Operative versus nonoperative treatment of knee dislocations: a meta-analysis

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Authors' objectives
To review the literature on knee dislocation in order to conduct a meta-analysis, and to determine whether operative or non-operative treatment had better outcomes.

Searching
MEDLINE was searched from 1966 to 1999 using the following keywords and search items: 'knee dislocation(s)', 'knee subluxation(s)', 'knee trauma', 'tibiofemoral', 'disarticulation', 'knee injury', 'bicruciate injury' and 'cruciate injury'. SPORTDiscuss was also searched using these keywords. The reference lists of all identified articles were reviewed and any relevant publications were retrieved. Only articles published from 1989 to 1999 were included in the surgical group, due to the changing nature of surgical treatments.

Study selection
Study designs of evaluations included in the review
Review articles and anecdotal case reports were excluded from the review. The included studies were described as 'prospective' or 'retrospective'.

Specific interventions included in the review
Studies involving the surgical or non-operative treatment of knee dislocations were included in the review, although no details of the specific treatments were provided.

Participants included in the review
Patients with knee dislocations were included, although no further information on them was given. Participants with open knee dislocations were excluded from the review.

Outcomes assessed in the review
Studies were included if they addressed any of the following outcome variables after knee dislocation treatment: range of motion, flexion contracture, Lysholm score (see Other Publications of Related Interest), ability to return to work, and ability to return to activities.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The authors do not state that they assessed validity.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

Data were extracted on the following: author(s); study design; average follow-up (months); the number of knee dislocations in total and individually for the surgical and non-operative groups; range of motion (degrees); flexion contracture (degrees); the numbers of patients with flexion contracture greater than 5 degrees and greater than 10 degrees; Lysholm score; anterior-posterior instability; the number and percentage of patients returning to work in the same capacity as prior to injury; and the number and percentage of patients returning to the pre-injury level of athletic activity.
Methods of synthesis
How were the studies combined?
The total or average values for each outcome variable were calculated for the operative and non-operative treatment
groups. In addition, the presence or absence of a statistically-significant difference between these two groups was
determined. The range of motion, degree of flexion contracture, and Lysholm score were analysed for statistical
significance using the Mann-Whitney rank sum test. Measurements of instability were categorised as either 'slight or no
instability' or 'more than slight instability'; the 'slight or no instability' group included patients with corresponding
subjective reports and those with no more than 5 mm anterior-posterior translation on KT-1000 testing. The instability
data for the operative and non-operative groups were compared using the chi-squared test. The ability to return to pre-
injury levels of employment and athletic activities was also compared between the two groups using the Fisher exact
test.

How were differences between studies investigated?
The authors do not state a method for assessing heterogeneity, and do not examine differences between the studies in
their results.

Results of the review
Fifteen studies were included in the review: 3 prospective and 12 retrospective. Data were available for 206 knee
dislocations.

A total of 206 knee dislocations were included in the review: 132 were treated surgically and 74 were treated non-
operatively. The average range of motion was 123 degrees in the surgical group and 108 degrees in the non-operative
group (p<0.001). Flexion contraction averaged 0.54 degrees for the surgical group and 3.5 degrees for the non-
operative group (p<0.05). A significant difference (p<0.001) was also found in Lysholm score, with mean values of
85.2 and 66.5 in the surgical and non-operative groups, respectively. There was no significant difference in the ability
to return to pre-injury levels of employment or athletic ability, or in the amount of instability between the two groups.

Authors' conclusions
Surgical treatment appears to be associated with improved outcomes, although significant disability is still possible after
successful surgical treatment.

CRD commentary
This review suffered from several methodological flaws. The literature search covered two databases and the reference
lists of retrieved articles were scanned. However, the search was limited to English language publications, thus some
relevant papers may have been missed. In addition, the inclusion criteria were broad, which reflected the unfocused
review question.

The validity of the included studies was not assessed and it was unclear how many reviewers were involved at any stage
of the review process. Though the outcome data may have been combined using appropriate methods, differences
between the studies were not assessed. In addition, there were very few data available on study designs, participants, or
the specific interventions being evaluated.

The authors' conclusions follow from their findings but should be treated with some caution.

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

Research: The authors state that 'perhaps future studies should focus on the meniscal and chondral injuries in knee
dislocations as it appears from our analysis that ligamentous stability following surgical treatment is not a major
concern for these patients'.
Bibliographic details

PubMedID
11216717

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Activities of Daily Living; Disabled Persons /statistics & numerical data; Dislocations /complications /physiopathology /surgery /therapy; Employment; Humans; Joint Instability /etiology; Knee Joint; Patient Selection; Range of Motion, Articular; Research Design; Severity of Illness Index; Sports; Treatment Outcome

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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.