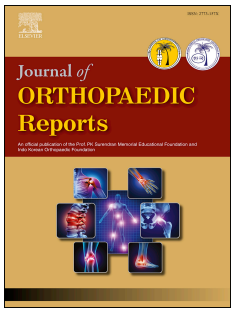

Systematic Review and Meta-Analysis of Outcomes in Workers' Compensation Patients Following Knee Surgery

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Systematic Review and Meta-Analysis of Outcomes in Workers' Compensation Patients Following Knee Surgery

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Systematic Review and Meta-Analysis of Outcomes in Workers' Compensation Patients Following Knee Surgery

Abstract

Background

An increasing volume of orthopaedic procedures are being performed worldwide, particularly in the working age population. Workers' compensation (WC) is an insurance framework designed to support workers who are injured or become injured and has been associated with poor outcomes following a number of orthopaedic procedures. This systematic review aims to investigate post-operative outcomes in WC compared with non-workers' compensation (NWC) patients following knee arthroplasty and arthroscopy.

Methods

A systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. MEDLINE, EMBASE and Google Scholar databases were assessed from inception to 9th August 2025. Meta-analysis of WC undergoing knee arthroplasty was performed using Review Manager v5.4.1 using a random effects model.

Results

An initial 513 records were initially identified. Eight retrospective observation studies were included, consisting of five studies investigating arthroplasty and three studies investigating knee arthroscopy. Meta-analysis of the arthroplasty studies showed a significantly reduced Knee Society knee (MD = -16.14, P=0.002) and function (MD = -12.08, P<0.00001) scores, reduced range of motion (MD = -5.99, P=0.0002) and increased complications (OR = 5.83,

P=0.03) in the WC group. There were reduced return to work rates or prolonged time off work. Moderate to high individual risk of bias were evident in the reviewed studies.

Conclusion

WC status is associated with poorer Knee Society scores, reduced range of motion and increased complications following knee arthroplasty. However, the strength of evidence is low to moderate with serious biases with caution advised on its interpretation.

Key Words: Workers' Compensation, Knee Surgery, Total Knee Arthroplasty, Systematic Review

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1 Introduction

The volume of orthopaedic procedures being performed worldwide continues to increase annually[1]. In the United States (US) the demand for primary joint arthroplasty is projected to increase by approximately 70% by 2050[2]. Total knee arthroplasty (TKA) is the most frequently performed orthopaedic surgery in the US[3,4], with patients under the age of 65 the fastest growing subgroup of recipients[5]. US registry data indicates that individuals with post-traumatic knee arthritis and a history of prior knee surgery undergo TKA at a mean age of 59 years, approximately seven years earlier than those with primary osteoarthritis, at an average interval of 13.1 years between prior surgery and arthroplasty[6]. Given that many of these patients sustain injuries and undergo knee procedures during their working life, there is increasing focus on optimising surgical outcomes in this population. Surgical outcomes are multifactorial and may be influenced by factors such as workers' compensation (WC) status[7].

WC is an insurance framework designed to support employees who are injured or become ill in the course of their employment. Approaches to WC vary significantly between countries and jurisdictions[8]. Compensation may take the form of medical and disability benefits as well as occupational rehabilitation to facilitate a return to the workforce. WC patients traditionally have been reported to have significantly worse post operative outcomes with lower patient-reported outcome scores, satisfaction, and quality of life when compared with their non-workers' compensation (NWC) counterparts[9]. This may be due to the delayed treatment and administrative burdens imparted by long approval processes, the psychosocial stresses workers encounter having to navigate administrative hurdles, or to delayed recovery from perceived secondary psychosocial or financial gain[10–12].

Recent systematic reviews in shoulder[13] and spine surgery[14] have shown an association between WC patients and poorer post-operative outcomes. Existing efforts employed meta-

analyses of all types of surgical interventions[9] or all orthopaedic interventions[7] which may prevent a detailed subspecialty analysis. No systematic reviews have specifically investigated outcomes following knee surgery. The purpose of this systematic review is to investigate post-operative surgeon and patient reported outcomes in WC patients compared with NWC patients following knee arthroplasty and knee arthroscopy. We hypothesize that WC patients will perform worse following knee surgery.

2 Methods

This study is a systematic review and meta-analysis reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement[15]. The study is registered under the International Prospective Register of Systematic Reviews (PROSPERO) under ID 1107932.

2.1 Eligibility Criteria and Information Sources

The eligibility criteria were established *a priori*. We included all studies that compared WC versus NWC statuses following knee surgery. No specific definition of WC status was explicitly specified. Primary outcomes were post-operative surgeon and patient reported outcome measures (PROMs). Secondary outcomes included range of motion, complications, revision rates, return to work, and subjectively reported satisfaction measures.

Studies were identified by searching electronic databases and hand-searching reference lists of all included articles. The search terms were applied from each database inception, with the last search performed on 9th August 2025 for PubMed/MEDLINE (1946 – present) and Ovid/EMBASE (1980 – present). The first 200 results from Google Scholar were also included.

2.2 Search Strategy

We used the following keywords and Boolean operators for the search: workers compensation AND (knee OR arthroplasty OR arthroscopy OR meniscus OR cruciate ligament). Where possible both the keyword, acronym and Medical Subject Heading (MeSH) term were used. Only published articles in peer-reviewed journals in English were included. Studies that investigated only WC without a comparison group were excluded. Case studies, letters to editors, conference abstracts and technical notes were also excluded. Identified

electronic database citation results were collected in Zotero 7.0.25 (Digital Scholar, Vienna, Virginia, United States). The PRISMA flow diagram was created using a Shiny App[16].

2.3 Selection Process

Following duplicate removal, all articles were independently screened by title and abstract by two authors (WX and MM). Full-text articles were assessed independently by the same authors. Disagreements were resolved by consensus with a third senior author (DR). The first author, WX, performed hand searching of all reference lists of included studies for additional studies that fulfilled the eligibility criteria. Final inclusion was achieved with consensus with all authors.

2.4 Data Collection Process and Data Items

An Office Excel 2024 (Microsoft, Redmond, Washington, United States) spreadsheet was established for data collection. WX extracted the data results and MM independently checked the results. The authors elected to use only published results and did not contact study authors for unpublished data.

Extracted data included: 1) the study characteristics consisting of the country of study, surgery type, study interval, follow up duration, sample sizes of WC and NWC cohorts, and mean age; 2) the outcome measures which included surgeon or patient reported outcome measures, range of motion, revisions, complications, return to work status and satisfaction scores.

2.5 Effect Measures

The mean difference (MD) with 95% confidence intervals was calculated between WC versus NWC for Knee Society Score, Knee Society Function Score and range of motion. The odds ratio (OR) with 95% confidence interval was calculated for revision rates and complications.

For dichotomous outcomes, a Mantel-Haenszel fixed effects model was employed; for continuous outcomes an inverse variance random effects model was employed. Random effects models were used due to the variation in population, follow up period and WC definition. A *P*-value of <0.05 was considered significant.

2.6 Data Analysis and Synthesis

Meta-analysis with forest plots was performed using Cochrane Review Manager version 5.4.1 (The Cochrane Collaboration, Copenhagen, Denmark). Heterogeneity was assessed using I^2 statistics. An I^2 score of 25%, 50% and 75% represented low, moderate and high heterogeneity, respectively.

We elected to include only knee arthroplasty in the meta-analysis due to the scarcity of reported data points in the arthroscopy studies to provide a more generalisable result.

2.7 Estimating Missing Data

Studies[17,18] that reported outcomes in mean and range were transformed into mean and standard deviation using validated statistical methods proposed by Wan et al[19].

2.8 Reporting and Risk of Bias Assessment and Certainty Assessment

Individual study risk of bias was evaluated using the Risk Of Bias in Non-randomized Studies – of Exposures (ROBINS-E)[20], which is a structured validated approach to assessing risk of bias in observational epidemiological studies. Seven domains were assessed and a label of low risk, some concerns, high risk and very high risk was assigned.

The certainty of evidence was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology[21] and a summary of findings was created using the GRADEpro GDT software (McMaster University and Evidence Prime).

3 Results

3.1 Study Selection

A flow chart showing the selection of studies is presented in Figure 1. An initial search yield 513 results. After duplicate removal, 366 records were screened through an initial title search. 17 studies were sought for full text reviews with four studies excluded for being case series; two studies with a comparison group involving Medicaid or Medicare participants; one study did not have a comparison group, one study investigated non-operative procedures and one study did not provide outcome measures. A total of eight studies were included in the systematic review.

3.2 Study Characteristics

The study characteristics are summarised in Table 1. Five studies[17,18,22–24] investigated WC and knee arthroplasty, while three studies[25–27] investigated WC and knee arthroscopy. All studies were retrospective observational studies based in North America. Study participants were majority working age men. Those that underwent arthroscopy had a mean age in the third decade of life, while those that underwent arthroplasty were in their fifth to sixth decade of life. Mean follow up duration ranged from 22.5 to 82 months. A total of 484 participants were recruited across all studies, with 200 in the WC group and 284 in the NWC group. Meta-analysis was performed for four studies[17,18,23,24], all were looking at outcomes following knee arthroplasty, encompassing 237 participants.

3.3 Meta-Analysis of Outcomes

The Knee Society Clinical Rating System[28] is a validated knee outcome score reported by surgeons, composing of two domains looking at knee rating in regards to pain, stability and range of motion; as well as a functional score. It has since been updated in 2011 to better

reflect both surgeon and patient reported outcome measures, but the included studies were all published pre-2011.

3.3.1 Knee Society Knee Score

Meta-analysis of four studies[17,18,23,24] shown in Figure 2, demonstrated there was a significant reduction in Knee Society knee score in the WC group (MD = -16.14; 95% CI [-26.14, -6.14], $P = 0.002$). There was a high degree of heterogeneity in this result ($I^2 = 88\%$).

3.3.2 Knee Society Function Score

Meta-analysis of three studies[18,23,24] shown in Figure 3, demonstrated there was a significant reduction in Knee Society function score in the WC group (MD = -12.08; 95% CI [-17.17, -6.98], $P < 0.00001$).

3.3.3 Range of Motion

Meta-analysis of three studies[18,23,24] shown in Figure 4, demonstrated reduced flexion in the WC group (MD = -5.99; 95% CI [-9.13, -2.84], $P = 0.0002$).

3.3.4 Revisions

The number of subsequent revision surgeries was not statistically significant between WC and NWC groups, $P = 0.55$ (Figure 5).

3.3.5 Complications

All cause complications including re-operations for manipulation under anaesthetic and open surgery for stiffness, excluding revisions were meta-analysed in three studies[17,23,24]. Figure 6 demonstrated there was a significantly higher rate of complications in the WC group (OR 5.83; 95% CI [1.24, 27.51], $P = 0.03$).

3.4 Return to Work

Six studies investigated return to work or return to normal activities, with results heterogenous. Three studies[17,23,26] commented that the WC group were less likely to return to full activities or return to work in a strenuous or moderately strenuous job compared with the NWC group. One study[27] suggested statistically significantly longer days off work in the WC group (222 versus 35 days off work, $P < 0.001$). Only one study[24] that investigated unicompartmental knee arthroplasty showed no significant difference in the return to work rate. However, they acknowledged that the numbers were too small to make any useful comments.

3.5 Satisfaction and Other Outcome Measures

All studies that looked at subjective satisfaction or reported other outcome measures noted worse outcomes in the WC group. Two studies[25,26] that investigated knee arthroscopy endorsed worse subjective outcomes. One study[22] that investigated knee arthroplasty reported worse Hospital for Special Surgery Scores (44.8 versus 62.4, $P = 0.002$). One study[23] reported significantly worse quality of life in a telephone survey in the WC group.

3.6 Risk of Bias in Studies and Reporting Biases

The individual risk of bias is presented in Figure 7. Four studies[18,22,23,26] showed overall some concerns risk of bias while four studies[17,24,25,27] were deemed high risk.

3.7 Certainty of Evidence

The GRADE evidence profile is presented in Supplementary Figure 1. “Some Concerns” and “High Risk” categories in the overall assessment of risk of bias, identified using the ROBINS-E tool, was deemed to be considered serious in the GRADE approach. This resulted in the downgrading of the certainty of evidence. The certainty of evidence ranged from Very Low to Moderate for the meta-analysis and Very Low for the narrative analysis.

4 Discussion

This systematic review investigated outcomes in WC patients following knee arthroplasty or arthroscopy. A total of eight studies were included in our qualitative analysis, with five studies investigating arthroplasty and three investigating arthroscopy. Meta-analyses of four studies that underwent knee arthroplasty encompassing 237 participants were performed demonstrating lower Knee Society knee and function scores, reduced range of motion and higher complications in the WC group. Qualitative analysis suggested reduced return to work rate or prolonged time off work with poorer subjective satisfaction.

Our study concurs with the wider existing body of literature in reflecting poorer outcomes following knee surgery, particularly in knee arthroplasty. WC status has been previously reported in systematic reviews in other orthopaedic subspecialties, with recent reviews in shoulder and elbow[13], spine[14], hand and upper extremity[29], and hip arthroscopy[30]. Each review has concluded poorer outcomes in WC; with regards to PROMs, delayed return to work and lower satisfaction. Knee arthroplasty typically provides a successful operation for improving pain and function in patients with arthritis. Unfortunately, dissatisfaction rates have been reported to be 10 to 20%[31], with socioeconomic and perioperative factors suggested to play a role[32]. Our meta-analysis suggests WC would constitute another component in dissatisfaction rates and aids part of the informed consent process.

The included studies were all retrospective observational studies. Although epidemiological studies are useful to describe the magnitude of the problem, it would be difficult to assign causal effect attributed solely to WC status, and the existing surgical literature does not explore the causative processes. The negative outcomes of WC claimants are postulated to be multifaceted. Interactions are not limited to just between workers and treating clinicians, but also with a potentially adversarial third-party insurance system which may result in a

complex psychosocial overlay to the worker[33]. Kilgour et al.'s[10] systematic review identified themes between workers' and navigating their insurance compensation systems. The difficulties in navigating through administrative and financial hurdles, limitations in health literacy and worker's rights, perceived or actual claims manipulation, differential access to treatment options, and secondary pecuniary gain all contribute to the idea that being in a compensation system results in poorer outcomes.

The included studies in the current review were all based in North America. WC varies widely with different jurisdictions and regions having different coverages which consequently will have dissimilar impacts on claimants[8]. There lacks a unified standardised WC model that would be broadly applicable. There may be overlap with other forms of insurance which would result in under-capturing of the WC population in this review, with risk of Type I error. No studies identified during the search compared WC claimants with other types of insurance models.

The baseline demographics of the WC group is of particular interest when considering function-related outcomes. The included patients in the meta-analysis were working-aged men who underwent surgical intervention at a younger age than a typical older cohort, and as such, optimising functional recovery and return-to-work is paramount when considering their potential working lifespan. Although heterogeneity exists within our return-to-work dataset, there is a signal for harm, with greater time absent from work, and reduced capacity to return to previous function. Noyes et al.[27] hypothesised several contributing factors including ongoing financial support, lack of flexibility of employment, ineffective case management, limited retraining as well as delays with care. While these factors reflect the inefficiencies and psychological stressors associated with navigating the various compensation frameworks, it is likely that the loss of regular employment contributes to functional recovery in of itself. Bray et al.[26] demonstrated that both being on both WC and being unemployed had a negative

impact on patient-reported and objective functional outcomes. There are strong associations between unemployment and poor mental health outcomes. The protective psychosocial benefits of employment may promote both functional recovery and improve outcomes[34]. Supporting interventions that promote re-employment and psychological support for individuals may help to mitigate any potential impact on mental health and improve outcomes.

This review has several weaknesses and limitations in its interpretation. The strength of the evidence was mostly low to moderate, with the included studies having a variable methodological quality and moderate to high risk of bias. Most studies were historic and all were retrospective observational studies with the inherent biases according to retrospective studies. There lacked any recent higher quality prospective analyses. Furthermore, there was no unified definition of WC included in the search. The search relied on utilising each study's definition of what is WC as well as the use of MeSH terms. This may potentially have omitted studies that investigated WC patients but did not specifically utilise the term. Additionally, WC schemes differ dramatically across different regions. Our included studies were based in Canada and United States only. This may further limit generalisability to a non-North American population. Finally, we were only able to achieve meta-analyses for those of knee arthroplasty, with lack of data to conclude from knee arthroscopy. As a result, strength in the interpretation would err towards knee arthroplasty. The heterogenous patient and procedure selection limits the overall generalisability of the review.

In summary, WC status is associated with poorer Knee Society scores, reduced range of motion and increased complications following knee arthroplasty. However, the strength of evidence is very low to moderate with serious inherent biases which limits its generalisability and caution advised on its interpretation. Further well-designed, prospective observational

and epidemiological studies utilising large insurance databases or registries are future directions of research.

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Table 1 Study Characteristics

Study	Setting	Surgery Type	Years Included	Mean Follow Up (months)	Study Type	Population # (Total = 484)	WC # (Total = 200)	NWC # (Total = 284)	Men / N (%)	Mean Age / years
Barrett 2001	US	ACL Reconstruction	1997 – 1997	33.6	Retrospective Cohort	139	24	115	WC 22 (92); NWC 74 (64)	
Bray 1987	Canada	Arthroscopic Lateral Release	1982 – 1985	27.6	Retrospective Case Control	50	26	24		WC 36; NWC 37.4
Brinker 1998	US	TKA	1987 – 1992	22.5	Retrospective Case Control	20	10	10	WC 9 (90); NWC 9 (90)	WC 56.5; NWC 58.8
De Beer 2005	Canada	TKA	1998 – 2002	34.4	Retrospective Case Control	76	38	38	WC 32 (84)	WC 61; NWC 61
Masri 2009	Canada	UKA	2000 – 2002	WC 38; NWC 42	Retrospective Cohort	39	19	20	WC 11 (58);	WC 58.9; NWC 61.9

									NWC 10 (50)	
Mont 1998	US	TKA	1980 – 1993	WC 80; NWC 82	Retrospective Case Control	84	42	42	WC 32 (76); NWC 32 (76)	WC 48; NWC 50
Noyes 1997	US	ACL Reconstruction	Unclear	WC 27; NWC 26	Retrospective Case Control	38	19	19	WC 16 (84); NWC 16 (84)	WC 29; NWC 32
Saleh 2004	US	TKA	1991 - 1997	WC 56; NWC 63	Retrospective Case Control	38	22	16	WC 6 (37.5); NWC 6 (37.5)	WC 57; NWC 57

ACL – Anterior Cruciate Ligament; NWC - Nonworkers' Compensation; TKA – Total Knee Arthroplasty; UKA – Unicompartmental Knee Arthroplasty; US – United States; WC - Worker's Compensation

Figure 1

PRISMA Flow Diagram

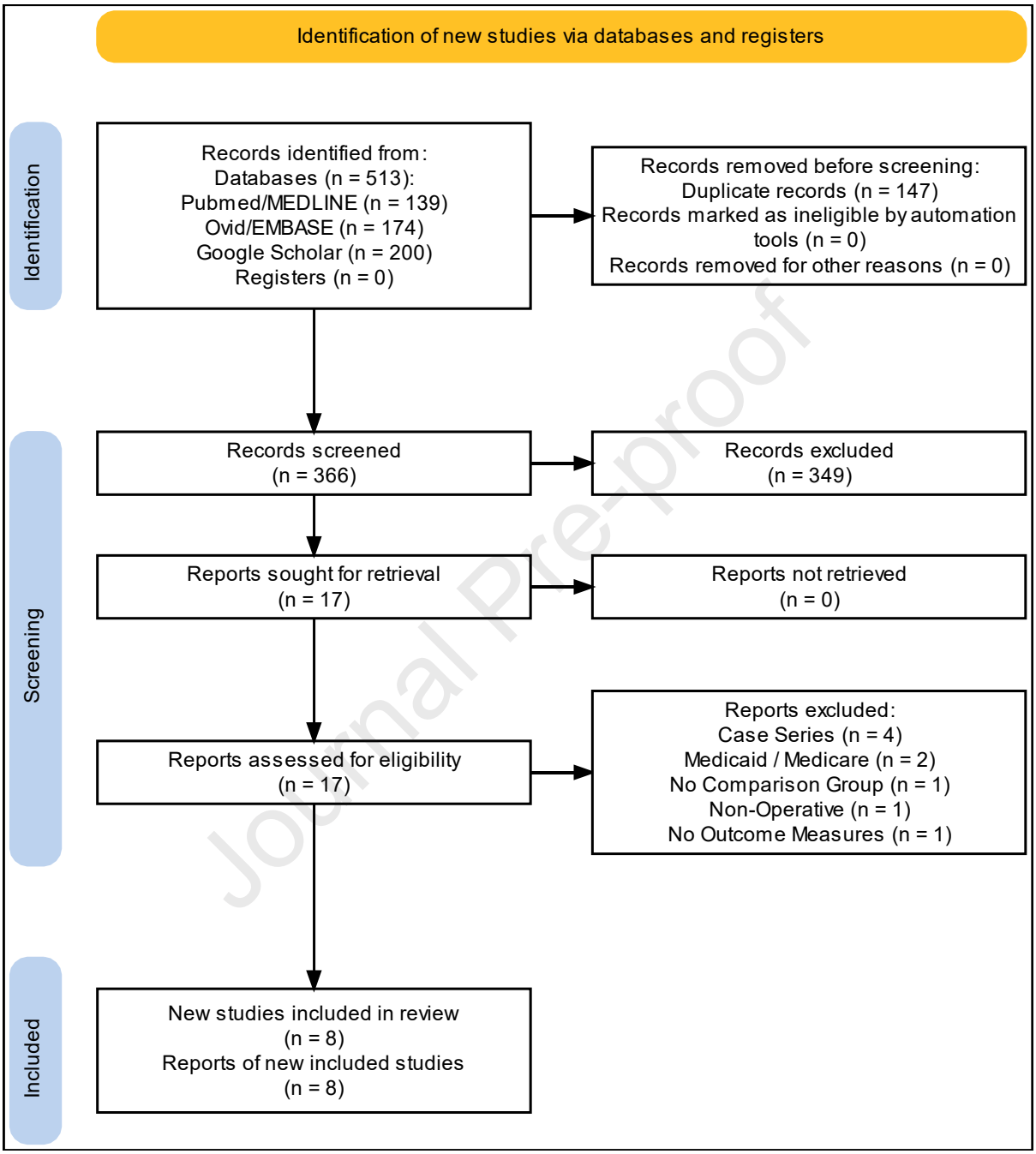

Figure 2

Knee Society Knee Score

Study or Subgroup	Workers' Compensation Mean	SD	Total	Non-Workers' Compensation Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
de Beer 2005	81.8	18.2	38	87.1	15.5	38	24.5%	-5.30 [-12.90, 2.30]
Masri 2009	76.9	16.8	19	90.7	8	20	23.8%	-13.80 [-22.13, -5.47]
Mont 1998	64	17.2	42	93	9.9	42	25.9%	-29.00 [-35.00, -23.00]
Saleh 2004	77.9	13.1	22	93.6	5.6	16	25.8%	-15.70 [-21.82, -9.58]
Total (95% CI)			**121**			**116**	**100.0%**	**-16.14 [-26.14, -6.14]**

Heterogeneity: $Tau^2 = 91.17$; $Chi^2 = 25.09$, df = 3 ($P < 0.0001$); $I^2 = 88\%$

Test for overall effect: Z = 3.16 (P = 0.002)

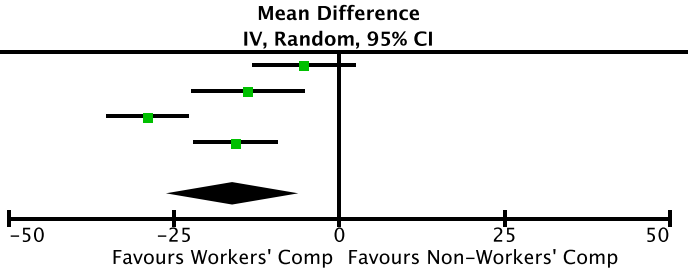

Figure 3

Knee Society Function Score

Study or Subgroup	Workers' Comp Mean	SD	Total	Non-Workers' Comp Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
de Beer 2005	67.9	24.3	38	79.1	20.7	38	25.2%	-11.20 [-21.35, -1.05]
Masri 2009	75	16	19	90	6.4	20	43.6%	-15.00 [-22.72, -7.28]
Saleh 2004	73	14.4	22	81.7	14	16	31.2%	-8.70 [-17.82, 0.42]
Total (95% CI)			**79**			**74**	**100.0%**	**-12.08 [-17.17, -6.98]**

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 1.11$, df = 2 (P = 0.58); $I^2 = 0\%$

Test for overall effect: Z = 4.64 (P < 0.00001)

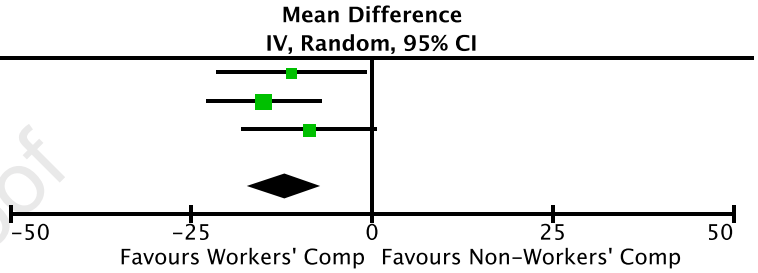

Figure 4

Range of Motion

Study or Subgroup	Workers' Compensation Mean	SD	Total	Non-Workers' Compensation Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
de Beer 2005	107.1	12.3	38	115.5	9.1	38	41.8%	-8.40 [-13.26, -3.54]
Mont 1998	101	13.8	42	106	10.3	42	36.5%	-5.00 [-10.21, 0.21]
Saleh 2004	109	6.5	22	112	12.6	16	21.7%	-3.00 [-9.74, 3.74]
Total (95% CI)			**102**			**96**	**100.0%**	**-5.99 [-9.13, -2.84]**

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 1.84$, df = 2 (P = 0.40); $I^2 = 0\%$
Test for overall effect: Z = 3.73 (P = 0.0002)

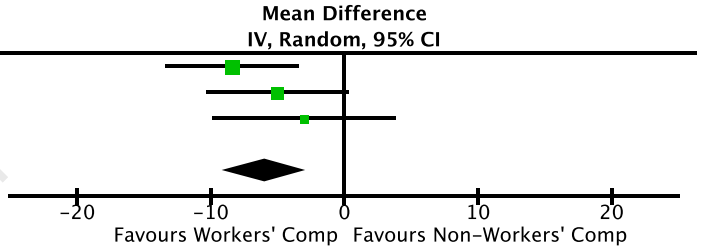

Figure 5

Revisions

Study or Subgroup	Workers' Compensation Events	Workers' Compensation Total	Nonworkers' Compensation Events	Nonworkers' Compensation Total	Weight	Odds Ratio M-H, Random, 95% CI
de Beer 2005	2	38	1	38	33.8%	2.06 [0.18, 23.68]
Masri 2009	2	19	2	20	47.2%	1.06 [0.13, 8.38]
Saleh 2004	1	22	0	16	19.0%	2.30 [0.09, 60.23]
Total (95% CI)		**79**		**74**	**100.0%**	**1.54 [0.37, 6.36]**
Total events	5		3			

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.24$, df = 2 (P = 0.89); $I^2 = 0\%$

Test for overall effect: Z = 0.59 (P = 0.55)

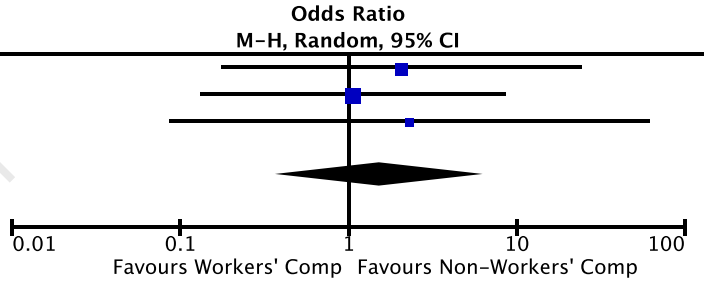

Figure 6

Complications

Study or Subgroup	Workers' Compensation Events	Total	Nonworkers' Compensation Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
de Beer 2005	5	38	1	38	49.8%	5.61 [0.62, 50.48]
Masri 2009	1	19	0	20	22.6%	3.32 [0.13, 86.75]
Mont 1998	4	42	0	42	27.6%	9.94 [0.52, 190.60]
Total (95% CI)		**99**		**100**	**100.0%**	**5.83 [1.24, 27.51]**
Total events	10		1			

Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 0.24$, df = 2 (P = 0.89); $I^2 = 0\%$
Test for overall effect: Z = 2.23 (P = 0.03)

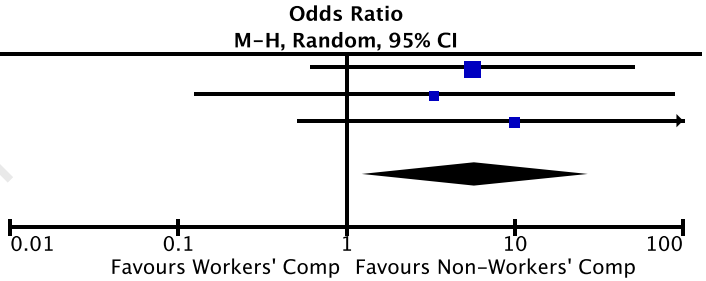

Figure 7

Risk of Bias in Non-randomised Studies – of Exposures (ROBINS-E)

	1	2	3	4	5	6	7	Overall risk
Barret	High	Low	Low	Moderate	Low	High	Moderate	High
Bray	Moderate	Low	Low	Moderate	Moderate	Moderate	Moderate	Moderate
Brinker	Moderate	Moderate	Low	Low	Moderate	Moderate	Low	Moderate
de Beer	Moderate	Low	Low	Moderate	Moderate	Moderate	Moderate	Moderate
Masri	High	Low	Moderate	Low	Moderate	Moderate	Moderate	High
Mont	Moderate	Low	Low	Moderate	Low	High	Moderate	High
Noyes	Moderate	Low	Moderate	High	Moderate	High	Moderate	High
Saleh	Moderate	Low	Low	Low	Moderate	Moderate	Moderate	Moderate

Bias: Domain 1: due to confounding; Domain 2: arising from measurement of the exposure; Domain 3: in selection of participants into the study; Domain 4: due to post-exposure interventions; Domain 5: due to missing data; Domain 6: in measurement of the outcome; Domain 7: in selection of the reported result.

Low = Low risk of bias; Moderate = Some Concerns; High = High risk of bias

Supplementary Figure 1

Grading of Recommendations Assessment, Development and Evaluation (GRADE) Tool

Participants (studies) Follow-up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	Study event rates (%)		Relative effect (95% CI)	Anticipated absolute effects	
							With Non-Workers' Compensation	With Workers' Compensation		Risk with Non-Workers' Compensation	Risk difference with Workers' Compensation
Knee Society Score											
237 (4 non-randomised studies)	serious	serious[a]	not serious	serious[b]	none	⨁◯◯◯ Very low[a,b]	116	121	-	116	MD **16.14 lower** (26.14 lower to 6.14 lower)
Knee Function Score											
153 (3 non-randomised studies)	serious	not serious	not serious	serious[b]	none	⨁⨁◯◯ Low[b]	74	79	-	74	MD **12.08 lower** (17.17 lower to 6.98 lower)
Flexion											

198 (3 non-randomised studies)	serious	not serious	not serious	serious[b]	none	⊕⊕◯◯ Low[b]	96	102	-	96	MD **5.99 lower** (9.13 lower to 2.84 lower)

Revision

153 (3 non-randomised studies)	serious	not serious	not serious	serious[c]	none	⊕⊕◯◯ Low[c]	3/74 (4.1%)	5/79 (6.3%)	**OR 1.54** (0.37 to 6.36)	3/74 (4.1%)	**21 more per 1,000** (from 25 fewer to 171 more)

Complications

199 (3 non-randomised studies)	serious	not serious	not serious	serious[c]	strong association	⊕⊕⊕◯ Moderate[c]	1/100 (1.0%)	10/99 (10.1%)	**OR 5.83** (1.24 to 27.51)	1/100 (1.0%)	**46 more per 1,000** (from 2 more to 207 more)

Return to Work

0 (6 non-randomised studies)	serious	serious[d]	serious[d]	serious[e]	none	⊕◯◯◯ Very low[d,e]	Three studies showing WC less likely to return to full activities or return to work. One study demonstrated longer days off work. One study demonstrated no significant difference.

Satisfaction

0 (4 non-randomised studies)	serious	serious[f]	serious[e]	serious[g]	none	⊕◯◯◯ Very low[e,f,g]	Four studies demonstrated worse subjective satisfaction scores.

CI: confidence interval; **MD:** mean difference; **OR:** odds ratio

Explanations

a. High I2 statistic

b. Low sample size

c. Unclear how this was recorded amongst studies. No database to trace patients presenting to other hospitals. Potentially under-estimating effect.

d. Heterogenous measurement in return to work. Separate studies investigated return to normal activity, while others looked at time off work.

e. Inconsistent follow up time points and periods across the studies.

f. Different scoring systems to measure satisfaction.

g. One study used phone call follow up, while others collected via interviews.

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Ethical Statement

Institutional Ethical Board Review Approval was not required as it is a systematic review

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CRediT Author Statement

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