



Supplementary Material

Table i. PRISMA ScR checklist.¹¹

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE No.
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	2
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	2
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	3
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	3
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	3
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	3, Supplementary file 2
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	3

Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	4
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	Supplementary File 3
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	N/A
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	4
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	5 / Figure 1
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	5
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	5-10
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	5-10
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	11-12
Limitations	20	Discuss the limitations of the scoping review process.	12
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	12
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	12

Supplementary material ii: Search strategy (PubMed/MEDLINE).

1. (((((((leg) OR (lower limb)) OR (thigh)) OR (lower extremity)) OR (femur*)) OR (tibia*) OR (fibula*)) OR (ankle) OR (knee)

2. osteomyelitis[Title/Abstract]

3. ((((((((((surg*) OR (debridement)) OR (ilizarov)) OR (fixator)) OR (corticotomy)) OR (amputation)) OR (reconstruction)) OR (limb salvage)) OR (limb sparing)) OR (graft)) OR (treat*) OR (correction)

Search: #1 AND #2 AND #3

Search: #1 AND #2 AND #3 expanded:

("leg"[MeSH Terms] OR "leg"[All Fields] OR ("lower extremity"[MeSH Terms] OR ("lower"[All Fields] AND "extremity"[All Fields]) OR "lower extremity"[All Fields] OR ("lower"[All Fields] AND "limb"[All Fields]) OR "lower limb"[All Fields]) OR ("thigh"[MeSH Terms] OR "thigh"[All Fields] OR "thighs"[All Fields] OR "thigh s"[All Fields]) OR ("lower extremity"[MeSH Terms] OR ("lower"[All Fields] AND "extremity"[All Fields]) OR "lower extremity"[All Fields]) OR "femur*" [All Fields] OR "tibia*" [All Fields] OR "fibula*" [All Fields] OR ("ankle"[MeSH Terms] OR "ankle"[All Fields] OR "ankle joint"[MeSH Terms] OR ("ankle"[All Fields] AND "joint"[All Fields]) OR "ankle joint"[All Fields] OR "ankles"[All Fields] OR "ankle s"[All Fields]) OR ("knee"[MeSH Terms] OR "knee"[All Fields] OR "knee joint"[MeSH Terms] OR ("knee"[All Fields] AND "joint"[All Fields]) OR "knee joint"[All Fields])) AND "osteomyelitis"[Title/Abstract] AND ("surg*" [All Fields] OR ("debride"[All Fields] OR "debrided"[All Fields] OR "debridement"[MeSH Terms] OR "debridement"[All Fields] OR "debridements"[All Fields] OR "debrides"[All Fields] OR "debriding"[All Fields] OR "debridment"[All Fields] OR "debridments"[All Fields]) OR ("ilizarov"[All Fields] OR "ilizarov s"[All Fields]) OR ("fixate"[All Fields] OR "fixated"[All Fields] OR "fixates"[All Fields] OR "fixating"[All Fields] OR "fixation"[All Fields] OR "fixational"[All Fields] OR "fixations"[All Fields] OR "fixator"[All Fields] OR "fixator s"[All Fields] OR "fixators"[All Fields]) OR ("corticotomies"[All Fields] OR "corticotomy"[All Fields]) OR ("amputate"[All Fields] OR "amputated"[All Fields] OR "amputating"[All Fields] OR "amputation"[MeSH Terms] OR "amputation"[All Fields] OR "amputations"[All Fields] OR "amputated"[All Fields]) OR ("reconstruct"[All Fields] OR "reconstructability"[All Fields] OR "reconstructable"[All Fields] OR "reconstructed"[All Fields] OR "reconstructible"[All Fields] OR "reconstructing"[All Fields] OR "reconstructional"[All Fields] OR "reconstructive surgical procedures"[MeSH Terms] OR ("reconstructive"[All Fields] AND "surgical"[All Fields] AND "procedures"[All Fields]) OR "reconstructive surgical procedures"[All Fields] OR "reconstruction"[All Fields] OR "reconstructions"[All Fields] OR "reconstructive"[All Fields] OR "reconstructs"[All Fields]) OR ("limb salvage"[MeSH Terms] OR ("limb"[All Fields] AND "salvage"[All Fields]) OR "limb salvage"[All Fields]) OR ("extremities"[MeSH Terms] OR "extremities"[All Fields] OR "limb"[All Fields]) AND ("spare"[All Fields] OR "spared"[All Fields] OR "spares"[All Fields] OR "sparing"[All Fields])) OR ("graft s"[All Fields] OR "grafted"[All Fields] OR "graftings"[All Fields] OR "transplantation"[MeSH Subheading] OR "transplantation"[All Fields] OR "grafting"[All Fields] OR "transplantation"[MeSH Terms] OR "grafts"[All Fields] OR "transplants"[MeSH Terms] OR "transplants"[All Fields] OR "graft"[All Fields]) OR "treat*" [All Fields] OR ("correct"[All Fields] OR "correctability"[All Fields] OR "correctable"[All Fields] OR "corrected"[All Fields] OR "correctible"[All Fields] OR "correcting"[All Fields] OR "correction"[All Fields] OR "corrections"[All Fields] OR "corrective"[All Fields] OR "correctives"[All Fields] OR "correctness"[All Fields] OR "corrects"[All Fields]))

Supplementary material iii: Data extraction sheet.

- a. Study title/Authors/Date of publication/Location of study
- b. Type of publication/Study design
- c. Study eligibility criteria
- d. Number of study participants/Mean age/Gender breakdown
- e. Details of surgical intervention and treatment groups
- f. Outcomes – Outcome name/Definition provided/Patient follow-up/Methods of outcome measurement/Patient-reported details

Table iv: List of included 99 studies.

First author (et al)	Date of publication	Geographical location	Study design	Study participants, n	Mean age, yrs
Abulaiti	2017	China	Cohort study	35	35
Alemdar	2015	Turkey	Case series	15	36.6
Al-Mousawi	2020	Italy	Case series	12	63
Antonini	2019	Italy	Case series	18	48.7
Antonini	2017	Italy	Case series	11	56
Anugraha	2020	UK	Case series	13	59
Aytaç	2014	Germany	Retrospective cohort study	67	52
Bauer	2018	France	Case series	55	37
Borens	Registered 2014	Switzerland	RCT (trials registry)	15 (estimated)	TBC
Bu	2020	China	Case series	12	44.8
Buono	2018	Switzerland	Case series	24	41
Campbell	2011	Australia	Retrospective cohort study	12	39
Centofanti	2013	Italy	Case series	390	Not reported
Chadayammuri	2017	USA	Case series	142	46.8
Cho	2018	South Korea	Case series	40	46.9
Clerc	2020	France	Cohort study	37	40
Dai	2020	China	Case series	68	37.2
Deng	2014	China	Case series	15	44.5
Drampalos	2020	UK	Case series	52	53
Drózdź	2017	Poland	Case series	54	47.3
El-Sayed	2013	Egypt	Case series	20	37.5
Eralp	2012	Turkey	Cohort study	49	External group mean 41, Combined group mean 39
Eralp	2016	Turkey	Case series	74	35.9
Ferrando	2017	Spain	Case series	25	Group 1 mean 50, Group 2 mean 48
Finelli	2019	Brazil	RCT	44	RIA group mean 33.6, CR

					group mean 36.1
Gaiarsa	2019	Brazil	Case series	18	33.6
Galitzine	2020	UK	Case series	50	Not reported
Garcia del Pozo	2018	Spain	Cohort study	116	53
Gerlach	2017	Germany	Case series	105	Not reported
Gokalp	2013	Turkey	Case series	30	24.4
Hernigou	2017	France	RCT	80	Standard graft mean 42.3, Bone marrow graft mean 40.4
Hou	2017	China	Case series	45	40.6
Huang	2018	China	RCT	80	Not reported
Humm	2014	UK	Case series	21	49
Jeong	2012	South Korea	Case series	15	46.7
Jiang	2015	China	Case series	394	Median 42
Ju	2018	China	Case series	18	47
Kanakaris	2014	UK	Case series	24	44.5
Khan	2012	UK	Case series	20	44.5
Kirienko	2013	Italy	Case series	13	42.2
Lam	2019	USA	Case series	67	51.4
Lê Thua	2015	Vietnam	Case series	29	48.5
Li	2019	China	Case series	18	Range 14 to 57
Lin	2012	Taiwan	Case series	16	36
Lin	2017	China	Case series	76	Not reported
Lindfors	2017	Multinational: Finland, Italy, Netherlands, Germany, Azerbaijan and Poland	Case series	116	48
Liu	2015	China	Case series	20	31.5
Lowenberg	2019	USA	Case series	127	54
Lowenberg	2013	USA	Case series	34	40
Lu	2013	China	Case series	11	38

Luo	2016	China	Retrospective case control study	51	Combination therapy mean 43.8, PMMA mean 42.3
Luo	2017	China	Case series	67	32
Luo	2020	China	Case series	17	41.9
Ma	2018	China	Case series	255	Median 45.5
Malat	2018	Germany	Retrospective cohort study	50	57.8
Marais	2015	South Africa	Case series	109	39.8
McNally	2016	UK	Case series	100	51.6
Microbion	Registered 2015	USA	RCT (trials registry)	29 (enrolled)	TBC
Moore	2015	USA	Retrospective cohort study	30	Internal fixation mean 46, External fixation mean 48
Niikura	2016	Japan	Case series	13	53.2
Olasinde	2011	Nigeria	Case series	20	21.5
Opara	2020	Nigeria	Case series	21	Range 21-62
Özkan	2020	Turkey	Case series	45	33.8
Pesch	2020	Germany	Case series	35	56.4
Petfield	2019	USA	Case series	112	Median 24
Qin	2019	China	Retrospective cohort study	74	Calcium sulphate group mean 39.4, Irrigation group mean 39.6
Qin	2018	China	Case series	35	38
Qiu	2017	China	Cohort study	40	Bead group mean 38.6, Spacer group mean 36.9

Ren	2020	China	Retrospective cohort study	66	FVFG mean 36.1 , IBT mean 37.4
Rod-Fleury	2011	Switzerland	Case series	49	Median 41
Rüschenschmidt	2020	Germany	Case series	71	External fixator group mean 56, Internal fixator group mean 59
Schröter	2015	Germany	Cohort study	18	51.8
Sen	2019	Turkey	Case series	32	Group A mean 39, Group B mean 42
Sen	2020	Turkey	Retrospective cohort study	23	37.2
Shahid	2013	UK	Case series	12	43.3
Shen	2015	China	Case series	14	47
Sigmund	2020	Multinational: UK, Austria and The Netherlands	Cohort study	47	Group 1 mean 48.9, Group 2 mean 50.9
Sun	2018	China	Case series	72	Experiment group mean 22.1, Control group mean 23.1
Tarng	2020	Taiwan	Case series	27	42.3
Tetsworth	2017	USA	Case series	42	Group A mean 38.2, Group B mean 39.2
Tong	2017	China	Case series	39	39.2
Torres	2014	Brazil	Case series	11	38.9
Wang ¹	2017	China	Case series	125	IF group mean 42.0, EF group mean 43.5
Wang	2016	China	Case series	32	40
Wang (2)	2017	China	Case series	15	34

Wang	2019	China	Case series	424	37.9
Will	2011	USA	Case series	23	40.9
Windhofer	2017	Austria	Case series	26	36.9
Wu	2017	China	Case series	36	41
Xu	2014	China	Case series	217	35.6
Yang	2013	China	Case series	15	39
Yikemu	2019	China	Case series	78	44.5
Yilihamu	2017	China	Cohort study	153	36.4
Yu	2017	China	Case series	13	39
Yushan	2020	China	Case series	37	40.1
Yusof	2012	Malaysia	Case series	11	39
Zhang	2016	China	Case series	18	36.1
Zhiju	2018	China	RCT	120	Control group mean 35.4, Experimental group mean 36.6
Zhou	2020	China	Case series	42	43.7

CR, conventional reaming; EF, external fixation; FVFG, free vascularized fibular graft; IBT, Ilizarov bone transport; IF, internal fixation; PMMA, polymethyl methacrylate; RIA, reamer irrigator aspirator.

Supplementary material iii: Reference list of included studies

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