Authors' objectives
To analyse whether the claimed effects of arthroscopic surgery, arthrocentesis and physical therapy with regard to temporomandibular disorders could be substantiated by means of proper methodology.

Searching
MEDLINE was searched between 1966 and 1997 using the key terms temporomandibular joint diseases, dislocations, treatment outcomes and time factors. A handsearch was conducted on the available references of papers found.

Study selection
Study designs of evaluations included in the review
Pre-experimental, quasi-experimental; and true-experimental studies of treatments for temporomandibular disorders were included. Pre-experimental was considered as pre-and post intervention comparison of one group of patients or post intervention comparison of one group and a non-treated group. Quasi-experimental was considered as group comparison studies and time series both without randomisation. True-experimental studies were considered to be group comparison studies and time series in which subjects were randomly assigned to both groups.

Specific interventions included in the review
The following interventions were included: arthroscopic surgery defined by use of an arthroscope; arthrocentesis defined as joint lavage, hydraulic pumping or arthroscopic lavage; and physical therapy including continuous passive motion, manipulation, exercise therapy, massage and physical interventions such as ultrasound therapy, short wave diathermy, or transcutaneous electrical nerve stimulation (TENS). Splint therapy was recorded separately. The following interventions were excluded: open joint surgery, eminectomy or any other surgical technique.

Participants included in the review
Patients with permanent temporomandibular joint disc displacement disorders were included.

Outcomes assessed in the review
The following outcomes were assessed: maximal mouth opening (MMO) measured with a millimetre ruler as the inter-incisal distance on maximal mouth opening; pain intensity recorded on a visual analogue scale (VAS) of 100 mm; and mandibular function impairment assessed using a validated questionnaire.

How were decisions on the relevance of primary studies made?
Two observers independently reviewed studies and classified them by study design.

Assessment of study quality
Validity was assessed using study design. Other aspects of validity, such as validity of outcome measures used in primary studies, were mentioned. Two observers independently reviewed studies and classified them by study design.

Data extraction
The following data were extracted: author; year; method of investigation; intervention; and outcome. Methods used to extract data were not described.

Methods of synthesis
How were the studies combined?
Studies were analysed according to the method of investigation, therapeutic intervention, therapeutic intervention, and
claimed effectiveness of the intervention and combined in a narrative review.

How were differences between studies investigated?
Differences between studies were discussed in relation to methodological flaws.

**Results of the review**
Twenty-four studies were included.

Of these, 6 were of true-experimental design (444 patients), 6 were judged to be quasi-experimental (494 patients), and 12 were judged as pre-experimental (6235 patients).

Overall agreement between observers on reviewing criteria was 0.82 (P<= 0.001).

Agreement varied between 0.41 for quasi-experimental designs and 1.0 for the use of a validated questionnaire and effectiveness.

All 24 authors claimed effectiveness of the interventions. Eleven papers compared different sets of interventions but none found a statistically significant difference between the effects of the different interventions.

Results from individual studies were reported in the review as + or -, without levels of statistical significance.

The 6 true experimental studies compared a different set of interventions (arthroscopy vs arthrocentesis; flat occlusal splint vs TENS; short-wave diathermy vs pulsed wave diathermy vs ultrasound vs lasar therapy; arthrography with and without immediate lavage; arthroscopic surgery plus physical therapy vs physical therapy alone; and flat occlusal splint vs non-treatment). None of the studies used a blinded design.

Other methodological flaws in the primary studies included: lack of control group; lack of random assignment; small sample size; selection bias; use of unvalidated indexes; and lack of reporting of measurement error.

**Authors' conclusions**
No distinguishing effects on maximal mouth opening, pain, or functional impairment were reported between arthroscopic surgery, arthrocentesis and physical therapy. Results of methodologically sound outcome studies evaluating the effects of arthroscopic surgery, arthrocentesis and physical therapy are needed.

**CRD commentary**
The aims and inclusion criteria were stated. Some relevant details of the primary studies were presented in tabular format. Validity was assessed and the methods used to assess validity were reported. Given the heterogeneity among studies, a narrative review was appropriate.

By limiting the included studies to those identified from a search of one database, other relevant studies may have been omitted.

The author's conclusions were supported by the evidence.

**Implications of the review for practice and research**
Practice: The authors did not state any implications for practice.

Research: The authors considered that methodologically sound outcome studies evaluating the effects of arthroscopic surgery, arthrocentesis and physical therapy are needed.

**Bibliographic details**

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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.