INPLASY

Dorsal Wrist Impingement Syndrome: A Systematic Review of Clinical Presentation, Imaging Findings, Arthroscopic Characteristics, and Treatment Outcomes

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ADMINISTRATIVE INFORMATION

Support - N/A.

Review Stage at time of this submission - Data extraction.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202610065

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 January 2026 and was last updated on 19 January 2026.

INTRODUCTION

Review question / Objective Primary objectives:To define dorsal wrist impingement due to dorsal capsular inflammation as a distinct clinical entity; to clarify the relationship between dorsal wrist impingement and the diagnosis of suspected dorsal ganglion cyst.

Secondary objectives: To characterize the demographic and clinical profile of affected patients (age, sex, hand dominance, activity level)
To summarize typical clinical features, particularly pain provoked by wrist extension and axial loading
To describe characteristic MRI findings including dorsal capsular thickening/folding, dorsal synovitis, and associated ganglion cysts
To review typical arthroscopic findings in this condition
To summarize outcomes of nonoperative and arthroscopic treatment, including pain relief, functional improvement, and return to activity.

Rationale Dorsal wrist pain in young, active patients is commonly attributed to dorsal ganglion cysts based on imaging findings. However, based on clinical and arthroscopic observations from the authors, hypertrophic dorsal capsular tissue may be a possible source of pain. Current literature on this condition is sparse, with inconsistent terminology. No systematic review exists to explore dorsal capsular impingement as a distinct clinical entity or clarify its relationship to dorsal ganglion cysts. This review will provide the first comprehensive synthesis of evidence regarding its clinical presentation, diagnostic features, and treatment outcomes.

Condition being studied Dorsal wrist impingement syndrome; dorsal capsular impingement.

METHODS

Participant or population Adults (age ≥ 18) presenting with dorsal wrist pain, with or without imaging findings of dorsal ganglion cyst. Patients

may be described as having dorsal wrist impingement, dorsal capsular impingement, dorsal capsular inflammation, or related terminology.

Intervention Nonoperative interventions: Rest, activity modification, immobilization, corticosteroid injection, physical therapy, NSAIDs
Operative interventions: Arthroscopic debridement of inflamed dorsal capsule, arthroscopic capsular resection, arthroscopic ganglion excision, open procedures
Diagnostic interventions: MRI, wrist arthroscopy, clinical examination maneuvers.

Comparator When available:
Nonoperative treatment versus arthroscopic treatment
Alternative diagnoses (isolated dorsal ganglion cyst without capsular inflammation)
Healthy controls or asymptomatic comparison groups
No comparator required for observational studies describing clinical features, imaging findings, or arthroscopic characteristics.

Study designs to be included Randomized controlled trials, cohort studies (prospective and retrospective), case-control studies, case reports or series, cross-sectional studies.

Eligibility criteria N/A.

Information sources
MEDLINE
EMBASE
Cochrane Central Register of Controlled Trials (CENTRAL)
CINAHL.

Main outcome(s) To define dorsal wrist impingement due to dorsal capsular inflammation as a distinct clinical entity; to clarify the relationship between dorsal wrist impingement and the diagnosis of suspected dorsal ganglion cyst.

Additional outcome(s) To characterize the demographic and clinical profile of affected patients (age, sex, hand dominance, activity level)
To summarize typical clinical features, particularly pain provoked by wrist extension and axial loading
To describe characteristic MRI findings including dorsal capsular thickening/folding, dorsal synovitis, and associated ganglion cysts
To review typical arthroscopic findings in this condition
To summarize outcomes of nonoperative and arthroscopic treatment, including pain relief, functional improvement, and return to activity.

Quality assessment / Risk of bias analysis
Randomized Controlled Trials: Cochrane Risk of Bias 2 (RoB 2) tool
Cohort and Case-Control Studies: ROBINS.

Strategy of data synthesis Qualitative Synthesis:
A narrative synthesis will be conducted for all included studies, organized thematically by:
Study characteristics and methodological quality
Patient demographics and clinical features
Imaging findings and their correlation with symptoms
Arthroscopic findings and surgical techniques
Treatment approaches and outcomes
Relationship between ganglion cyst presence and clinical outcomes
Results will be presented in structured tables and narrative text to address each review objective.
Quantitative Synthesis (Meta-Analysis): If sufficient studies with homogeneous populations, interventions, and outcome measures are identified, random-effects meta-analyses will be performed using RevMan 5.4 or R (metafor package).
Planned meta-analyses include:
Pooled mean change in pain scores (VAS/NRS) after treatment
Pooled mean change in functional scores (DASH/PRWE) after treatment
Pooled proportion achieving return to activity/sport
Pooled complication and recurrence rates

Subgroup analyses (if sufficient data):
Presence vs. absence of ganglion cyst on imaging
Severity of MRI findings (capsular thickening grade, synovitis severity)
Treatment type (nonoperative vs. arthroscopic debridement)
Patient activity level (recreational vs. competitive athletes)
Follow-up duration (12 months)

Sensitivity analyses:
Excluding studies at high risk of bias
Excluding case series (if comparative studies available)
Excluding studies with significant missing data

Heterogeneity assessment:
I^2 statistic will be calculated to quantify heterogeneity
Cochran's Q test will assess statistical significance of heterogeneity
Sources of heterogeneity will be explored through subgroup analyses and meta-regression if ≥10 studies available

Effect measures:

Continuous outcomes: Mean difference (MD) or standardized mean difference (SMD) with 95% confidence intervals
Dichotomous outcomes: Risk ratio (RR) or odds ratio (OR) with 95% confidence intervals
If meta-analysis is not feasible due to heterogeneity or insufficient data, results will be synthesized narratively with structured presentation of individual study findings.

Subgroup analysis N/A.

Sensitivity analysis N/A.

Language restriction No language restrictions will be applied. Non-English articles will be translated as needed.

Country(ies) involved Canada.

Keywords Wrist; dorsal wrist pain; wrist impingement; dorsal capsular impingement; dorsal wrist capsular impingement; dorsal wrist syndrome; dorsal capsule; capsular inflammation.

Dissemination plans
Results will be disseminated through:
Peer-reviewed publication in an orthopedic or hand surgery journal
Presentation at national/international conferences (COA, ASSH, AAOS, AANA)
Plain language summary for patients and clinicians
Sharing with relevant professional organizations and clinical practice guideline developers.

Contributions of each author
Author 1 - Chloe Wong - Author 1 assisted with the search strategy, screening of papers, analysis and interpretation of the results, and manuscript draft.
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Author 2 - Shawn Khan - Author 2 assisted with the search strategy, screening of papers, analysis and interpretation of the results, and manuscript draft.
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Author 3 - Kevin Zuo - Author 2 contributed to content expertise, interpretation of results, and critical manuscript review.
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