UNIVERSITY OF COPENHAGEN
DEPARTMENT OF CLINICAL MEDICINE

REGION ZEALAND
ZEALAND UNIVERSITY HOSPITAL

Sundhedsfagligt Råd, Stormøde, 22. maj 2026

‘Vælg Klogt’ og Evidens

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Center for Evidensbaseret Ortopædkirurgi

Sjællands Universitetshospital

Institut for Klinisk Medicin,

Københavns Universitet

Zealand University Hospital
CEBO
Centre for Evidence-Based Orthopaedics

Agenda

I. Introduktion til 'Vælg Klogt' tankegangen

II. Evidens som forudsætning for 'Vælg Klogt'

III. Eksempler på evidens som understøtter 'Vælg Klogt'

IV. Hvorfor er det så svært for os at følge evidensen?

V. Implementeringsreskaber

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I. Introduktion til 'Vælg Klogt' tankegangen

Mål

At fremme samtalen mellem læge og patienten og støtte patienten i at træffe valg der er:

1) **Evidensbaserede**
2) **Ikke gentager allerede udførte undersøgelser eller behandlinger**
3) **Ikke er skadelige**
4) **Nødvendige**



ABIM. Choosing Wisely: Promoting conversations between patients and clinicians. 2025
https://ww2.abimfoundation.org/what-we-do/choosing-wisely

60:30:10 udfordringen

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60% af de tilbudte behandlinger er gavnlige

30% er spild

10% skader patienterne

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Braithwaite, J., Glasziou, P. & Westbrook, J. The three numbers you need to know about healthcare: the 60-30-10 Challenge. *BMC Med* 2020:18, 102 https://pmc.ncbi.nlm.nih.gov/articles/PMC7197142/

Spild i sundhedsvæsenet

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More than 20% of total expenditure in the United States, with an upper bound nearing 50%

Berwick DM, Hackbarth AD. Eliminating waste in US health care. JAMA. 2012 Apr;307(14):1513–6

Nearly one-third of total health expenditure in Australia could be deemed wasteful

Swan N, Balendra J. "Wasted", Four Corners [an investigative journalism broadcast series], Australian Broadcasting Corporation, Sydney 2015: 28 September

Estimated 20% of the budget for acute care in the Netherlands could be saved by reducing overutilization

Visser, S. et al. [Quality as medicine' approach for better care and lower costs], Booz & Company, August 2012

"Sundhedsvæsenet spilder for 20-30 milliarder kroner hvert år"

Perner A. Ugeskrift for læger 2021: 12 July https://ugeskriftet.dk/debat/sundhedsvaesenet-spilder-20-30-milliarder-kroner-hvert-ar

"Overført til danske forhold kunne man dermed spare op mod 20 procent af cirka 200 milliarder kroner, altså 40 milliarder kroner"

Ritzau/Jyllands-Posten 2022: 27. oktober

”Waste” (OECD)

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Vælg Klogt initiativet var ikke tænkt som et middel til at opnå besparelser

Et middel til at de-implementere ineffektive og skadelige behandlinger

Afvikling af disse behandlinger kan give en besparelse

Ændring til billigere alternativer med samme eller bedre effekt kan give besparelser

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OECD, Tackling Wasteful Spending on Health, OECD Publishing, Paris 2017
https://www.oecd.org/en/publications/tackling-wasteful-spending-on-health_9789264266414-en.html

Forudsætninger for at kunne vælge klogt

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Involvering af kliniske beslutningstagere:

- **til at udpege de overflødige behandlinger**
- **til at de-implementere dem**
- **kan ikke erstattes af top-down beslutninger**

Politisk ønske om at udpege behandlinger som kan de-implementeres

- **Kun få behandlinger er ubetinget gode eller dårlige**
- **De kan have værdi for en mindre del af patientpopulationen**
- **De kan have værdi på bestemte tidspunkter af sygdomsorløbet**
- **Randomiserede studier falder ikke ud som sand/falsk, men som sandsynlighedsudsagn**

Udfører DU overflødige behandlinger?

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Som kliniske beslutningstagere oplever vi ikke at tilbyde overflødige behandlinger

Historien har lært os at vi til alle tider har udført overflødige og direkte skadelige behandlinger

Evidensen er et redskab til at begrunde kloge valg og til at identificere overflødige behandlinger

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II. Evidens som forudsætning for 'Vælg Klogt'

'Der er ikke evidens for behandling X…..'

- **'No evidence of a difference'**

Vi finder ingen evidens som understøtter at behandlingen har en gavnlig effekt

- **'Evidence of no difference'**

Vi finder evidens som understøtter at behandlingen ikke har nogen gavnlig effekt

Mange behandlinger ikke er evidensbundne – det betyder ikke nødvendigvis at det er klogt at afvikle dem

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Evidensbaserede beslutninger

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Erkendelse af evidensmæssige 'efterslæb' er essentiel

Alle kliniske beslutningstagere kommer til at træffe beslutninger som ikke er evidensbaserede

- men vi er ikke altid klar over det

En væsentlig del af evidensbaseret praksis ligger i at erkende hvilken evidens der ligger bag et givet behandlingsvalg

- og dele denne viden med patienter i den fælles beslutningstagning

Vision for evidensbaseret ortopædkirurgisk praksis

Vi skal kunne redegøre for evidensgrundlaget for vores interventioner og dele det med patienten i den fælles beslutningstagning

- ***Vi har gjort dette i mange år med gode resultater***
- ***Vi har randomiserede kliniske studier af høj kvalitet som viser en gavnlig effekt af behandlingen***
- ***Indirekte evidens for behandlingen***
- ***Et stærkt biomekanisk rationale ligger bag behandlingen***
- ***Vi har registerbaserede studier som viser at behandlingen er sikker***
- ***Dette er en eksperimentel behandling. Vi informerer om dette og har en protokol for systematisk dataindsamling***

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III. Evidens som understøtter 'Vælg Klogt'

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– vi er til for dig

Metastudier som understøtter 'Vælg Klogt'

Primærstudier: Eksempler på randomiserede 'Vælg Klogt' studier

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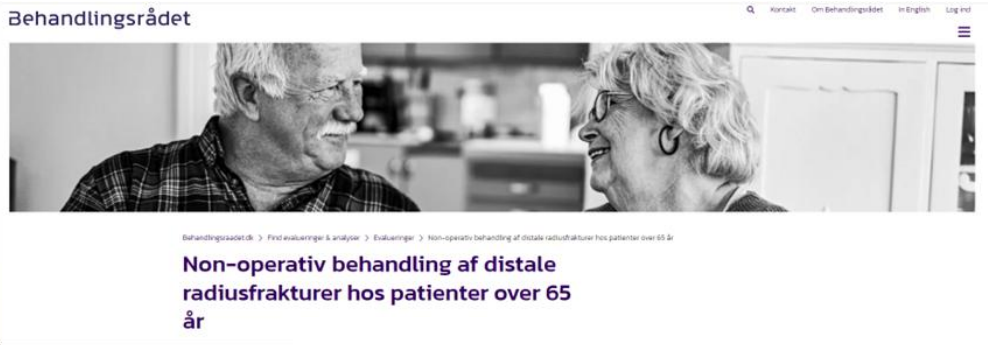
Metastudier som beslutningsstøtte

- **Editorials**
- **Rapid reviews**
- **Narrative reviews/scoping reviews/statusartikler**
- **Living reviews**
- **Umbrella reviews**
- **Oversigter over ikke-komparative studier**
- **Systematiske oversigter over komparative, observationelle studier**
- **Systematiske oversigter over randomiserede studier**
- **Kumulative metaanalyser**
- **IPD metaanalyser**
- **Netværks metaanalyser**
- **Kliniske retningslinjer (internationale, nationale, NKR, KKR, regionale, lokale)**

Stig Brorson og Jeppe Bennekou Schroll. Kliniske retningslinjer: principper, typer, udarbejdelse. I: Evidensbaseret medicin (red. Asbjørn Hróbjartsson og Andreas Lundh). Munksgaard 2022. ISBN 978-87-628-2002-9: 313-335

Beslutningsstøtte til 'Vælg Klogt'

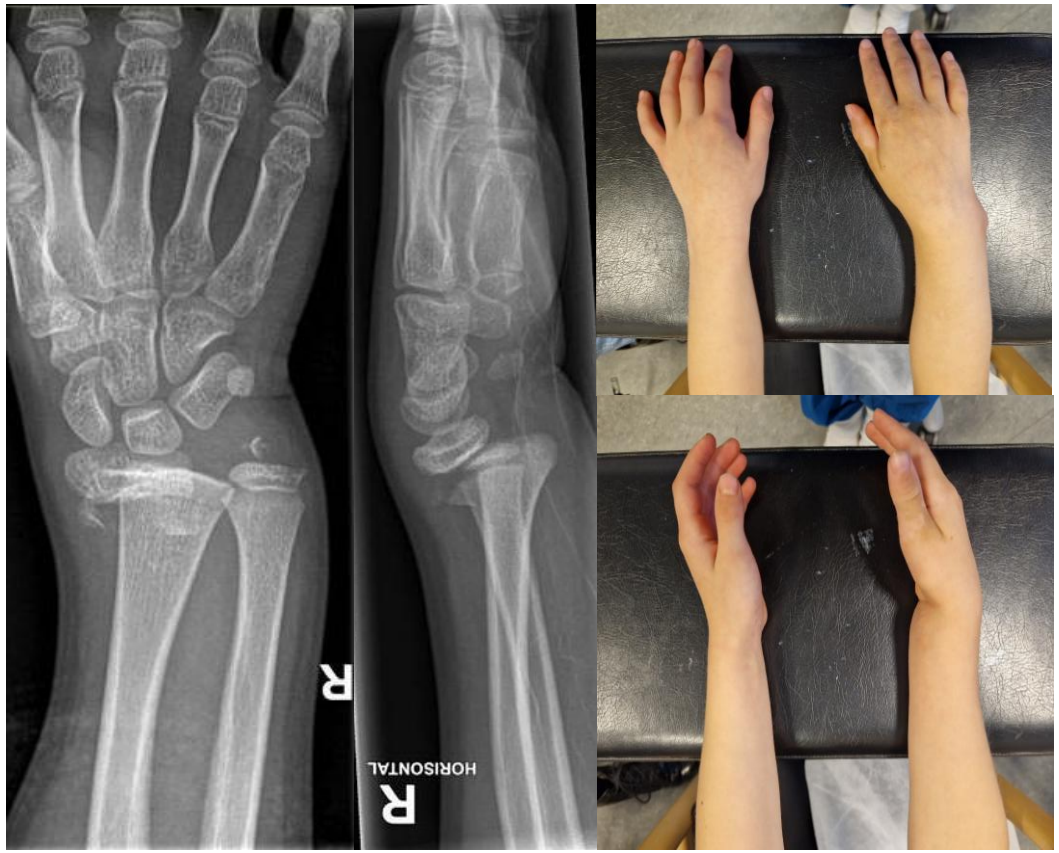


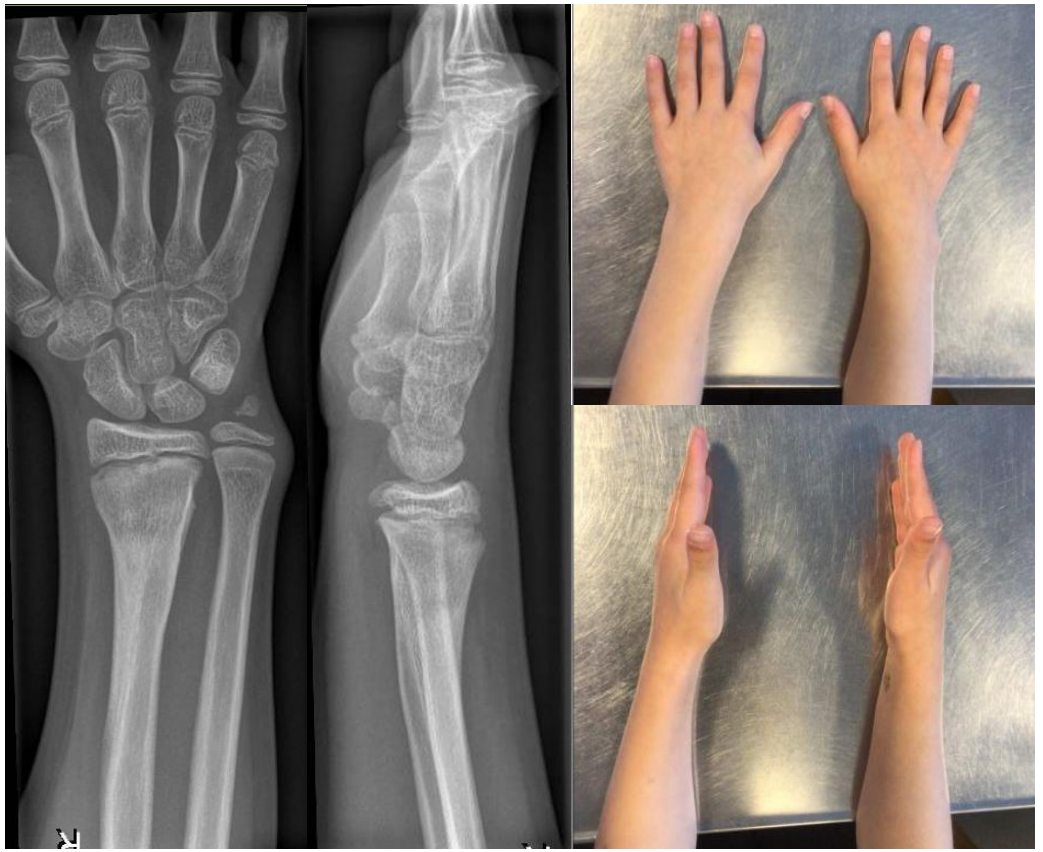






Ex.1 Treatment of completely displaced or overriding distal forearm fractures in children





Abildgaard KR, Gundtoft PH, Brorson S, Viberg B. Changing trends in the management of pediatric distal forearm fractures: a descriptive Danish 20-year nationwide registry study of 175,083 cases. Acta Orthop. 2026 Jan 19;97:21-27 https://pmc.ncbi.nlm.nih.gov/articles/PMC12816993/

Abildgaard KR, Buxbom P, Rahbek O, Gottliebsen M, Gundtoft PH, Viberg B, Brorson S. Is casting of displaced paediatric distal forearm fractures non-inferior to reduction under general anaesthesia? Study protocol for a pragmatic, randomized, controlled non-inferiority multicentre trial (the casting trial). Trials. 2024 Jun 27;25(1):420 https://pmc.ncbi.nlm.nih.gov/articles/PMC11212181/

Ex.2 Treatment of patients aged 50 to 65 with displaced proximal humerus fractures



Houkjær L, Launonen AP, Sumrein BO, Kärnä L, Issa Z, Holtz KB, Brorson S. Surgical versus non-surgical treatment of proximal humerus fracture in patients aged 50-65 years: young shoulder CARE (displaCed proximAl humeRus fracturE) trial-a pragmatic randomized controlled trial study protocol. Trials. 2025 Dec 29;26(1):588 https://pmc.ncbi.nlm.nih.gov/articles/PMC12752399/

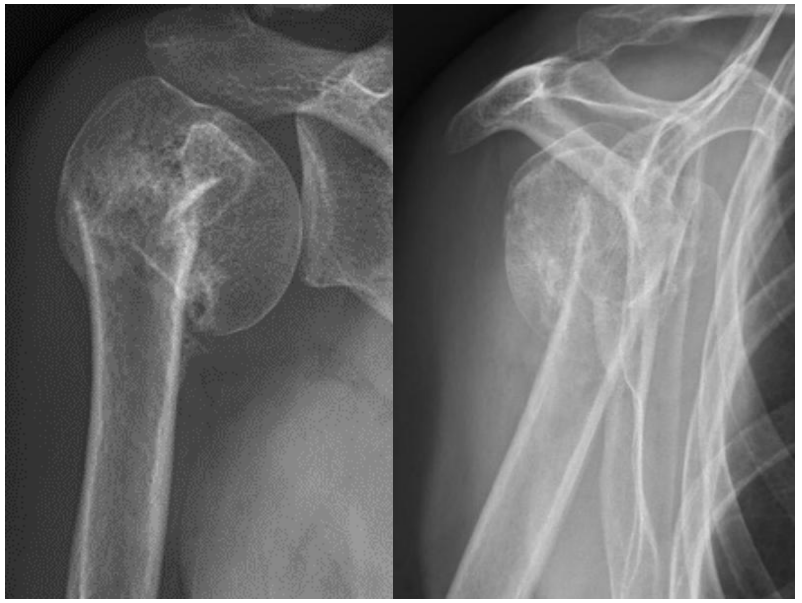
Ex.3 Surgical versus non-surgical treatment of humeral shaft fractures



Karimi D, Brorson S, Midtgaard KS, Fjalestad T, Paulsen A, Olerud P, Ekholm C, Wolf O, Viberg B; SHAFT Collaborators. Surgical versus non-surgical treatment of humeral SHAFT fractures compared by a patient-reported outcome: the Scandinavian Humeral diAphyseal Fracture Trial (SHAFT)-a study protocol for a pragmatic randomized controlled trial. Trials. 2022 Jun 2;23(1):453
https://pmc.ncbi.nlm.nih.gov/articles/PMC9161482/

Ex.4 Training in elderly patients with displaced fractures of the proximal humerus







Liaghat B, Borg SAM, Haugegaard T, Christensen R, Brorson S. Supervised rehabilitation comparable to single advice session after nonoperative treatment of displaced proximal humerus fracture: a randomized controlled trial. J Shoulder Elbow Surg. 2025 Dec 15:S1058-2746(25)00855-9 https://pubmed.ncbi.nlm.nih.gov/41407030/

SoPhy Trial

Ex.5 No reduction versus closed reduction on distal radius fractures in adults aged 65 years and older





Kärnä L, Ponkilainen V, Reito A, Østergaard H, Brorson S, Tootsi K, Paasikallio K, Senholt T, Li Y, Heikkinen J, Kukkonen J, Ryhänen J, Christensen R, Mattila VM, Launonen AP. Effect of no reduction versus closed reduction on distal radius fractures in adults aged 65 years and older: a protocol for the DISCLOSE randomised equivalence trial. BMJ Open. 2025 Oct 16;15(10):e108511 https://pmc.ncbi.nlm.nih.gov/articles/PMC12530382/

IV. Hvorfor er det så svært for os at følge evidensen?

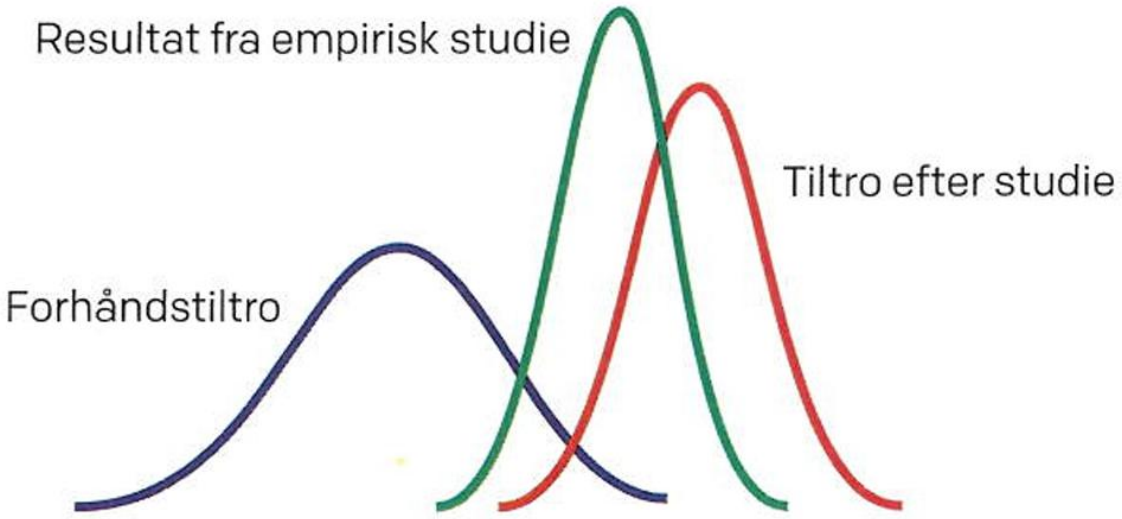
”Jeg har udført procedurerne ‘X’ og ‘Y’ i mange år, jeg er dygtig til at udføre indgrebene, jeg efterlader et flot resultat og mine patienter er glade”

‘X’: Diagnostisk knæartroskopi med partiel meniskresektion og housecleaning ved let artrose

‘Y’: Artroskopisk subakromiel dekompression ved subakromielle smerter

Hvis evidensen ikke understøtter min praksis må der være noget i vejen med evidensen!

Evidens og forhåndsantagelser om behandlingseffekt



"A wise man, therefore, proportions his belief to the evidence"

David Hume (1711-1776) *An Enquiry Concerning Human Understanding*

Hvordan tilgår vi evidens som strider mod vores forhåndsantagelser?

'Konservatisme'

Spektrum af sandsynligheder blandt aktører

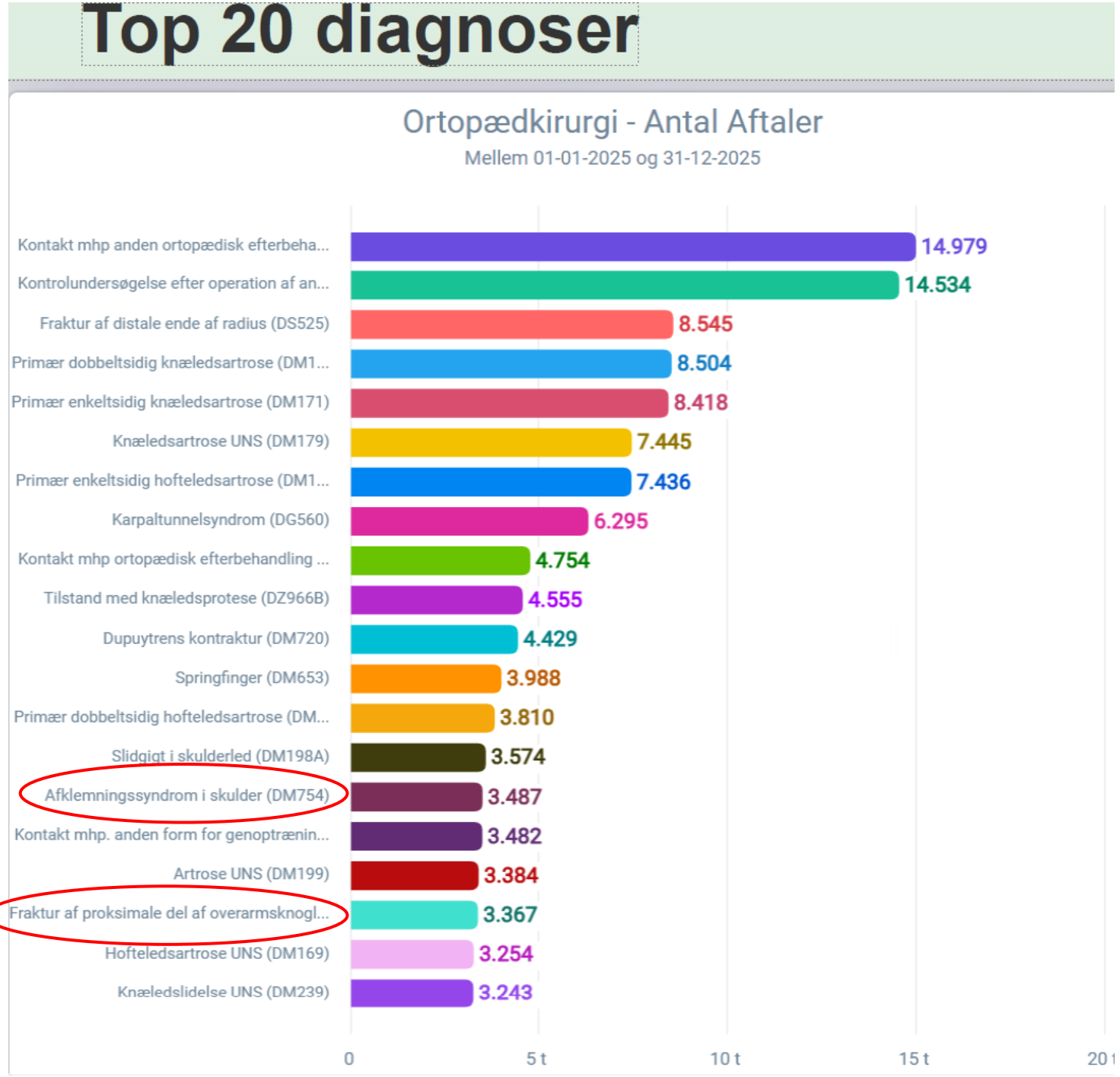
Implementering af 'Vælg Klogt' vil ofte kræve ændring af tiltroen blandt aktørerne

Stig Brorson og Asbjørn Hróbjartsson. Teori, biologi, empiri. *Evidensbaseret medicin* (red. Asbjørn Hróbjartsson og Andreas Lundh). Munksgaard, København 2022: 375-393

Stig Brorson. Hvordan træffes kliniske beslutninger: *Etiske Dilemmaer ved Kliniske Beslutninger – belyst ved litteratur og film* (red. Michael Kjær m.fl.). FADL's Forlag (udkommer efterår 2026)

Stig Brorson. Man må tro før man kan vide!. *Tidsskrift for Praktisk Lægegerning* 1997; 75:1219-1225

Udfordringer for de-implementering



Eksempel på udfordringer for de-implementering (1): Subakromielle smerter



”Undlad at tilbyde subakromiel dekompression til patienter med subakromielt smertesyndrom, der har haft smerter i mindre end 6 måneder, da der ikke er fundet gavnlig effekt og det er uafklaret om der er risiko for bivirkninger.”

Forsøget inkluderer ikke patienter, som ligner dem, jeg ser i min kliniske hverdag*
Jeg er bedre til at udvælge patienterne til denne intervention end i forsøget
Jeg er bedre til at behandle mine patienter end i forsøget
Jeg bruger ikke helt den samme intervention som i forsøget
Patientgruppen er så heterogen, at rapportering af gennemsnittet ikke giver mening
Jeg ved, der findes en subgruppe, som har gavn af behandlingen
Der anvendes ikke den relevante behandling til sammenligning
Der bruges ikke de relevante effektmål i forsøget
Effektmålene er ikke tilstrækkeligt validerede på denne population
Der måles på forkerte tidspunkter
Den mindste klinisk relevante forskel er sat forkert
Forsøget har for lav statistisk styrke. Et større forsøg ville give sandfærdige resultater

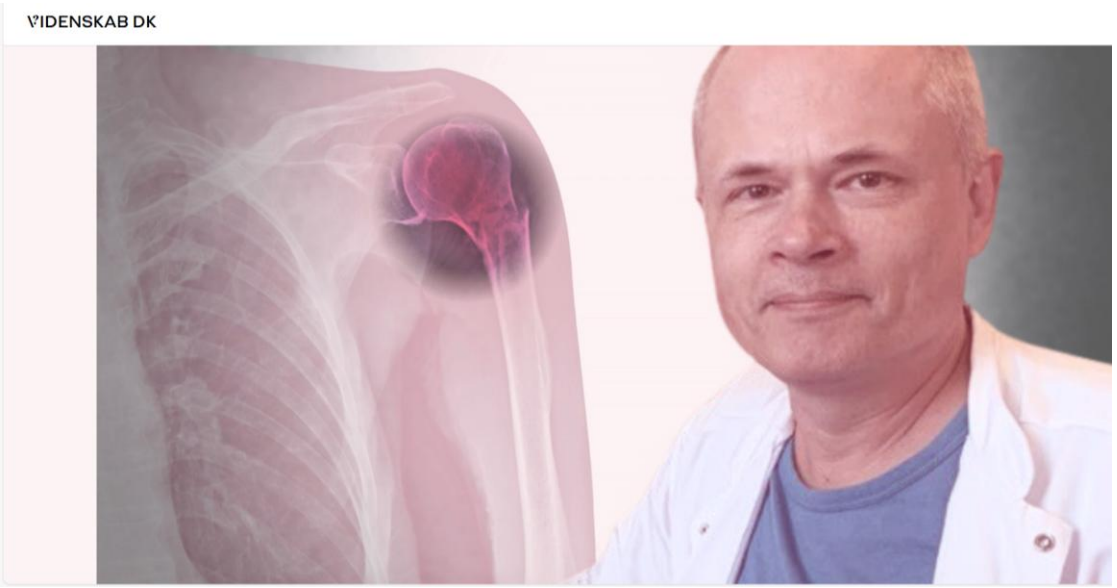
Stig Brorson og Asbjørn Hróbjartsson. Teori, biologi, empiri. Evidensbaseret medicin (red. Asbjørn Hróbjartsson og Andreas Lundh). Munksgaard, København 2022: 375-393

VIDENSKAB DK

5. NOV. 2025

Forsker kritiserer historisk populær operation: »Den ser ikke ud til at virke«

En særlig skulderoperation har ifølge flere studier ingen relevant effekt. Alligevel får flere tusinde danskere operationen årligt.



”Der findes ikke en klar definition på de kriterier, der skal være opfyldt for at stille diagnosen ’subacromielt smertesyndrom’ i skulderen”

”Operationen kan godt hjælpe udvalgte patienter”

”Man kan forestille sig, at operationen kun vil have effekt på patienter, der har store udbygninger på knoglen”

”Vi oplever, at der kommer patienter, der ikke har kunnet løfte armen i flere år, og så laver vi operationen, og så kan de løfte den igen. Så nogle ser ud til at have gavn af det”

Hvad er vores ‘default’ position?

KNBH51 subakromielle dekompressioner uden andre indgreb

Tabel 1. Antal skulderoperationer fordelt på procedurekode, 2012-2022

Antal procedurer	År										
Procedure/Region	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
KNBH51	6.442	6.354	6.609	6.512	6.409	5.990	6.031	5.568	5.204	5.458	5.409
Privat	1.258	1.431	1.830	1.920	1.713	1.597	1.997	1.930	2.079	3.159	3.230
Region Hovedstaden	1.094	1.081	1.046	934	801	628	550	584	422	318	257
Region Midtjylland	1.463	1.398	1.475	1.437	1.483	1.482	1.406	932	968	780	868
Region Nordjylland	532	443	429	406	583	489	419	486	371	230	105
Region Sjælland	454	525	362	458	478	513	360	298	284	173	154
Region Syddanmark	1.641	1.476	1.467	1.357	1.351	1.281	1.299	1.338	1.080	798	795

”Kilde: Egne beregninger baseret på tal fra Sundhedsdatastyrelsen” (feb 2023)

Eksempel på udfordringer for de-implementering (2): Skulderfrakturer hos ældre

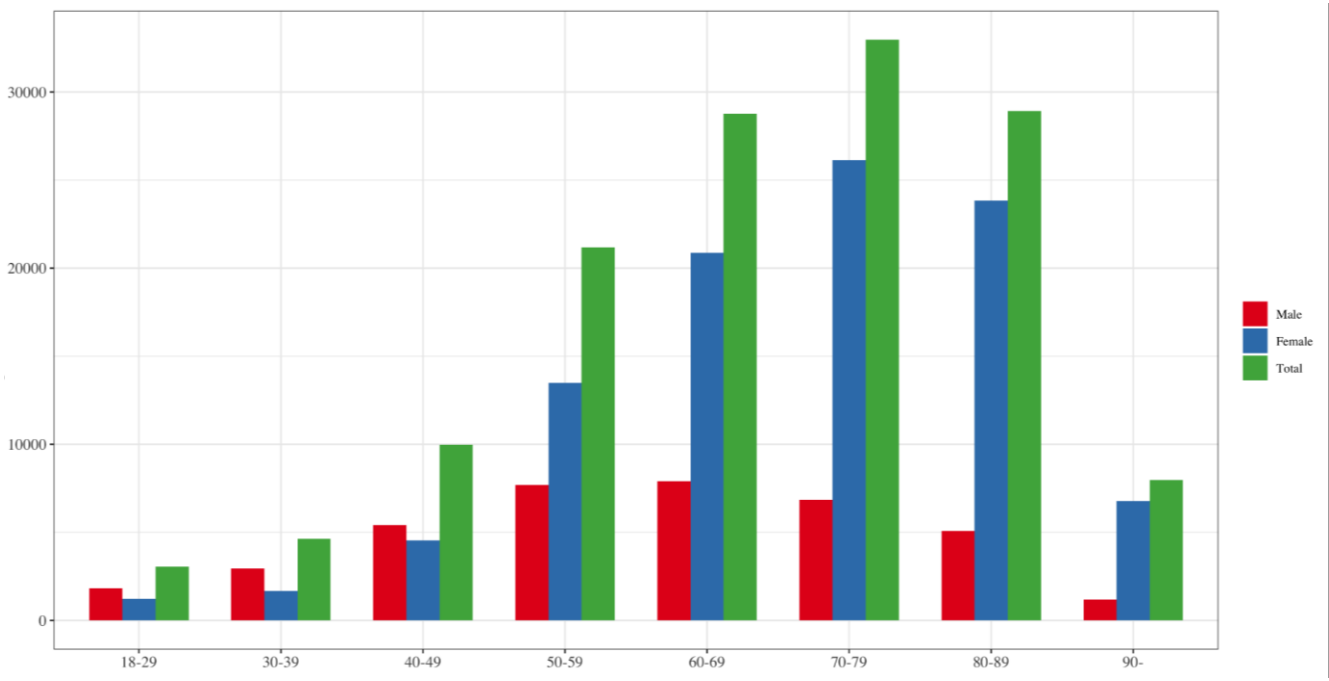




6000+ i DK

Association med osteoporose

Prævalensen følger demografien



1996-2018 (n=137,436)

Brorson S, Viberg B, Gundtoft P, Jalal B, Ohrt-Nissen S. Epidemiology and trends in management of acute proximal humeral fractures in adults: an observational study of 137,436 cases from the Danish National Patient Register, 1996-2018. Acta Orthop. 2022 Sep 20;93:750-755 https://pmc.ncbi.nlm.nih.gov/articles/PMC9500535/

The AO principles of fracture management

1



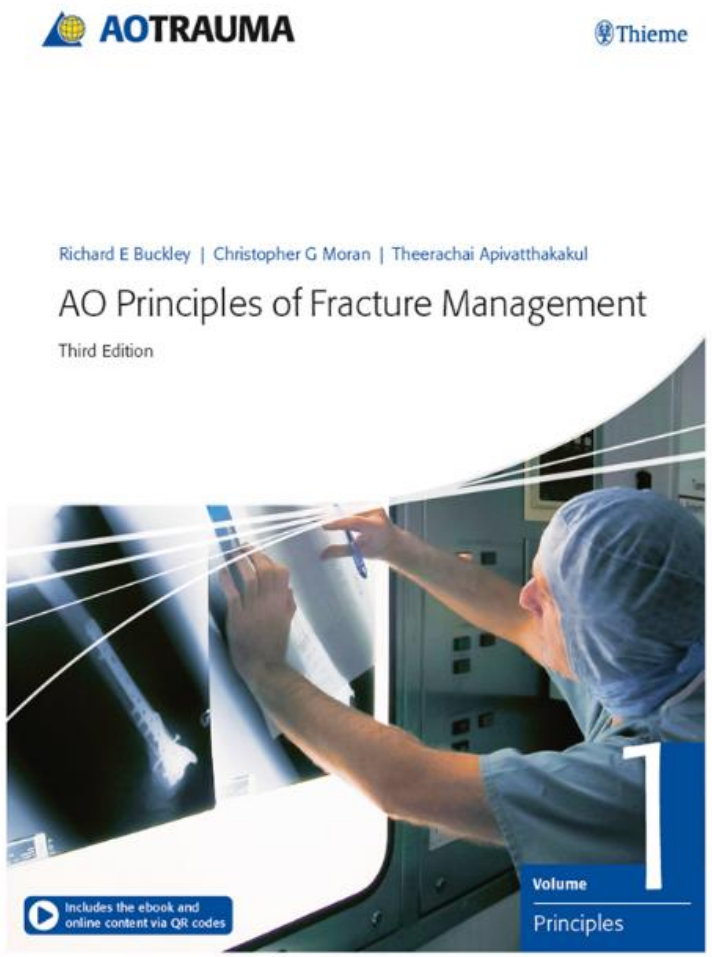
Fracture reduction and fixation to restore anatomical relationships.





Brorson S. Evidence-based orthopedics and the myth of restoring the anatomy. Acta Orthop. 2021 Oct;92(5):505-506 https://pmc.ncbi.nlm.nih.gov/articles/PMC8519531/

Er der operationsindikation?



Indications for fracture reduction and stabilization include:

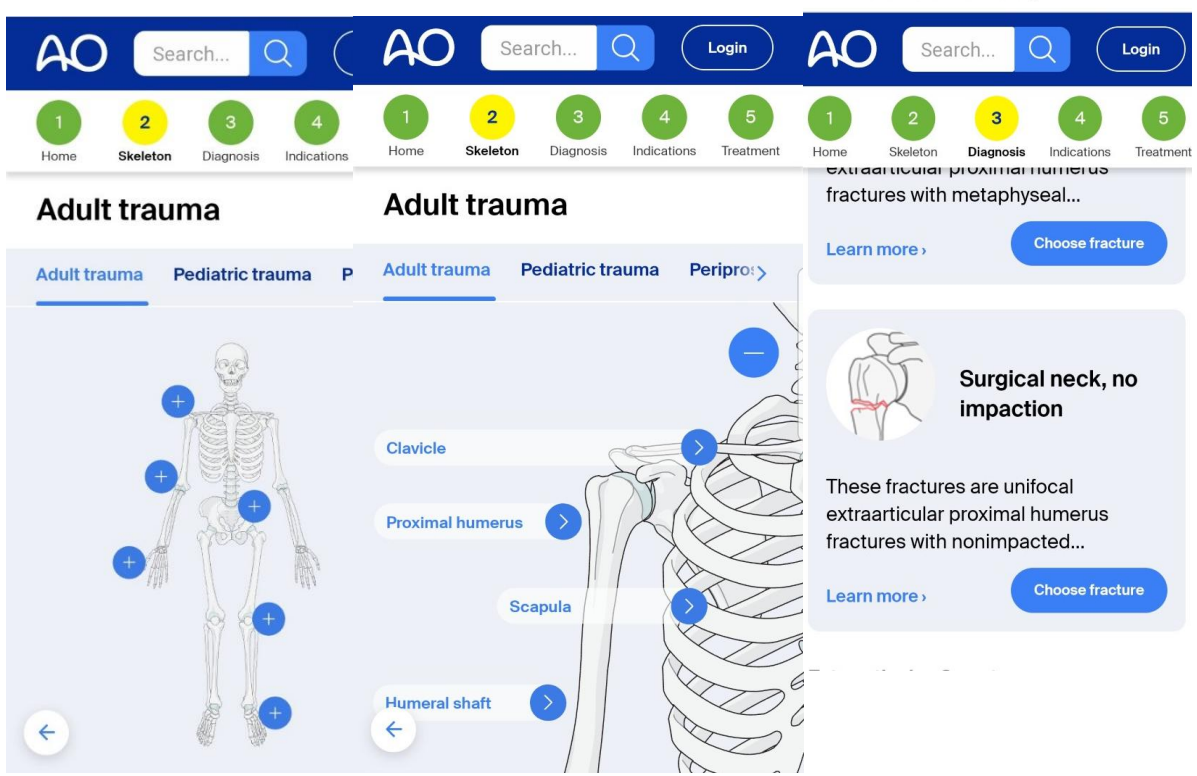
- Displaced fractures (defined by Neer [6] as displacement of the fragment > 1 cm or angulation > 45°)
- Head-splitting fractures
- Combined neurovascular injuries
- Open fractures
- Unstable fractures with disrupted medial hinge
- Floating shoulder
- Polytrauma
- Irreducible fracture dislocations

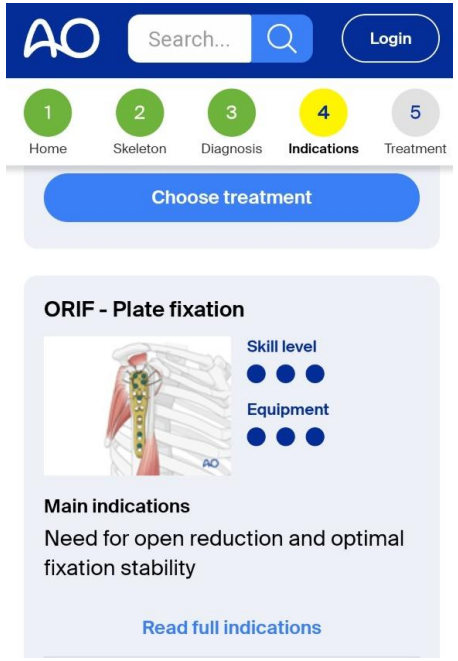
Mere end halvdelen af proksimale humerusfrakturer er displacerede

Rüedi TP, Buckley RE, Moran C G, Apivatthakakul T, Arraf J, Babst R, et al. AO principles of fracture management: Vol. 1: Principles, Vol 2: Specific fractures. 3rd ed. Stuttgart: Thieme; 2017

Brorson S. How many shoulder fractures are displaced? How a misleading statement became orthopedic knowledge. Acta Orthop. 2023 Jul 4;94:328-329 https://pmc.ncbi.nlm.nih.gov/articles/PMC10326739/

Er der operationsindikation?





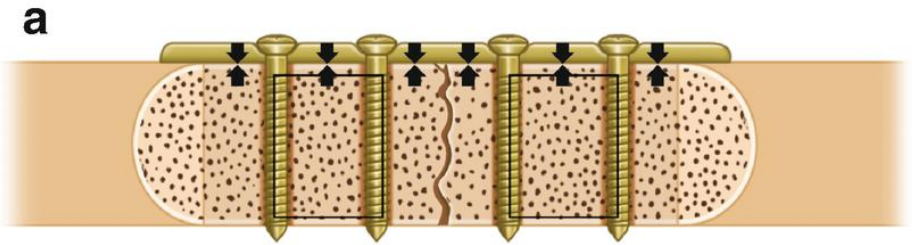
Non-impacted 2-part surgical neck fractures with medial translation are considered unstable and in need of surgery

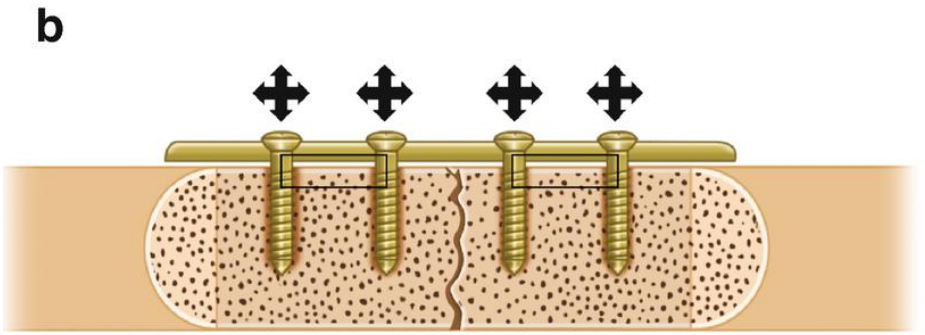
Signs of instability are a translation of the humeral shaft of more than 33%

AO Surgery Reference: *Jaeger M. Proximal humerus. AO Surgery Reference. 2018* *https://surgeryreference.aofoundation.org/orthopedic-trauma/adult-trauma/proximal-humerus*

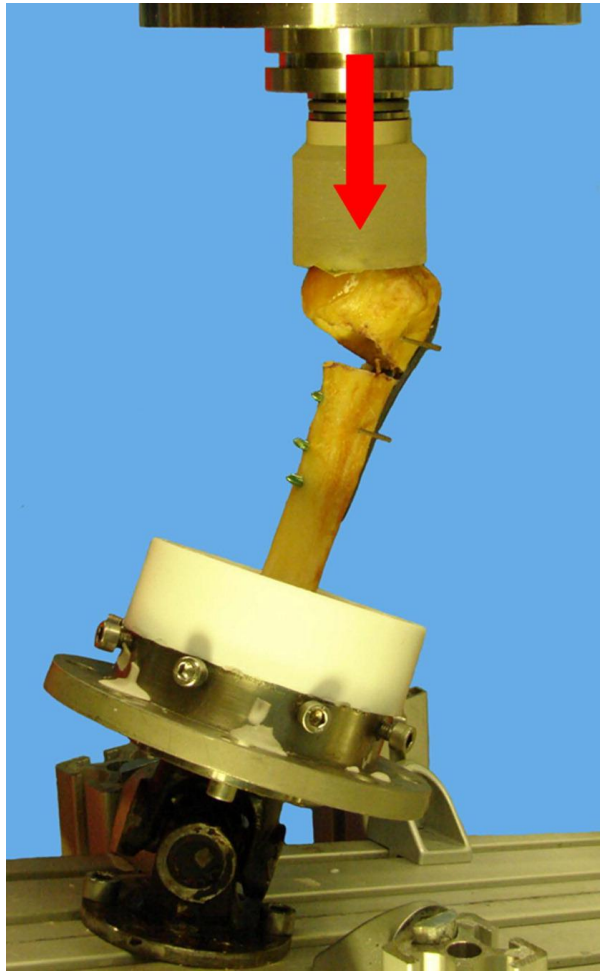
Brorson S. The unstable concept of "stability" in osteoporotic 2-part proximal humerus fractures. Acta Orthop. 2025 Jul 23;96:569-573 https://pmc.ncbi.nlm.nih.gov/articles/PMC12285505/

Understøttende evidens for vinkelstabile skinner (biomekanisk)

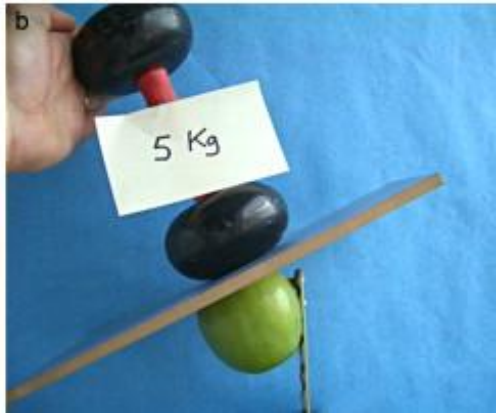














Brorson S. The Rise and Fall of an Implant: Locking Plates in Shoulder Fractures. In: Brorson S. Shoulder Fractures in Context. Springer Nature Switzerland; 2025. p. 127–138 https://link.springer.com/chapter/10.1007/978-3-031-93604-3_12

Understøttende evidens for vinkelstabile skinner (hvad gør de andre?)

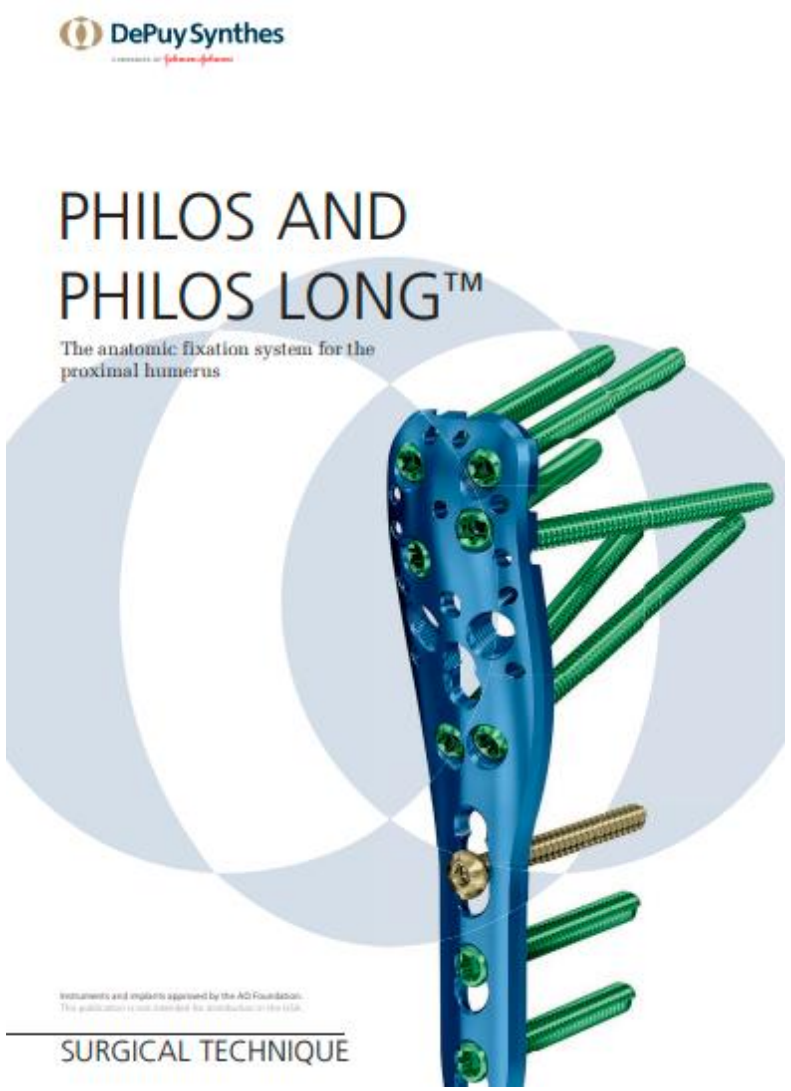
TRUSTED

- More than 15 years of clinical experience, over **850,000** implantations,[4] with published clinical results in over 70 journal articles
- Worldwide every seven minutes a surgeon decides to implant a DePuy Synthes Proximal Humerus Plate





Er der operationsindikation?



PHILOS indications:

"….fractures and fracture dislocations….particularly for patients with osteopenic bone.“

“Instruments and implants approved by the AO foundation”

Synthes D. 3.5 mm LCP® Proximal Humerus Plates: Surgical Technique [Internet]. 2021. p. 1–60

Opsummering: Hvad understøtter en kirurgisk tilgang?

- Et grundlæggende kirurgisk princip
- Kliniske serier
- Biomekanisk evidens
- Industristøttede kurser
- Førende lærebøger
- Førende platforme
- Kollegerne gør det
- Operationsmanualerne

What's not to like?

Zealand University Hospital
CEBO
Centre for Evidence-Based Orthopaedics

Eminence meets evidence!

Cochrane Library

Cochrane Database of Systematic Reviews

Interventions for treating proximal humeral fractures in adults (Review)

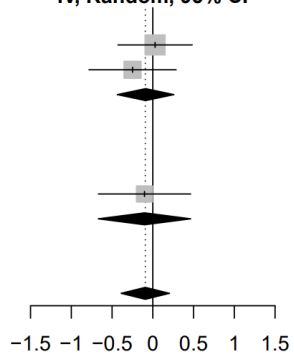
Handoll HHG, Elliott J, Thillemann TM, Aluko P, Brorson S

CONCLUSIONS

- Surgery does not result in a better outcome compared with non-surgical treatment in displaced 2-, 3-, and 4-part fractures.
- Surgery may increase the need for subsequent surgery.

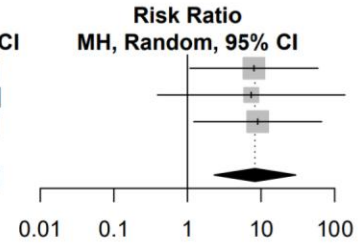
1.1 PROMS at 12 months

Study or Subgroup	PHILOS Mean	PHILOS SD	PHILOS Total	Non−operative Mean	Non−operative SD	Non−operative Total	Weight	Std. Mean Difference IV, Random, 95% CI
DASH								
Launonen 2019	18.00	18.50	35	17.50	17.00	39	42.1%	0.03 [−0.43; 0.48]
Olerud 2011	29.10	23.30	27	35.10	24.20	27	30.6%	−0.25 [−0.78; 0.29]
Total (95% CI)			**62**			**66**	**72.7%**	**−0.09 [−0.44; 0.26]**
Heterogeneity: $Tau^2 = 0$; $Chi^2 = 0.59$, df = 1 (P = 0.44); $I^2 = 0\%$								
ASES								
Fjalestad 2010	14.80	6.60	23	15.50	6.90	25	27.3%	−0.10 [−0.67; 0.46]
Total (95% CI)			**23**			**25**	**27.3%**	**−0.10 [−0.67; 0.46]**
Heterogeneity: not applicable								
Total (95% CI)			**85**			**91**	**100.0%**	**−0.09 [−0.39; 0.20]**
Heterogeneity: $Tau^2 = 0$; $Chi^2 = 0.60$, df = 2 (P = 0.74); $I^2 = 0\%$								
Test for overall effect: Z = −0.61 (P = 0.54)								
Test for subgroup differences: $Chi^2 = 0.00$, df = 1 (P = 0.97)								



2.1 Secondary surgery 24 months

Study	PHILOS Events	PHILOS Total	Non−operative Events	Non−operative Total	Weight	Risk Ratio MH, Random, 95% CI
Fjalestad 2010	8	25	1	25	40.5%	8.00 [1.08; 59.32]
Launonen 2019	3	40	0	42	18.9%	7.35 [0.39; 137.81]
Olerud 2011	9	29	1	29	40.6%	9.00 [1.22; 66.56]
Total (95% CI)	**94**		**96**		**100.0%**	**8.26 [2.31; 29.55]**
Heterogeneity: $Tau^2 = 0$; $Chi^2 = 0.01$, df = 2 (P = 0.99); $I^2 = 0\%$						
Test for overall effect: Z = 3.25 (P < 0.01)						



Brorson S, Elliott J, Thillemann T, Aluko P, Handoll H. Interventions for proximal humeral fractures: key messages from a Cochrane review. Acta Orthop. 2022 Jul 4;93:610-612 https://pmc.ncbi.nlm.nih.gov/articles/PMC9275419/

Eminence meets evidence!

Cochrane Library

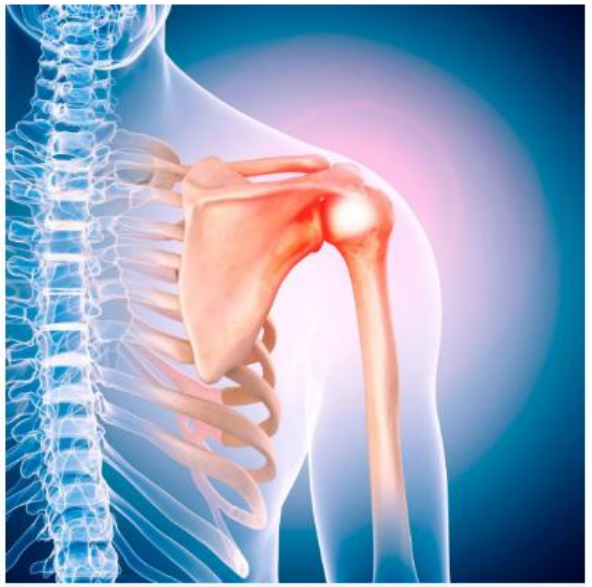
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Go with the Flow, or Follow the Evidence?

September 12, 2025 / Guest Posts, Orthopaedic Essentials, Shoulder, Trauma

This guest opinion post comes from Prof. Stig Brorson, DMSc, PhD, Consultant with the Department of Orthopaedic Surgery, Centre for ...

Go with the Flow, or Follow the Evidence? - OrthoBuzz JBJS OrthoBuzz (12. sep. 2025)

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PERSPECTIVES
VIEWPOINTS

Revisiting Surgery for Proximal Humeral Fractures

How Much High-Quality Evidence Is Needed to De-Implement Surgery Introduced without High-Quality Evidence?

Stig Brorson, MD, PhD, DMSc

Hvem skal løfte bevisbyrden?

https://journals.lww.com/jbjsjournal/fulltext/2025/12030/revisiting_surgery_for_proximal_humeral_fractures_.7.aspx

Nationale operationsrater

Country	Surgery rate	Comments
Germany (1)	54%	Insurance data (2005-11)
Germany (2)	?	47,000 ORIF (2019) public 11,456 prostheses
Italy (3)	48%	(2001-22)
Australia (4)	23%	(2008-17)
Finland (5)	19%	(1997-2019)
Sweden (6)	17%	(2001-12)
Sweden (7)	17%	(2013-2021)
Denmark (8)	13%	(1996-2018)
ZUH, DK (9)	6%	(2021-4)

1. Katthagen JC, Raschke MJ, Fischhuber K, Iking J, Marschall U, Sußiek J, et al. Conservative Versus Operative Treatment of Proximal Humerus Fractures in Older Individuals. Dtsch Arztebl Int [Internet]. 2024 Jul;121(14):454–60
2. Müller JE, Jussel A, Procter E, Brunner UH. Higher incidence of osteosynthesis of proximal humerus fractures in Germany—an epidemiological study comparing osteosynthesis of the proximal humerus and shoulder arthroplasty in Germany, Austria, and Switzerland. JSES International. 2025;9(4):1015-20,
3. Ciminello E, Modesti A, Romanini E, Lepore S, Tucci G, Di Gennaro S, et al. Trends and Changes in Treating Proximal Humeral Fractures in Italy: Is Arthroplasty an Increasingly Preferred Option? A Nation-Wide, Population-Based Study over a Period of 22 Years. J Clin Med. 2024 Sep;13(19)
4. McLean AS, Price N, Graves S, Hatton A, Taylor FJ. Nationwide trends in management of proximal humeral fractures: an analysis of 77,966 cases from 2008 to 2017. J Shoulder Elb Surg. 2019 Nov;28(11):2072–8
5. Leino OK, Lehtimäki KK, Mäkelä K, Äärimaa V, Ekman E. Proximal humeral fractures in Finland: trends in the incidence and methods of treatment between 1997 and 2019. Bone Joint J. 2022 Jan;104-B(1):150–6
6. Sumrein BO, Huttunen TT, Launonen AP, Berg HE, Felländer-Tsai L, Mattila VM. Proximal humeral fractures in Sweden—a registry-based study. Osteoporos Int. 2017 Mar 27;28(3):901–7
7. Bergdahl C, Wolf O, Rydberg EM, Möller M, Wennergren D. Low risk of early conversion to surgery in non-surgically treated proximal humeral fractures - An observational cohort study of 31,761 fractures from the Swedish Fracture Register. Injury. 2024 Aug;55(8):111679
8. Brorson S, Viberg B, Gundtoft P, Jalal B, Ohrt-Nissen S. Epidemiology and trends in management of acute proximal humeral fractures in adults: an observational study of 137,436 cases from the Danish National Patient Register, 1996-2018. Acta Orthop [Internet]. 2022;93:750–5
9. Brorson S, Borg SA, Houkjær LL, Holtz KB, Issa Z. Patient-reported outcome was close to the Danish background population 6 months after non-surgical treatment of Neer 2-part surgical neck fractures: a prospective cohort study in patients aged 60 or above. Acta Orthop. 2024 Nov 5;95:619-624

Hvordan kommer vi videre?

Lukker øjnene for evidensen og fortsætter med at operere

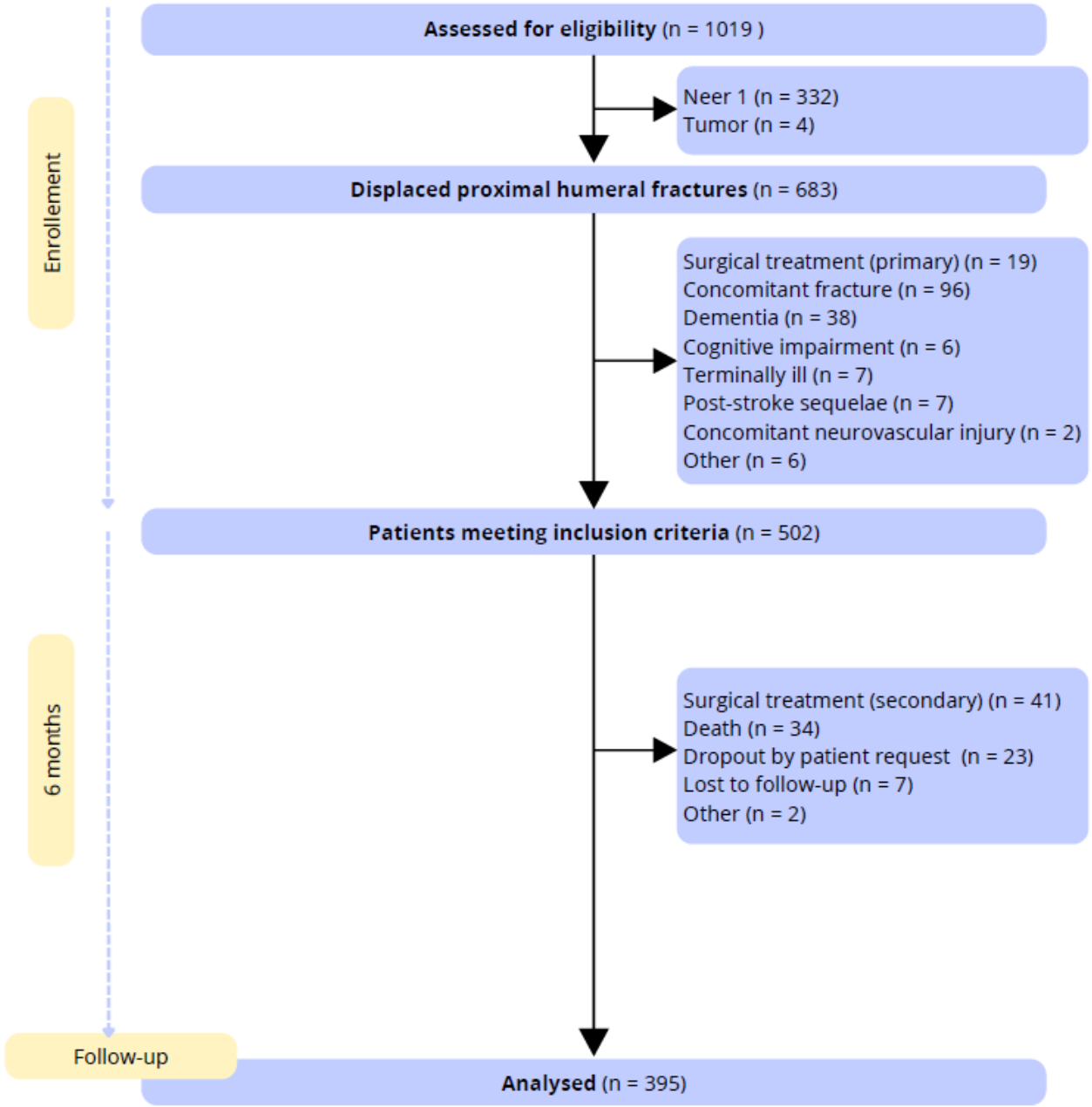
Lad os planlægge et nyt og definitivt randomiseret studie

Er nysgerrige på hvordan det går patienterne hvis vi følger evidensen

Zealand University Hospital
CEBO
Centre for Evidence-Based Orthopaedics

A prospective cohort of 1,019 consecutive patients aged 60+, 1 Jan 2021 to 30 Jun 2025

	Baseline
Number	1,019
Age (mean (SD))	75.5 (8.7)
Gender	
Male	236
Female	783
Neer category	
1-part	332
2-part	433
3-part	152
4-part	41
Articular Surface	23
Fracture-Dislocation	34
AO category	
A1	112
A2	399
A3	123
B1	276
B2	22
B3	2
C1	7
C2	59
C3	15



Patients aged 60+ with a *displaced* proximal humeral fracture

6 months	OSS Mean (SD)	EQ-5D Mean (SD)
All (n = 394)	35.7 (9.0) 73%	0.77 (0.16)
Fracture category		
2-part (n = 252)	37.0 (8.5) 76%	0.78 (0.16)
3-part (n = 103)	34.5 (9.0) 72%	0.75 (0.15)
4-part (n = 18)	26.3 (8.8) 54%	0.67 (0.15)
Articular fracture (n = 11)	33.5 (10.4) 68%	0.75 (0.14)
Fracture-dislocation (n = 10)	38.0 (10.3) 78%	0.86 (0.14)
Age groups		
60-69 (n = 93)	36.9 (7.7) 75%	0.78 (0.15)
70-79 (n = 169)	36.1 (9.1) 74%	0.79 (0.15)
80-89 (n =116)	35.5 (9.5) 72%	0.74 (0.19)
90-99 (n =15)	35.7 (10.6) 73%	0.72 (0.12)
100+ (n = 1)		

12 months	OSS Mean (SD)	EQ-5D Mean (SD)
All (n = 306)	37.2 (10.2) 76%	0.80 (0.16)
Fracture category		
2-part (n = 195)	39.0 (9.1) 80%	0.81 (0.15)
3-part (n = 81)	34.2 (11.2) 70%	0.78 (0.18)
4-part (n = 13)	29.8 (10.8) 61%	0.76 (0.19)
Articular fracture (n =10)	31.9 (11.2) 65%	0.74 (0.16)
Fracture-dislocation (n = 7)	40.9 (11.1) 83%	0.89 (0.15)
Age groups		
60-69 (n = 75)	39.0 (8.8) 80%	0.81 (0.16)
70-79 (n =140)	37.3 (10.3) 76%	0.82 (0.15)
80-89 (n =76)	35.3 (11) 72%	0.76 (0.17)
90-99 (n = 12)	37.0 (11.2) 76%	0.799 (0.14)
100+ (n = 1)		

OSS Normal values for females aged 71-80: 82% (Clement 2014)

EQ-5D Danish population norm, females aged 70-79: 0.82 (Sørensen 2009)

Overall operation rate: 19 early RSA + 41 late RSA: 60/1,019 = 5.8 %

We used no locking plates!

Brorson S, Borg SA, Houkjær LL, Holtz KB, Issa Z. Patient-reported outcome was close to the Danish background population 6 months after non-surgical treatment of Neer 2-part surgical neck fractures: a prospective cohort study in patients aged 60 or above. Acta Orthop. 2024 Nov 5;95:619-624 https://pmc.ncbi.nlm.nih.gov/articles/PMC11538501/

V. Implementeringsredskaber

REGION SJÆLLAND
SJÆLLANDS UNIVERSITETSHOSPITAL
– vi er til for dig

Kan ortopædkirurger ændre behandlingspræferencer og adfærd?

Zealand University Hospital
CEBO
Centre for Evidence-Based Orthopaedics

BJO

■ GENERAL ORTHOPAEDICS

Can the results of a randomized controlled trial change the treatment preferences of orthopaedic surgeons?

J. Sonntag,
K. Landale,
S. Brorson,
I. A. Harris

From Department of Orthopaedic Surgery, Nordsjaellands Hospital, University of Copenhagen, Hilleroed, Denmark

Aims

The aim of this study was to investigate surgeons' reported change of treatment preference in response to the results and conclusion from a randomized contolled trial (RCT) and to study patterns of change between subspecialties and nationalities.

Methods

Two questionnaires were developed through the Delphi process for this cross-sectional survey of surgical preference. The first questionnaire was sent out before the publication of a RCT and the second questionnaire was sent out after publication. The RCT investigated repair or non-repair of the pronator quadratus (PQ) muscle during volar locked plating of distal radial fractures (DRFs). Overall, 380 orthopaedic surgeons were invited to participate in the first questionnaire, of whom 115 replied. One hundred surgeons were invited to participate in the second questionnaire. The primary outcome was the proportion of surgeons for whom a treatment change was warranted, who then reported a change of treatment preference following the RCT. Secondary outcomes included the reasons for repair or non-repair, reasons for and against following the RCT results, and difference of preferred treatment of the PQ muscle between surgeons of different nationalities, qualifications, years of training, and number of procedures performed per year.

Results

Of the 100 surgeons invited for the second questionnaire, 74 replied. For the primary outcome, six of 32 surgeons (19%), who usually repaired the PQ muscle and therefore a change of treatment preference was warranted, reported a change of treatment preference based on the RCT publication. Of the secondary outcomes, restoring anatomy was the most common response for repairing the PQ muscle.

Conclusion

The majority of the orthopaedic surgeons, where a change of treatment preference was warranted based on the results and conclusion of a RCT, did not report willingness to change their treatment preference.

Cite this article: *Bone Joint Open* 2020;1-9:549–555.

https://pmc.ncbi.nlm.nih.gov/articles/PMC7659699/

THE BONE & JOINT JOURNAL EST. 1948

■ WRIST & HAND

No effect on functional outcome after repair of pronator quadratus in volar plating of distal radial fractures: a randomized clinical trial

J. Sonntag,
L. Woythal,
P. Rasmussen,
U. Branner,
P. Hølmer,
A. K. Jensen,
K. H. W. Lange,
S. Brorson

From Department of Orthopaedic Surgery, Nordsjaellands Hospital, University of Copenhagen, Hilleroed, Denmark

Aims

The aim of this study was to investigate the difference in functional outcome after repair and non-repair of the pronator quadratus muscle in patients undergoing surgical treatment for a distal radial fracture with volar plating.

Patients and Methods

A total of 72 patients with a distal radial fracture were included in this randomized clinical trial. They were allocated to have the pronator quadratus muscle repaired or not, after volar locked plating of a distal radial fracture. The patients, the assessor, the primary investigator, and the statistician were blinded to the allocation. Randomization was irreversibly performed using a web application that guaranteed a secure and tamper-free assignment. The primary outcome measure was the Patient Rated Wrist Evaluation (PRWE) after 12 months. Secondary outcomes included the Disabilities of the Arm, Shoulder and Hand (DASH) score, pronation strength, grip strength, the range of pronation and supination, complications, and the operating time.

Results

Of the 72 patients, 63 (87.5%) completed follow-up for the primary outcome measure: 31 (86.1%) from the non-repair group and 32 (88.9%) from the repair group. At the 12-month follow-up, the mean difference in PRWE of 5.47 (95% confidence interval (CI) -4.02 to 14.96) between the repair (mean 18.38 (95% CI 10.34 to 26.41)) and non-repair group (mean 12.90 (95% CI 7.55 to 18.25)) was not statistically significant (p = 0.253). There was a statistically significant difference between pronation strength, favouring non-repair. We found no difference in the other secondary outcomes.

Conclusion

We found that repairing pronator quadratus made no difference to the clinical outcome, 12 months after volar plating of a distal radial fracture. We conclude that there is no functional advantage in repairing this muscle under these circumstances and advise against it.

Cite this article: *Bone Joint J* 2019;101-B:1498–1505.

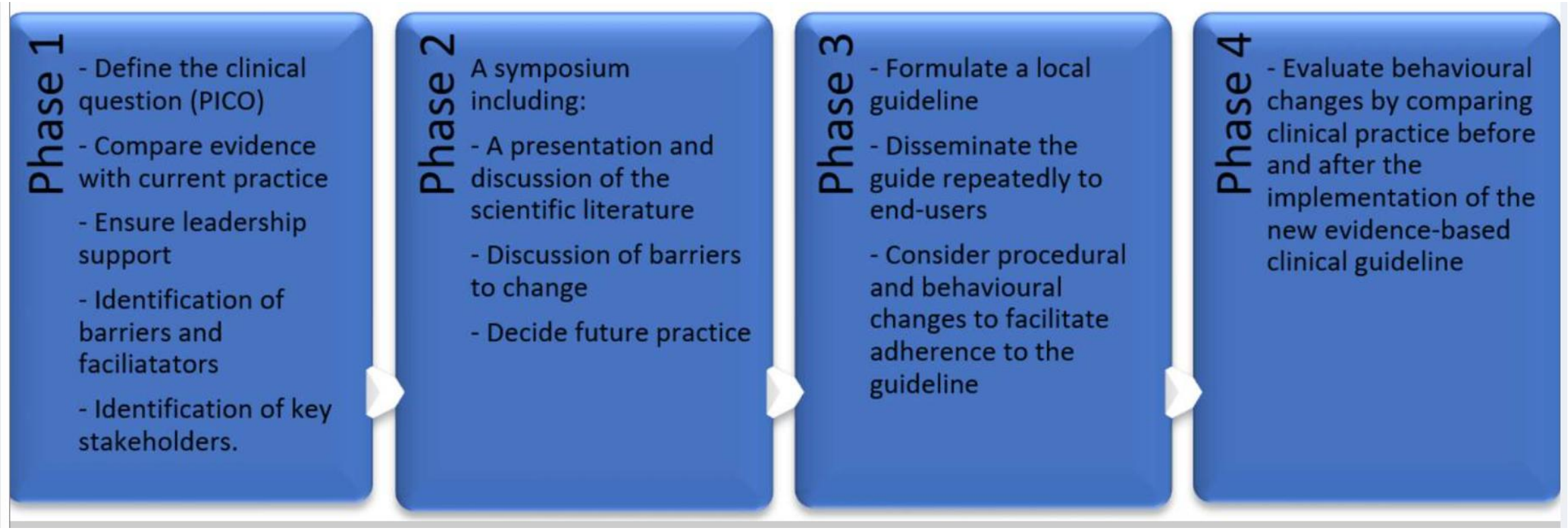
https://boneandjoint.org.uk/article/10.1302/0301-620X.101B12.BJJ-2019-0493.R1

Hvordan kan vi understøtte implementeringen af evidensbaseret praksis?

CEBO modellen – et redskab til at understøtte evidensbaseret praksis på afdelingsniveau

Facilitere adfærdsændringer blandt ortopædkirurger

Kræver individuelle, kollektive og organisatoriske ændringer



Houkjær LL, Hallager DW, Brorson S. The Centre for Evidence-Based Orthopaedics Tool for the Implementation of Evidence-Based Practice. Cureus 2025; 17(2): e79835 https://pmc.ncbi.nlm.nih.gov/articles/PMC11955217/

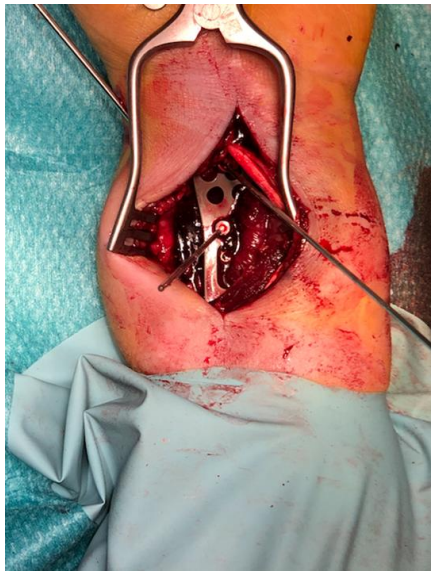
CEBO modellen, 1. applikation



Pris: 80 DKK
Procedure: ~30 min.
Flere revisioner
Revision ukompliceret







Pris: 3,300 DKK
Procedure: ~60 min.
Kort immobilisering
Lidt bedre funktion efter 3 mdr.
Revision mere kompliceret

Litteraturgennemgang:

Ingen klinisk relevant forskel i smerte, livskvalitet eller håndledsfunktion efter 1 år

Efter anvendelse af implmenteringsmodellen faldt brugen af volare skinner fra 100% til 44%

Vedel JC, Hallager DW, Penny JØ, Jensen TH, Sørensen TJ, Brorson S. Change in orthopaedic surgeon behaviour by implementing evidence-based practice. Dan Med J 2023;70(6) https://pubmed.ncbi.nlm.nih.gov/37341352/

Vedel JC, Brorson S, Hallager DW. Complication Rates and Additional Surgery Following Implementation of a New Clinical Guideline for the Treatment of Distal Radius Fractures in Adults. DOS 2024

CEBO modellen, anden applikation

"Skal ældre med dorsalt displacerede distale radiusfrakturer opereres?"

Litteraturgennemgang:

Ingen klinisk relevant forskel i smerte, livskvalitet eller håndledsfunktion after 1 år

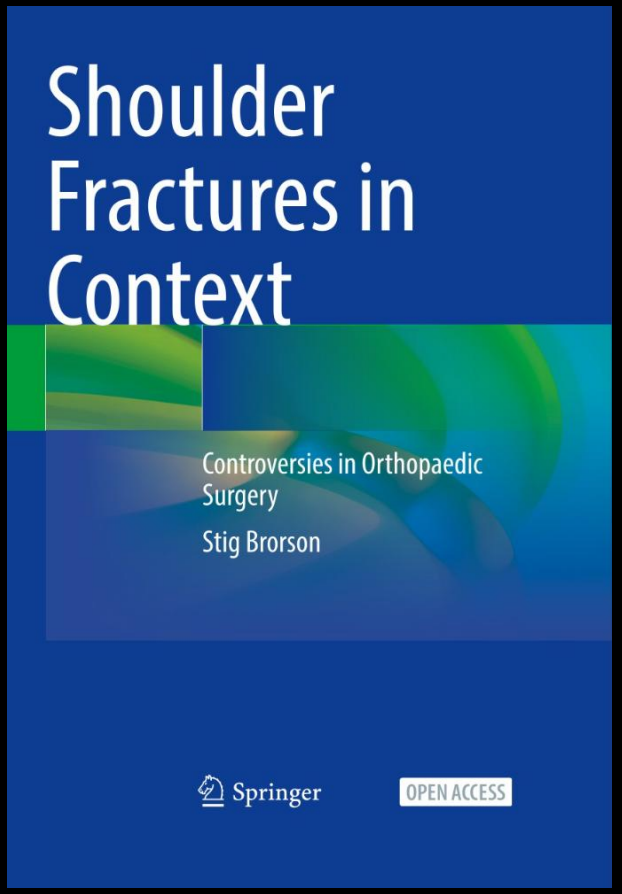
Efter application af CEBO modellen faldt operationsraten på vores afdeling fra 79% til 11% hos patienter 60+ med en dorsalt displacerede distale radiusfraktur



Nielsen EØ, Brorson S, Penny JØ, Jensen TH, Sørensen TJ, Hallager DW. Operation Rate for Displaced Distal Radius Fractures in the Elderly Decreased by 68% After the Implementation of Evidence-Based Practice. Cureus 17(3): e81452 https://pmc.ncbi.nlm.nih.gov/articles/PMC12039462/

Fener DK, EØ Nielsen, Steenholdt OW, Ali Abdel-Hadi Toma Toma AA-H, Brorson S, Hallager DW. Change of practice favoring non-surgical treatment of dorsally displaced distal radius fractures in elderly patients - complications and secondary surgeries. DOS 2024

‘The academic bonesetter’



In the barber surgeon’s shop. Gerrit Lundens (1622–1686). Oil on wood. Kunstsammlung der Georg-August-Universität Göttingen