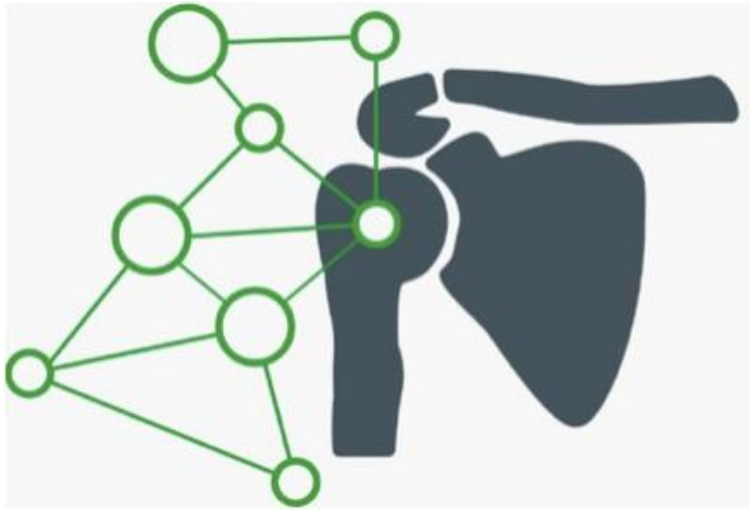
SchouderNetwerken Nederland

Effectiveness of Manual Therapy, what do we know?

door Gerard Koel, FT, MSc, SNN

SAXION

FYSIO THERAPIE WOLDER STEEN



Content

1. What is Manual Therapy?
2. How can we determine the effectiveness of a treatment?
3. What is the over-all conclusion in recent SR's?
4. Is effectiveness the same as external evidence?
5. How does MT work (the rationale) & the relation with shoulder problems?
6. Conclusions.

An enquete to start with …….

- How many MT's are in the audience ??

- Do you apply mobilisations / HVT's in SP patients?

  a- in 0 – 20% of the SP patients
  b- in 20 – 40% of my SP patients
  c- in 40 – 60% of the SP patients
  d- in more than 60% of the SP patients
  e- in almost every SP patient

- What is your reason / rationale to do so ??

What is MT?

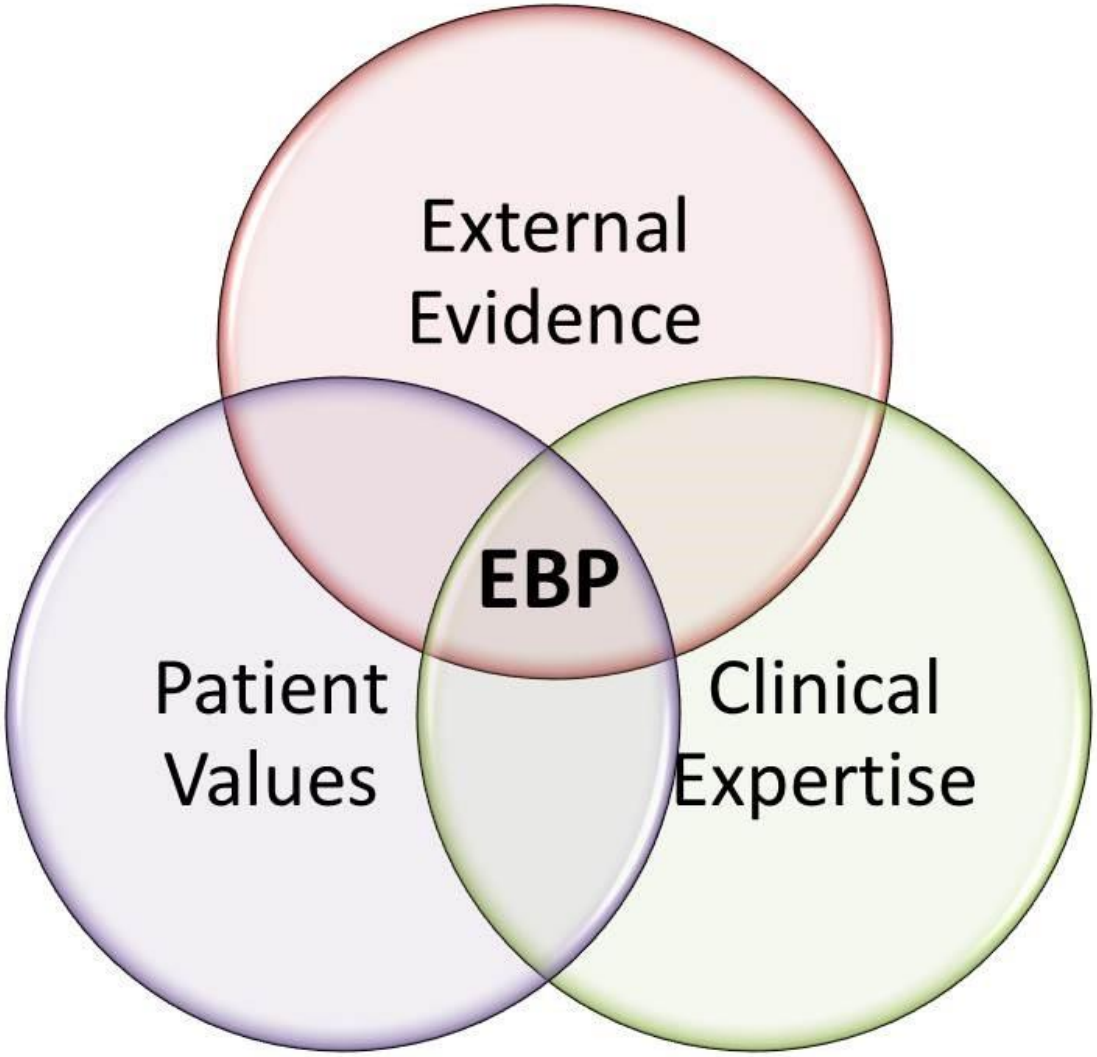
- Wat is manuele therapie ?
  Wat is de relatie met ‘gewone’ FT ?
  Wat is de relatie met oefentherapie ?

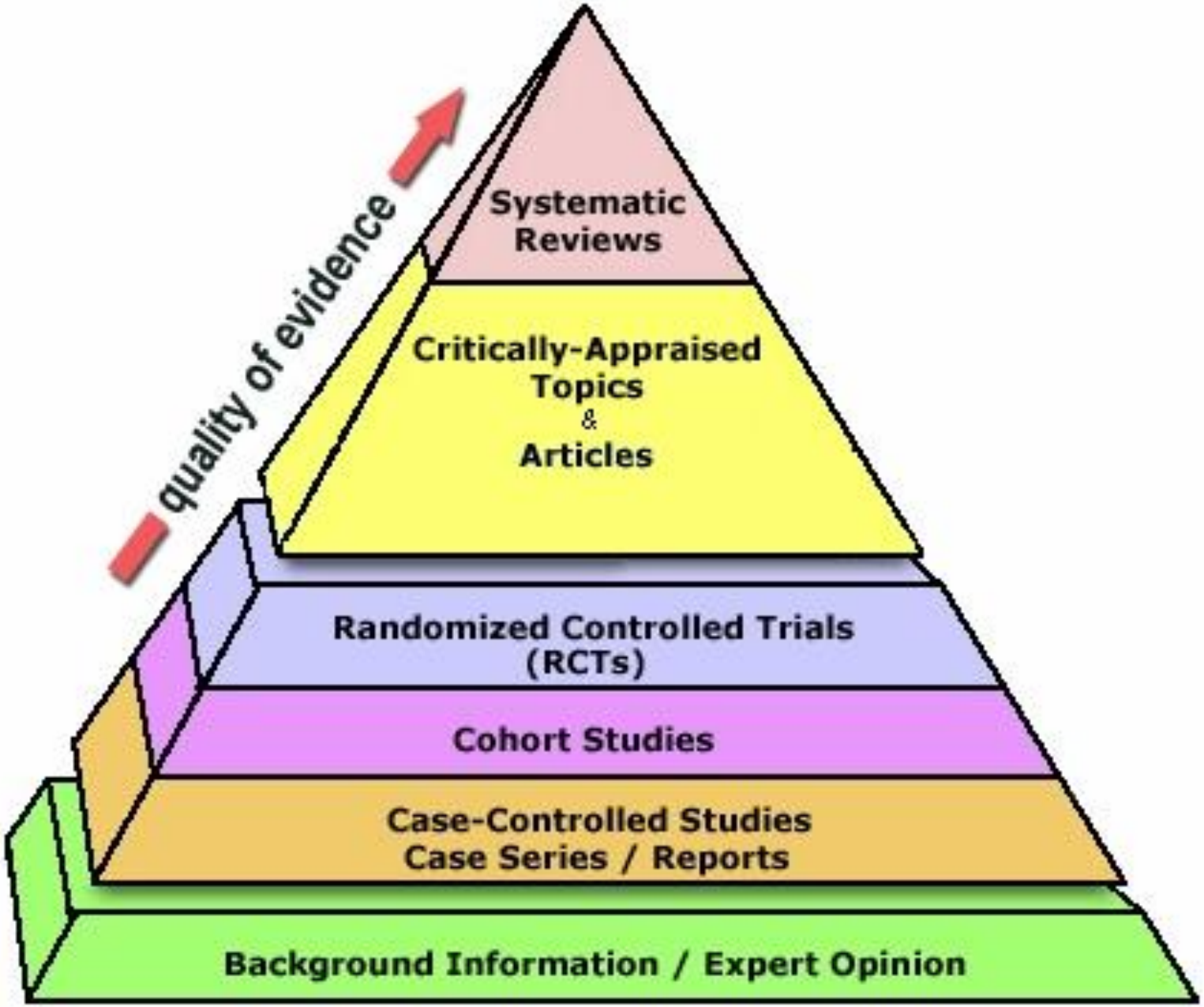
  - Ook FT passen mobilisaties toe
  - Ook FT werken ‘hands – on’
  - Is massage ook MT
  - HVT’s en SM’s zijn MT in engere zin
  - MT kennen ook MT in brede zin

Is it about eduction to master level ??

Is it about a specific diploma ??

How do we determine the effectiveness of MT?




quality of evidence
Systematic Reviews
Critically-Appraised Topics & Articles
Randomized Controlled Trials (RCTs)
Cohort Studies
Case-Controlled Studies
Case Series / Reports
Background Information / Expert Opinion

Formulate question

Select outcomes

Rate importance

Outcomes across studies

Create evidence profile with GRADEpro

Rate quality of evidence for each outcome

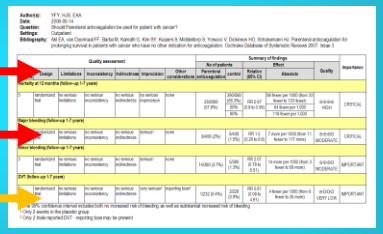
P
I
C
O

Outcome Critical

Outcome Critical

Outcome Important

Outcome Not important



Summary of findings & estimate of effect for each outcome

High
Moderate
Low
Very low

RCT start high, obs. data start low

Grade down

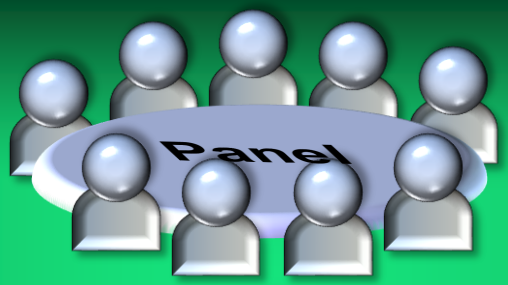
1. Risk of bias
2. Inconsistency
3. Indirectness
4. Imprecision
5. Publication bias

Grade up

1. Large effect
2. Dose response
3. Confounders

Systematic review

Guideline development



Rate
overall quality of evidence
across outcomes based on
lowest quality
of ***critical*** outcomes

Formulate recommendations:

- For or against (direction)
- Strong or weak (strength)

By considering:

- ❑ Quality of evidence
- ❑ Balance benefits/harms
- ❑ Values and preferences

Revise if necessary by considering:

- ❑ Resource use (cost)

- "We recommend using…"
- "We suggest using…"
- "We recommend against using…"
- "We suggest against using…"

Hoe komen we tot de beste externe onderbouwing?

1. Het formuleren van een goede onderzoek vraag (PICO)
2. Het verzamelen / selecteren van de klinische studies
   (observationeel & liefst: experimenteel)
3. Het graderen / klasseren van die onderbouwing in 4 categorieën:
   de kwaliteit = ‘high – moderate – low – very low’
4. Upgraden of downgraden van de studies
5. Uiteindelijk bepaalt de laagste kwaliteit de ‘overall quality’
6. Bespreek in een panel een aantal praktische factoren:
   balans voor- / nadelen; waarde & voorkeur; kosten.
7. Formuleer de aanbeveling:
   ‘Er is *sterk / zwak* bewijs *voor / tegen* de toepassing van deze interventie

4 recente SR's naar de effectiviteit van MT bij SP

1. Haik MN, Alburquerque-Sendín F, Moreira RFC, Pires ED, Camargo PR. Effectiveness of physical therapy treatment of clearly defined subacromial pain: a systematic review of randomised controlled trials. Br J Sports Med. september 2016;50(18):1124–34.
2. Page MJ, Green S, McBain B, Surace SJ, Deitch J, Lyttle N, e.a. Manual therapy and exercise for rotator cuff disease. Cochrane Database Syst Rev. 10 juni 2016;(6):CD012224.
3. Desjardins-Charbonneau A, Roy J-S, Dionne CE, Frémont P, MacDermid JC, Desmeules F. The efficacy of manual therapy for rotator cuff tendinopathy: a systematic review and meta-analysis. J Orthop Sports Phys Ther. mei 2015;45(5):330–50.
4. Peek AL, Miller C, Heneghan NR. Thoracic manual therapy in the management of non-specific shoulder pain: a systematic review. J Man Manip Ther. september 2015;23(4):176–87.

3. What is the conclusion of the ‘SR’ results?

Cochrane Library

Cochrane Database of Systematic Reviews

Manual therapy and exercise for rotator cuff disease (Review)

Page MJ, Green S, McBain B, Surace SJ, Deitch J, Lyttle N, Mrocki MA, Buchbinder R

Is manual therapy and exercise (with or without electrotherapy) more effective than placebo, no intervention or another active intervention (e.g. glucocorticoid injection, oral non-steroidal anti-inflammatory drug (NSAID), arthroscopic subacromial decompression)?

In 10 trials, manual therapy and exercise was compared with either placebo (Bennell 2010), no intervention (Dickens 2005; Kachingwe 2008) or another active intervention (Cloke 2008; Ginn 2005; Haahr 2005; Hay 2003; Rhon 2014; Szczurko 2009; Winters 1997).

Report with GRADE methodology

Uitkomsten	Absolute effecten (95% CI)		Aantal deelnemers (aantal studies)	Kwaliteit van het bewijs (GRADE)	Opmerkingen
	Risico controle	Risico interventie			
Pijn (evt. follow up)				⊕⊕◯◯ laag	
Functie (evt. follow up)				⊕⊕⊕⊕ hoog	

Uitkomsten	Absolute effecten (95% CI)		Aantal n (studies)	Kwaliteit van het bewijs (GRADE)	Opmerkingen
	Risico controle	Risico interventie			
Pijn – SPADIpijn (na 22 weken)	Verbetering controle groep: 17,3 punten	Verbetering interventie groep: 24,1 punten	120 (1 RCT)	⊕⊕⊕⊕ hoog	Ris.Verschil = 7% (-1 - +14 %)
Functie - SPADI totaal (22 wk)	Verbetering controle groep: 15,6 punten	Verbetering interventie groep: 22,8 punten	120 (1 RCT)	⊕⊕⊕⊕ hoog	Ris.Verschil = 7% NNTB = 6 (3–30)

SUMMARY OF FINDINGS FOR THE MAIN COMPARISON *[Explanation]*

Manual therapy and exercise compared to placebo for rotator cuff disease

Patient or population: rotator cuff disease
Settings: Public hospital physiotherapy units and private physiotherapy practices, Australia
Intervention: soft tissue massage, glenohumeral joint mobilisation, thoracic spine mobilisation, cervical spine mobilisation, scapular retraining, postural taping and supervised exercises in 10 sessions over 10 weeks along with home exercises for 22 weeks
Comparison: inactive ultrasound therapy and application of an inert gel in 10 sessions over 10 weeks

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Placebo	manual therapy and exercise				
Overall pain Assessed with SPADI pain score Scale from 0-100 (higher score denotes less pain) Follow-up: 22 weeks	The mean improvement in overall pain score in the control group was **17.3**[1]	The mean improvement in overall pain score in the intervention group was **6.8 points higher** (-0.7 lower to 14.3 higher)	-	120 (1 RCT)	⊕⊕⊕⊕ **HIGH**	Absolute risk difference 7% (1% fewer to 14%more); relative percentage change 14% (1%fewer to 30%more) NNTB not applicable
Function Assessed with SPADI total score Scale from 0-100 (higher score denotes greater function) Follow-up: 22 weeks	The mean improvement in function score in the control group was **15.6** [1]	The mean improvement in function score in the intervention group was **7.1 points higher** (0.3 higher to 13.9 higher)	-	120 (1 RCT)	⊕⊕⊕⊕ **HIGH**	Absolute risk difference 7% (1% to 14% more); relative percentage change 16% (1% to 32%more) NNTB 6 (3 to 103)

In Dickens 2005, at six months the mean change in function with no treatment was 0.65 on a 100-point scale, and 20 points with manual therapy and exercise (MD 19.35, 73 participants) but the 95% CI was not estimable. No other outcomes were reported in this trial. Usable outcome data were not available in Kachingwe 2008, although the authors claimed that there were no statistically significant differences between groups in overall pain, function and active shoulder flexion at six weeks (Table 4). We downgraded by two points for high risk of performance and detection bias, and one point for imprecision, and so consider this evidence to be very low quality.

Conclusions Melina Haik / Paula Camargo (BJSM, 2016)

- Mobilisations associated with exercises versus exercises only: Five studies compared mobilisations in the shoulder girdle, cervical and thoracic spine associated with exercises to exercises only in a follow-up of 3 – 8 weeks. High evidence was identified for mobilisation associated with exercises when compared with exercises only to decrease pain after 6-10 sessions. Moderate evidence was found towards no additional benefit of adding mobilisations to exercises only tot improve function in the short term.

[RESEARCH REPORT]

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PIERRE FRÉMONT, MD, PhD[2,5] • **JOY C. MACDERMID,** PT, PhD[6] • **FRANÇOIS DESMEULES,** PT, PhD[1,7]

The Efficacy of Manual Therapy for Rotator Cuff Tendinopathy: A Systematic Review and Meta-analysis

The Efficacy of Manual Therapy for Rotator Cuff Tendinopathy: A Systematic Review and Meta-analysis (Ariel Desjardins-Charbonneau et al, JOSPT, 2015)

TABLE 4 SUMMARY OF EVIDENCE FOR THE EFFICACY OF MANUAL THERAPY

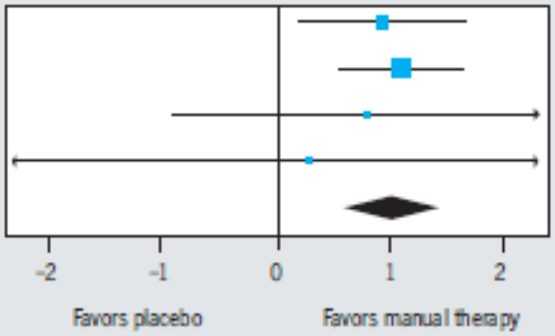
Treatment	Studies, n	Total Participants, n	Outcome Measures and Pooled Effect	Conclusions	Quality of Evidence
Overall effect of MT either alone or in conjunction with another intervention compared with placebo or another intervention	10	406	Pain (10-cm VAS) Pooled effect: 1.2 (95% CI: 0.8, 1.6), favoring MT	Significant effect that could be clinically important	Low to moderate
MT alone compared with a placebo	4	175	Pain (10-cm VAS) Pooled effect: 1.0 (95% CI: 0.6, 1.4), favoring MT	Significant effect that could be clinically important	Low
	1	39	Function	Unclear if MT has an effect on function	
	2	99	Strength and ROM	Contradictory results	
Adding an MT intervention to exercises or to a multimodal rehabilitation program with exercises	5	226	Pain (10-cm VAS) Pooled effect: 1.0 (95% CI: 0.7, 1.4), favoring MT added to exercises	Significant effect that could be clinically important	Low
	2	91	Pain (10-cm VAS)		
	6	287	Function	Unclear if MT has an effect on function	
	2	88	ROM pooled effect: −6.1° (95% CI: −20.6°, 8.4°)	MT does not improve ROM	
MT combined with other types of interventions compared with multimodal interventions	6	414	Pain, function, ROM	Contradictory results	Low

Abbreviations: CI, confidence interval; MT, manual therapy; ROM, range of motion; VAS, visual analog scale.

- A forest plot with effectiveness MT versus placebo MT
- The mean-difference is 1,02 points op een 0 – 10 schaal
- Is dat statistisch significant? (wat is het 95% BI?)
- Is dat klinische relevant? (wat is de MCID van de NPRS?)

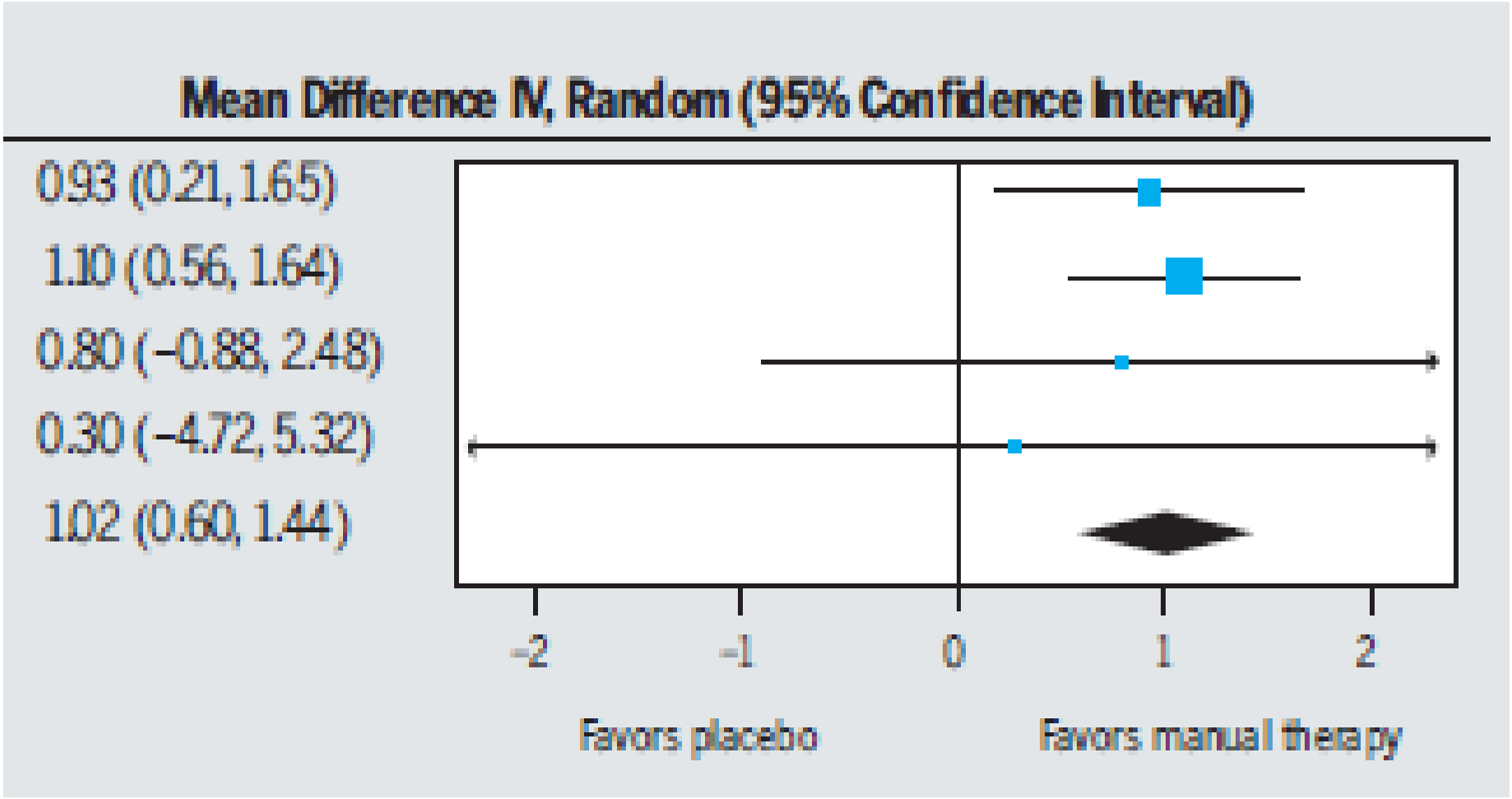
Manual Therapy Versus Placebo: Pain*

	Manual Therapy		Placebo			
Study	Mean ± SD	Total, n	Mean ± SD	Total, n	Weight	Mean Difference IV, Random (95% Confidence Interval)
Atkinson et al[1]	1.99 ± 1.39	30	1.06 ± 1.47	30	33.0%	0.93 (0.21, 1.65)
McClatchie et al[35]	1.3 ± 1.1	21	0.2 ± 0.6	21	60.2%	1.10 (0.56, 1.64)
Munday et al[37]	2.7 ± 2.4	15	1.9 ± 2.3	15	6.1%	0.80 (−0.88, 2.48)
Surenkok et al[44]	0.46 ± 9.2	13	0.16 ± 1.3	30	0.7%	0.30 (−4.72, 5.32)
Total		79		96	100.0%	1.02 (0.60, 1.44)



Abbreviation: IV, independent variable.

**Heterogeneity: $\tau^2 = 0.00$, $\chi^2 = 0.29$, $df = 3$ ($P = .96$), $I^2 = 0\%$. Test for overall effect: $Z = 4.81$ ($P<.00001$).*



- A small + effect on pain >> relevant ??
- No + effects on function (ROM, strength etc.)

Thoracic manual therapy in the management of non-specific shoulder pain: a systematic review

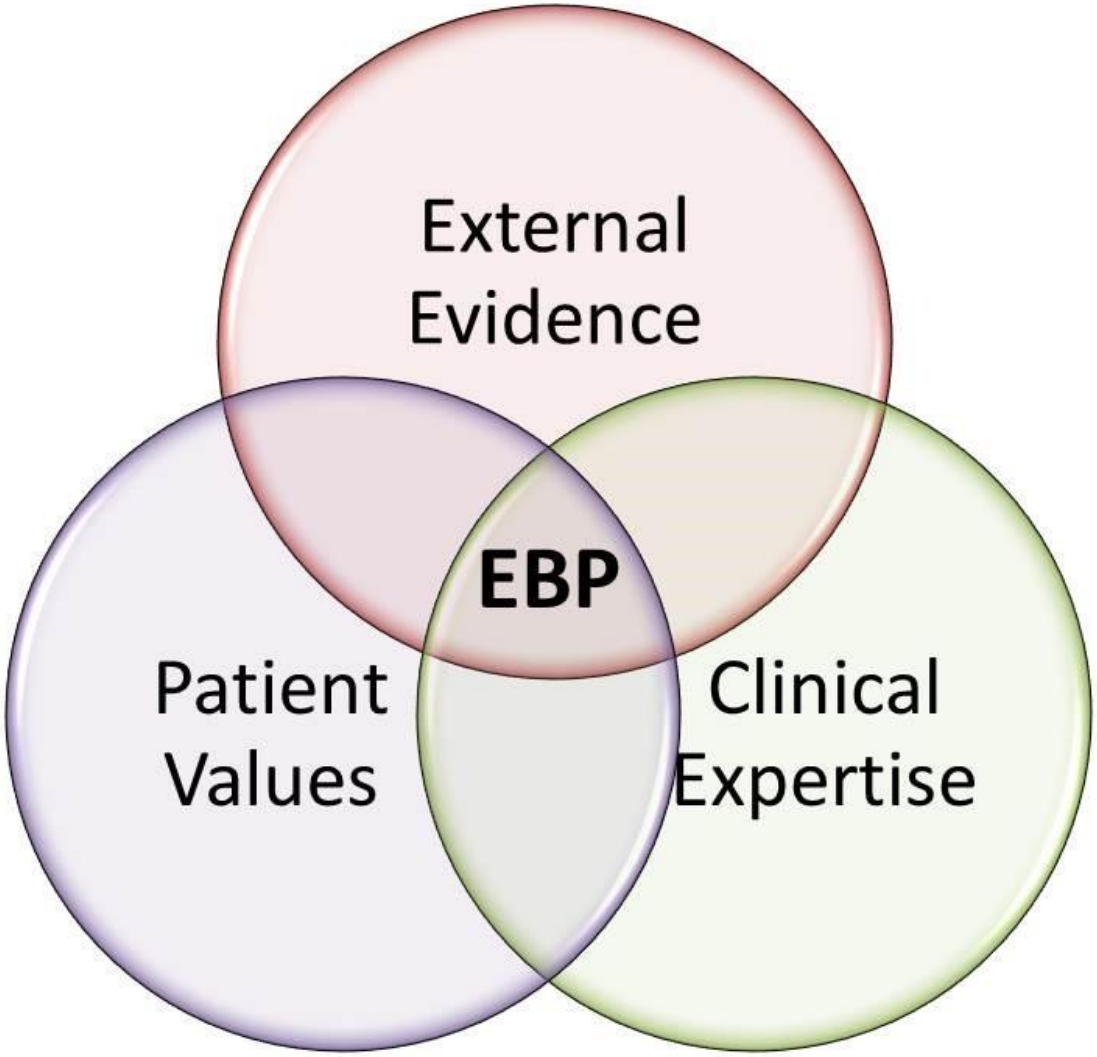
Aimie L. Peek[1], Caroline Miller[2], Nicola R. Heneghan[3]

[1]Musgrove Park Hospital, Taunton, UK, [2]University Hospitals Birmingham NHS Foundation Trust, UK, [3]University of Birmingham, UK

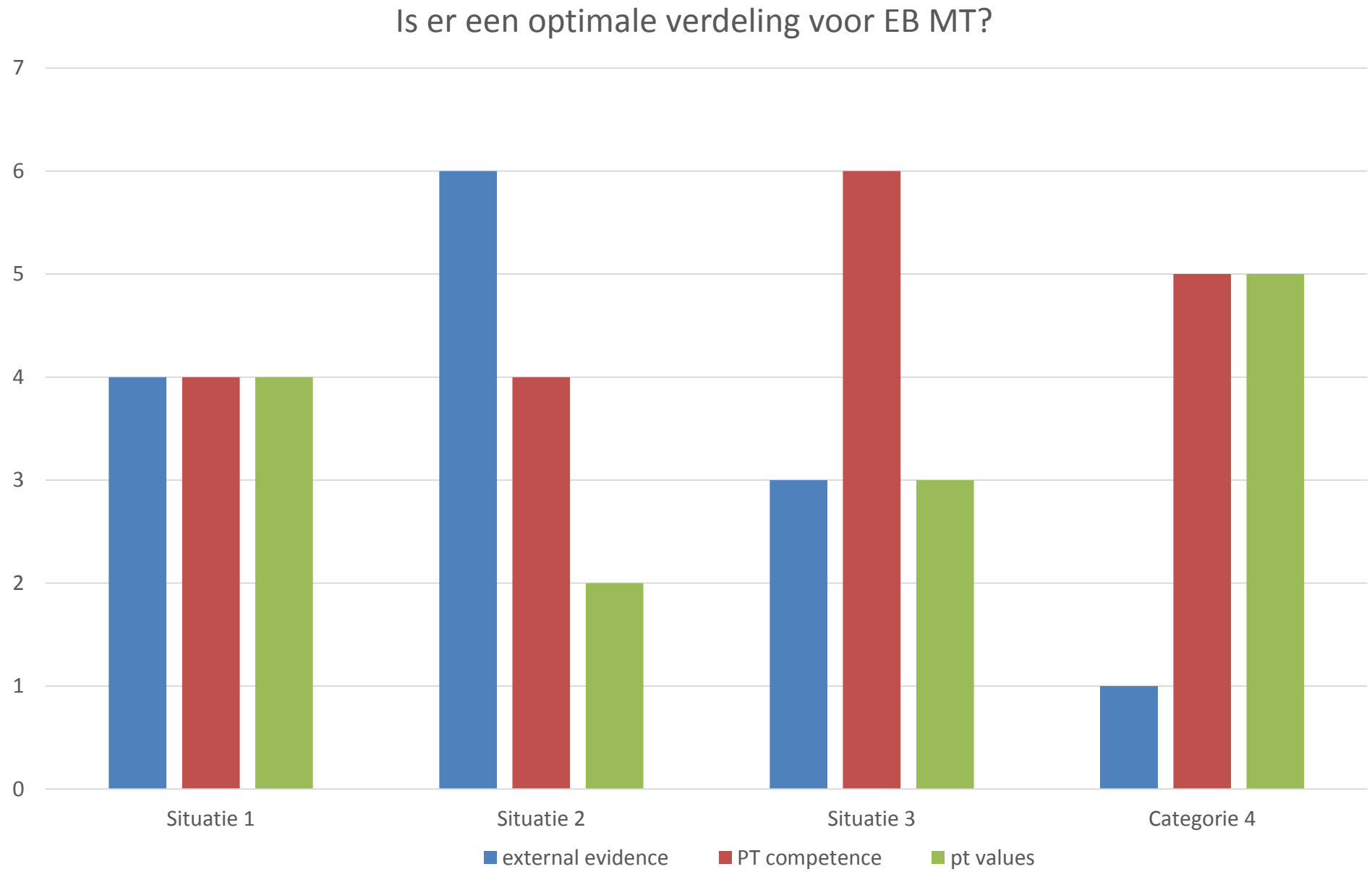
Clinical implications

The clinical implications of the review are that it is likely that clinicians can use thoracic manipulation to accelerate recovery, in terms of pain reduction and reduced disability, in an NSSP population. The use of the clinical prediction rule may help identify patients likely to respond to treatment (Appendix 1). Previous reviews

4. Is effectiveness the same as external evidence?




Individual Cinical Expertise
Patient's Values & Expectations
Improved Patient Outcomes
Best Available Clinical Evidence


Is er een optimale verdeling voor EB MT?
7
6
5
4
3
2
1
0
Situatie 1
Situatie 2
Situatie 3
Categorie 4
external evidence
PT competence
pt values

Is there a preference ??

- Do you prefer a high external evidence score?
- Are you pragmatic, as long as the patient is satisfied; it doesn't matter how?
- Is your own competence the major component?

5. What is the rationale for MT?

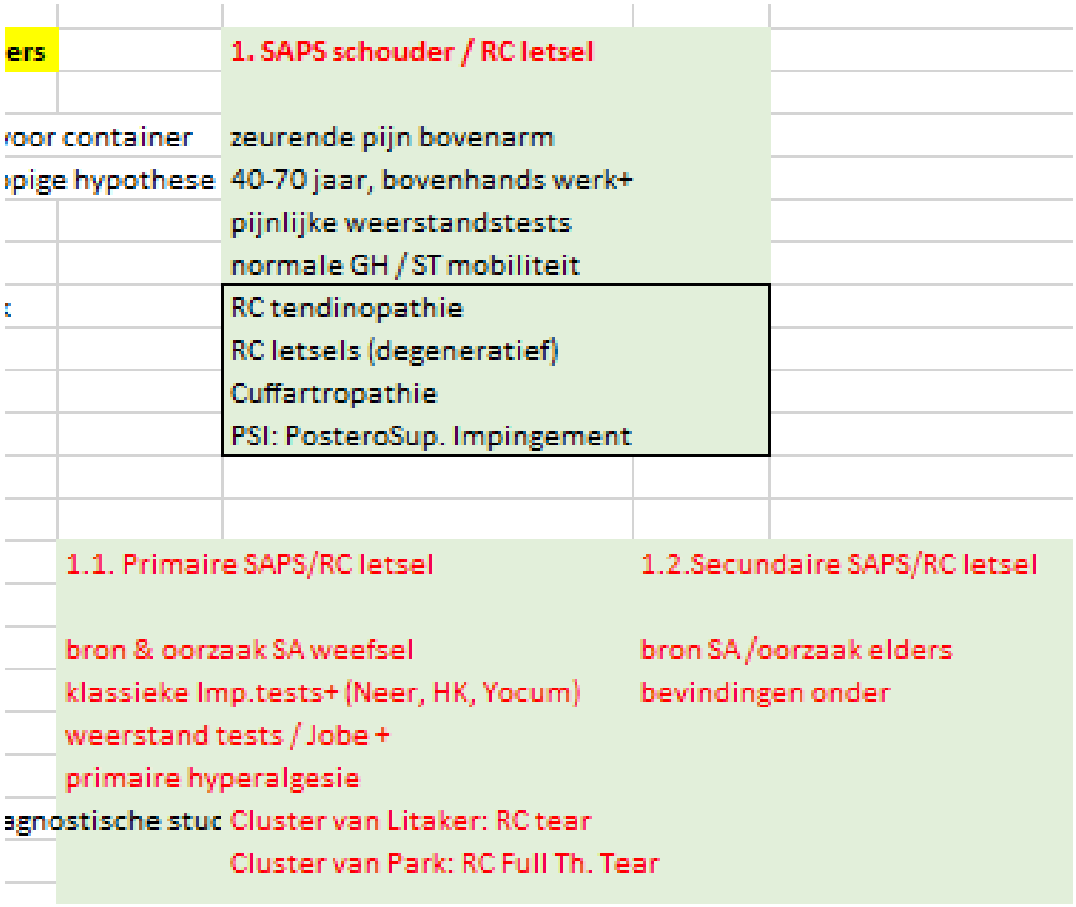
- The biomechanical / segmental disfunction theory.
  ‘specific’

- The reflectoric / neuromodulation / pain inhibiting theory.
  ‘a-specific’

Can you ‘live’ with both theories ??

What about the association between the SNN – KR model and the effects of MT?

HVT’s / SM’s and Mobilisations for container 1.



HVT's / SM's and Mobilisations for container 2.

2. Beperkte schouder

beperkte ROM anamnese
beperkte AROM & PROM
1 van 3 of 4 fasen FS?
andere oorzaak?

Frozen Shoulder
GH / om-artrosis
SCH met bewegingsbeperking

2.1. Concentrisch beperkt	2.2. Unidirectioneel beperkt
PROM meerdere richtingen (waaronder de exorotatie)	Zie onder: PROM 1 richting beperkt
PROM/AROM: zelfde beperking	vooral in 1 / deels 2 richtingen
minstens 50% in 3 richtingen	PROM/AROM: zelfde beperking
Stadia FS (3 of 4; zie onder)	
Exclusie: Rö negatief	

HVT's / SM's and Mobilisations for container 3.

3. Instabiele schouder

pijnscheuten, twinges
jongere pt (15-35 jaar)
gestoorde AROM
geen duidelijk trauma in anamnese

AMBRI / AIOS
MSI: Minor Shoulder Instability

3.1.Glenohumeraal	3.2. Scapulathoracaal
AROM matige kwaliteit	Scapula dispositie
Sulcus /L&S positief	Scapuladiskinesie
DRST / DRT positief	SAT / SRT positief

HVT’s / SM’s and Mobilisations for container 4.

4. Posttraumatische schouder

anamnese + begin (trauma) / pijn
Vaak jongere, sportieve patiënten
ook mogelijk 'acuut op chronisch'
vaak veel functiestoornissen

RC ruptuur (traumatisch)
GH (sub)luxatie / TUBS/ ALPSA
AC (sub)luxatie
Fracturen (+ Bony apprehension test)

Consult orthopeed meestal wenselijk

4.1.GH AC banden/pezen

Primaire hyperalgesie
Rek-provocatie tests positief
Hor.ddductie/Paxinos +/resisted hor. addu
Betreft deels EHBSO

4.2.GH/AC labrum/kraakbeen

Appr-relocation-release positief
Jerk-Kim test positief
Pianotoets positief

HVT's / SM's and Mobilisations for container 5.

5. Gesensitiseerde schouder

niet duidelijk in 1 van de andere 4 containers
myofasciaal beeld, spierketen of met neurologie
sensitisatie (segmentaal / algemeen), dis-stress
slechte algemene conditie / belastbaarheid

Niet-somatische SP / SOLK
Atypische Schouder Pijn
SP met co-morbiditeit

5.1 Myofasciaal/keten	5.2. Andere reden SP
Actieve MTP's	Ontbrekend biomech. SCH patroon
Local twitch respons (evt. Jump sign)	Met + neurologie (radiculopathie, N.Amyotrofie)
Passend patroon referred pain	Orgaanlijden & + tractus anamnese

VIEWPOINT

Prev Next

Placebo Mechanisms of Manual Therapy: A Sheep in Wolf 's Clothing?

Authors: Joel E. Bialosky, PT, PhD[1,2], Mark D. Bishop, PT, PhD[1], Charles W. Penza, DC, PhD[1]

AFFILIATIONS:

[1]Department of Physical Therapy, University of Florida, Gainesville, FL.

[2]Brooks Rehabilitation–College of Public Health and Health Professions (University of Florida) Research Collaboration, University of Florida, Gainesville, FL.

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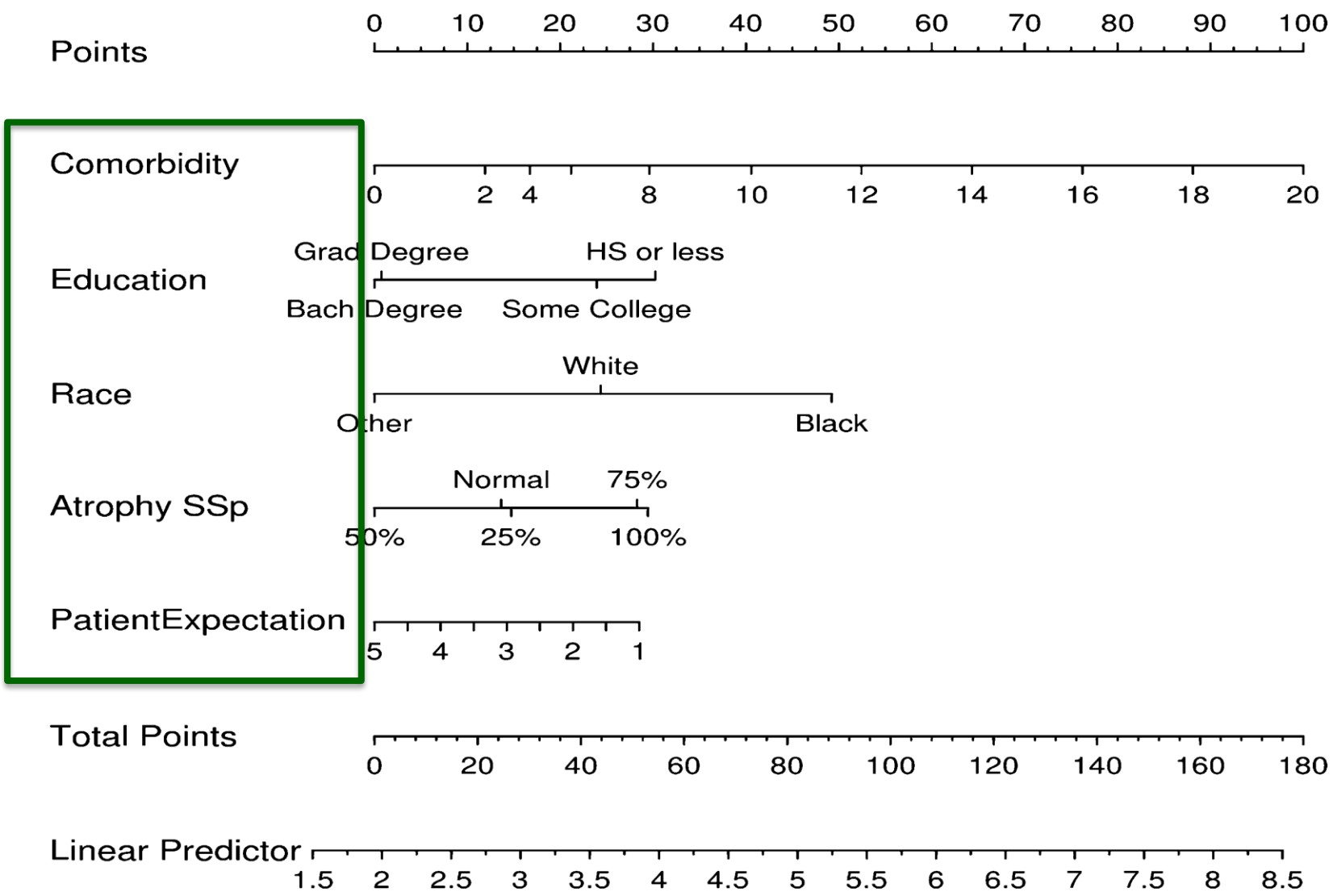
- Should we embrace the 'active' placebo mechanism?
- Is the placebo effect 'really' helpful? Or is placebo an a-specific effect of an otherwise ineffective treatment?
- Can we make optimal use of the placebo mechanism?



Vijf factoren die samenhangen met het ontstaan van SchouderPijn bij RC letsels.

Dunn WR, Kuhn JE, Sanders R, An Q, Baumgarten KM, Bishop JY, e.a. Symptoms of pain do not correlate with rotator cuff tear severity: a cross-sectional study of 393 patients with a symptomatic atraumatic full-thickness rotator cuff tear. J Bone Joint Surg Am. 21 mei 2014;96(10):793–800.

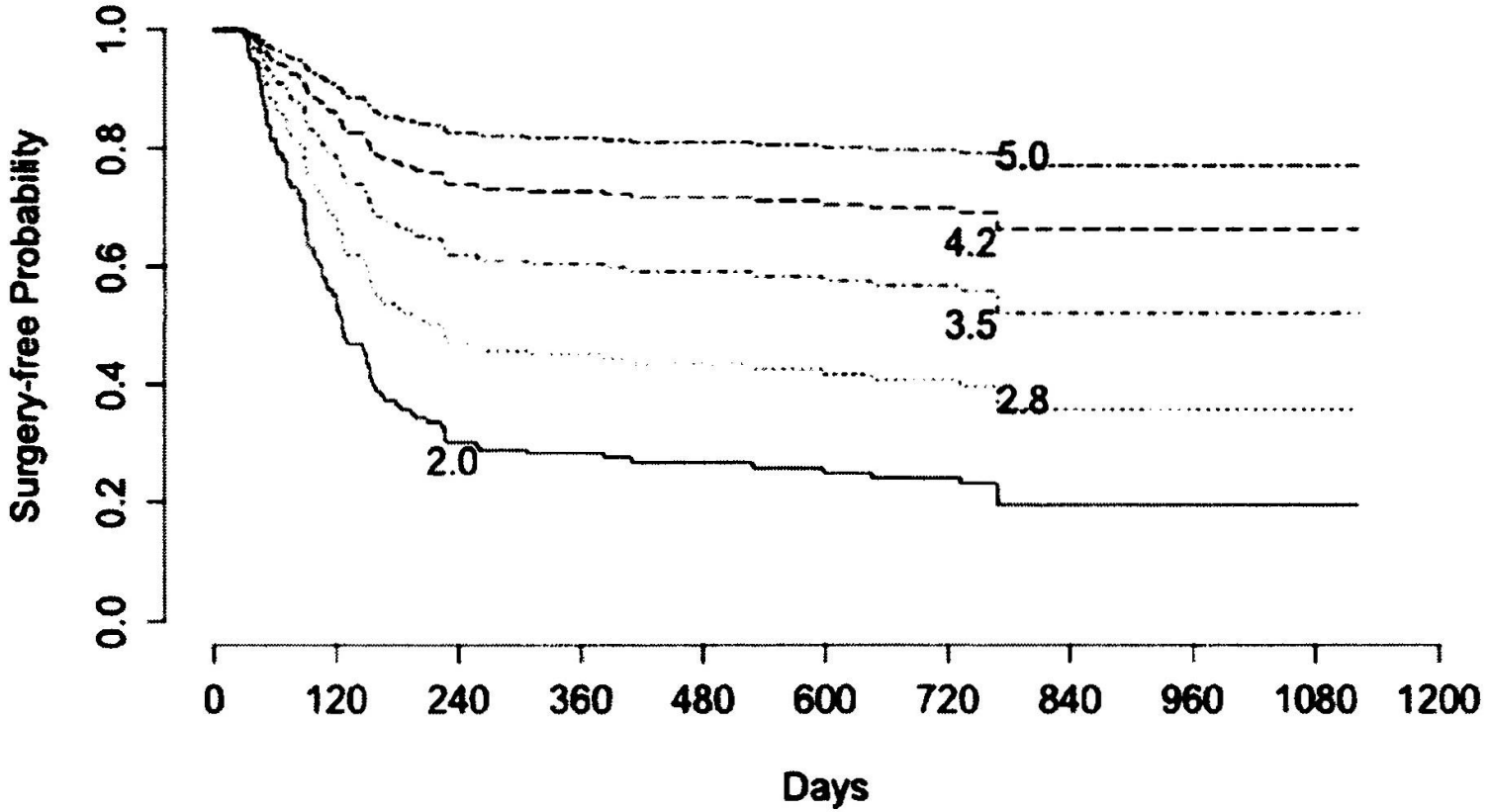


Figure 1 Survival plot of surgery-free probability stratified by patient expectations regarding physical therapy with a 5 indicating high expectations that rehab will lead to improvement, and lower scores indicating lower expectations.

Verwachting patiënt over effectiviteit FT bepaalt de kans op chirurgie!

Kuhn JE, Dunn WR, Sanders R, An Q, Baumgarten KM, Bishop JY, e.a. Effectiveness of physical therapy in treating atraumatic full-thickness rotator cuff tears: a multicenter prospective cohort study. J Shoulder Elbow Surg. oktober 2013;22(10):1371–9.

An enquete to evaluate …….

- How many MT's are in the audience ??

- Do you apply mobilisations / HVT's in SP patients?

  a- in 0 – 20% of the SP patients
  b- in 20 – 40% of my SP patients
  c- in 40 – 60% of the SP patients
  d- in more than 60% of the SP patients
  e- in almost every SP patient

- What is your reason / rationale to do so ??

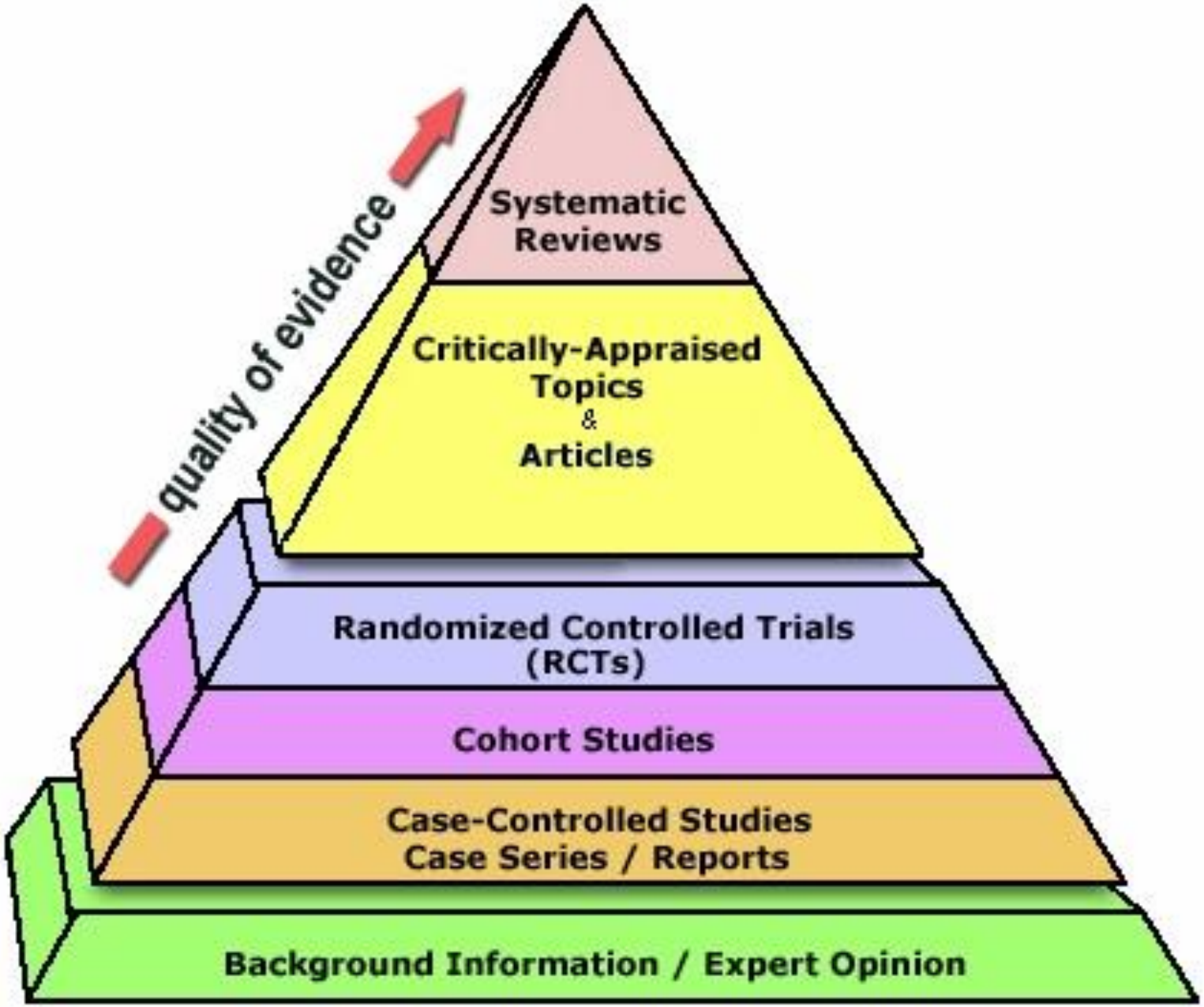
6. Conclusions

1. There's an overlap between MT and PT.
2. The external evidence for the effectiveness of MT in SP patients is minimal;
   is short time painrelief relevant ??
3. The two other EBM components: PT competence & pt values / expectations might be more important.
4. MT's should have a academic and reflective attitude towards their profession.

- Do MT’s have to train long to realize good technical skills ??

- Is modesty a good characteristic for a MT ??


Like
Systematic reviews
Randomized Controlled Trials
Cohort Studies
Case-Control Studies
Case series, Case Reports
Editorials, Expert Opinion


quality of evidence
Systematic Reviews
Critically-Appraised Topics & Articles
Randomized Controlled Trials (RCTs)
Cohort Studies
Case-Controlled Studies
Case Series / Reports
Background Information / Expert Opinion