

Bijlagen bij de richtlijn Bekkenringletsels

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Module 1: Prognostische factoren voor het voorspellen van een succesvolle operatie van LC-1 bekkenringletsels

Evidence tabel

Niet van toepassing.

Risk of bias tabel

Niet van toepassing.

Exclusie tabel

Reference	Reason for exclusion
Mann SM, Banaszek D, Lajkosz K, Brogly SB, Stanojev SM, Evans C, Bardana DD, Yach J, Hall S. High-energy trauma patients with pelvic fractures: Management trends in Ontario, Canada. Injury. 2018 Oct;49(10):1830-1840. doi: 10.1016/j.injury.2018.06.044. Epub 2018 Jul 6. PMID: 29997027.	Wrong study design.
Avilucea FR, Archdeacon MT, Collinge CA, Sciadini M, Sagi HC, Mir HR. Fixation Strategy Using Sequential Intraoperative Examination Under Anesthesia for Unstable Lateral Compression Pelvic Ring Injuries Reliably Predicts Union with Minimal Displacement. J Bone Joint Surg Am. 2018 Sep 5;100(17):1503-1508. doi: 10.2106/JBJS.17.01650. PMID: 30180059.	Wrong study design.
Banierink H, Ten Duis K, Meesters AML, Trouwborst NM, Heineman E, Wendt KW, Ploegmakers JJW, Reininga IHF, IJpma FFA. The effects of pelvic ring injuries on quality of life, physical, and mental health: results of a 2-year prospective cohort study. Eur J Trauma Emerg Surg. 2022 Aug;48(4):2849-2857. doi: 10.1007/s00068-022-01893-3. Epub 2022 Mar 5. PMID: 35254459; PMCID: PMC9360067.	Wrong study design.
Pelvic fracture pattern predicts the need for hemorrhage control intervention-Results of an AAST multi-institutional study	Wrong study design.
Functional and return to work outcomes following major trauma involving severe pelvic ring fracture.	Wrong study design.
Hagen J, Castillo R, Dubina A, Gaski G, Manson TT, O'Toole RV. Does Surgical Stabilization of Lateral Compression-type Pelvic Ring Fractures Decrease Patients' Pain, Reduce Narcotic Use, and Improve	Wrong study design.

Mobilization? Clin Orthop Relat Res. 2016 Jun;474(6):1422-9. doi: 10.1007/s11999-015-4525-1. PMID: 26304045; PMCID: PMC4868153.	
Hermans E, Brouwers L, van Gent T, Biert J, de Jongh MAC, Lansink KWW, Edwards MJR. Quality of life after pelvic ring fractures: Long-term outcomes. A multicentre study. Injury. 2019 Jun;50(6):1216-1222. doi: 10.1016/j.injury.2019.04.002. Epub 2019 Apr 9. PMID: 31029370.	Wrong study design.
Holstein JH, Culemann U, Pohlemann T; Working Group Mortality in Pelvic Fracture Patients. What are predictors of mortality in patients with pelvic fractures? Clin Orthop Relat Res. 2012 Aug;470(8):2090-7. doi: 10.1007/s11999-012-2276-9. PMID: 22354608; PMCID: PMC3392378.	Wrong study design.
Lari A, Jarragh A, Alherz M, AlNouri A, Qasem M, Khaja AF, AlMutairi O. Pain, Pattern and Polytrauma - Predictors of Sexual Dysfunction in Pelvic Fractures: A Retrospective Multicenter Analysis. Arch Bone Jt Surg. 2023;11(4):263-269. doi: 10.22038/ABJS.2022.57958.2869. PMID: 37180296; PMCID: PMC10167534.	Wrong study design.
Parry JA, Hadeed MM, Tucker NJ, Strage KE, Scott BL, Stacey SC, Heare A, Mauffrey C. Nonoperative Management of Minimally Displaced Lateral Compression Type 1 Pelvic Ring Injuries With and Without Occult Instability. J Orthop Trauma. 2022 Jun 1;36(6):287-291. doi: 10.1097/BOT.0000000000002300. PMID: 34690326.	Wrong study design.
Whiting PS, Auston D, Avilucea FR, Ross D, Archdeacon M, Sciadini M, Collinge CA, Sagi HC, Mir HR. Negative Stress Examination Under Anesthesia Reliably Predicts Pelvic Ring Union Without Displacement. J Orthop Trauma. 2017 Apr;31(4):189-193. doi: 10.1097/BOT.0000000000000766. PMID: 28085692.	Wrong study design.
Yoon YC, Sohn HS, Song HK, Kang G. Risk factors for pubic ramus fracture nonunion after conservative treatment of pelvic ring injuries: a retrospective cohort multicenter study. Eur J Orthop Surg Traumatol. 2024 Feb;34(2):1073-1078. doi: 10.1007/s00590-023-03775-9. Epub 2023 Nov 6. PMID: 37932481.	Wrong study design.

Zoekverantwoording

Algemene informatie

Cluster/richtlijn: NVVH Bekkenringletsels
Uitgangsvraag/modules: Module 1 Prognostische factoren

Database(s): Embase.com, Ovid/Medline	Datum: 13 augustus 2024
Periode: geen restrictie	Talen: geen restrictie
Literatuurspecialist: Alies Oost	Rayyan: https://rayyan.ai/reviews/1121388
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/ Deduplication: voor het ontdebellen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen: - Bekkenringletsels - Prognostisch filter (gericht op predictiemodellen) De sleutelartikelen worden gevonden met deze strategie, m.u.v. het artikel van Varma (<i>Surgical Versus Non-surgical Treatment of Unstable Lateral Compression Type I (LC1) Injuries of the Pelvis With Complete Sacral Fractures in Non-fragility Fracture Patients. Cureus. 14(9):e29239</i>). In overleg met de adviseur is besloten dat deze niet hoeft te worden gevonden met de search.	
Te gebruiken voor richtlijntekst: In de databases Embase.com en Ovid/Medline is op 13 augustus 2024 systematisch gezocht naar systematische reviews, RCTs en observationele studies over prognostische factoren voor de behandeling/ genezing van bekkenringletsels. De literatuurzoekactie leverde 1727 unieke treffers op.	

Zoekopbrengst

	EMBASE	OVID/MEDLINE	Ontdubbeld
SR	31	20	36
RCT	282	138	354
Observationele studies	1264	832	1337
Totaal	1577	990	1727*

**in Rayyan*

Zoekstrategie

Embase.com

No.	Query	Results
#1	'pelvis fracture'/de OR 'sacrum fracture'/exp OR 'pubis fracture'/exp OR 'pelvis injury'/de OR 'pelvic ring fracture'/exp OR 'pelvic ring injury'/exp OR 'pelvis ring disruption'/exp OR (((pelvic OR pelvis OR sacrum OR sacral OR pubis OR pubic) NEAR/3 (injur* OR trauma* OR broke* OR fractur* OR instabil* OR untabl* OR disrupt*)):ti,ab,kw) OR (((('fragility fractur*' OR 'osteoporo* fractur*') NEAR/7 (pelvis OR pelvic)):ti,ab,kw) OR (((('lateral compression' OR lc OR lc1) NEAR/4 (fractur* OR injur*)):ti,ab,kw) OR ((young NEAR/2 burgess):ti,ab,kw)	20662
#2	'area under the curve'/exp OR 'brier score'/exp OR 'computer prediction'/exp OR 'c statistic'/exp OR 'c statistics'/exp OR 'integrated discrimination improvement'/exp OR 'net reclassification improvement'/exp OR 'net reclassification index'/exp OR 'prediction'/exp OR 'predictive model'/exp OR 'predictive modeling'/exp OR 'predictive validity'/exp OR 'predictive value'/exp OR 'regression analysis'/exp OR 'statistical model'/exp OR 'area	3544827

	under the curve':ti,ab,kw OR 'brier score*':ti,ab,kw OR 'c statistic*' OR 'computer prediction':ti,ab,kw OR 'decision curve anal*':ti,ab,kw OR (('net reclassification' NEAR/2 (improvement OR index)):ti,ab,kw) OR (((predict* OR statistical*) NEAR/3 (model* OR validity OR value)):ti,ab,kw) OR 'proportional hazards model*':ti,ab,kw OR 'r square*':ti,ab,kw OR regression:ti,ab,kw OR predict*:ti OR multivariate:ti,ab,kw OR multivariab*:ti,ab,kw	
#3	#1 AND #2 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	1677
#4	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*':ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR syntheses*)):ti) OR (((critical* OR rapid*) NEAR/3 (review* OR overview* OR syntheses*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynthes*:ti,ab OR 'meta syntheses*':ti,ab	1053109
#5	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	4087639
#6	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	8360113
#7	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4 clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR	15312125

	controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (scor* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR (('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR 'cross sectional*':ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk ratio*':ab OR 'relative risk*':ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR (('or' OR 'rr') NEAR/6 ci):ab)))	
#8	#3 AND #4 - SR	31
#9	#3 AND #5 NOT #8 - RCT	282
#10	#3 AND (#6 OR #7) NOT (#8 OR #9) - observationeel	1264
#11	#8 OR #9 OR #10	1577

Ovid/Medline

#	Searches	Results
1	((Fractures, Bone/ or exp Fractures, Compression/) and (Pelvic Bones/ or Ilium/ or Ischium/ or Pubic Bone/ or exp Pelvis/ or exp Sacrum/)) or (((pelvic or pelvis or sacrum or sacral or pubis or pubic) adj3 (injur* or trauma* or broke* or fractur* or instabil* or unstabl* or disrupt*)) or (('fragility fractur*' or 'osteoporos* fractur*') adj7 (pelvis or pelvic)) or (('lateral compression' or lc or lc1) adj4 (fractur* or injur*)) or (young adj2 burgess)).ti,ab,kf.	13823
2	Area Under Curve/ or exp Forecasting/ or "Predictive Value of Tests"/ or exp Multivariate Analysis/ or exp Regression Analysis/ or exp Models, Statistical/ or area under the curve.ti,ab,kf. or brier score*.ti,ab,kf. or c statistic*.ti,ab,kf. or computer prediction.ti,ab,kf. or decision curve anal*.ti,ab,kf. or (net reclassification adj2 (improvement or index)).ti,ab,kf. or ((predict* or statistical*) adj3 (model* or validity or value)).ti,ab,kf. or proportional hazards	2620767

	model*.ti,ab,kf. or r square*.ti,ab,kf. or regression.ti,ab,kf. or predict*.ti. or multivaria*.ti,ab,kf.	
3	(1 and 2) not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	1193
4	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	767408
5	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.	2763928
6	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	4801407
7	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or	5760371

	match*))) .ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or multicent* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or (("OR" or "RR") adj6 CI).ab.))	
8	3 and 4 - SR	20
9	(3 and 5) not 8 - RCT	138
10	(3 and (6 or 7)) not (8 or 9) - observationeel	832
11	8 or 9 or 10	990

Module 2: Techniek van opereren bij APC-1 en APC-2 bekkenringletsels

Evidence tabel

Study reference	Study characteristics	Patient characteristics ²	Intervention (I)	Comparison / control (C) ³	Follow-up	Outcome measures and effect size ⁴	Comments
Avilucea (2016)	<u>Type of study:</u> Retrospective cohort study. <u>Setting and country:</u> Level-I trauma center. <u>Funding and conflicts of interest:</u> No external funding was received in support of this work. On the Disclosure of Potential Conflicts of Interest forms, which are provided with the online version of the article, one or more of the authors checked	<u>Inclusion criteria:</u> APC-2 pelvic ring injury treated with a 3.5-mm 6-hole anterior symphyseal plate, with or without posterior fixation (a percutaneous partially threaded 7.0 to 7.3-mm iliosacral screw), and CT following surgical intervention to assess pelvic ring reduction and implant placement. <u>Exclusion criteria:</u>	<u>Describe intervention (treatment/procedure/test):</u> Anterior plate only.	<u>Describe control (treatment/procedure/test):</u> Combined anterior and posterior fixation.	<u>Length of follow-up:</u> Six months. <u>Loss-to-follow-up:</u> None.	Implant failure (anterior fixation failure) I: 17/42 (40.5%) C: 5/92 (5.4%) Malunion I: 15/52 (35.7%) C: 1/92 (1.1%)	<u>Author's conclusion:</u> Our study indicated that use of an anterior plate and a supplemental posterior screw for fixation of APC-2 pelvic ring injuries significantly decreases the rate of anterior plate failure and malunion compared with use of an anterior plate alone. The potential for selection and detection bias introduced by our study design limited the strength of this conclusion.

	“yes” to indicate that the author had a relevant financial relationship in the biomedical arena outside the submitted work.	• Patients with a fracture of the acetabulum, pubic ramus, or sacrum; • Patients with bilateral injury, open injury, or any urologic injury requiring surgical intervention. <u>N total at baseline:</u> Intervention: N = 42 Control: N = 92 <u>Important prognostic factors²:</u> <i>age ± SD:</i> <i>I: 36 years</i> <i>C: 40 years</i> <i>Sex:</i> <i>I: 83% M</i> <i>C: 81% M</i> Groups comparable at baseline? Yes.					
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Risk of bias tabel

Author, year	Selection of participants	Exposure	Outcome of interest	Confounding- assessment	Confounding- analysis	Assessment of outcome	Follow up	Co- interventio ns	Overall Risk of bias
	Was selection of exposed and non-exposed cohorts drawn from the same population?	Can we be confident in the assessment of exposure?	Can we be confident that the outcome of interest was not present at start of study?	Can we be confident in the assessment of confounding factors?	Did the study match exposed and unexposed for all variables that are associated with the outcome of interest or did the statistical analysis adjust for these confounding variables?	Can we be confident in the assessment of outcome?	Was the follow up of cohorts adequate? In particular, was outcome data complete or imputed?	Were co- interventio ns similar between groups?	
	Definitely yes, probably yes, probably	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes,	Low, Some concerns, High

	no, definitely no							probably no, definitely no	
Avilucea (2016)	Definitely yes.	Definitely yes.	Probably yes.	No information.	Probably no.	Probably yes.	Probably yes.	No information.	Some concerns

Exclusie tabel

Niet van toepassing.

Zoekverantwoording

5 Algemene informatie

Cluster/richtlijn: NVVH Bekkenringletsels	
Uitgangsvraag/modules: UV2 Welke operatietechniek heeft de voorkeur bij patiënten met anterieure-posterieure compressie (APC) type 1 en 2 bekkenringletsels?	
Database(s): Embase.com, Ovid/Medline	Datum: 8 januari 2024
Periode: vanaf 2010	Talen: geen restrictie
Literatuurspecialist: Alies Oost	Rayyan review: https://rayyan.ai/reviews/892209
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/ Deduplication: voor het ontdebellen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen: - APC bekkenringletsel - Symfyseplaat De sleutelartikelen worden gevonden met deze search m.u.v. PMID 29373447; deze komt niet door de filters voor studydesign.	
Te gebruiken voor richtlijntekst: In de databases Embase.com en Ovid/Medline is op 8 januari 2024 systematisch gezocht naar systematische reviews, RCTs en observationele studies over het gebruik van een symfyseplaat bij anterieure-posterieure compressie (APC) bekkenringletsels. De literatuurzoekactie leverde 125 unieke treffers op.	

Zoekopbrengst

	EMBASE	OVID/MEDLINE	Ontdubbeld
SR	1	2	2
RCT	11	15	20
Observationele studies	47	88	103
Totaal	59	105	125*

*in Rayyan

Zoekstrategie

10

Embase.com

No.	Query	Results
#1	('pelvic ring fracture'/exp OR 'pelvic ring injury'/exp OR 'pelvis ring disruption'/exp OR 'pelvis fracture'/de OR 'pelvis injury'/de OR (((('pelvic ring*' OR 'pelvis ring*' OR 'pelvic crescent' OR 'pelvis crescent' OR 'crescent pelvis' OR 'crescent pelvis') NEAR/3 (injur* OR trauma* OR broke* OR fractur* OR instabil* OR unstabl* OR disrupt*)):ti,ab,kw)) AND (((antero OR anterior) NEAR/2 posterior):ti,ab,kw) OR anteroposterior:ti,ab,kw OR 'open book':ti,ab,kw OR apc:ti,ab,kw OR apc1:ti,ab,kw OR apc2:ti,ab,kw) OR	773

	((('open book' OR apc OR apc1 OR apc2) NEAR/4 (pelvis OR pelvic OR injur* OR fractur*)):ti,ab,kw)	
#2	'bone plate'/exp OR 'plate fixation'/exp OR 'orthopedic fixation device'/de OR (((symphyseal OR symphysis) NEAR/3 plat*):ti,ab,kw) OR (((bone OR anter* OR fixat* OR pelvic OR pelvis) NEAR/4 plat*):ti,ab,kw) OR (((apc OR apc1 OR apc2 OR 'open book' OR symphyseal OR symphysis) NEAR/4 fixat*):ti,ab,kw)	48647
#3	#1 AND #2	124
#4	#3 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	122
#5	#4 AND [2010-2024]/py	96
#6	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*:ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*:ti,ab)) OR (('data extraction':ti,ab OR 'data source*:ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*:ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR (((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND (search*:ab OR database*:ab OR 'data base*:ab)) OR metasynthes*:ti,ab OR 'meta synthes*:ti,ab	992095
#7	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	3948122
#8	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	8015733
#9	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4 clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR	14724526

	controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (score* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR (('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR 'cross sectional*':ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk ratio*':ab OR 'relative risk*':ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR (((('or' OR 'rr') NEAR/6 ci):ab)))	
#10	#5 AND #6 - SR	1
#11	#5 AND #7 NOT #10 - RCT	11
#12	#5 AND (#8 OR #9) NOT (#10 OR #11) - observationeel	47
#13	#10 OR #11 OR #12	59

Ovid/Medline

#	Searches	Results
1	(((*Fractures, Bone/ and *Pelvic Bones/) or (('pelvic ring*' or 'pelvis ring*' or 'pelvic crescent' or 'pelvis crescent' or 'crescent pelvic' or 'crescent pelvis') adj3 (injur* or trauma* or broke* or fractur* or instabil* or unstab* or disrupt*)):ti,ab,kf.) and (((antero or anterior) adj2 posterior) or anteroposterior or 'open book' or apc or apc1 or apc2).ti,ab,kf.) or (('open book' or apc or apc1 or apc2) adj4 (pelvis or pelvic or injur* or fractur*)):ti,ab,kf.	604
2	Bone Plates/ or exp Fracture Fixation/ or Internal Fixators/ or ((symphyseal or symphysis) adj3 plat*).ti,ab,kf. or ((bone or anter* or fixat* or pelvic or pelvis) adj4 plat*).ti,ab,kf. or ((apc or apc1 or apc2 or 'open book' or symphyseal or symphysis) adj4 fixat*).ti,ab,kf.	95626
3	1 and 2	253
4	3 not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	252
5	limit 4 to yr="2010 -Current"	176

6	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	717838
7	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.	2675595
8	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	4621279
9	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or match*))).ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or multident* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or	5593402

	groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or (("OR" or "RR") adj6 CI).ab.))	
10	5 and 6 – SR	2
11	(5 and 7) not 10 - RCT	15
12	(5 and (8 or 9)) not (10 or 11) - observationeel	88
13	10 or 11 or 12	105

Module 3: Tromboseprofylaxe

Evidence tabel

Niet van toepassing.

Risk of bias tabel

Niet van toepassing.

Exclusie tabel

Reference	Reason for exclusion
Shu HT, Yu AT, Lim PK, Scolaro JA, Shafiq B. Chemoprophylaxis for venous thromboembolism in pelvic and/or acetabular fractures: A systematic review. Injury. 2022 Apr;53(4):1449-1454. doi: 10.1016/j.injury.2022.01.045. Epub 2022 Feb 5. PMID: 35148902.	The RCTs in this systematic review do not match the interventions under study in this guideline.

Zoekverantwoording

Algemene informatie

Cluster/richtlijn: NVVH Bekkenringletsels	
Uitgangsvraag/modules: UV3 Wat is de waarde van anti-tromboseprofylaxe bij patiënten met een bekkenringletsel?	
Database(s): Embase.com, Ovid/Medline	Datum: 3 september 2024
Periode: vanaf 2000	Talen: geen restrictie
Literatuurspecialist: Alies Oost	Rayyan: https://rayyan.ai/reviews/1142992
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/ Deduplication: voor het ontdebellen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen: - bekkenringletsel - tromboseprofylaxe De sleutelartikelen worden gevonden met deze search, m.u.v. het artikel van Wu (PMID 38652521). Deze wordt niet gevonden omdat in titel/ abstract/ trefwoorden niet blijkt dat er is gekeken naar bekkenringletsel.	
Te gebruiken voor richtlijntekst: In de databases Embase.com en Ovid/Medline is op 3 september 2024 systematisch gezocht naar systematische reviews, RCTs en observationele studies vanaf 2000 over tromboseprofylaxe bij patiënten met bekkenringletsel. De literatuurzoekactie leverde 382 unieke treffers op.	

Zoekopbrengst

	EMBASE	OVID/MEDLINE	Ontdubbeld
SR	37	11	37
RCT	84	30	99
Observationele studies	237	91	246
Totaal	358	132	382*

**in Rayyan*

Zoekstrategie

Embase.com

No.	Query	Results
#1	'pelvis fracture'/de OR 'sacrum fracture'/exp OR 'pubis fracture'/exp OR 'pelvis injury'/de OR 'pelvic ring fracture'/exp OR 'pelvic ring injury'/exp OR 'pelvis ring disruption'/exp OR (((pelvic OR pelvis OR sacrum OR sacral OR pubis OR pubic) NEAR/4 (injur* OR trauma* OR broke* OR fractur* OR instabil* OR unstabl* OR disrupt*)):ti,ab,kw) OR (((('fragility fractur*' OR 'osteoporo* fractur*') NEAR/7 (pelvis OR pelvic)):ti,ab,kw) OR (((('lateral compression' OR lc OR lc1 OR lc2 OR lc3 OR 'anterior posterior compression' OR apc OR apc1 OR apc2 OR apc3 OR 'vertical shear') NEAR/4 (fractur* OR injur*)):ti,ab,kw) OR ((young NEAR/2 burgess):ti,ab,kw)	22041
#2	'thrombosis prevention'/exp OR 'anticoagulant agent'/exp OR 'anticoagulation'/exp OR 'anticoagulant therapy'/exp OR thromboprophyla*:ti,ab,kw OR (((thrombo* OR antithrombo* OR vte) NEAR/3 (prophylaxis OR prophylactic OR prevention)):ti,ab,kw) OR 'anti coagulant*':ti,ab,kw OR 'anticoagulant*':ti,ab,kw OR 'anticoagulat*':ti,ab,kw OR 'anti coagulat*':ti,ab,kw OR 'antithrombotic*':ti,ab,kw OR 'anti thrombotic*':ti,ab,kw OR 'antithrombos*':ti,ab,kw OR 'anti thrombos*':ti,ab,kw OR 'antithrombocytic*':ti,ab,kw OR 'anti thrombocytic*':ti,ab,kw OR 'antiplatelet agent*':ti,ab,kw OR 'antiplatelet drug*':ti,ab,kw OR 'platelet aggregation inhibitor*':ti,ab,kw OR 'platelet inhibitor*':ti,ab,kw OR 'platelet antagonist*':ti,ab,kw OR 'thrombocyte aggregation inhibiting agent*':ti,ab,kw OR 'thrombocyte aggregation inhibitor*':ti,ab,kw OR 'direct oral anticoagulant agent'/exp OR 'direct oral anticoagulant'/exp OR doac*:ti,ab,kw OR oac:ti,ab,kw OR oacs:ti,ab,kw OR 'heparin'/exp OR 'low molecular weight heparin'/exp OR heparin*:ti,ab,kw OR 'traxyparin*':ti,ab,kw OR lmwh:ti,ab,kw OR 'antivitamin k'/exp OR 'antivitamin k':ti,ab,kw OR 'anti vitamin k':ti,ab,kw OR 'vitamin k antagonist*':ti,ab,kw OR vka:ti,ab,kw OR 'choay':ti,ab,kw OR 'nonvitamin k antagonist oral anticoagulant'/exp OR 'nonvitamin k antagonist*':ti,ab,kw OR noac:ti,ab,kw OR noacs:ti,ab,kw OR 'rivaroxaban'/exp OR 'rivaroxaban':ti,ab,kw OR 'dabigatran'/exp OR 'dabigatran':ti,ab,kw OR 'warfarin'/exp OR coumadin:ti,ab,kw OR 'warfarin*':ti,ab,kw OR	992513

	'apixaban'/exp OR 'apixaban':ti,ab,kw OR 'eliquis':ti,ab,kw OR 'edoxaban'/exp OR 'edoxaban':ti,ab,kw OR 'endoxaban':ti,ab,kw OR 'nadroparin'/exp OR 'nadroparin*':ti,ab,kw OR 'fraxiparin*':ti,ab,kw OR 'enoxaparin'/exp OR 'enoxaparin*':ti,ab,kw OR 'lovenox':ti,ab,kw OR 'clezan*':ti,ab,kw OR 'dalteparin'/exp OR 'dalteparin*':ti,ab,kw OR 'acetylsalicylic acid'/exp OR 'acetyl* salicylic acid':ti,ab,kw OR 'acetylsalicylic acid':ti,ab,kw OR 'aspirin*':ti,ab,kw	
#3	#1 AND #2 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	690
#4	#3 AND [2000-2024]/py	622
#5	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*':ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR (((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynthes*:ti,ab OR 'meta synthes*':ti,ab	1057566
#6	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	4097794
#7	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	8384736
#8	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4	15353266

	clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (scor* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR (('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR 'cross sectional*':ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk ratio*':ab OR 'relative risk*':ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR (('or' OR 'rr') NEAR/6 ci):ab)))	
#9	#4 AND #5 - SR	37
#10	#4 AND #6 NOT #9 - RCT	84
#11	#4 AND (#7 OR #8) NOT (#9 OR #10) - observationeel	237
#12	#9 OR #10 OR #11	358

Ovid/Medline

#	Searches	Results
1	((((pelvic or pelvis or sacrum or sacral or pubis or pubic) adj4 (injur* or trauma* or broke* or fractur* or instabil* or unstabl* or disrupt*)) or (('fragility fractur*' or 'osteoporo* fractur*') adj7 (pelvis or pelvic)) or (('lateral compression' or lc or lc1 or lc2 or lc3 or 'anterior posterior compression' or apc or apc1 or apc2 or apc3 or 'vertical shear') adj4 (fractur* or injur*)) or (young adj2 burgess)).ti,ab,kf.	13516
2	exp Anticoagulants/ or exp Platelet Aggregation Inhibitors/ or thromboprophyla*.ti,ab,kf. or ((thrombo* or antithrombo* or vte) adj3 (prophylaxis or prophylactic or prevention)).ti,ab,kf. or (anti coagulant* or anticoagulant* or anticoagulat* or anti coagulat* or	509837

	antithrombotic* or anti thrombotic* or 'antithrombos*' or 'anti thrombos*' or antithrombocytic* or 'anti thrombocytic*' or 'antiplatelet agent*' or 'antiplatelet drug*' or 'platelet aggregation inhibitor*' or 'platelet inhibitor*' or platelet antagonist* or 'thrombocyte aggregation inhibiting agent*' or 'thrombocyte aggregation inhibitor*' or doac*).ti,ab,kf. or oac.ti,ab,kf. or oacs.ti,ab,kf. or exp Heparin/ or exp Heparin, Low-Molecular-Weight/ or (heparin* or traxyparin* or lmwh).ti,ab,kf. or Vitamin K/ai or (antivitamin k or anti vitamin k or vitamin k antagonist* or vka or choay).ti,ab,kf. or 'nonvitamin k antagonist*'.ti,ab,kf. or noac.ti,ab,kf. or noacs.ti,ab,kf. or exp Rivaroxaban/ or 'rivaroxaban'.ti,ab,kf. or exp Dabigatran/ or 'dabigatran'.ti,ab,kf. or exp Warfarin/ or coumadin.ti,ab,kf. or 'warfarin*'.ti,ab,kf. or 'apixaban'.ti,ab,kf. or 'eliquis'.ti,ab,kf. or 'edoxaban'.ti,ab,kf. or 'endoxaban'.ti,ab,kf. or exp Nadroparin/ or 'nadroparin*'.ti,ab,kf. or 'fraxiparin*'.ti,ab,kf. or exp Enoxaparin/ or 'enoxaparin*'.ti,ab,kf. or 'lovenox'.ti,ab,kf. or 'clexan*'.ti,ab,kf. or exp Dalteparin/ or 'dalteparin*'.ti,ab,kf. or exp Aspirin/ or 'acetyl* salicylic acid'.ti,ab,kf. or 'acetylsalicylic acid'.ti,ab,kf. or 'aspirin*'.ti,ab,kf.	
3	(1 and 2) not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	274
4	limit 3 to yr="2000 -Current"	222
5	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	770687
6	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.	2770596
7	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or	4813717

	consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	
8	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or match*))).ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or multigent* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or (("OR" or "RR") adj6 CI).ab.))	5771820
9	4 and 5 - SR	11
10	(4 and 6) not 9 - RCT	30
11	(4 and (7 or 8)) not (9 or 10) - observationeel	91
12	9 or 10 or 11	132

Module 4: Diagnostiek bij FFP-letsels

Evidence tabel

Study reference	Study characteristics	Patient characteristics	Index test (test of interest)	Reference test	Follow-up	Outcome measures and effect size	Comments
Palm (2019)	<u>Type of study:</u> Retrospective pilot study. <u>Setting and country:</u> Clinic, unclear. <u>Funding and conflicts of interest:</u> The authors declare that they have no conflict of interest.	<u>Inclusion criteria:</u> - Age ≥ 55 years - Low-energy trauma or no memory of trauma - DECT examination of the pelvis available - MRI examination of the pelvis available - Time between examinations: ≤ 14 days <u>Exclusion criteria:</u> - Age < 55 years - High-energy trauma - No DECT examination of the pelvis available - No MRI examination of the pelvis available	<u>Describe index test:</u> MRI <u>Cut-off point(s):</u> Not reported. <u>Comparator test:</u> DECT. <u>Cut-off point(s):</u> Not reported.	<u>Describe reference test:</u> CT <u>Cut-off point(s):</u> Not reported.	<u>Time between the index test and reference test:</u> Maximum of 14 days. <u>For how many participants were no complete outcome data available?</u> N=0 (0%) <u>Reasons for incomplete outcome data described?</u> Not relevant.	Sensitivity <i>Overall</i> DECT: 100% MRI: 100% CT: 90.3 (95% CI 75.1 to 96.7) <i>Ventral pelvic ring alterations</i> DECT: 100% MRI: 100% CT: 100% <i>Dorsal pelvic ring alterations</i> DECT: 100% (95% CI 86.7 to 100) MRI: 100%	<u>Author's conclusion</u> Our study shows DECT to be reliable and superior to conventional CT in terms of oedema detection and specific fracture classification in FFP. DECT thus combines the advantages of conventional CT (good

Study reference	Study characteristics	Patient characteristics	Index test (test of interest)	Reference test	Follow-up	Outcome measures and effect size	Comments
		- Time between the examinations: > 14 days - Bone marrow disease - Metastasis in the pelvis - Metal implant in the pelvis - Pregnancy <u>N=46</u> <u>Prevalence:</u> Not reported. <u>Mean age ± SD:</u> Not reported. <u>Sex: % M / % F</u> Not reported. <u>Other important characteristics:</u> Not reported.				CT: 68% (95% CI 48.4 to 82.8) Specificity <i>Overall</i> DECT: 100% MRI: 100% CT: 90.3 (95% CI 75.1 to 96.7) <i>Ventral pelvic ring alterations</i> DECT: 100% MRI: 100% CT: 100% <i>Dorsal pelvic ring alterations</i> DECT: 100% (95% CI 84.5 to 100) MRI: 100% (95% CI 84.5 to 100) CT: 100% (95% CI 84.5 to 100)	visualisation of bone matter) and MRI (medullary cavity and visualisation of occult fractures).

Risk of bias tabel

Study reference	Patient selection	Index test	Reference standard	Flow and timing	Comments with respect to applicability
Palm (2019)	<u>Was a consecutive or random sample of patients enrolled?</u> Yes, patients who had presented in the clinic between 1 December 2015 and 1 June 2018 with a suspected fragility fracture of the pelvic ring. <u>Was a case-control design avoided?</u> Yes/No/Unclear <u>Did the study avoid inappropriate exclusions?</u> Yes/No/Unclear	<u>Were the index test results interpreted without knowledge of the results of the reference standard?</u> Yes, The images were evaluated using a set procedure. After the CT and MRI data sets had been acquired, they were assessed by a radiologist specialised in musculoskeletal injuries, in randomised order, blinded and without clinical information. <u>If a threshold was used, was it pre-specified?</u> Unclear	<u>Is the reference standard likely to correctly classify the target condition?</u> Yes <u>Were the reference standard results interpreted without knowledge of the results of the index test?</u> Yes	<u>Was there an appropriate interval between index test(s) and reference standard?</u> Yes, time between index and reference was 14 days maximum. <u>Did all patients receive a reference standard?</u> Yes <u>Did patients receive the same reference standard?</u> Yes <u>Were all patients included in the analysis?</u> Yes	<u>Are there concerns that the included patients do not match the review question?</u> No <u>Are there concerns that the index test, its conduct, or interpretation differ from the review question?</u> No <u>Are there concerns that the target condition as defined by the reference standard does not match the review question?</u> No

Study reference	Patient selection	Index test	Reference standard	Flow and timing	Comments with respect to applicability
	CONCLUSION: Could the selection of patients have introduced bias? RISK: LOW	CONCLUSION: Could the conduct or interpretation of the index test have introduced bias? RISK: LOW	CONCLUSION: Could the reference standard, its conduct, or its interpretation have introduced bias? RISK: LOW	CONCLUSION Could the patient flow have introduced bias? RISK: LOW	

Exclusie tabel

Reference	Reason for exclusion
Mennen AHM, Blokland AS, Maas M, van Embden D. Imaging of pelvic ring fractures in older adults and its clinical implications-a systematic review. Osteoporos Int. 2023 Sep;34(9):1549-1559. doi: 10.1007/s00198-023-06812-9. Epub 2023 Jun 7. PMID: 37286662; PMCID: PMC10427539.	Non-comparative studies that did not match de PICRO of this guideline.
Graul I, Vogt S, Strube P, Hölzl A. Significance of Lumbar MRI in Diagnosis of Sacral Insufficiency Fracture. Global Spine J. 2021 Oct;11(8):1197-1201. doi: 10.1177/2192568220941821. Epub 2020 Aug 4. PMID: 32748639; PMCID: PMC8453668.	Wrong population and no comparison with reference test.
Nüchtern JV, Hartel MJ, Henes FO, Groth M, Jauch SY, Haegele J, Briem D, Hoffmann M, Lehmann W, Rueger JM, Großterlinden LG. Significance of clinical examination, CT and MRI scan in the diagnosis of posterior pelvic ring fractures. Injury. 2015 Feb;46(2):315-9. doi: 10.1016/j.injury.2014.10.050. Epub 2014 Oct 22. PMID: 25527459.	Wrong comparison of diagnostic modalities.

Zoekverantwoording

Algemene informatie

Cluster/richtlijn: NVVH Bekkenringletsels	
Uitgangsvraag/modules: UV4 Wat is de optimale diagnostische modaliteit voor het aantonen/uitsluiten van FFP bekkenringletsels?	
Database(s): Embase.com, Ovid/Medline	Datum: 9 januari 2024
Periode: vanaf 2000	Talen: geen restrictie
Literatuurspecialist: Alies Oost	Rayyan review: https://rayyan.ai/reviews/893084
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/ Deduplication: voor het ontdebellen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen: - FFP bekkenringletsel - MRI - Röntgenfoto - Dual energy CT - Diagnostisch filter Het sleutelartikel wordt gevonden met deze search	
Te gebruiken voor richtlijntekst: In de databases Embase.com en Ovid/Medline is op 9 januari 2024 systematisch gezocht naar systematische reviews, RCTs en observationele studies over de diagnostische waarde van beeldvormende diagnostiek (MRI, röntgenfoto, dual energy CT) bij (verdenking op) FFP bekkenringletsel. De literatuurzoekactie leverde 64 unieke treffers op.	

Zoekopbrengst

	EMBASE	OVID/MEDLINE	Ontdubbeld
SR	2	2	3
RCT	18	8	22
Observationele studies	30	20	39
Totaal	50	30	64*

in Rayyan*Zoekstrategie**

5

Embase.com

No.	Query	Results
#1	((('fragility fractur*' OR 'osteoporo* fractur*') NEAR/7 (pelvis OR pelvic)):ti,ab,kw) OR (('pelvic ring fracture'/exp OR 'pelvic ring injury'/exp OR 'pelvis ring disruption'/exp OR 'pelvis fracture'/exp OR 'pelvis injury'/exp OR (('pelvic ring*' OR 'pelvis ring*' OR 'pelvic crescent' OR 'pelvis crescent' OR 'crescent pelvic' OR 'crescent pelvis') NEAR/3 (injur* OR trauma* OR broke* OR fractur* OR instabil* OR untabl* OR disrupt*)):ti,ab,kw)) AND ('fragility fracture'/exp OR (((fragility OR osteoporo*) NEAR/3 (fractur* OR injur*)):ti,ab,kw)))	961
#2	'nuclear magnetic resonance imaging'/exp OR 'mri scanner'/exp OR ('magnetic resonance':ti,ab,kw AND (image:ti,ab,kw OR images:ti,ab,kw OR imaging:ti,ab,kw)) OR mri:ti,ab,kw OR mris:ti,ab,kw OR nmr:ti,ab,kw OR mra:ti,ab,kw OR mras:ti,ab,kw OR zeugmatograph*:ti,ab,kw OR 'mr tomography':ti,ab,kw OR 'mr tomographies':ti,ab,kw OR 'mr tomographic':ti,ab,kw OR 'mr imag*':ti,ab,kw OR 'proton spin':ti,ab,kw OR ((magneti*:ti,ab,kw OR 'chemical shift':ti,ab,kw) AND imaging:ti,ab,kw) OR fmri:ti,ab,kw OR fmr:ti,ab,kw OR rsfmri:ti,ab,kw	1612592
#3	'pelvis radiography'/exp OR 'x ray pelvimetry'/exp OR 'radiography'/de OR 'bone radiography'/de OR pelviradiograph*:ti,ab,kw OR radiopelvimetry:ti,ab,kw OR radiograph*:ti,ab,kw OR radioimag*:ti,ab,kw OR radiophotograph*:ti,ab,kw OR radiogram*:ti,ab,kw OR roentgen*:ti,ab,kw OR 'x ray*':ti,ab,kw OR xray*:ti,ab,kw	1098123
#4	'dual energy computed tomography'/exp OR dect:ti,ab,kw OR (('computer assisted tomography'/exp OR 'cat scan':ti,ab,kw OR ((compute* NEAR/3 tomograph*):ti,ab,kw) OR ct:ti,ab,kw) AND 'dual energy':ti,ab,kw)	12337
#5	'sensitivity and specificity'/de OR sensitivity:ab,ti OR specificity:ab,ti OR predict*:ab,ti OR 'roc curve':ab,ti OR 'receiver operator':ab,ti OR 'receiver operators':ab,ti OR likelihood:ab,ti OR 'diagnostic error'/exp OR 'diagnostic accuracy'/exp OR 'diagnostic test accuracy study'/exp OR 'inter observer':ab,ti OR 'intra observer':ab,ti OR interobserver:ab,ti OR intraobserver:ab,ti OR validity:ab,ti OR	6290715

	kappa:ab,ti OR reliability:ab,ti OR reproducibility:ab,ti OR ((test NEAR/2 're-test'):ab,ti) OR ((test NEAR/2 'retest'):ab,ti) OR 'reproducibility'/exp OR accuracy:ab,ti OR 'differential diagnosis'/exp OR 'validation study'/de OR 'measurement precision'/exp OR 'diagnostic value'/exp OR 'reliability'/exp OR 'predictive value'/exp OR ppv:ti,ab,kw OR npv:ti,ab,kw OR (((false OR true) NEAR/3 (negative OR positive)):ti,ab)	
#6	#1 AND (#2 OR #3 OR #4) AND #5	77
#7	#6 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	62
#8	#7 AND [2000-2024]/py	59
#9	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*:ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR (((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynthes*:ti,ab OR 'meta synthes*':ti,ab	992618
#10	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	3949518
#11	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	8019216
#12	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind	14730652

	procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4 clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (scor* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR (('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR 'cross sectional*':ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk ratio*':ab OR 'relative risk*':ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR (((('or' OR 'rr') NEAR/6 ci):ab)))	
#13	#8 AND #9 - SR	2
#14	#8 AND #10 NOT #13 - RCT	18
#15	#8 AND (#11 OR #12) NOT (#13 OR #14) - observationeel	30
#16	#13 OR #14 OR #15	50
#17	37286662:ui	1
#18	#16 AND #17 – sleutelartikel wordt gevonden	1

Ovid/Medline

#	Searches	Results
1	((('fragility fractur*' or 'osteoporo* fractur*') adj7 (pelvis or pelvic)).ti,ab,kf. or (((exp Fractures, Bone/ and (exp Pelvic Bones/ or exp Pelvis/)) or (('pelvic ring*' or 'pelvis ring*' or 'pelvic crescent' or 'pelvis crescent' or 'crescent pelvic' or	513

	'crescent pelvis') adj3 (injur* or trauma* or broke* or fractur* or instabil* or unstabl* or disrupt*).ti,ab,kf.) and (exp Osteoporotic Fractures/ or ((fragility or osteoporo*) adj3 (fractur* or injur*).ti,ab,kf.))	
2	exp magnetic resonance imaging/ or ("magnetic resonance" and (image or images or imaging)).ti,ab,kf. or mri.ti,ab,kf. or mris.ti,ab,kf. or nmr.ti,ab,kf. or mra.ti,ab,kf. or mras.ti,ab,kf. or zeugmatograph*.ti,ab,kf. or "mr tomography".ti,ab,kf. or "mr tomographies".ti,ab,kf. or "mr tomographic".ti,ab,kf. or 'mr imag*.ti,ab,kf. or "proton spin".ti,ab,kf. or ((magneti* or "chemical shift") and imaging).ti,ab,kf. or fmri.ti,ab,kf. or fmrri.ti,ab,kf. or rsfmri.ti,ab,kf.	977205
3	Radiography/ or pelviradiograph*.ti,ab,kf. or radiopelvimetry.ti,ab,kf. or radiograph*.ti,ab,kf. or radioimag*.ti,ab,kf. or radiophotograph*.ti,ab,kf. or radiogram*.ti,ab,kf. or (roentgen* or 'x ray*' or xray*).ti,ab,kf.	965108
4	exp Radiography, Dual-Energy Scanned Projection/ or dect.ti,ab,kf. or ((exp Tomography, X-Ray Computed/ or computed tomograph*.ti,ab,kf. or ct.ti,ab,kf. or cts.ti,ab,kf. or cat scan*.ti,ab,kf. or computer assisted tomograph*.ti,ab,kf. or computerized tomograph*.ti,ab,kf. or computerised tomograph*.ti,ab,kf. or computed x ray tomograph*.ti,ab,kf. or computed xray tomograph*.ti,ab,kf.) and 'dual energy'.ti,ab,kf.)	8408
5	exp "Sensitivity and Specificity"/ or (sensitivity or specificity).ti,ab. or (predict* or ROC-curve or receiver-operator*).ti,ab. or (likelihood or LR*).ti,ab. or exp Diagnostic Errors/ or (inter-observer or intra-observer or interobserver or intraobserver or validity or kappa or reliability).ti,ab. or reproducibility.ti,ab. or (test adj2 (re-test or retest)).ti,ab. or "Reproducibility of Results"/ or accuracy.ti,ab. or Diagnosis, Differential/ or Validation Study/ or ((false or true) adj3 (negative or positive)).ti,ab.	4981453
6	1 and (2 or 3 or 4) and 5	45
7	6 not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	45
8	limit 7 to yr="2000 -Current"	41
9	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*).ti,ab,kf. or (("data extraction" or "data source") and "study selection").ti,ab,kf. or ("search strategy" and	717841

	"selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or syntheses*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or syntheses*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	
10	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.	2675494
11	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	4621252
12	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or match*))).ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or	5593196

	multicent* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or ("OR" or "RR") adj6 CI).ab.))	
13	8 and 9 - SR	2
14	(8 and 10) not 13 - RCT	8
15	(8 and (11 or 12)) not (13 or 14) - observationeel	20
16	13 or 14 or 15	30
17	37286662.ui.	1
18	16 and 17 – sleutelartikel wordt gevonden	1

Module 5: Chirurgische behandeling bij FFP-letsels

Evidence tabel

Study reference	Study characteristics	Patient characteristics ²	Intervention (I)	Comparison / control (C) ³	Follow-up	Outcome measures and effect size ⁴	Comments
Thiesen (2023)	<u>Type of study:</u> Pilot RCT. <u>Setting and country:</u> University Medical Center Hamburg-Eppendorf. <u>Funding and conflicts of interest:</u> Open Access funding enabled and organized by Projekt DEAL.	<u>Inclusion criteria:</u> - Patients older than 60 years with a type B2.1 or FFP II posterior pelvic ring fracture and a fracture age of less than 3 weeks. - Patients under 60 years who had a previously confirmed history of osteoporosis. <u>Exclusion criteria:</u>	<u>Describe intervention (treatment/procedure/test):</u> Surgical treatment: percutaneous minimally invasive navigated S1 sacroiliac screw osteosynthesis with additional stabilization of the anterior pelvic ring using a supraacetabular external fixator within the first 3	<u>Describe control (treatment/procedure/test):</u> Comprehensive conservative treatment: not specified.	<u>Length of follow-up:</u> 12 months. <u>Loss-to-follow-up:</u> N=10 (25.6%)	1-year mortality I: 3/17 (17.6%) C: 1/22 (4.5%) Complications I: 3*/17 (17.6%) C: 0/18 (0%) *One patient was diagnosed with a pin infection and loosening of the external fixator needing removal of the fixator. In another patient, asymptomatic loosening of the SI-screw was	<u>Author's conclusion:</u> The result of this randomized controlled pilot trial indicates that surgical treatment of FFP II fractures in geriatric patients may not be superior to conservative treatment. Non-displaced posterior pelvic ring fractures (FFP II) in an older population may be treated with comprehensive conservative therapy (analgesia and physical

	The authors declare no competing interests.	• Metastatic tumors in the pelvis; • Pathologic fractures; • High-energy trauma mechanism. <u>N total at baseline:</u> Intervention: N = 17 Control: N = 22 <u>Important prognostic factors²:</u> <i>age ± SD:</i> <i>I: 77.5 (11.0) years</i> <i>C: 83.7 (8.9) years</i> <i>Sex:</i> <i>I: 3/17 M</i> <i>C: 0/22 M</i> Groups comparable at baseline? Yes.	days after admission.			noted, without the need for revision. A third patients had an infection of the surgical site due to inadequate wound care at the nursing home.	therapy with full weight bearing). It is crucial to note that if early mobilization is not possible, a switch to operative treatment should occur promptly, rather than attempting conservative management for an extended period. Vigilant follow-up is essential to prevent prolonged immobilization and detect any fracture progression. The methodology used in this pilot trial may be valuable for designing larger, multi-center trials to confirm these findings and improve clinical decision-making for FFP II fractures in the elderly.
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Risk of bias tabel

Study reference (first author, publication year)	Was the allocation sequence adequately generated?	Was the allocation adequately concealed?	Blinding: Was knowledge of the allocated interventions adequately prevented? Were patients/healthcare providers/data collectors/assessors/data analysts blinded?	Was loss to follow-up (missing outcome data) infrequent?	Are reports of the study free of selective outcome reporting?	Was the study apparently free of other problems that could put it at a risk of bias?	Overall risk of bias If applicable/necessary, per outcome measure LOW Some concerns HIGH
Thiesen (2023)	Definitely yes Reason: a previously prepared randomization list with a random sequence of zeros and ones was	No information	Definitely no Reason: due to the nature of the intervention, blinding of patients and health care providers was not possible.	Probably no Reason: at 1-year follow-up, loss-to-follow-up rate was higher in the surgical group than conservative	Definitely yes Reason: all outcomes in methods section are reported in the results section.	Definitely yes Reason: no other sources of bias present	Low (mortality) Low (complications) High (quality of life) High (pain) Low (reintervention)

	used. No information about how the sequence of zeros and ones was generated.			group (17.6% vs. 13.6%).			
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Exclusie tabel

Author and year	Reason for exclusion
Aigner R, Föhr J, Lenz J, Knauf T, Bäumlein M, Ruchholtz S, Oberkircher L, Hack J. Cemented Sacroiliac Screw Fixation versus Conservative Therapy in Fragility Fractures of the Posterior Pelvic Ring: A Matched-Pair Analysis of a Prospective Observational Study. J Clin Med. 2023 Sep 8;12(18):5850. doi: 10.3390/jcm12185850. PMID: 37762790; PMCID: PMC10531520.	Observational study
Briggs P, King SW, Staniland T, Gopal S, Shah R, Chimutengwende-Gordon M. A Systematic Review of Sacral Insufficiency Fractures: Treatment Modalities and Outcomes. Cureus. 2023 Jul 11;15(7):e41745. doi: 10.7759/cureus.41745. PMID: 37575865; PMCID: PMC10415627.	Wrong patient population (sacral fractures)
Dalos D, Guttowski D, Thiesen DM, Berger-Groch J, Fensky F, Frosch KH, Hartel MJ. Operative versus conservative treatment in pelvic ring fractures with sacral involvement. Orthop Traumatol Surg Res. 2024 Apr;110(2):103691. doi: 10.1016/j.otsr.2023.103691. Epub 2023 Sep 21. PMID: 37741442.	Observational study
Gericke L, Fritz A, Osterhoff G, Josten C, Pieroh P, Höch A. Percutaneous operative treatment of fragility fractures of the pelvis may not increase the general rate of complications compared to non-operative treatment. Eur J Trauma Emerg Surg. 2022 Oct;48(5):3729-3735. doi: 10.1007/s00068-021-01660-w. Epub 2021 Apr 3. PMID: 33811488; PMCID: PMC9532300.	Observational study
Nuber S, Ritter B, Fenwick A, Förch S, Wanzl M, Nuber M, Mayr E. Midterm follow-up of elderly patients with fragility fractures of the pelvis: A prospective cohort-study comparing operative and non-operative treatment according to a therapeutic algorithm. Injury. 2022 Feb;53(2):496-505. doi: 10.1016/j.injury.2021.09.044. Epub 2021 Oct 1. PMID: 34629169.	Observational study
Timmer RA, Verhage SM, Krijnen P, Meylaerts SAG, Schipper IB. Indications for surgical fixation of low-energy pelvic ring fractures in elderly: a systematic review. Arch Orthop Trauma Surg. 2023 May;143(5):2417-2428. doi: 10.1007/s00402-022-04438-w. Epub 2022 Apr 25. PMID: 35462589; PMCID: PMC10110636.	Wrong patient population used (patients with sacral fragility fractures) and wrong comparison
Wilson DGG, Kelly J, Rickman M. Operative management of fragility fractures of the pelvis - a systematic review. BMC Musculoskelet Disord.	No patient-reported outcomes

Zoekverantwoording

Algemene informatie

Cluster/richtlijn: NVVH Bekkenringletsels	
Uitgangsvraag/modules: UV5 Wat is de waarde van chirurgische behandeling van FFP letsels?	
Database(s): Embase.com, Ovid/Medline	Datum: 10 januari 2024
Periode: geen restrictie	Talen: geen restrictie
Literatuurspecialist: Alies Oost	Rayyan review: https://rayyan.ai/reviews/894581
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/	
Deduplication: voor het ontdebelen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen: - ouderen - bekkenfractuur (sacrum, bekkenring, ramus superior/inferior fracturen) - chirurgie → Het sleutelartikel wordt gevonden met deze search → Om de relevantie van de gevonden referenties te vergroten en omdat het resultaat anders erg groot zou worden is ervoor gekozen om de term Aged in Embase als major Emtree term te gebruiken en in Medline als Focus term.	
Te gebruiken voor richtlijntekst: In de databases Embase.com en Ovid/Medline is op 10 januari 2024 systematisch gezocht naar systematische reviews, RCTs en observationele studies over chirurgie bij ouderen met FFP letsel. De literatuurzoekactie leverde 476 unieke treffers op.	

Zoekopbrengst

	EMBASE	OVID/MEDLINE	Ontdubbeld
SR	19	17	25
RCT	86	32	97
Observationele studies	268	266	354
Totaal	373	315	476*

*in Rayyan

Zoekstrategie

Embase.com

No.	Query	Results
#1	'aged'/exp/mj OR 'geriatrics'/exp OR 'geriatric assessment'/exp OR 'geriatric patient'/exp OR 'elderly care'/exp OR 'frailty'/exp OR 'senile dementia'/exp OR elder*:ti,ab,kw OR eldest:ti,ab,kw OR frail*:ti,ab,kw OR geriatri*:ti,ab,kw OR ((oldest NEXT/1 old*):ti,ab,kw) OR ((very NEXT/1 old*):ti,ab,kw) OR senior*:ti,ab,kw OR senium:ti,ab,kw OR septuagenarian*:ti,ab,kw OR octagenarian*:ti,ab,kw OR octogenarian*:ti,ab,kw OR	1116036

	nonagenarian*:ti,ab,kw OR centarian*:ti,ab,kw OR centenarian*:ti,ab,kw OR supercentenarian*:ti,ab,kw OR ((older NEXT/1 (man OR men OR male* OR woman OR women OR female*)):ti,ab,kw) OR (((old OR older) NEXT/1 (age* OR subject* OR patient* OR pts OR adult* OR population* OR person* OR people OR citizen*)):ti,ab,kw) OR ((senil* NEAR/3 (dement* OR confus* OR alzheimer*)):ti,ab,kw)	
#2	'pelvis fracture'/de OR 'sacrum fracture'/exp OR 'pubis fracture'/exp OR 'pelvis injury'/de OR 'pelvic ring fracture'/exp OR 'pelvic ring injury'/exp OR 'pelvis ring disruption'/exp OR (('fracture'/de OR 'fracture dislocation'/exp OR 'impaction fracture'/exp OR 'microfracture (injury)'/exp OR 'multiple fracture'/exp OR 'open fracture'/exp OR 'pathologic fracture'/exp OR 'stress fracture'/exp OR fractur*:ti,ab,kw) AND ('pelvis'/de OR 'sacrum'/exp OR 'hip bone'/exp OR (((superior OR inferior) NEAR/3 'ramus'):ti,ab,kw))) OR (((pelvic OR pelvis OR sacrum OR sacral OR pubis OR pubic OR ilium OR 'iliac crest' OR 'iliac fossa' OR ischium OR 'ramus superior' OR 'superior ramus' OR 'ramus inferior' OR 'inferior ramus' OR rami) NEAR/3 (injur* OR trauma* OR broke* OR fractur* OR instabil* OR unstabl* OR disrupt*)):ti,ab,kw)	24723
#3	'pelvis surgery'/de OR 'surgery'/de OR 'orthopedic surgery'/exp OR 'minimally invasive surgery'/exp OR 'surgical technique'/de OR 'fracture fixation'/exp OR 'orthopedic fixation device'/de OR 'bone implant'/exp OR 'osteosynthesis material'/exp OR 'internal fixator'/de OR 'external fixator'/de OR 'surgical risk'/exp OR surgic*:ti,ab,kw OR surger*:ti,ab,kw OR operation*:ti,ab,kw OR operative:ti,ab,kw OR laparoscop*:ti,ab,kw OR osteosynthesis:ti,ab,kw OR 'osteo synthesis':ti,ab,kw OR (((percutan* OR external OR fractur* OR bone* OR plat* OR screw* OR 'spino pelvic') NEAR/3 fixat*)):ti,ab,kw)	4518038
#4	#1 AND #2 AND #3	777
#5	#4 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	570
#6	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*:ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*)):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*)):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*)):ti,ab) OR (((literature NEAR/3 review*)):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR (((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND	993022

	(search*:ab OR database*:ab OR 'data base*':ab)) OR metasyntes*:ti,ab OR 'meta syntes*':ti,ab	
#7	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	3950426
#8	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	8021760
#9	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4 clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (scor* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR (('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR cross sectional*:ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk	14733862

	ratio*:ab OR 'relative risk*:ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR (((('or' OR 'rr') NEAR/6 ci):ab)))	
#10	#5 AND #6 - SR	19
#11	#5 AND #7 NOT #10 - RCT	86
#12	#5 AND (#8 OR #9) NOT (#10 OR #11) - observationeel	268
#13	#10 OR #11 OR #12	373
#14	34419037:ui	1
#15	#13 AND #14 – sleutelartikel wordt gevonden	1

Ovid/Medline

#	Searches	Results
1	exp *Aged/ or exp Geriatrics/ or exp "Homes for the Aged"/ or exp "Health Services for the Aged"/ or exp Geriatric Psychiatry/ or exp Geriatric Nursing/ or elder*.ti,ab,kf. or eldest.ti,ab,kf. or frail*.ti,ab,kf. or geriatri*.ti,ab,kf. or 'oldest old*'.ti,ab,kf. or 'very old*'.ti,ab,kf. or senior*.ti,ab,kf. or senium.ti,ab,kf. or septuagenarian*.ti,ab,kf. or octagenarian*.ti,ab,kf. or octogenarian*.ti,ab,kf. or nonagenarian*.ti,ab,kf. or centarian*.ti,ab,kf. or centenarian*.ti,ab,kf. or supercentenarian*.ti,ab,kf. or (older adj (man or men or male* or woman or women or female*)).ti,ab,kf. or ((old or older) adj (age* or subject* or patient* or pts or adult* or population* or person* or people or citizen*)).ti,ab,kf. or (senil* adj3 (dement* or confus* or alzheimer*)).ti,ab,kf.	789911
2	((Fractures, Bone/ or exp Fracture Dislocation/ or exp Fractures, Closed/ or exp Fractures, Comminuted/ or exp Fractures, Compression/ or exp Fractures, Malunited/ or exp Fractures, Multiple/ or exp Fractures, Open/ or exp Fractures, Spontaneous/ or exp Fractures, Stress/ or exp Fractures, Ununited/ or exp Osteoporotic Fractures/ or fractur*.ti,ab,kf.) and (Pelvic Bones/ or Ilium/ or Ischium/ or Pubic Bone/ or exp Pelvis/ or exp Sacrum/ or ((superior or inferior) adj3 'ramus').ti,ab,kf.)) or ((pelvic or pelvis or sacrum or sacral or pubis or pubic or ilium or 'iliac crest' or 'iliac fossa' or ischium or 'ramus superior' or 'superior ramus' or 'ramus inferior' or 'inferior ramus' or rami) adj3 (injur* or trauma* or broke* or fractur* or instabil* or unstabl* or disrupt*)).ti,ab,kf.	15314
3	exp Surgical Procedures, Operative/ or exp Specialties, Surgical/ or exp Orthopedic Fixation Devices/ or surgic*.ti,ab,kf. or surger*.ti,ab,kf. or operation*.ti,ab,kf. or operative.ti,ab,kf. or laparoscop*.ti,ab,kf. or osteosynthesis.ti,ab,kf. or 'osteo synthesis'.ti,ab,kf. or ((percutan* or external or fractur* or bone* or plat* or screw* or 'spino pelvic') adj3 fixat*).ti,ab,kf.	5248618
4	1 and 2 and 3	527
5	4 not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	522
6	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or	718116

	comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	
7	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.	2676015
8	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	4622270
9	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or match*))).ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or multicent* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or (("OR" or "RR") adj6 CI).ab.))	5594184
10	5 and 6 - SR	17
11	(5 and 7) not 10 - RCT	32

12	(5 and (8 or 9)) not (10 or 11) - observationeel	266
13	10 or 11 or 12	315
14	34419037.ui.	1
15	13 and 14 – sleutelartikel wordt gevonden	1

Module 6: Vroeg belasten versus laat belasten bij bekkenringletsels

Evidence tabel

Niet van toepassing.

Risk of bias tabel

Niet van toepassing.

Exclusie tabel

Reference	Reason for exclusion
Marchand LS, Working ZM, Rane AA, Elliott IS, Howenstein A, Haller JM, Rothberg DL, Higgins TF. Unstable Pelvic Ring Injuries: How Soon Can Patients Safely Bear Weight? J Orthop Trauma. 2019 Feb;33(2):71-77. doi: 10.1097/BOT.0000000000001356. PMID: 30688836.	Wrong comparison of interventions.

Zoekverantwoording

Algemene informatie

Cluster/richtlijn: NVVH Bekkenringletsels	
Uitgangsvraag/modules: Module 6 Wat is de waarde van vroeg belasten na chirurgische of conservatieve behandeling van een bekkenringletsel?	
Database(s): Embase.com, Ovid/Medline	Datum: 12 augustus 2024
Periode: geen restrictie	Talen: geen restrictie
Literatuurspecialist: Alies Oost	Rayyan: https://rayyan.ai/reviews/1120405
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/	
Deduplication: voor het ontdebellen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen: - Bekkenringletsel - (Vroeg) belasten De sleutelartikelen worden gevonden met deze search.	
Te gebruiken voor richtlijntekst: In de databases Embase.com en Ovid/Medline is op 12 augustus 2024 systematisch gezocht naar systematische reviews, RCTs en observationele studies over (vroeg) belasten bij bekkenringletsel. De literatuurzoekactie leverde 394 unieke treffers op.	

Zoekopbrengst

	EMBASE	OVID/MEDLINE	Ontdubbeld
SR	19	14	22

RCT	66	39	82
Observationele studies	238	196	290
Totaal	323	249	394*

**in Rayyan*

Zoekstrategie

Embase.com

No.	Query	Results
#1	'pelvis fracture'/de OR 'sacrum fracture'/exp OR 'pubis fracture'/exp OR 'pelvis injury'/de OR 'pelvic ring fracture'/exp OR 'pelvic ring injury'/exp OR 'pelvis ring disruption'/exp OR (((pelvic OR pelvis OR sacrum OR sacral OR pubis OR pubic) NEAR/3 (injur* OR trauma* OR broke* OR fractur* OR instabil* OR unstabl* OR disrupt*)):ti,ab,kw) OR (((('fragility fractur*' OR 'osteoporo* fractur*') NEAR/7 (pelvis OR pelvic)):ti,ab,kw) OR (((('lateral compression' OR lc OR lc1) NEAR/4 (fractur* OR injur*)):ti,ab,kw) OR ((young NEAR/2 burgess):ti,ab,kw)	20660
#2	'weight bearing'/exp OR (((weight OR fullweight OR partialweight OR dynamicweight) NEAR/3 bear*):ti,ab,kw) OR 'weightbear*':ti,ab,kw OR 'fullweightbear*':ti,ab,kw OR 'partialweightbear*':ti,ab,kw OR 'dynamicweightbear*':ti,ab,kw OR (((earl* OR postoperative OR 'post operative') NEAR/3 (exercis* OR rehabilitat* OR ambulation OR mobilisat* OR mobilizat*)):ti,ab,kw)	82812
#3	#1 AND #2 NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	661
#4	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*':ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR (((((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynthes*:ti,ab OR 'meta synthes*':ti,ab	1052722
#5	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	4086913

#6	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	8358324
#7	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4 clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (scor* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR (('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR 'cross sectional*':ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk ratio*':ab OR 'relative risk*':ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR (((or' OR 'rr') NEAR/6 ci):ab)))	15308740
#8	#3 AND #4 - SR	19
#9	#3 AND #5 NOT #8 - RCT	66
#10	#3 AND (#6 OR #7) NOT (#8 OR #9) - observationeel	238
#11	#8 OR #9 OR #10	323

Ovid/Medline

#	Searches	Results
1	((((pelvic or pelvis or sacrum or sacral or pubis or pubic) adj3 (injur* or trauma* or broke* or fractur* or instabil* or unstabl* or disrupt*)) or (('fragility fractur*' or 'osteoporos* fractur*') adj7 (pelvis or pelvic)) or (('lateral compression' or lc or lc1) adj4 (fractur* or injur*)) or (young adj2 burgess)).ti,ab,kf.	12363
2	exp Weight-Bearing/ or exp Early Ambulation/ or ((weight or fullweight or partialweight or dynamicweight) adj3 bear*).ti,ab,kf. or 'weightbear*.ti,ab,kf. or 'fullweightbear*.ti,ab,kf. or 'partialweightbear*.ti,ab,kf. or dynamicweightbear*.ti,ab,kf. or ((earl* or postoperative or 'post operative') adj3 (exercis* or rehabilitat* or ambulation or mobilisat* or mobilizat*)).ti,ab,kf.	63700
3	(1 and 2) not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	464
4	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	766793
5	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.	2762792
6	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	4798984
7	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or	5758068

	controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or match*))).ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or multicent* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or (("OR" or "RR") adj6 CI).ab.))	
8	3 and 4 - SR	14
9	(3 and 5) not 8 - RCT	39
10	(3 and (6 or 7)) not (8 or 9) - observationeel	196
11	8 or 9 or 10	249