of temporomandibular disorders (TMD) was investigated. After an exhaustive literature search of 960 articles, we found 31 that met the inclusion criteria (18 cross-sectional studies or surveys and 13 longitudinal studies). We divided and extracted data from the 31 articles according to study designs, symptoms, signs, or indexes. Due to severe heterogeneity, the results were summarized without further statistical analysis. The heterogeneous result might originate from lack of a universal diagnostic system and the variability of TMD. Because of heterogeneity, a definitive conclusion cannot be drawn. The data included in this comprehensive meta-analysis do not indicate that traditional orthodontic treatment increased the prevalence of TMD. It is apparent that a reliable and valid diagnostic classification system for TMD is needed for future research. Notes: DB - Embase

- [42] **Tsukiyama Y, Baba K, Clark GT. An evidence-based assessment of occlusal adjustment as a treatment for temporomandibular disorders. The Journal of prosthetic dentistry 2001;86(1):57-66.**

Abstract: STATEMENT OF PROBLEM: Occlusal adjustment therapy has been advocated as a treatment modality for temporomandibular disorders. In contrast to this position, a panel at the 1996 National Institute of Health technology assessment conference on TMD indicated that no clinical trials demonstrate that occlusal adjustment is superior to noninvasive therapies. PURPOSE: This article summarizes the published experimental studies on occlusal adjustments and temporomandibular disorders. MATERIAL AND METHODS: Eleven research experiments involving 413 subjects with either bruxism (n = 59), temporomandibular disorders (n = 219), headaches and temporomandibular disorders (n = 91), or chronic cervical pain (n = 40) were selected for critical review from the English dental literature. RESULTS: Three experiments evaluated the relationship between occlusal adjustment and bruxism. Six experiments evaluated occlusal adjustment therapy as a treatment for patients with primary temporomandibular disorders. One experiment looked at occlusal adjustment effect on headache/temporomandibular disorder symptoms; another looked at its effect on chronic neck pain. Most of these experiments used a mock adjustment or a comparison treatment as the control condition in adults who had an existing nonacute general temporomandibular disorder. Overall, the data from these experiments did not demonstrate elevated therapeutic efficacy for occlusal adjustment over the control or the contrasting therapy. CONCLUSION: The experimental evidence reviewed was neither convincing nor powerful enough to support the performance of occlusal therapy as a general method for treating a nonacute temporomandibular disorder, bruxism, or headache. Notes: DB - Embase

Stabiliseringsskinner

- [43] **Fricton J, Look JO, Wright E, Alencar J, Chen H, Lang M, et al. Systematic review and meta-analysis of randomized controlled trials evaluating intraoral orthopedic appliances for temporomandibular disorders. J Orofac Pain 2010;24(3):237-54.**

Abstract: AIMS: To conduct a systematic review with meta-analysis of randomized controlled trials (RCTs) that have assessed the efficacy of intraoral orthopedic appliances to reduce pain in patients with temporomandibular disorders affecting muscle and joint (TMJD) compared to subjects receiving placebo control, no treatment, or other treatments. METHODS: A search strategy of MEDLINE, the Cochrane Library, the Cochrane CENTRAL Register, and manual search identified all English language publications of RCTs for intraoral appliance treatment of TMJD pain during the years of January 1966 to March 2006. Two additional studies from 2006 were added during the review process. Selection criteria included RCTs assessing the efficacy of hard and soft stabilization appliances, anterior positioning appliances, anterior bite appliances, and other

appliance types for TMJD pain. Pain relief outcome measures were used in the meta-analyses, and the QUORUM criteria for data abstraction were used. A quality analysis of the methods of each RCT was conducted using the CONSORT criteria. The review findings were expressed both as a qualitative review and, where possible, as a mathematical synthesis using meta-analysis of results. RESULTS: A total of 47 publications citing 44 RCTs with 2,218 subjects were included. Ten RCTs were included in two meta-analyses. In the first meta-analysis of seven studies with 385 patients, a hard stabilization appliance was found to improve TMJD pain compared to non-occluding appliance. The overall odds ratio (OR) of 2.46 was statistically significant ($P = .001$), with a 95% confidence interval of 1.56 to 3.67. In the second meta-analysis of three studies including 216 patients, a hard stabilization appliance was found to improve TMJD pain compared to no-treatment controls. The overall OR of 2.15 was positive but not statistically significant, with a 95% confidence interval of 0.80 to 5.75. The quality (0 to 1) of the studies was moderate, with a mean of 55% of quality criteria being met, suggesting some susceptibility to systematic bias may have existed. CONCLUSION: Hard stabilization appliances, when adjusted properly, have good evidence of modest efficacy in the treatment of TMJD pain compared to non-occluding appliances and no treatment. Other types of appliances, including soft stabilization appliances, anterior positioning appliances, and anterior bite appliances, have some RCT evidence of efficacy in reducing TMJD pain. However, the potential for adverse events with these appliances is higher and suggests the need for close monitoring in their use. Notes: DB - Embase

- [44] **Fricton J. Current Evidence Providing Clarity in Management of Temporomandibular Disorders: Summary of a Systematic Review of Randomized Clinical Trials for Intra-oral Appliances and Occlusal Therapies. Journal of Evidence-Based Dental Practice 2006;6(1):48-52.**

Abstract: Pain and dysfunction from temporomandibular disorders (TMJD) is a significant clinical problem for which many diverse treatments have been used. Numerous articles evaluating success/failure of these TMJD treatments have been published with a wide range of success rates and methods to evaluate outcomes. Nearly all of these treatments have been evaluated for efficacy using the highest level of research evidence from randomized controlled trials (RCTs). With this available literature, clinicians are faced with the challenge of reviewing the methods and results of each study to make evidence-based clinical decisions. This process is further compounded by considerable variability with regard to their study designs, treatment techniques, and outcome measures. The Guidelines Committee for the American Academy of Orofacial Pain conducted an evidence-based literature review to systematically search and review the literature for all randomized clinical trials for TMJD treatment using methods derived from the Cochrane Collaboration (www.cochrane.org); the Oxford Centre for Evidence-based Medicine, (www.cebm.net); and the Centre for Reviews and Dissemination, University of York, United Kingdom (www.york.ac.uk/inst/crd/index.htm). Trials in which placebo, no treatment, or other treatments were used in the control group were included as were trials in which postrandomization exclusions occurred since there was no evidence that these occurred preferentially in one or other arm of the trials. This presentation reviews the results of this review for intraoral splints and occlusal therapies for temporomandibular disorders. This paper only provides a summary of the methods and results. The full results can be found in the subsequent journal publication. 2006 Mosby, Inc. All rights reserved
Notes: DB - Embase

- [45] **Al-Ani MZ, Davies SJ, Gray RJ, Sloan P, Glenny AM. Stabilisation splint therapy for temporomandibular pain dysfunction syndrome. Cochrane database of systematic reviews (Online) 2004;(1):CD002778.**

Abstract: BACKGROUND: Pain dysfunction syndrome (PDS) is the most common temporomandibular disorder (TMD). There are many synonyms for this condition including facial arthromyalgia, TMJ dysfunction syndrome, myofascial pain dysfunction syndrome, craniomandibular dysfunction and myofascial pain dysfunction. The aetiology of PDS is multifactorial and many different therapies have been advocated. OBJECTIVES: To establish the effectiveness of stabilisation splint therapy in reducing symptoms in patients with pain dysfunction syndrome. SEARCH STRATEGY: Electronic databases (including the Cochrane Oral Health Group's Trials Register; the Cochrane Central Register of Controlled Trials (CENTRAL); The Cochrane Library Issue 2, 2003; MEDLINE (1966 to June 2001); EMBASE (1966 to June 2001)) were searched. Handsearching of relevant journals was undertaken and reference lists of included studies screened. Experts in the field were contacted to identify unpublished articles. There was no language restriction. SELECTION CRITERIA: Randomised or quasi-randomised controlled trials (RCTs), in which splint therapy was compared concurrently to no treatment, other occlusal appliances, or any other active intervention. DATA COLLECTION AND ANALYSIS: Data extraction was carried out independently and in duplicate. Validity assessment of the included trials was carried out at the same time as data extraction. Discrepancies were discussed and a third reviewer consulted. The author of the primary study was contacted where necessary.

The studies were grouped according to treatment type and duration of follow up. MAIN RESULTS: Twenty potentially relevant RCTs were identified. Eight trials were excluded leaving 12 RCTs for analysis. Stabilisation splint therapy was compared to: acupuncture, bite plates, bio-feedback/stress management, visual feedback, relaxation, jaw exercises, non-occluding appliance and minimal/no treatment. There was no evidence of a statistically significant difference in the effectiveness of stabilisation splint therapy (SS) in reducing symptoms in patients with pain dysfunction syndrome compared with other active treatments. There is weak evidence to suggest that the use of SS for the treatment of PDS may be beneficial for reducing pain severity, at rest and on palpation, when compared to no treatment. REVIEWER'S CONCLUSIONS: There is insufficient evidence either for or against the use of stabilisation splint therapy for the treatment of temporomandibular pain dysfunction syndrome. This review suggests the need for further, well conducted RCTs that pay attention to method of allocation, outcome assessment, large sample size, and enough duration of follow up. A standardisation of the outcomes of the treatment of PDS should be established in the RCTs. Notes: DB - Embase

- [46] **Turp JC, Komine F, Hugger A. Efficacy of stabilization splints for the management of patients with masticatory muscle pain: a qualitative systematic review. Clin Oral Investig 2004;8(4):179-95.**

Abstract: This study aimed at providing an answer to two clinical questions related to patients with masticatory muscle pain: 1) Does the use of a full-coverage hard acrylic occlusal appliance (stabilization splint) lead to a significant decrease of symptoms? and 2) Is the treatment success achieved with a stabilization splint more pronounced than the success attained with other forms of treatment (including placebo treatment) or no treatment? A systematic search was carried out in different electronic databases, supplemented by handsearch in four selected dental journals and by examination of the bibliographies of the retrieved articles. Thirteen publications, representing nine controlled clinical studies, could be identified. Reporting quality of most studies as assessed with the Jadad score ranged from 1 to 5. Based on the currently best available evidence it appears that most patients with masticatory muscle pain are helped by the incorporation of a stabilization splint. Nevertheless, evidence is equivocal if improvement of pain symptoms after incorporation of the intraoral appliance is caused by a specific effect of the appliance. A stabilization splint does not appear to yield a better clinical outcome than a soft splint, a non-occluding palatal splint, physical therapy, or body acupuncture. The scarcity of current external evidence emphasizes the need for more and better clinical research. Notes: DB - Embase

- [47] **Popowich K, Nebbe B, Major PW. Effect of Herbst treatment on temporomandibular joint morphology: a systematic literature review. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2003;123(4):388-94.**

Abstract: The purpose of this systematic review was to evaluate the effect of Herbst appliance therapy on temporomandibular joint (TMJ) morphology, with special reference to glenoid fossa remodeling, condylar remodeling, condylar position, and articular disc position. Publications of controlled trials of Herbst treatment of Class II patients using magnetic resonance imaging (MRI), computerized tomography scans, or tomography to assess TMJ morphology were identified with Medline (1966-2001), Best Evidence (1991-2001), Cochrane Database of Systematic Reviews (second quarter, 2001), and Embase (1998-2001). Case reports were excluded. Based on our search, only 5 studies met the selection criteria. All studies used internal controls with pretreatment and posttreatment imaging. Four studies used MRI, and 1 used tomograms. The 4 MRI studies used overlapping patient samples and were not considered as independent evidence. The MRI studies did not provide conclusive evidence of osseous remodeling or condyle position change. The tomography study demonstrated minor condyle position change. Methodological deficiencies prevented major conclusions regarding disc position. The reviewed studies highlight the importance of further research. Prospective controlled studies using serial MRI and tomography are required to establish the effect of Herbst treatment on TMJ morphology. Notes: DB - Embase

Psykologisk behandling

- [48] **Liu HX, Liang QJ, Xiao P, Jiao HX, Gao Y, Ahmetjiang A. The effectiveness of cognitive-behavioural therapy for temporomandibular disorders: a systematic review. J Oral Rehabil 2012;39(1):55-62.**

Abstract: Cognitive-behavioural therapy (CBT) and its effects on temporomandibular disorders (TMD) have been examined in several studies. We are trying to combine results of these studies and to explore the effectiveness. MEDLINE, EMBASE, Cochrane Central Register of Controlled Trial, Pubmed and the Chinese Biomedical Literature Data were searched to collect randomised and semi-randomised controlled trials (RCTs), comparing CBT with any control group receiving

other dental treatments. Two authors independently retrieved, extracted and assessed the quality of included studies. The search strategy resulted in 323 studies, of which five met the inclusion criteria, including three RCTs and two semi-RCTs. The quality of the included studies was diverse. Meta-analysis was not performed owing to five studies involving different comparison groups and follow-up periods. The effect of CBT on patients with TMD is inconsistent among the studies, so no firm conclusion could be drawn in this systematic review. There is insufficient evidence to make firm recommendations for the use of CBT over other intervention for the treatment of TMD. Further high-quality RCTs are clearly needed for this theme. Notes: J. English. Review. Liu, HX (reprint author), Xinjiang Med Univ, Dept Oral Med, Affiliated Hosp 2, 38 2nd N Lane, E Nan Hu Rd, Urumqi 830063, Xinjiang Provin, Peoples R China. kqlhx@sina.com. <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2842.2011.02239.x/full>. 33 0 WILEY-BLACKWELL MALDEN COMMERCE PLACE, 350 MAIN ST, MALDEN 02148, MA USA J ORAL REHABIL JAN Discipline: Dentistry, Oral Surgery & Medicine 861JN

[49] **Aggarwal VR, Lovell K, Peters S, Javidi H, Joughin A, Goldthorpe J. Psychosocial interventions for the management of chronic orofacial pain. Cochrane Database Syst Rev 2011;(11):CD008456.**

Abstract: BACKGROUND: Psychosocial factors have a role in the onset of chronic orofacial pain. However, current management involves invasive therapies like occlusal adjustments and splints which lack an evidence base. OBJECTIVES: To determine the efficacy of non-pharmacologic psychosocial interventions for chronic orofacial pain. SEARCH METHODS: The following electronic databases were searched: the Cochrane Oral Health Group Trials Register (to 25 October 2010), the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2010, Issue 4), MEDLINE via OVID (1950 to 25 October 2010), EMBASE via OVID (1980 to 25 October 2010) and PsycINFO via OVID (1950 to 25 October 2010). There were no restrictions regarding language or date of publication. SELECTION CRITERIA: Randomised controlled trials which included non-pharmacological psychosocial interventions for adults with chronic orofacial pain compared with any other form of treatment (e.g. usual care like intraoral splints, pharmacological treatment and/or physiotherapy). DATA COLLECTION AND ANALYSIS: Data were independently extracted in duplicate. Trial authors were contacted for details of randomisation and loss to follow-up, and also to provide means and standard deviations for outcome measures where these were not available. Risk of bias was assessed and disagreements between review authors were discussed and another review author involved where necessary. MAIN RESULTS: Seventeen trials were eligible for inclusion into the review. Psychosocial interventions improved long-term pain intensity (standardised mean difference (SMD) -0.34, 95% confidence interval (CI) -0.50 to -0.18) and depression (SMD -0.35, 95% CI -0.54 to -0.16). However, the risk of bias was high for almost all studies. A subgroup analysis revealed that cognitive behavioural therapy (CBT) either alone or in combination with biofeedback improved long-term pain intensity, activity interference and depression. However the studies pooled had high risk of bias and were few in number. The pooled trials were all related to temporomandibular disorder (TMD). AUTHORS' CONCLUSIONS: There is weak evidence to support the use of psychosocial interventions for chronic orofacial pain. Although significant effects were observed for outcome measures where pooling was possible, the studies were few in number and had high risk of bias. However, given the non-invasive nature of such interventions they should be used in preference to other invasive and irreversible treatments which also have limited or no efficacy. Further high quality trials are needed to explore the effects of psychosocial interventions on chronic orofacial pain. PSYCHOSOCIAL INTERVENTIONS FOR THE MANAGEMENT OF CHRONIC OROFACIAL PAIN: Studies indicate that psychological factors are associated with chronic pain in the face, mouth or jaws. However, current management, particularly in dentistry, does not target these factors. This review therefore explored whether behavioural interventions like cognitive behavioural therapy (CBT), biofeedback and posture regulation compared with usual care could improve outcomes for patients with chronic orofacial pain. We found that such interventions improved long-term pain intensity, pain interference with daily life activities and depression. However, the quality of the studies was poor and there were few studies from which we could combine results. We therefore recommend further high quality trials are needed to support the use of such interventions for chronic orofacial pain. Notes: HM-ORAL DOI: 10.1002/14651858.CD008456.pub2

[50] **Aggarwal VR, Tickle M, Javidi H, Peters S. Reviewing the evidence: can cognitive behavioral therapy improve outcomes for patients with chronic orofacial pain? J Orofac Pain 2010;24:163-71.**

Abstract: AIMS: To review evidence for chronic orofacial pain management using cognitive behavioural therapy (CBT). METHODS: Electronic databases were searched for randomized controlled trials in which CBT was compared either alone or in combination with other forms of therapy for management of chronic orofacial pain. The quality of trials was assessed blind by three authors using a validated scale that had been specifically designed to score the quality of ran-

domized controlled trials for psychological interventions. Author agreement was assessed using interclass correlation co_efficients. RESULTS: Fourteen potentially relevant randomized controlled trials were identified. Seven trials were excluded, leaving seven for analysis; two studies were merged as they included the same trial and therefore six trials were used in the final analysis. All but one of the randomized controlled trials identified were based on temporomandibular disorders (TMD). Scoring of the trials showed that the three raters were in close agreement, with four trials performing well (scores of 22-35) whilst the remaining two trials were poor (scores < 18). Of the four trials, one did not show any improvement with CBT prior to conservative treatment whilst the other three showed that CBT alone or in conjunction with conservative treatment improved both short-term and long-term outcomes in functional, dysfunctional, and chronic TMD patients. CONCLUSIONS: CBT, either alone or in combination with biofeedback, conservative treatment and/or self-care, can improve outcomes for patients with TMD in secondary care. However, further research is needed to assess its effectiveness in primary care and in management of other chronic orofacial pain conditions. Further, the number of sessions needed, mode of delivery, and cost-effectiveness also remain unclear. Notes: Cochrane ID: DARE-12010005464. Record Available: <http://www.mrw.interscience.wiley.com/cochrane/cldare/articles/DARE-12010005464/frame.html>

[51] **Kroner-Herwig B. Chronic pain syndromes and their treatment by psychological interventions. Current Opinion in Psychiatry 2009;22(2):200-4.**

Abstract: Purpose of review Treatment of chronic pain has become a multidisciplinary endeavour including psychological interventions. Databases for life science journals were searched for citations from 2007 and 2008 to determine the current focus of research and the state of evidence. Recent findings Several reviews on systematic research studies confirm that psychological interventions are efficacious in the treatment of chronic musculoskeletal pain, especially back pain, though effect sizes are small and, in some cases, moderate. Findings from clinical practices and treatment centres corroborate these conclusions. The integration of psychological treatment into primary care has not yet proven its utility. Cost-effective interventions to reduce relapse are currently being examined. Psychological headache treatment has again become a topic of research. Evidence is inconsistent, with improvement ranging from an extraordinary size to none at all. Hypnotherapy in children and adolescents with recurrent gastrointestinal pain, examined in a study of high methodological quality, achieved an exceptional level of symptom relief. The aim of two studies on therapy for fibromyalgia and temporomandibular disorder was the identification of mediators and moderators of treatment outcome. Summary Regarding different pain syndromes such as chronic back pain, headache, fibromyalgia, and temporomandibular disorder, as well as gastrointestinal pain in children, psychological interventions proved their significance for the achievement of favourable treatment outcome. 2009 Wolters Kluwer Health|Lippincott Williams & Wilkins
Notes: DB - Embase

Tverrfaglig behandling

[52] **Turp JC, Jokstad A, Motschall E, Schindler HJ, Windecker-Getaz I, Ettl DA. Is there a superiority of multimodal as opposed to simple therapy in patients with temporomandibular disorders? A qualitative systematic review of the literature. Clin Oral Implants Res 2007;18:138-50.**

Abstract: Background: Pain is the most common motivation for patients with temporomandibular disorders (TMDs) to seek care. Therapeutic options range from patient education to joint surgery. Objectives: To conduct a systematic review of articles reporting on simple and multimodal management strategies in TMD patients. 'Simple therapy' was defined as care provided by a dentist, without using technical dental interventions, whereas 'multimodal' refers to at least two different modalities. We followed the null hypothesis of no difference between these two approaches. Material and methods: A systematic search was carried out in the following databases: Ovid Medline (1966-2006), Cochrane Library (Issue 3/2006), and Science Citation Index (1945-2006). Subsequently, the reference lists of the identified articles were searched to find additional pertinent publications. We divided the study reports according to the main presenting symptom: (1) disc displacement without reduction, with pain; (2) TMD pain, without major psychological symptoms; and (3) TMD pain, with major psychological symptoms. Results: Eleven articles representing nine different clinical studies were identified. (1) In the disc displacement group with pain, multimodal therapy was not superior to explanation and advice. (2) A combination of occlusal appliance and biofeedback-assisted relaxation/stress management was not significantly superior to either of these therapies after 6 months. Furthermore, brief information alone or combined with relaxation training or occlusal appliance, respectively, were equally efficacious at the 6-month follow-up. There was no superiority of multimodal therapy including splints as compared with simple care. A slightly better outcome was reported for a combination of education and home physical therapy regimen than for patient education alone. (3) In temporomandibular pain patients with major psychological disturbances, patients benefited more

from a combined therapeutic approach compared with simple care. Conclusion: Current research suggests that individuals without major psychological symptoms do not require more than simple therapy. In contrast, patients with major psychological involvement need multimodal, interdisciplinary therapeutic strategies. The clinician's acceptance of the importance of psychological factors in TMD pain forms the platform for convincingly educating patients about the need for multimodal management. 2007 Blackwell Munksgaard. Notes: DB – Embase

Ulike typer behandling

- [53] **van Selms MK, Naeije M, van der Zaag J, Lobbezoo F. Myogenous temporomandibular pain: treat with care!. [Dutch]. Ned Tijdschr Tandheelkd 2009;116(5):260-5.**

Abstract: For the treatment of myogenous temporomandibular pain, a clinician can choose from among a wide variety of possibilities. Unfortunately, a paper summarizing the effectiveness of all these forms of treatment does not yet exist. The aim of this paper is to provide specific advice for dentists concerning the treatment of patients with myogenous temporomandibular pain by means of a systematic review of the relevant literature. The results of this review of the literature suggest that all forms of treatment selected, including treatment with placebos, are equally effective in reducing myogenous temporomandibular pain. In order to avoid liability issues, it is advisable to choose for a restrained, reversible form of treatment. The dentist and the patient must, in this respect, be aware that the pain can continue after treatment (albeit at a reduced level) or can return after a period of time

Notes: DB – Embase

- [54] **Turp JC, Motschall E, Schindler HF, Heydecke G. In patients with temporomandibular disorders do particular interventions influence oral health-related quality of life? A qualitative systematic review of the literature. Clin Oral Implants Res 2007;18:127-37.**

Abstract: Objectives: The use of patient-based outcomes to measure therapeutic effectiveness is increasing, because a growing number of clinical scientists are attempting to evaluate the impact of therapy on the recipient. There are indications that patients suffering from temporomandibular disorders (TMDs) may also show a reduced oral health-related quality of life (OHQoL). It was the purpose of this paper to answer the question as to whether therapeutic interventions in TMD patients have a positive effect on their OHQoL. Material and methods: A systematic electronic search (Ovid Medline (R) 1966-2006; Science Citation Index 1945-2006) of the literature was carried out to identify pertinent articles of randomized and non-randomized clinical trials. Reports on retrospective and prospective studies that specifically focused on OHQoL changes in TMD patients as a consequence of therapeutic interventions were included. The reference lists of the identified articles were screened to find additional pertinent publications. Results: The investigation yielded seven relevant contributions from Medline (R). A quantitative analysis of the seven identified articles was not possible. There was considerable heterogeneity among the investigations with regard to study design, patient characteristics, and provided therapy. Three of the identified articles reported about prospective controlled studies, of which one was an RCT. Four additional investigations were retrospective. According to the results of the only RCT, a 6-week course of the nonselective cyclooxygenase (COX) inhibitor naproxen may lead to slightly better OHQoL in patients with temporomandibular joint (TMJ) arthralgia than the selective COX-2 inhibitor celecoxib. The two other articles reporting of a controlled study showed that selective serotonin uptake inhibitors accompanied by psychological therapy improved OHQoL in individuals with TMJ arthralgia. In contrast, TMJ surgery did not improve OHQoL. Conclusion: It appears that all therapeutic interventions reported in the identified publications led to at least some improvement of OHQoL. The only exception were patients with multiple TMJ surgeries

Notes: J. English. Article; Proceedings Paper. Turp, JC (reprint author), Univ Klin Zhanmed, Klin Rekonstrukt Zahnmed & Myoarthropathien, Hebelstrasse 3, CH-4056 Basel, Switzerland
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61 8 BLACKWELL PUBLISHING OXFORD 9600 GARSINGTON RD, OXFORD OX4 2DQ, OXON, ENGLAND CLIN ORAL IMPLAN RES JUN 3 Discipline: Dentistry, Oral Surgery & Medicine; Engineering
188IW

- [55] **Rinchuse DJ. Developmental occlusion, orthodontic interventions, and orthognathic surgery for adolescents. Dent Clin North Am 2006;50(1):69-86.**

Abstract: As highlighted in this article, many controversies regarding orthodontic treatment still exist. These include the timing of treatment and expansion in the absence of a posterior crossbite to correct Class II relationships, among others. When additional data from evidence-based systematic reviews become available, more predictable and standardized orthodontic

treatments may develop. Thus, with the collective data derived from evaluating all studies concerning a particular topic, the most unbiased and best-validated knowledge should have a major impact on the future provision of orthodontic care for adolescent patients [68]. Current trends in orthodontics include invisible tooth aligners, self-ligating brackets, maxillary intra-arch molar distalizing appliances, and implant-assisted anchorage. Orthognathic surgical procedures are best applied after growth has ceased. Stability and patient comfort have improved with RIF versus traditional wire fixation. DO used in medicine to increase the length of long bones has been adapted for certain orthognathic surgical procedures. 2006 Elsevier Inc. All rights reserved.
Notes: DB - Embase

- [56] **Richardson M, Hayes C, Antczak-Bouckoms A, Lau J. Systematic review of non-surgical approaches to temporomandibular joint disorders. J Dent Res 2002;81:A184.**

Meeting Abstract: Introduction: The treatment of temporomandibular joint disorders (TMD) encompasses a wide range of surgical and non-surgical approaches. There is significant variation of practice in this field. Purpose: The purpose of this systematic review is to summarize the current state of knowledge about the effects of non-surgical treatments of TMD. Methods: We searched the MEDLINE database for English language literature from 1966 through July 2000. The search was limited to human studies and utilized textwords and MeSH subheadings to identify relevant TMD studies. We screened the search results for non-surgical treatments. Studies that met our inclusion criteria were critically appraised and summarized. Results: A total of 17 non-surgical articles were included in the study. Of these, 12 were randomized controlled trials, 3 were non-randomized comparison, and the remainders were case series. The total number of patients included in the studies was 1165. Pain was the most common outcome evaluated. Most conservative treatments, including splinting, injections, physical therapy, biofeedback, and TENS, reported a positive treatment outcome most notably a reduction of pain at rest and/or during functional activity, over placebo, with p-values from 0.0013 to <0.05. Different physical therapy methods increased incisal opening in 69-78 % of patients, depending on treatment modality. Splinting was the most effective treatment, showing significant differences in outcome measures, particularly pain levels, over palliative care, biofeedback, and TENS, with p-values ranging from <0.0001 to <0.02. Conclusion: The lack of uniformity in the patient inclusion criteria, treatment comparison, and outcome assessment made it difficult to interpret the results from these studies. These findings indicate that research in the field of non-surgical treatments of TMJ needs to include studies that meet more stringent criteria. These criteria need to be standardized to allow easier comparisons between treatment protocols when reviewing the literature. (supported by NIDCR #RO1DE11646). Seq #128 - Treatment and Outcomes 3:45 PM-5:00 PM, Thursday, 7 March 2002 San Diego Convention Center Exhibit Hall C Notes: J English

Kommentar

Styrker og svakheter ved litteratursøk med sortering

Ved litteratursøk gjennomfører vi systematiske litteratursøk for en gitt problemstilling. Resultatene fra søket blir i sin helhet overlevert oppdragsgiver. Vi har gjennomgått søkeresultatet før overleveringen og sortert ut de mest åpenbare ikke-relevante referansene. Dette gjøres basert på artiklenes sammendrag.

Vi benytter kun databaser for identifisering av litteratur og kan derfor ha gått glipp av potensielt relevante studier. Andre måter å identifisere studier på, som søk i referanselister, kontakt med eksperter på fagfeltet og upublisert litteratur, er ikke utført i dette oppdraget.

Vi har ikke oppsummert resultatene fra de systematiske oversiktene, men vi viser forfatterens sammendrag og konklusjoner (se vedlegg). Vi har heller ikke gjennomført noen form for kvalitetsvurdering av de systematiske oversiktene, og tar derfor ikke stilling til om resultatene er til å stole på. I en systematisk oversikt har imidlertid forfatterne selv benyttet en systematisk fremgangsmåte for å finne, vurdere og oppsummere all forskning om et gitt effektspørsmål. Følgende kriteriene må være oppfylt for at en oversikt skal være systematisk: Den må ha en oppgitt søkestrategi, må inneholde klare inklusjonskriterier, og de inkluderte studiene må være kvalitetsvurdert. Fordelene med systematiske oversikter er at de kan generere ny kunnskap, klargjør hva vi vet og ikke vet, avdekke kunnskapshull og således vise vei for videre forskning.

Begrunnelse for valg av søkestrategi

Vi har søkt i elektroniske kilder, men ikke etter grå litteratur eller liknende. Søket er ikke gjort for hele tidsperioden databasen dekker bakover i tid, ettersom systematiske oversikter helst bør være av nyere dato for å ha fanget opp flest mulige relevante enkeltstudier. I søkene er det lagt på filter for å begrense til studiedesignet systematiske oversikter.

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Vedlegg

Vedlegg 1 - Søkestrategier

Dato for alle søk: 25.4.2012

Søketreff totalt: 615

Søketreff etter dublettkontroll: 453

I RefMan ble alle referanser publisert før 2000 slettet. Antall referanser med publikasjonsår f.o.m 2000: 406

PubMed

Søketreff: 5

Søk etter artikler registrert som "epub ahead of print"
(temporomandibular joint disorder OR temporomandibular OR temperomandibular
OR craniomandibular disorder OR craniomandibular OR tmj OR tmd OR cmd) AND
(systematic review OR meta-analysis OR (review AND (pubmed OR medline OR
embase))) AND publisher [sb]

CRD Databases (HTA, DARE, NHS EED)

Søketreff: 45

Quick search: temporomandibular joint disorder OR craniomandibular disorder OR
tmj OR tmd OR cmd

Prospero (pågående systematiske oversikter)

Søketreff: 0

All fields: temporomandibular OR craniomandibular OR tmj OR tmd OR cmd

Cochrane Library

Søketreff: Cochrane Reviews 14, DARE 34, HTA 4, Economic evaluations 2

- #1 MeSH descriptor Temporomandibular Joint Disorders explode all trees
- #2 MeSH descriptor Craniomandibular Disorders explode all trees
- #3 ((Temp?romandibular or (temp?ro next mandibular*) or craniomandibular* or (cranio next mandibular*) or tmj or tmd or cmd)):ti,ab,kw
- #4 (((myofascial or myofacial) next pain) and (jaw* or face* or facial*)):ti,ab,kw
- #5 (Costen* next Syndrome):ti,ab,kw
- #6 MeSH descriptor Facial Neuralgia explode all trees
- #7 (((facial next neuralgia*) or ((craniofacial or craniofacial or "cranio fascial" or "cranio facial") next (dis* or syndrom* or pain)))):ti,ab,kw
- #8 MeSH descriptor Temporomandibular Joint explode all trees
- #9 (((jaw* or mandibular) next dislocation*) or "locked jaw"):ti,ab,kw
- #10 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9)
- #11 <nothing>, from 2000 to 2012
- #12 (#10 AND #11)

Ovid MEDLINE, EMBASE, Amed, PsycINFO

AMED (Allied and Complementary Medicine) 1985 to April 2012

Embase 1980 to 2012 Week 16

Ovid MEDLINE In-Process & Other Non-Indexed Citations and Ovid MEDLINE 1946 to Present

Ovid PsycInfo 1806 to April Week 3 2012

Søketreff: 378

1. exp Temporomandibular Joint Disorders/ use prmz or Craniomandibular Disorders/ use prmz
2. temporomandibular joint disorder/ use emez or myofascial pain/ use emez
3. exp temporomandibular joint disease/ use amed
4. (Temp?romandibular* or temp?ro mandibular* or craniomandibular* or cranio mandibular* or myofacial pain or tmj* or tmd* or cmd*).tw.
5. Costen* Syndrome.tw.
6. Facial Neuralgia/ use prmz
7. (facial neuralgia* or ((craniofacial or cranio facial) adj2 (dis* or syndrom* or pain))).tw.
8. exp *Temporomandibular Joint/ use prmz
9. *temporomandibular joint/ use emez
10. Myofascial Pain Syndromes/ use amed
11. or/1-10
12. ((systematic* adj2 review*) or meta-analy*).pt,mp.
13. review.pt. and (medline or embase or pubmed or search* database* or systematic* search*).tw.
14. 12 or 13

15. 11 and 14

16. remove duplicates from 15

BMJ Clinical Evidence

Søkt via BMJ Best Practice. Ingen informasjon under "Temporomandibular joint syndrome"

UptoDate

En artikkel: "Temporomandibular joint dysfunction syndrome"

http://www.uptodate.com/contents/temporomandibular-joint-dysfunction-syn-drome?source=search_result&search=temporomandibular+joint+pain&selectedTitle=1~150

ISI Science Citation Index

Søketreff: 117

Topic=(temporomandibular OR craniomandibular OR temperomandibular OR tempuomandibular OR tmj OR tmd OR cmd) AND Topic=("systematic review" or "meta-analysis")

Databases=SCI-EXPANDED, SSCI, A&HCI Timespan=All Years

Lemmatization=Off

CINAHL

Søketreff: 15

S10 S4 and S8 Limiters - Exclude MEDLINE records

S9 S4 and S8

S8 S5 or S6 or S7

S7 TI ("systematic review" or "meta-analysis") OR AB ("systematic review" or "meta-analysis")

S6 (MH "Meta Analysis")

S5 (MH "Systematic Review")

S4 S1 or S2 or S3

S3 TI (temporomandibular or tempuomandibular or temperomandibular or temporo mandibular or tempuro mandibular or temporo mandibular or craniomandibular or cranio mandibular or tmj or cmd or tmd) OR AB (temporomandibular or tempuomandibular or craniomandibular or tmj or cmd or tmd)

S2 (MH "Craniomandibular Disorders+")

S1 (MH "Temporomandibular Joint Syndrome") OR (MH "Temporomandibular Joint Diseases+") OR (MH "Temporomandibular Joint")

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desember 2012

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