One and done? The effectiveness of a single session of physiotherapy compared with multiple sessions to reduce pain and improve function and quality of life in patients with a musculoskeletal disorder: a systematic review with meta-analyses

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REVIEW ARTICLE (META-ANALYSIS)

One and Done? The Effectiveness of a Single Session of Physiotherapy Compared With Multiple Sessions to Reduce Pain and Improve Function and Quality of Life in Patients With a Musculoskeletal Disorder: A Systematic Review With Meta-analyses

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Abstract

Objective: To compare single and multiple physiotherapy sessions to improve pain, function, and quality of life (QoL) in patients with musculoskeletal disorders (MSKDs).

Data Sources: AMED, Cinahl, SportsDiscus, Medline, Cochrane Register of Clinical Trials, Physiotherapy Evidence Database, and reference lists.

Study Selection: Randomized controlled trials (RCTs) comparing single and multiple physiotherapy sessions for MSKDs.

Data Extraction: Two reviewers extracted data and assessed risk of bias and certainty of evidence using Cochrane Risk of Bias tool 2.0 and Grading of Recommendation Assessment, Development, and Evaluation.

Data Synthesis: Six RCTs (n=2090) were included (conditions studied: osteoporotic vertebral fracture, neck, knee, and shoulder pain). Meta-analyses with low-certainty evidence showed a significant pain improvement at 6 months in favor of multiple sessions compared with single session interventions (3 RCTs; n=1035; standardized mean difference [SMD]: 0.29; 95% CI: 0.05 to 0.53; *P*=.02) but this significant difference in pain improvement was not observed at 3 months (4 RCTs; n=1312; SMD: 0.39; 95% CI: -0.11 to 0.89; *P*=.13) and at 12 months (4 RCTs; n=1266; SMD: -0.05; 95% CI: -0.49 to 0.39; *P*=.82). Meta-analyses with low-certainty evidence showed no significant differences in function at 3 (4 RCTs; n=1583; SMD: 0.05; 95% CI: -0.11 to 0.21; *P*=.56), 6 (4 RCTs; n=1538; SMD: 0.06; 95% CI: -0.12 to 0.23; *P*=.53) and 12 months (4 RCTs; n=1528; SMD: 0.08; 95% CI: -0.08 to 0.25; *P*=.30) and QoL at 3 (4 RCTs; n=1779; SMD: 0.08; 95% CI: -0.02 to 0.17; *P*=.12), 6 (3 RCTs; n=1206; SMD: 0.03; 95% CI: -0.08 to 0.14; *P*=.59), and 12 months (4 RCTs; n=1729; SMD: -0.03; 95% CI: -0.12 to 0.07; *P*=.58).

Conclusions: Low certainty meta-analyses found no clinically significant differences in pain, function, and QoL between single and multiple physiotherapy sessions for MSKD management for the conditions studied. Future research should compare the cost-effectiveness of those different models of care.

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Musculoskeletal disorders (MSKDs) are highly prevalent with an estimated 1.71 billion individuals worldwide dealing with an MSKD,[1] a probably very conservative estimate because of the lack of data from many developing countries.[2] MSKDs are also

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frequently associated with significant levels of disability, ranking first in years lost to disability based on the latest Global Burden of Disease report.[3] Persistent pain and disability resulting from MSKDs may also lead to long-term psychological consequences,[4] as well as a significant societal burden due to the high associated health care costs and their effect on workforce availability.[5,6]

Treatments provided to individuals presenting with MSKDs are frequently considered subpar. They often rely on medication, imaging, and passive modalities, without providing adequate education and advice to foster self-management.[7,8] The current model of care has been described as a frequent waste of health care resources because it does not significantly reduce MSKDs prevalence nor their associated health care costs and it seems to have little to no effect on natural course of the condition.[9-12] This is even more problematic because demand for MSKDs management by health care professionals is increasing and many countries' health care systems fail to meet this demand.[13] Increasing wait times in public health care systems, leave individuals forced to turn to private health care, creating moral and ethical issues.[14] Inequality in the provision of care with regard to MSKDs is particularly concerning, given that people with a lower socioeconomic status show a higher prevalence of MSKDs.[15]

Current interventions have shown limited effectiveness highlighted by small to moderate effect sizes and limited evidence of their effectiveness in the long term.[16] Those findings prompt us to consider whether providing lower-cost, lower-burden interventions could lead to similar results, while improving access to care and reducing inequalities between people with different socioeconomic statuses. One possible solution would be to provide 1 session of education and advice to equip individuals suffering from MSKDs with tools to foster self-management skills. Recent trials in spinal and shoulder pain showed that a single session of education and advice delivered by a health care professional led to similar results as more extensive interventions.[17,18]

Strong recommendations have been made for education and patient self-management as the first line treatment options for MSKDs.[8,16] Recently, experts in the field of MSKDs have advocated for a mentality change regarding MSKDs management, suggesting that they should be managed, like other chronic medical conditions such as diabetes, with an approach that considers the patient as a whole, focuses on their personal characteristics, and aims to improve patients' self-management skills.[2,10]

The purpose of this systematic review was to compare the effectiveness of a single session of physiotherapy compared with multiple sessions to reduce pain and improve function and quality of life (QoL) in patients with MSKDs. The hypothesis was that there would be no significant differences in pain, function, and QoL levels between a single session and multiple sessions of physiotherapy care for the management of MSKDs.

List of abbreviations:

MD	**mean difference**
MSKD	**musculoskeletal disorders**
OA	**osteoarthritis**
PEDro	**Physiotherapy Evidence Database**
RCT	**randomized controlled trial**
RoB	**risk of bias**
SMD	**standardized mean difference**

Methods

We followed the 2020 Preferred Reporting Items for Systematic Reviews and Meta-analyses recommendations when reporting this prospectively registered systematic review (PROSPERO database identifier: CRD42023394943).[19] We also used the Cochrane handbook to guide the conduct of this systematic review.[20] No protocol was published for this review.

Literature search and study identification

Five databases (AMED, Cinahl complete, SportsDiscus, Medline, Physiotherapy Evidence Database [PEDro]) and 1 registry (Cochrane Register of Clinical Trials) were searched from their inception to September 12, 2022. Keywords included the provider ("Physical Therapy", "Physiotherapy", "Physical Therapist", OR "Physiotherapist"), the condition ("Pain", "Hip", "Knee", "Ankle", "Shoulder", "Wrist", "Hand", "Spine", "Back", "Neck", "Arthritis", "Chronic", "MSK", "Musculoskeletal", "limb"), the study design ("RCT", "Randomised Control Trial", "Randomized Control Trial"), and the intervention ("Single", "Individual", "One-to-one", "Advice", "Exercise", "Education"). Each search strategy was adjusted to the specific database. References from relevant studies, systematic reviews, and included studies were screened for additional potential trials. Complete search strategies are presented in appendix 1.

Study selection

Study selection was conducted using Rayyan web application (Rayyan Systems Cambridge, MA, USA). After removing duplicates, 2 authors (K.G., J.R.) independently screened each title and abstract. All relevant full-text articles were then obtained and screened to determine if they met the inclusion criteria. Disagreements were resolved by discussion with a third reviewer (K.M.). The inclusion criteria were (1) adults with MSKDs; (2) randomized controlled trials (RCTs); (3) included results for at least 1 outcome of interest (pain, function, QoL); (4) compared an intervention of a single face-to-face in-person session with a physiotherapist to an intervention with multiple sessions with a physiotherapist; (5) written in English. A single session of physiotherapy could be compared with any other intervention provided as part of the usual physiotherapy care (education, manual therapy, supervised exercises, dry needling, multimodal care, etc), as long as the comparator included more than 1 follow-up session. The content of the single face-to-face physiotherapy session could be varied: education and advice, provision of an exercise program, manual therapy, or any other treatment modality. Interventions including a home exercise program without subsequent supervised follow-up sessions with a physiotherapist were included in this group. Outcomes of interest were pain, function, and QoL, assessed using validated patient-reported outcome measures.

Data extraction

The first reviewer (M.O.D.) extracted the data. Two other reviewers (K.G., J.R.) then corroborated or completed the extraction if data were found to be incorrect or missing. Data were extracted for participants' characteristics (number of subjects per arm, sex/gender, duration of symptoms, age), characteristics of interventions (duration, frequency, type of treatment), and outcomes of the interventions for the variables of interest (pain,

function, QoL). Authors of the included RCTs were contacted for additional unpublished data when needed. Outcome assessment was performed at the following time points: 3, 6, and 12 months.[20] When the follow-up times used by the studies differed from our time points, the closest follow-up to the one we used was considered for pooling of data (ie, 4 months for the 3-month meta-analysis and 8 months for the 6-month meta-analysis).

Risk of bias assessment

Risk of bias (RoB) of included studies was assessed by 2 reviewers (M.O.D., S.D.) using the 5 criteria of the Cochrane RoB tool 2.0.[20] Those 5 criteria are (1) RoB arising from the randomization process; (2a) RoB due to deviations from the intended interventions (2b) RoB due to deviations from the intended interventions; (3) RoB due to missing outcome data; (4) RoB in measurement of the outcome; and (5) RoB in selection of the reported result. Each criterion has his own algorithm to assess the quality and the result is reported as "low risk", "some concerns", or "high risk" of bias. Major flaws included but were not restricted to major conflict of interest of authors, major methodological shortcomings or inadequate funding bodies. A study was considered to be at "low RoB" if all domains were at "low RoB". A study was considered to have "some concerns of bias" if at least 1 domain showed "some concerns of bias" but none were at "high RoB". A study was considered to be at "high RoB" if at least 4 out of 6 items of the RoB tool were deemed as "some concerns" or if a major flaw was detected ("high RoB" in at least 1 domain). All authors first met for a calibration review, where they independently reviewed 2 articles and then discussed each item to clarify the meaning and interpretation of critical appraisal items. Then, the raters independently evaluated an assigned subset of articles. A consensus meeting was held to produce a consensus statement on each rated criterion of every included study. Disagreements were resolved by discussion with a third reviewer (K.M.).

PEDro scale scores were also extracted and reported. These scores, ranging from 0 to 10, represent a valid and reliable measure of RCTs methodological quality.[21,22]

Data analysis

Descriptive statistics were used to describe intervention groups and outcomes. Standardized mean differences with 95% confidence intervals (SMD; 95% CI) were calculated for continuous data, using Review Manager,[a] to accommodate the different outcome measures used. Mean differences (MD) with 95% CI were calculated for continuous data outcomes that used the same scales. When data were not extractable and authors could not be contacted, the statistical significance reported in the original study was used. The Cohen's d effect sizes were categorized as trivial (SMD, less than 0.2), small (SMD, from 0.2 to 0.49), medium (SMD, from 0.5 to 0.79), and large (SMD, 0.8 or higher).[23] When quantitative pooling could not be performed, results were qualitatively synthesized.

Assessment of heterogeneity

Studies were assessed for heterogeneity in preparation for the meta-analysis by considering specific clinical features (population, intervention, comparison, and outcome). Review Manager 5.4 software was used to perform the meta-analysis. Statistical heterogeneity was evaluated by the x^2 test for trend ($P>.10$, $I^2<40\%$). Results were calculated as pooled SMD using a random model effect for meta-analyses displaying a statistically significant heterogeneity while a fixed effect was used for those that did not.[20]

Grading of Recommendations, Assessment, Development and Evaluation

The overall certainty of the summarized evidence was evaluated by 2 independent reviewers (MOD, SD) using the Grading of Recommendations, Assessment, Development and Evaluation approach, as recommended by Cochrane.[20] Domains that may decrease the certainty of the evidence include study limitations, consistency of effect, imprecision, indirectness, and reporting biases. We defined high certainty evidence as reported by RCTs with low RoB that provided consistent, direct, and precise results for the outcome. We reduced the certainty of the evidence by 1 level for each domain not met.

For high certainty: further research is very unlikely to change our confidence in the estimate of effect. Consistent findings among 75% of pooled participants in RCTs with low RoB are generalizable to the population in question. Sufficient data, with narrow confidence intervals, are available. No reporting biases are known or suspected (all domains are met). For moderate certainty: further research is likely to have an important effect on our confidence in the estimate of effect and may change the estimate (1 domain is not met). For low certainty: further research is very likely to have an important effect on our confidence in the estimate of effect and is likely to change the estimate (2 domains are not met). For very low certainty: we are very uncertain about the estimate (3 domains are not met). For no evidence: we identified no RCT that measured the outcome.

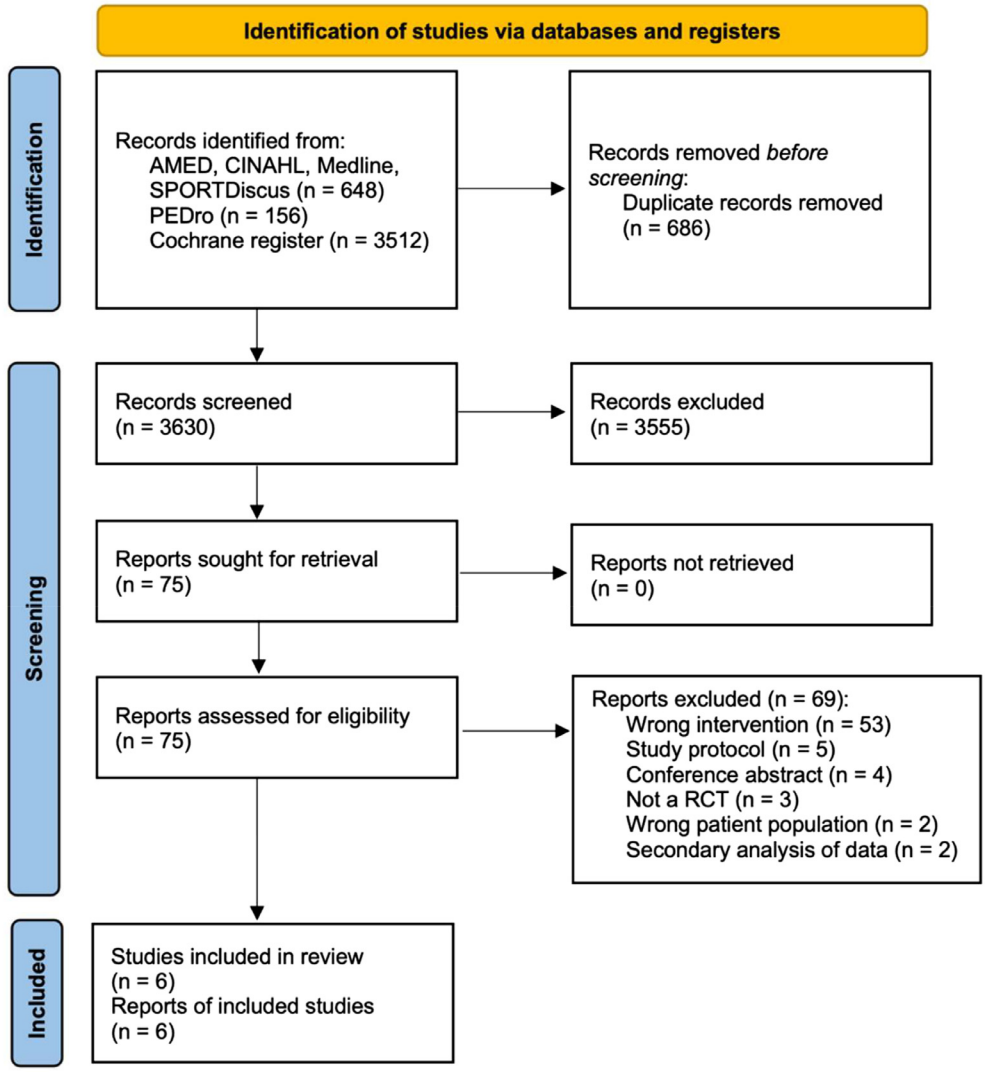
Results

Literature search and study selection

The search flow diagram is presented in figure 1. The literature search revealed a total of 4316 citations. After removing duplicates, title and abstract of 3630 studies were screened and 75 articles were retained for full-text review. During full-text review, 69 studies were excluded for the following reasons: wrong intervention (ie, when there was no single session intervention in the trial) (n=53), study protocol (n=5), conference abstract (n=4), not a RCT (n=3), wrong patient population (n=2), and secondary analysis of data (n=2). Thus, 6 RCTs (2090 participants)[17,24-28] were included in the systematic review and 5 RCTs (2064 participants)[17,25-28] were included in the meta-analyses. Because all studies pooled in our meta-analyses had the same RoB score (some concerns) and that they included different MSKDs, we did not perform sensitivity analyses.

Characteristics of included studies

The characteristics of included studies and their participants are presented in table 1. The population in included trials were adults (686 men and 1404 women) presenting with acute[25] or chronic[28] neck pain with whiplash-associated disorders, knee osteoarthritis (OA),[24,27] shoulder pain,[17] and osteoporotic vertebral fracture.[26] Single session content included a session with a physiotherapist, where advice about current condition and optimal management



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

Fig 1 Preferred Reporting Items for Systematic Reviews and Meta-analyses flowchart.

was delivered, and in some cases, a home-exercise program was provided.[17,24,27,28] In 1 study, participants were provided with a 6-week self-management program including 18 unsupervised sessions.[27] Multiple sessions of physiotherapy included interventions such as manual therapy,[25,26,28] supervised exercises,[17,24-28] modalities,[24] and education.[17,24-28] The number and duration of sessions was 20 1-hour sessions in 1 study,[28] 8 20-minute sessions in another study[24] and up to 6 30-to-60-minutes sessions in the remaining 4 studies.[17,25-27] Five studies reported pain results using the Visual Analog Scale,[24,26,27] the Numerical Pain Rating Scale,[28] or the Shoulder Pain and Disability Index pain subscale.[17] Four studies reported function/disability results using the Neck Disability Index,[25,28] the Shoulder Pain and Disability Index Function subscale,[17] or the Oxford Knee score.[27] Four studies reported QoL results using the SF-36,[28] the SF-12,[25] the Quality-of-Life Questionnaire of the European Foundation for Osteoporosis,[26] or the EQ-5D-5L.[17] Pain data were reported at 4,[24] 8,[17] and 14 weeks[27,28] as well as 4,[26] 6,[17,26-28] 9,[26] and 12 months.[17,26-28] Function data were reported at 8[17] and 14 weeks[27,28] as well as 4,[25] 6,[17,27,28] 8,[25] and 12 months.[17,25,27,28] QoL data were reported at 8[17] and 14 weeks[28] as well as 4,[25,26] 6,[17,26,28] 8,[25] 9,[26] and 12 months.[17,25,26,28]

Risk of bias

RoB assessment was performed for all 3 outcome measures (when applicable) for each study. Because results were the same, regardless of the outcome measure evaluated, we present those results in a single generic table presenting the results for each study (fig 2). All 6 included studies showed some concerns of bias overall (fig 2). Three out of 6 studies (50%) closely followed a previously published protocol.[17,26,28] Methodological weaknesses included some concerns of bias in measurement of the outcome (100%; 6/6), while methodological strengths included low RoB regarding deviations from the intended interventions (100%; 6/6) and low RoB resulting from missing outcome data (100%; 6/6).

Table 1 Characteristics of included studies

		Groups									
Author	Musculoskeletal Disorder	Content	Number of Sessions	Session Duration	Duration	n	Sex	Age	Follow-up Time Points	Outcomes Extracted	Outcome Measure
Barker et al, 2019[26]	Osteoporotic vertebral fracture	Single education and advice session	1	60 minutes	12 weeks	195	22M 173F	71.9 (9.6)	4 months 6 months	Pain Quality of life	VAS Quality of Life Questionnaire of the European Foundation for Osteoporosis
		Manual therapy sessions	Up to 6	60 minutes		202	29M 173F	72.4 (9.3)	9 months 12 months		
		Supervised exercises sessions	Up to 6	60 minutes		216	31M 185F	72.2 (8.4)			
Callaghan et al, 1995[24]	Knee osteoarthritis	Single education and advice session + HEP	1	*Not reported*	4 weeks	10	8M 2F	Median: 49 Range: 29-89	4 weeks	Pain	VAS
		Sham TENS	8	20 minutes		9	4M 5F	Median: 52 Range: 41-77			
		Supervised exercises sessions	8	20 minutes		8	4M 4F	Median: 59 Range: 35-80			
Hamilton et al, 2020[27]	Knee osteoarthritis *(at risk of poor outcome after total knee arthroplasty)*	Single education and advice session + HEP	1	*Not reported*	6 weeks	171	63M 108F	68.2 (9.44)	14 weeks 26 weeks	Pain Function	VAS Oxford Knee Score
		Supervised exercises sessions	6			163	66M 97F	66.8 (9.46)	52 weeks		
Hopewell et al, 2021[17]	Rotator cuff related shoulder pain	Single education and advice session + HEP	1	60 minutes	16 weeks	174	87M 87F	55.9 (13.1)	8 weeks 6 months	Pain	SPADI Pain subscale SPADI Function subscale
		Supervised progressive exercises sessions	Up to 6	30 minutes		174	90M 84F	54.6 (13.7)	12 months >12 months	Function Quality of life	EQ-5D-5L
Lamb et al, 2013[25]	Acute neck pain (whiplash)	Single education and advice session	1	30 minutes	8 weeks	299	115M 184F	40 (13)	4 months 8 months	Function	Neck Disability Index SF-12 physical score
		PT sessions including supervised exercises, manual therapy and education	Up to 6	30 minutes		300	106M 194F	40 (13)	12 months	Quality of life	
Michaleff et al, 2014[28]	Chronic neck pain (whiplash)	Single education and advice session + HEP	1	30 minutes	12 weeks	85	37M 48F	42.6 (12.3)	3 months 6 months	Pain Quality of life	NPRS SF-36 physical score
		PT sessions including supervised exercises, manual therapy and education	20	60 minutes		85	25M 60F	43.1 (12.7)	12 months	Function	Neck Disability Index

Abbreviations: HEP, Home-exercise program; M, male; F, female; PT, physiotherapy; SF-12, 12-item Short Form Health Survey; SF-36, 36-item Short Form Health Survey; SPADI, shoulder pain and disability index; TENS, transcutaneous electrical nerve stimulation; VAS, visual analog scale.

Study	1	2a	2b	3	4	5	Overall
Barker 2019	Low	Low	Low	Low	Some concerns	Low	Some concerns
Callaghan 1995	Some concerns	Some concerns	Low	Low	Some concerns	Some concerns	Some concerns
Hamilton 2020	Low	Some concerns	Low	Low	Some concerns	Some concerns	Some concerns
Hopewell 2021	Low	Low	Low	Low	Some concerns	Low	Some concerns
Lamb 2013	Low	Low	Low	Low	Some concerns	Some concerns	Some concerns
Michaleff 2014	Low	Low	Low	Low	Some concerns	Low	Some concerns

Fig 2 Cochrane RoB 2.0 assessment.

Extracted PEDro ratings for the included studies are presented in figure 3. Two studies[26,28] had a score of 8/10, 2 studies[25,27] had a score of 7/10, 1 study[17] had a score of 6/10, and 1 study[24] had a score of 4/10.

Effect of interventions (quantitative analysis – meta-analyses)

Pain

Meta-analysis with low certainty evidence shows a significant pain improvement at 6 months in favor of multiple sessions interventions compared with single session interventions (3 studies[17,27,28]; 1035 participants; pooled SMD: 0.29; 95% CI: 0.05 to 0.53; *P*=.02). The evidence suggests that this effect for multiple sessions may be trivial to moderate. Furthermore, this significant difference in pain improvement was not observed at 3 months (4 studies[17,26-28]; 1312 participants; pooled SMD: 0.39; 95% CI: -0.11 to 0.89; *P*=.13) and at 12 months (4 studies[17,26-28]; 1266 participants; pooled SMD: -0.05; 95% CI: -0.49 to 0.39; *P*=.82) (fig 4). The non-significant confidence intervals are large, and the true effects remain unclear for pain at 3 and 12 months.

Function

Meta-analyses with low certainty evidence show no significant differences in function at 3 (4 studies[17,25,27,28]; 1583 participants; pooled SMD: 0.05; 95% CI: -0.11 to 0.21; *P*=.56), 6 (4 studies[17,25,27,28]; 1538 participants; pooled SMD: 0.06; 95% CI: -0.12 to 0.23; *P*=.53), and 12 months (4 studies[17,25,27,28]; 1528 participants; pooled SMD: 0.08; 95% CI: -0.08 to 0.25; *P*=.30) between the single and the multiple sessions interventions (fig 5). The evidence suggests that multiple sessions is not more effective than a single session to improve function. The confidence intervals are below a moderate effect size for disability.

	Barker et al., 2019	Callaghan et al., 1995	Hamilton et al., 2020	Hopewell et al., 2021	Lamb et al., 2013	Michaleff et al., 2014
Random Allocation						
Concealed Allocation						
Baseline Comparability						
Blind Subjects						
Blind Therapists						
Blind Assessors						
Adequate Follow-up						
Intention-to-Treat Analysis						
Between Group Comparisons						
Point Estimates and Variability						
Pre-Registered? Any Major Flaws?	Pre-registered, adheres to registered protocol	Not Pre-Registered	Retrospectively registered, adheres to registered protocol	Pre-registered, adheres to registered protocol	Pre-registered, adheres to registered protocol. Target sample size was reduced from 5400 to 3000, data committee approved reduction while maintaining statistical significance	Registered retrospectively, adheres to registered protocol
Total Score	8/10	4/10	7/10	6/10	7/10	8/10

Green = Yes Red = No

Fig 3 PEDro ratings.

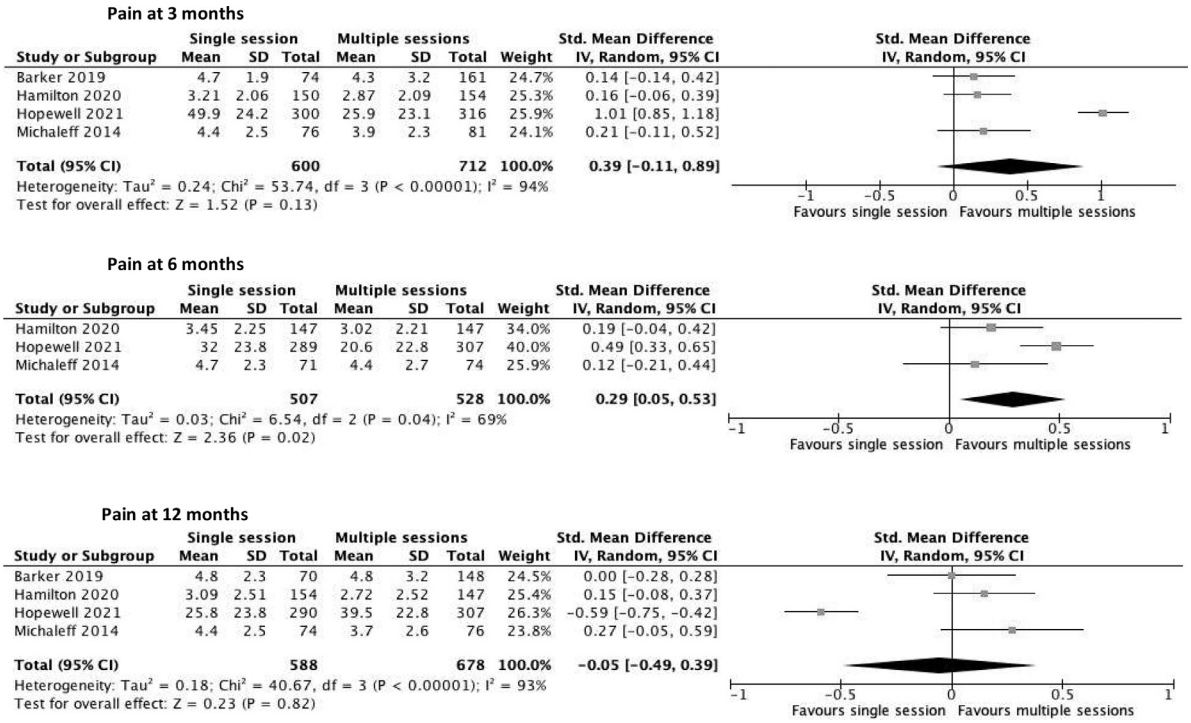


Fig 4 Forest plots for pain.

Quality of life

Finally, meta-analyses with low certainty evidence show no significant differences in QoL at 3 (4 studies[17,25,26,28]; 1779 participants; pooled SMD: 0.08; 95% CI: -0.02 to 0.17; *P*=.12), 6 (3 studies[17,25,28]; 1206 participants; pooled SMD: 0.03; 95% CI: -0.08 to 0.14; *P*=.59), and 12 months (4 studies[17,25,26,28]; 1729 participants; pooled SMD: -0.03; 95% CI: -0.12 to 0.07; *P*=.58) between the single and the multiple sessions interventions (fig 6).

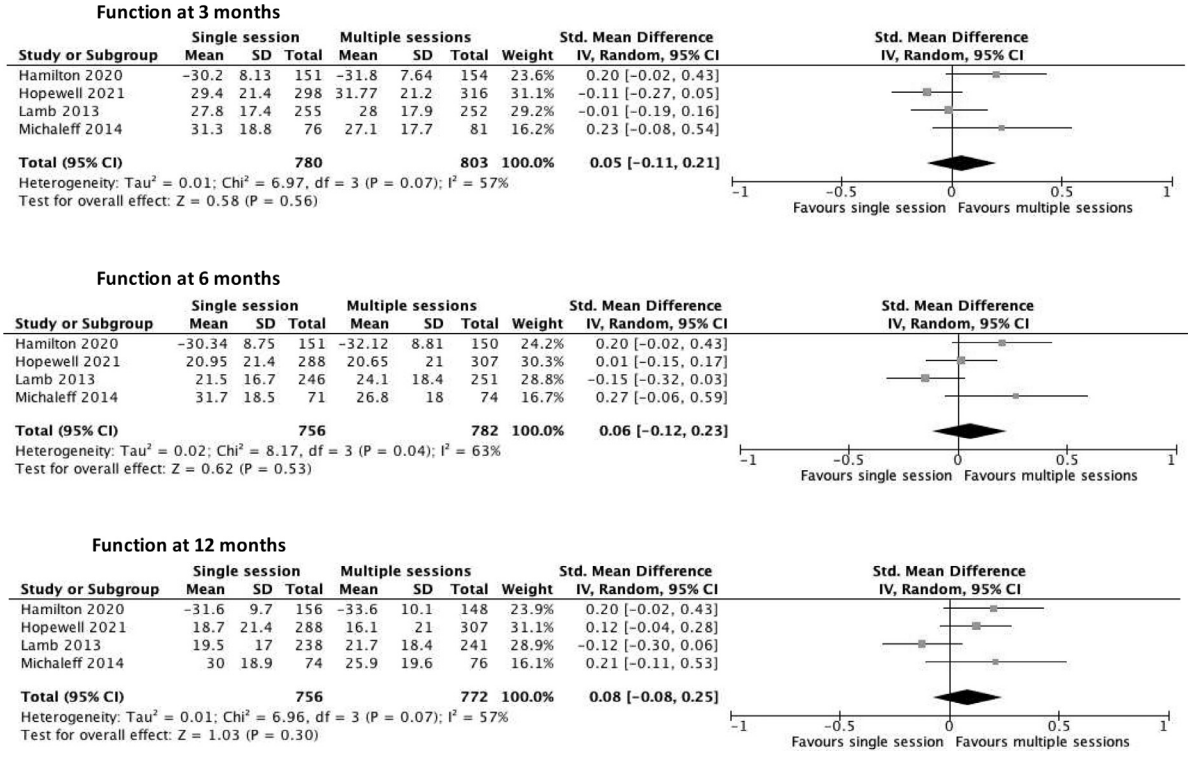


Fig 5 Forest plots for function/disability.

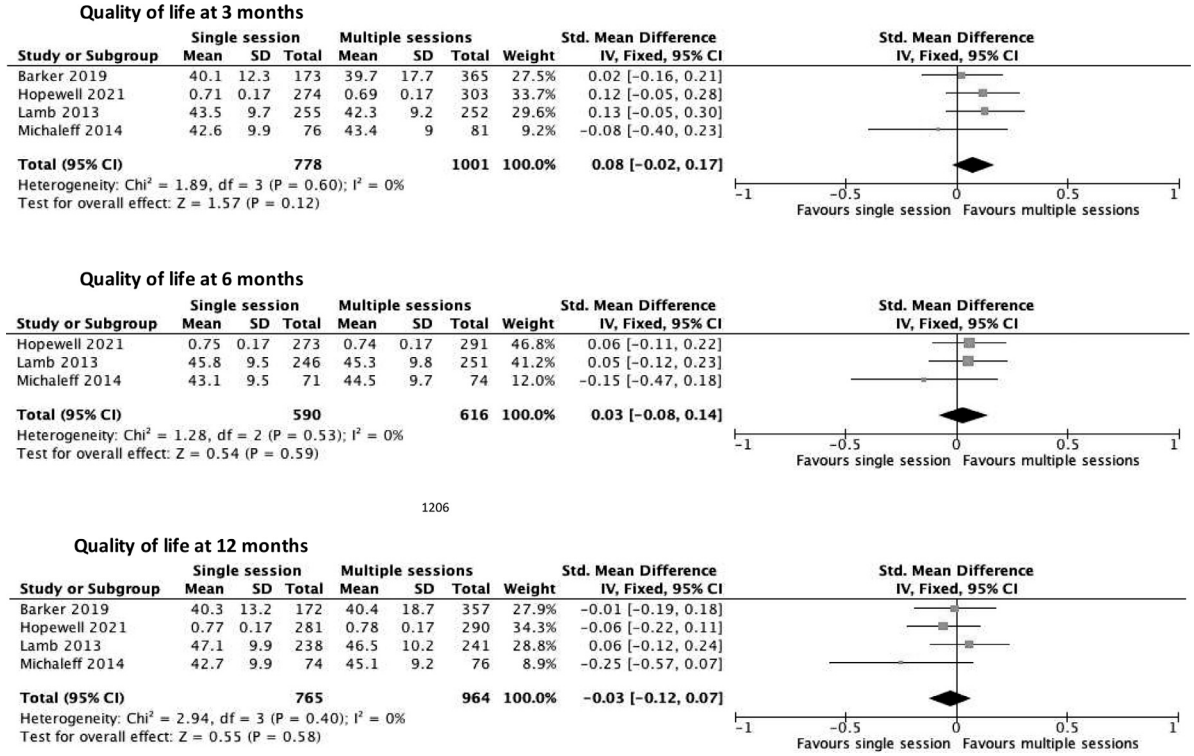


Fig 6 Forest plots for quality of life.

The evidence suggests that multiple sessions is not more effective than a single session to improve QoL. The confidence intervals are below a small effect size for QoL.

Effect of interventions (qualitative analysis — study not included in the meta-analyses)

Results from 1 study[24] could not be pooled in the meta-analysis. In their single-blind RCT, Callaghan et al compared 3 interventions for patients with knee OA that were on waiting lists for physiotherapy. The authors reported no significant between-group differences for all outcomes (pain, range of movement, swelling, muscle torque, and exercise tolerance).

Discussion

Summary of findings

The objective of this systematic review was to compare the effectiveness of a single session of physiotherapy compared with multiple sessions to reduce pain and improve function and QoL in patients with various MSKDs. Results from our low certainty meta-analyses confirmed our initial hypothesis that there would be no significant pain, function, and QoL differences between a single session and multiple sessions of physiotherapy for the management of MSKDs. One low certainty meta-analysis did reveal a significant pain improvement at 6 months in favor of multiple sessions interventions compared with single session interventions (3 studies[17,27,28]; 1035 participants; pooled SMD: 0.29; 95% CI: 0.05 to 0.53; *P*=.02), but the size of the effect was small and probably not clinically meaningful. In addition, there were no significant pain reduction differences after 4 weeks between the multiple sessions interventions (sham transcutaneous electrical nerve stimulation or supervised physiotherapy sessions) and the single session intervention (education and advice session with a home-exercise program) in the study[24] included in our qualitative analysis.

Patient education and self-management have been advocated as primary care interventions for MSKDs[8,10] because they have shown comparable efficacy and effectiveness, and reduced health care resources utilization compared with more exhaustive options.[17,25,26,28-30] Along with patient self-management resources that the patient can consult later as needed, patient education can be provided in a single session (30-60 minutes). Education interventions including basic information on pain and available management options, exercise, activity modification, and the importance of healthy lifestyle choices represent a solid foundation for the management of MSKDs.[2,31,32] It could also contribute to a reduction in wasted health care resources (overuse of imaging, medication, passive modalities, and invasive interventions). Given the reduced required number of sessions with a physiotherapist, or any other health professional for that matter, implementing single session pathway of care could greatly increase the number of individuals who can access quality care without compromising on outcomes of the intervention. This would directly address some of the United Nations Organization's Sustainable Development Goals, which are to provide quality health care to all and reduce inequalities.[33]

A single session of education could be tailored based on the context and the available resources, for example whether to provide an individual face-to-face session, a telehealth meeting or a group session could be considered.[34-36] The use of additional "booster session" of pain self-management support could appear to be a valuable approach to sustain the effects of an education intervention. However, a recent systematic review indicates that

there is no evidence to support the use of such follow-up sessions to improve outcomes for people with MSKDs.[37] It would also be relevant for future research to consider including patient-partners in the co-development of the content included in those single sessions so that acceptability and compliance levels are optimized. This would ensure that interventions are well suited to the level of understanding of various patient groups with different levels of health literacy and different ways of dealing with new information.[38,39]

This review tends to support the use of single-session interventions for people with a range of MSKDs in general. However, previous research on stratification of care suggests that there are patients with a high risk of poor prognosis for the MSK pain due to a predominance of psychosocial factors, who may require a more intensive, supervised approach.[40] The STarT MSK clinical trial stratified patients with MSKDs into a variety of more or less intensive treatment options at primary care level, matched to their risk of persistent disabling pain; however, this approach did not yield and additional benefits in terms of patient outcomes, nor did it improve cost-effectiveness of care.[41] Further research is needed to better understand how to best allocate care that best balances patient needs and resource constraints, reducing over-medicalization of MSKDs.[42]

One aspect that should be studied further is a comparison of the cost-effectiveness of these different ways of providing interventions for patients. At first glance, a single session might appear more cost-effective, because as its name says, it only requires 1 session with a physiotherapist compared with interventions comprising multiple sessions. However, it would be important to monitor whether patients receiving a single session are more prone to increased over-the-counter self-medication or additional interventions not part of their trial-allocated intervention and if they are satisfied with the care they received. It would also be interesting to survey patients' expectations regarding the number of sessions that they believe is necessary. In addition, a number of the included studies provided specific training for physiotherapists in skills required to deliver the education and self-management session, and this may incur additional costs.

Study limitations

This systematic review was conducted following the rigorous guidelines and statistical analyses used in the meta-analyses allowed us to take into account heterogeneity levels.[19,20] We are also confident that the breadth of our search strategy ensured that we were able to include all relevant studies to answer our research question. However, some limitations and their effect on the generalizability of our results and our ability to draw conclusions need to be acknowledged. There was a limited number of included articles, because many interventions that are part of trials, even those that only include education components, often comprise more than 1 intervention session (initial session combined with at least 1 follow-up session). Additionally, the significant levels of heterogeneity and RoB of included studies, as well as our meta-analyses large confidence intervals reduce the certainty of evidence provided from these meta-analyses. Finally, even though our literature search was conducted in order to include all types of MSKDs, only 6 studies were included, covering 4 different types of MSKDs (knee OA, osteoporotic vertebral fracture, neck pain, shoulder pain), which limits the generalizability of our results to all types of MSKDs.

Conclusions

Results from our meta-analyses showed, based on low certainty evidence (Grading of Recommendations, Assessment, Development and Evaluation), no significant pain, function, and QoL differences between a single session and multiple sessions of physiotherapy for the management of the MSKDs studied (osteoporotic vertebral fracture, neck, knee, and shoulder pain) besides a pain difference after 6 months in favor of multiple sessions. Future research should compare the cost-effectiveness of those different models of care and assess patients' satisfaction with an intervention comprising only 1 session with a health care professional. In addition, it would be relevant that researchers and clinicians develop educational content jointly with patient-partners to ensure acceptability and understanding by its users.

Suppliers

a. RevMan 5.4; The Cochrane Collaboration

Keywords

Evidence-based practice; Musculoskeletal pain; Pain; Pain management; Physical therapy; Quality of life; Rehabilitation

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