SWISS PAIN SOCIETY

Physiotherapy for chronic low back pain

Prof. Dr. PD Hannu Luomajoki, PhD PT OMT
ZHAW – Zurich Winterthur

Today's programme

- Some background and current evidence
- What are the benefits of medical procedures (imaging, medication, surgery)?
- Stratification & Subgrouping
- Red flags, yellow flags, questionnaires
- Radiating pain, movement dysfunction, movement control dysfunction, non-lumbar spine problem
- Looking ahead

THE LANCET

March 2018

Series

Low back pain 1

What low back pain is and why we need to pay attention

Jan Hartvigsen, Mark J Hancock*, Alice Kongsted, Quinette Louw, Manuela L Ferreira, Stéphane Genevay, Damian Hoy, Jaro Karppinen, Glenn Pransky, Joachim Sieper, Rob J Smeets, Martin Underwood, on behalf of the Lancet Low Back Pain Series Working Group†*

Low back pain 2

Prevention and treatment of low back pain: evidence, challenges, and promising directions

*Nadine E Foster, Johannes R Anema, Dan Cherkin, Roger Chou, Steven P Cohen, Douglas P Gross, Paulo H Ferreira, Julie M Fritz, Bart W Koes, Wilco Peul, Judith A Turner, Chris G Maher, on behalf of the Lancet Low Back Pain Series Working Group**

Low back pain: a call for action

*Rachelle Buchbinder, Maurits van Tulder, Birgitta Öberg, Lucíola Menezes Costa, Anthony Woolf, Mark Schoene, Peter Croft, on behalf of the Lancet Low Back Pain Series Working Group**

Low back pain: the medical disaster of today

About everything we do… is wrong…

Demystifying

Example of structural findings in MR examinations:

Comparisons between healthy individuals and patients with back pain

Hardly no difference between healthy individuals and patients!

Systematic Literature Review of Imaging Features of Spinal Degeneration in Asymptomatic Populations

W. Brinjikji, P.H. Luetmer, B. Comstock, B.W. Bresnahan, L.E. Chen, R.A. Deyo, S. Halabi, J.A. Turner, A.L. Avins, K. James, J.T. Wald, D.F. Kallmes, and J.G. Jarvik

Table 2: Age-specific prevalence estimates of degenerative spine imaging findings in asymptomatic patients[a]

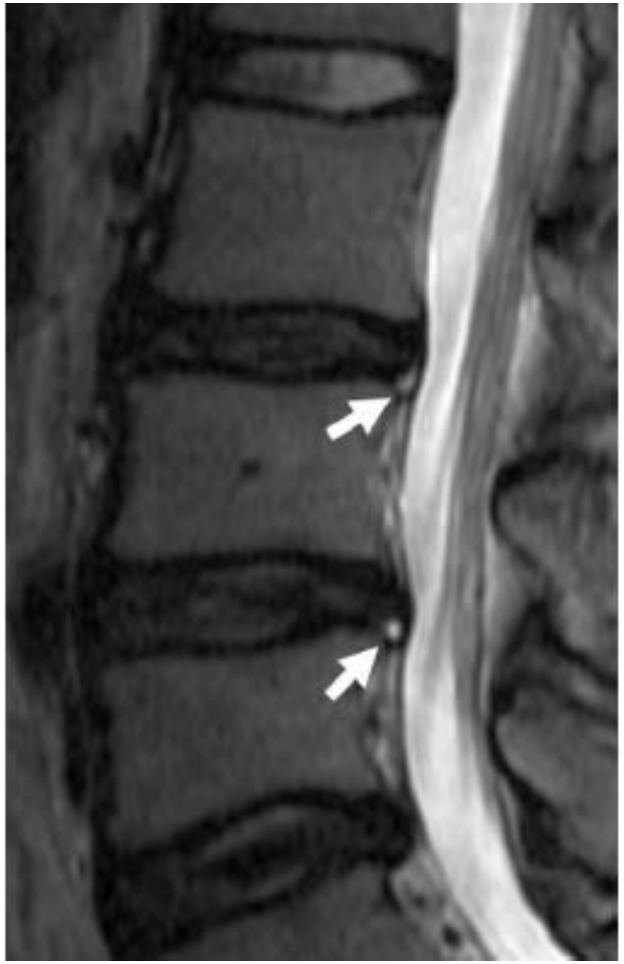
	Age (yr)						
Imaging Finding	20	30	40	50	60	70	80
Disk degeneration	37%	52%	68%	80%	88%	93%	96%
Disk signal loss	17%	33%	54%	73%	86%	94%	97%
Disk height loss	24%	34%	45%	56%	67%	76%	84%
Disk bulge	30%	40%	50%	60%	69%	77%	84%
Disk protrusion	29%	31%	33%	36%	38%	40%	43%
Annular fissure	19%	20%	22%	23%	25%	27%	29%
Facet degeneration	4%	9%	18%	32%	50%	69%	83%
Spondylolisthesis	3%	5%	8%	14%	23%	35%	50%

[a] Prevalence rates estimated with a generalized linear mixed-effects model for the age-specific prevalence estimate (binomial outcome) clustering on study and adjusting for the midpoint of each reported age interval of the study.

SPINE Volume 34, Number 16, pp 1716–172
©2009, Lippincott Williams & Wilkins

Prevalence of Degenerative Imaging Findings in Lumbar Magnetic Resonance Imaging Among Young Adults

Jani Takatalo, MSc,* Jaro Karppinen, MD, PhD,*† Jaakko Niinimäki, MD,‡
Simo Taimela, MD, PhD,§ Simo Näyhä, MD, PhD,†¶ Marjo-Riitta Järvelin, MD, PhD,¶
Eero Kyllönen, MD, PhD,* and Osmo Tervonen, MD, PhD‡



Is it related to age?

50% of 21-year-olds have degenerative changes in their MRI scans...

Have to get an Mri…

ELSEVIER

The Spine Journal 17 (2017) 554–561

THE SPINE JOURNAL

Clinical Study

Variability in diagnostic error rates of 10 MRI centers performing lumbar spine MRI examinations on the same patient within a 3-week period

Richard Herzog, MD, FACR[a,b,*], Daniel R. Elgort, PhD[b], Adam E. Flanders, MD[c], Peter J. Moley, MD[a]

[a]Hospital for Special Surgery, 535 E. 70th St, New York, NY 10021, USA
[b]Spreemo Quality Research Institute, 88 Pine St 11th Floor, New York, NY 10005, USA
[c]Thomas Jefferson University Hospital, 132 South 10th St, Suite 1080B, Main Building, Philadelphia, PA 19107, USA

Received 12 July 2016; revised 22 September 2016; accepted 14 November 2016

Radiologen deuten Befunde sehr unterschiedlich

RESULTS: Across all 10 study examinations, there were 49 distinct findings reported related to the presence of a distinct pathology at a specific motion segment. Zero interpretive findings were reported in all 10 study examinations and only one finding was reported in nine out of 10 study examinations. Of the interpretive findings, 32.7% appeared only once across all 10 of the study examinations' reports. A global Fleiss kappa statistic, computed across all reported findings, was 0.20±0.06, indicating poor overall agreement on interpretive findings. The average interpretive error count in the study examinations was 12.5±3.2 (both false-positives and false-negatives). The average false-negative count per examination was 10.9±2.9 out of 25 and the average false-positive count was 1.6±0.9, which correspond to an average true-positive rate (sensitivity) of 56.4%±11.7 and miss rate of 43.6%±11.7.

The madness surrounding imaging...

European Spine Journal
https://doi.org/10.1007/s00586-021-06809-0

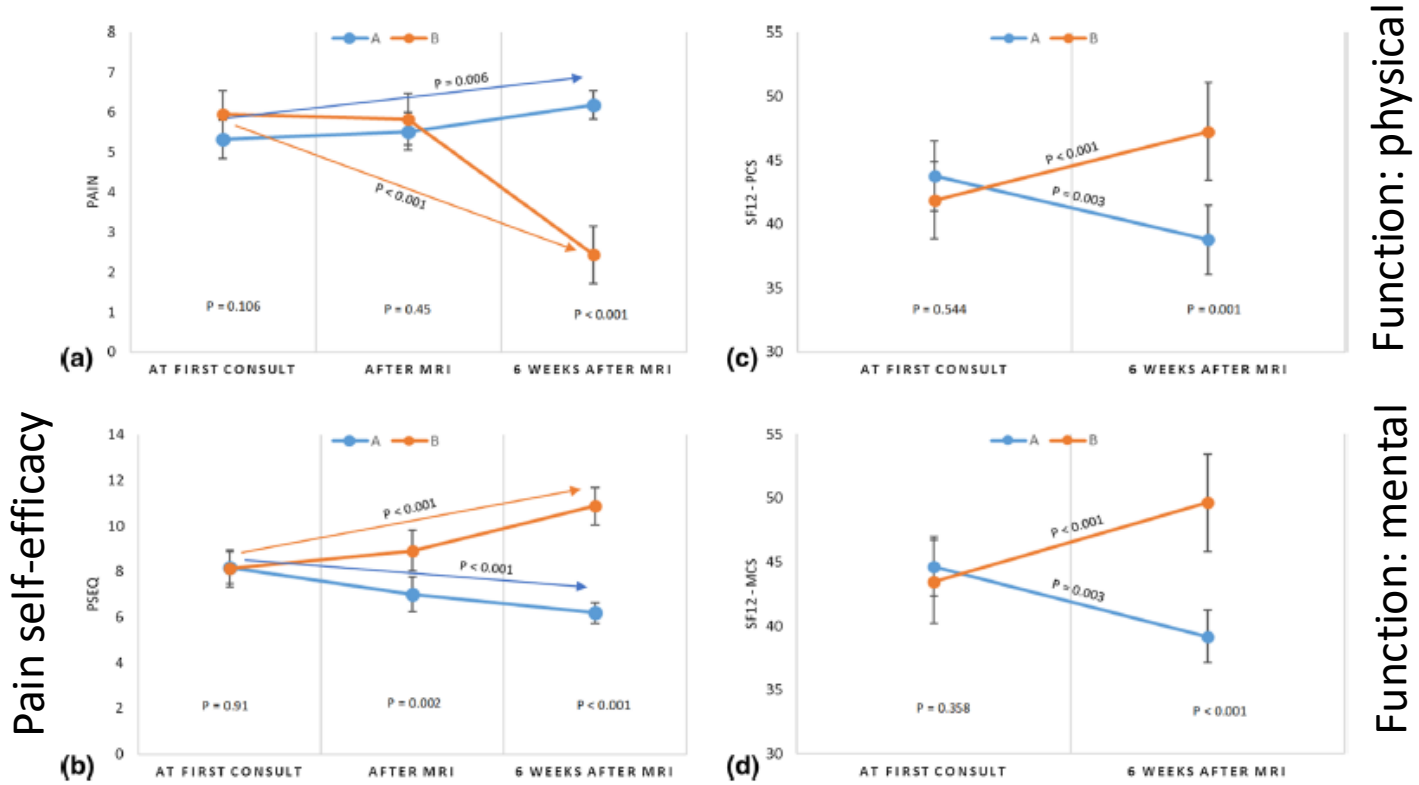
ORIGINAL ARTICLE

The catastrophization effects of an MRI report on the patient and surgeon and the benefits of 'clinical reporting': results from an RCT and blinded trials

S. Rajasekaran[1] · S. Dilip Chand Raja[1] · Bhari Thippeswamy Pushpa[2] · Kumar Behera Ananda[1] · Shetty Ajoy Prasad[1] · Mugesh Kanna Rishi[1]

In phase I, 44 LBP patients were randomised to Group A, who received a factual explanation of their MRI report, or Group B, who were reassured that the MRI findings showed normal changes.

Conclusion Routine MRI reports produce a negative perception and poor functional outcomes in LBP. Focused clinical reporting had significant benefits, which calls for the need for 'clinical reporting' rather than 'image reporting'.



Spinal canal stenosis...

Surgery?

Annals of Internal Medicine

ORIGINAL RESEARCH

Surgery Versus Nonsurgical Treatment of Lumbar Spinal Stenosis

A Randomized Trial

Anthony Delitto, PT, PhD; Sara R. Piva, PT, PhD; Charity G. Moore, PhD, MSPH; Julie M. Fritz, PT, PhD; Stephen R. Wisniewski, PhD; Deborah A. Josbeno, PT, PhD; Mark Fye, MD; and William C. Welch, MD

Background: Primary care management decisions for patients with symptomatic lumbar spinal stenosis (LSS) are challenging, and nonsurgical guidance is limited by lack of evidence.

Objective: To compare surgical decompression with physical therapy (PT) for LSS and evaluate sex differences.

Design: Multisite randomized, controlled trial. (ClinicalTrials .gov: NCT00022776)

Setting: Neurologic and orthopedic surgery departments and PT clinics.

Participants: Surgical candidates with LSS aged 50 years or older who consented to surgery.

Intervention: Surgical decompression or PT.

Measurements: Primary outcome was physical function score on the Short Form-36 Health Survey at 2 years assessed by masked testers.

Results: The study took place from November 2000 to September 2007. A total of 169 participants were randomly assigned and stratified by surgeon and sex (87 to surgery and 82 to PT), with 24-month follow-up completed by 74 and 73 participants in the surgery and PT groups, respectively. Mean improvement in physical function for the surgery and PT groups was 22.4 (95% CI, 16.9 to 27.9) and 19.2 (CI, 13.6 to 24.8), respectively. Intention-to-treat analyses revealed no difference between groups (24-month difference, 0.9 [CI, −7.9 to 9.6]). Sensitivity analyses using causal-effects methods to account for the high proportion of crossovers from PT to surgery (57%) showed no significant differences in physical function between groups.

Limitation: Without a control group, it is not possible to judge success attributable to either intervention.

Conclusion: Surgical decompression yielded similar effects to a PT regimen among patients with LSS who were surgical candidates. Patients and health care providers should engage in shared decision-making conversations that include full disclosure of evidence involving surgical and nonsurgical treatments for LSS.

Primary Funding Source: National Institutes of Health and National Institute of Arthritis and Musculoskeletal and Skin Diseases.

Ann Intern Med. 2015;162:465-473. doi:10.7326/M14-1420 **www.annals.org**
For author affiliations, see end of text.

Bailey et al 2020


The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 MARCH 19, 2020 VOL. 382 NO. 12

Surgery versus Conservative Care for Persistent Sciatica Lasting 4 to 12 Months

Chris S. Bailey, M.D., Parham Rasoulinejad, M.D., David Taylor, M.D., Keith Sequeira, M.D., Thomas Miller, M.D., Jim Watson, M.D., Richard Rosedale, P.T., Stewart I. Bailey, M.D., Kevin R. Gurr, M.D., Fawaz Siddiqi, M.D., Andrew Glennie, M.D., and Jennifer C. Urquhart, Ph.D.

If no improvement after 4 months conservative therapy... surgery better...

What else?

www.thelancet.com July, 2014

Efficacy of paracetamol for acute low-back pain: a double-blind, randomised controlled trial

Christopher M Williams, Christopher G Maher, Jane Latimer, Andrew J McLachlan, Mark J Hancock, Richard O Day, Chung-Wei Christine Lin

Medication?

- n= approx. 1500 patients
- Three groups: Paracetamol 4 g/day; as needed up to 4 g/day, Placebo
- In all groups, after approximately 17 days, the pain was gone
- No differences between groups….

EXPERT OPINION ON PHARMACOTHERAPY, 2018
VOL. 19, NO. 6, 537–545
https://doi.org/10.1080/14656566.2018.1454430

Taylor & Francis
Taylor & Francis Group

REVIEW

Pharmacotherapy for chronic non-specific low back pain: current and future options

Bart W. Koes, Daan Backes and Patrick J. E. Bindels

Department of General Practice, Erasmus MC, Rotterdam, The Netherlands

Medication...

Table 1. Summary of the evidence on the efficacy of pharmacological treatments on pain and function in patients with chronic low back pain.

Pharmacological treatment	Evidence	Effect on pain	Effect on function
Paracetamol/acetaminophen	1 RCT	Uncertain	Uncertain
NSAIDS	13 RCTs	Small	Small
Muscle relaxants (skeletal)	3 RCTs	Uncertain	Uncertain
Benzodiazepines	2 RCTs	Small	Uncertain
Tricyclic antidepressants	4 RCTs	No	No
Selective serotonin reuptake inhibitors	3 RCTs	No	No
Duloxetine	3 RCTs	Small	Small
Anticonvulsants	2 RCTs	No	No
Tramadol	5 RCTs	Small	Small
Buprenorphine	2 RCTs	Small	Uncertain
Strong opioids[a]	6 RCTs	Small	Small
Other:			
Tanezumab	4 RCTs	Small-moderate	Small
Botulinum toxin injections	1 RCT	Small	Small
Melatonin	3 CTs	Small	Small

[a]morphine, hydromorphone, oxycodone, oxymorphone, and tapentadol.

Sobering

Expert opinion: The overall impression of the efficacy of pharmacological treatments for patients with chronic low back pain is rather sobering. The effects on pain reduction and improvement of function are commonly small to moderate and short lasting when compared to placebo. At the same time, the various types of drugs are not without side-effects. This holds especially true for serious side-effects

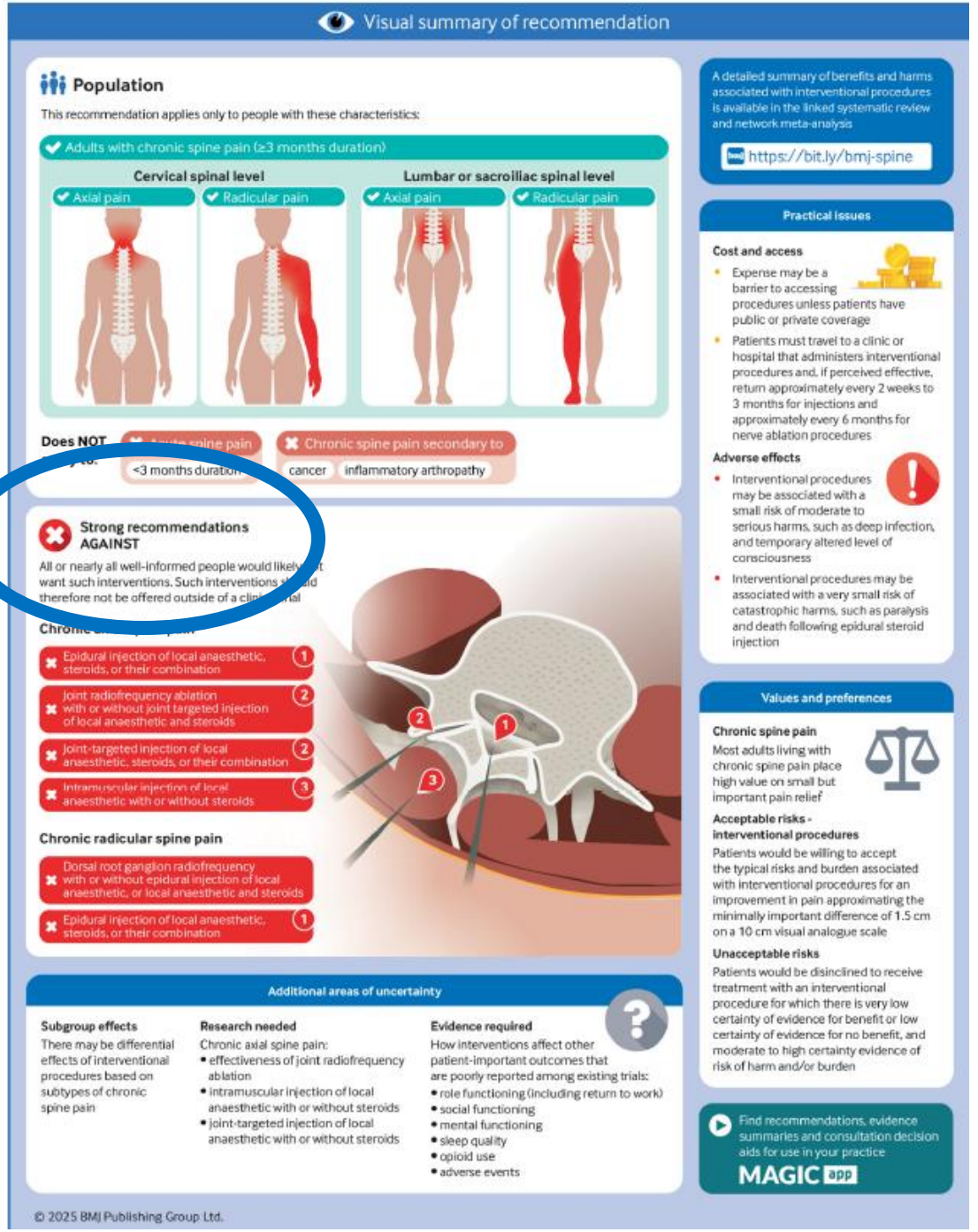
RAPID RECOMMENDATIONS

Commonly used interventional procedures for non-cancer chronic spine pain: a clinical practice guideline

Jason W Busse, [1,2,3] Stéphane Genevay, [4] Arnav Agarwal, [2] Christopher J Standaert, [5] Kevin Carneiro, [6] Jason Friedrich, [7] Manuela Ferreira, [8] Hilde Verbeke, [9] Jens Ivar Brox, [10,11] Hong Xiao, [12] Jasmeer Singh Virdee, [13] Janet Gunderson, [14] Gary Foster, [15] Conrad Heegsma, [15] Caroline F Samer, [16,17] Matteo Coen, [18,19] Gordon H Guyatt, [2] Xiaoqin Wang, [2] Behnam Sadeghirad, [2,3] Faheem Malam, [20] Dena Zeraatkar, [2,3] Per O Vandvik, [21] Ting Zhou, [22] Feng Xie, [2] Reed A C Siemieniuk, [2] Thomas Agoritsas[2,18,23]

the bmj / *BMJ* 2025;388:e079970 |
doi: 10.1136/bmj-2024-079970

Injections and infiltrations...



ACP American College of Physicians™ Leading Internal Medicine, Improving Lives

CLINICAL GUIDELINE

Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians

Amir Qaseem, MD, PhD, MHA; Timothy J. Wilt, MD, MPH; Robert M. McLean, MD; and Mary Ann Forciea, MD; for the Clinical Guidelines Committee of the American College of Physicians*

Feb 2017

Ann Intern Med. doi:10.7326/M16-2367 Annals.org
This article was published at Annals.org on 14 February 2017.

Recommendation 1: *…most patients with acute or subacute low back pain improve over time regardless of treatment, clinicians and patients should select nonpharmacologic treatment ….with superficial heat (moderate-quality evidence), massage, acupuncture, or spinal manipulation (low-quality evidence).*

Recommendation 2: *…chronic low back pain, clinicians and patients should initially select nonpharmacological treatment with exercise, multidisciplinary rehabilitation, acupuncture, mindfulness-based stress reduction (moderate-quality evidence), tai chi, yoga, motor control exercise, progressive relaxation, electromyography biofeedback, low-level laser therapy, operant therapy, cognitive behavioural therapy, or spinal manipulation (low-quality evidence). (Grade: strong recommendation)*

Recommendation 3: *In patients with chronic low back pain who have had an inadequate response to nonpharmacologic therapy, clinicians and patients should consider pharmacologic treatment with nonsteroidal anti-inflammatory drugs as first-line therapy, or tramadol or duloxetine as second-line therapy. Clinicians should only consider opioids as an option in patients who have failed the aforementioned treatments and only if the potential benefits outweigh known risks and realistic benefits with patients. (Grade: weak recommendation, moderate-quality evidence)*

…… Low-cost treatments should be preferred…..!

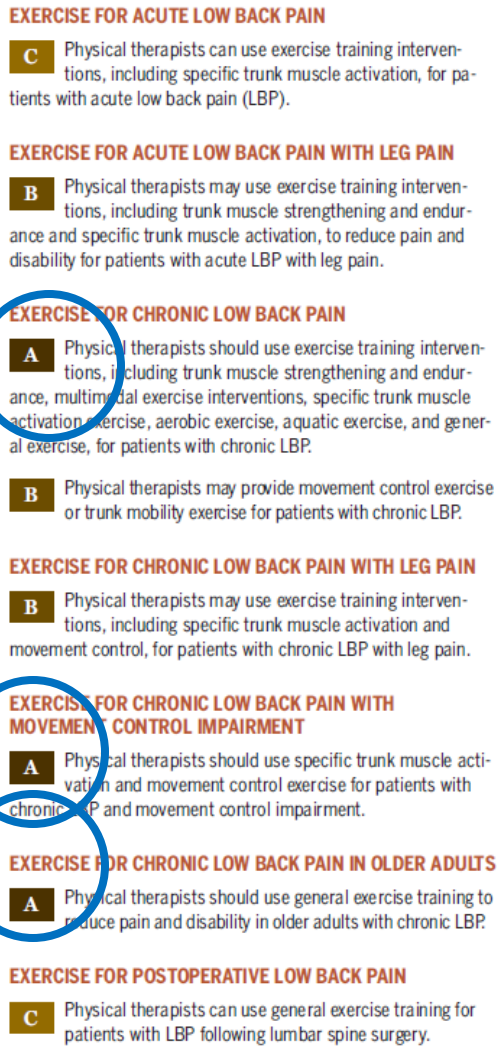
CLINICAL PRACTICE GUIDELINES

STEVEN Z. GEORGE, PT, PhD, FAPTA • JULIE M. FRITZ, PT, PhD, FAPTA • SHERI P. SILFIES, PT, PhD
MICHAEL J. SCHNEIDER, DC, PhD • JASON M. BENECIUK, DPT, PhD, MPH • TREVOR A. LENTZ, PT, PhD, MPH
JOHN R. GILLIAM, PT, DPT • STEPHANIE HENDREN, MLIS • KATHERINE S. NORMAN, DPT, MS

Interventions for the Management of Acute and Chronic Low Back Pain: Revision 2021

Clinical Practice Guidelines Linked to the International Classification of Functioning, Disability and Health From the Academy of Orthopaedic Physical Therapy of the American Physical Therapy Association

J Orthop Sports Phys Ther. 2021;51(11):CPG1-CPG60. doi:10.2519/jospt.2021.0304



EXERCISE FOR ACUTE LOW BACK PAIN

C Physical therapists can use exercise training interventions, including specific trunk muscle activation, for patients with acute low back pain (LBP).

EXERCISE FOR ACUTE LOW BACK PAIN WITH LEG PAIN

B Physical therapists may use exercise training interventions, including trunk muscle strengthening and endurance and specific trunk muscle activation, to reduce pain and disability for patients with acute LBP with leg pain.

EXERCISE FOR CHRONIC LOW BACK PAIN

A Physical therapists should use exercise training interventions, including trunk muscle strengthening and endurance, multimodal exercise interventions, specific trunk muscle activation exercise, aerobic exercise, aquatic exercise, and general exercise, for patients with chronic LBP.

B Physical therapists may provide movement control exercise or trunk mobility exercise for patients with chronic LBP.

EXERCISE FOR CHRONIC LOW BACK PAIN WITH LEG PAIN

B Physical therapists may use exercise training interventions, including specific trunk muscle activation and movement control, for patients with chronic LBP with leg pain.

EXERCISE FOR CHRONIC LOW BACK PAIN WITH MOVEMENT CONTROL IMPAIRMENT

A Physical therapists should use specific trunk muscle activation and movement control exercise for patients with chronic LBP and movement control impairment.

EXERCISE FOR CHRONIC LOW BACK PAIN IN OLDER ADULTS

A Physical therapists should use general exercise training to reduce pain and disability in older adults with chronic LBP.

EXERCISE FOR POSTOPERATIVE LOW BACK PAIN

C Physical therapists can use general exercise training for patients with LBP following lumbar spine surgery.

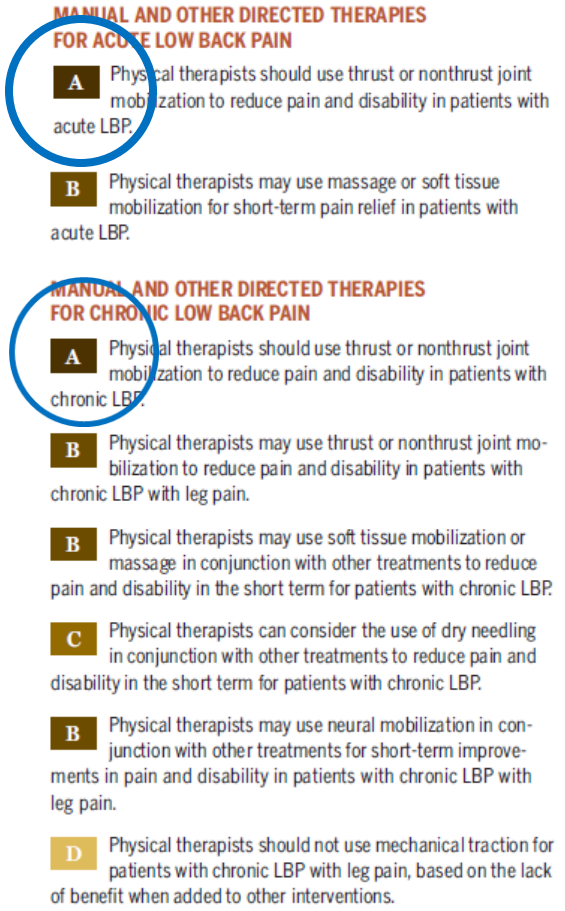
Level A Recommendation:

Exercises, exercises, exercises...

For everyone...

And also:
movement control exercises...
for those who have the problem

But also manual therapy and manipulation have
"strong recommendation"



MANUAL AND OTHER DIRECTED THERAPIES FOR ACUTE LOW BACK PAIN

A Physical therapists should use thrust or nonthrust joint mobilization to reduce pain and disability in patients with acute LBP.

B Physical therapists may use massage or soft tissue mobilization for short-term pain relief in patients with acute LBP.

MANUAL AND OTHER DIRECTED THERAPIES FOR CHRONIC LOW BACK PAIN

A Physical therapists should use thrust or nonthrust joint mobilization to reduce pain and disability in patients with chronic LBP.

B Physical therapists may use thrust or nonthrust joint mobilization to reduce pain and disability in patients with chronic LBP with leg pain.

B Physical therapists may use soft tissue mobilization or massage in conjunction with other treatments to reduce pain and disability in the short term for patients with chronic LBP.

C Physical therapists can consider the use of dry needling in conjunction with other treatments to reduce pain and disability in the short term for patients with chronic LBP.

B Physical therapists may use neural mobilization in conjunction with other treatments for short-term improvements in pain and disability in patients with chronic LBP with leg pain.

D Physical therapists should not use mechanical traction for patients with chronic LBP with leg pain, based on the lack of benefit when added to other interventions.

Cochrane Library

Cochrane Database of Systematic Reviews

Cochrane Database of Systematic Reviews 2021

Exercise therapy for chronic low back pain (Review)

Hayden JA, Ellis J, Ogilvie R, Malmivaara A, van Tulder MW

Training is more effective than...

no treatment...
usual care...
or placebo...

But not more effective than manual therapy...

We included **249 trials** of exercise treatment...

We found moderate-certainty evidence that exercise treatme**s more effective** for treatment of chronic low back pain compared to no treatment, usual care or placebo comparisons for pain outcomes at earliest follow-up

Subgroup analysis of pain outcomes suggested that exercise treatment is probably more effective than education alone or non-exercise physical therapy, but with **no differences observed for manual therapy.**

Acute and Chronic Low Back Pain: Clinical Practice Guidelines

EDUCATION FOR ACUTE LOW BACK PAIN

B Physical therapists may use active education strategies rather than passive strategies (ie, providing access to educational materials only). Active education strategies include one-on-one education on the biopsychosocial contributors to pain and self-management techniques, such as remaining active, pacing strategies, and back-protection techniques. Physical therapists may also incorporate counseling on the favorable natural history of acute LBP as part of the education strategy.

EDUCATION FOR CHRONIC LOW BACK PAIN

B Physical therapists may use standard education strategies for patients with chronic LBP, but not as a stand-alone treatment. Standard education strategies include advice related to exercise and advice about staying active.

A Physical therapists should deliver pain neuroscience education alongside other physical therapy interventions, such as exercise or manual therapy, to patients with chronic LBP.

A Physical therapists should use active treatments (ie, yoga, stretching, Pilates, and strength training) instead of stand-alone educational interventions for patients with chronic LBP.

EDUCATION FOR POSTOPERATIVE LOW BACK PAIN

B Physical therapists may use general education (ie, post-surgical precautions, exercise, and resuming physical activity) for patients with LBP following lumbar spine surgery. This recommendation applies to those undergoing discectomy or decompression surgery. No specific recommendation is provided for education for patients undergoing other surgical procedures (eg, spinal fusion) due to lack of evidence.

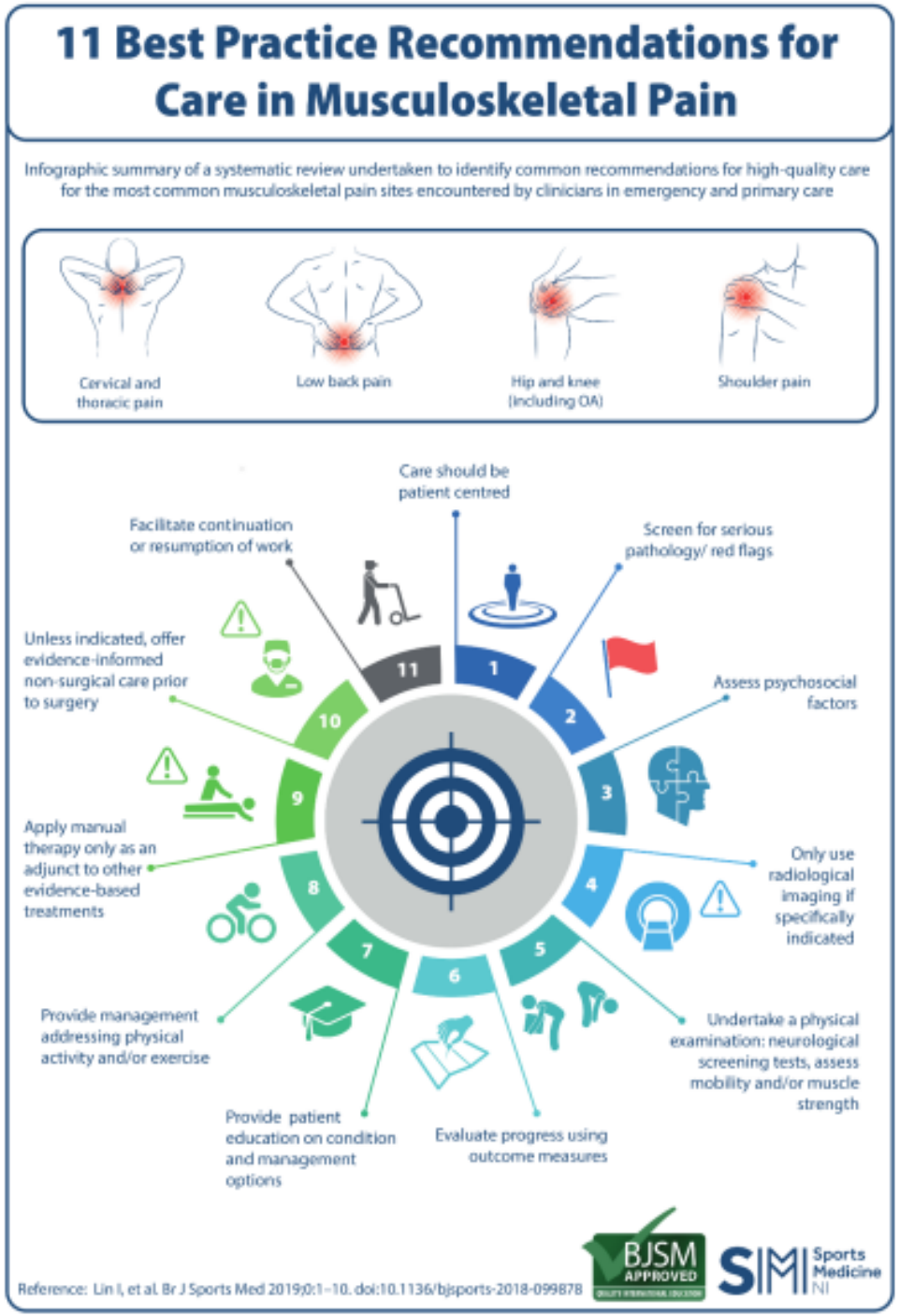
Patient education, e.g. "Explain pain"
... but only in conjunction with exercises.
Not "stand alone"

Infographics

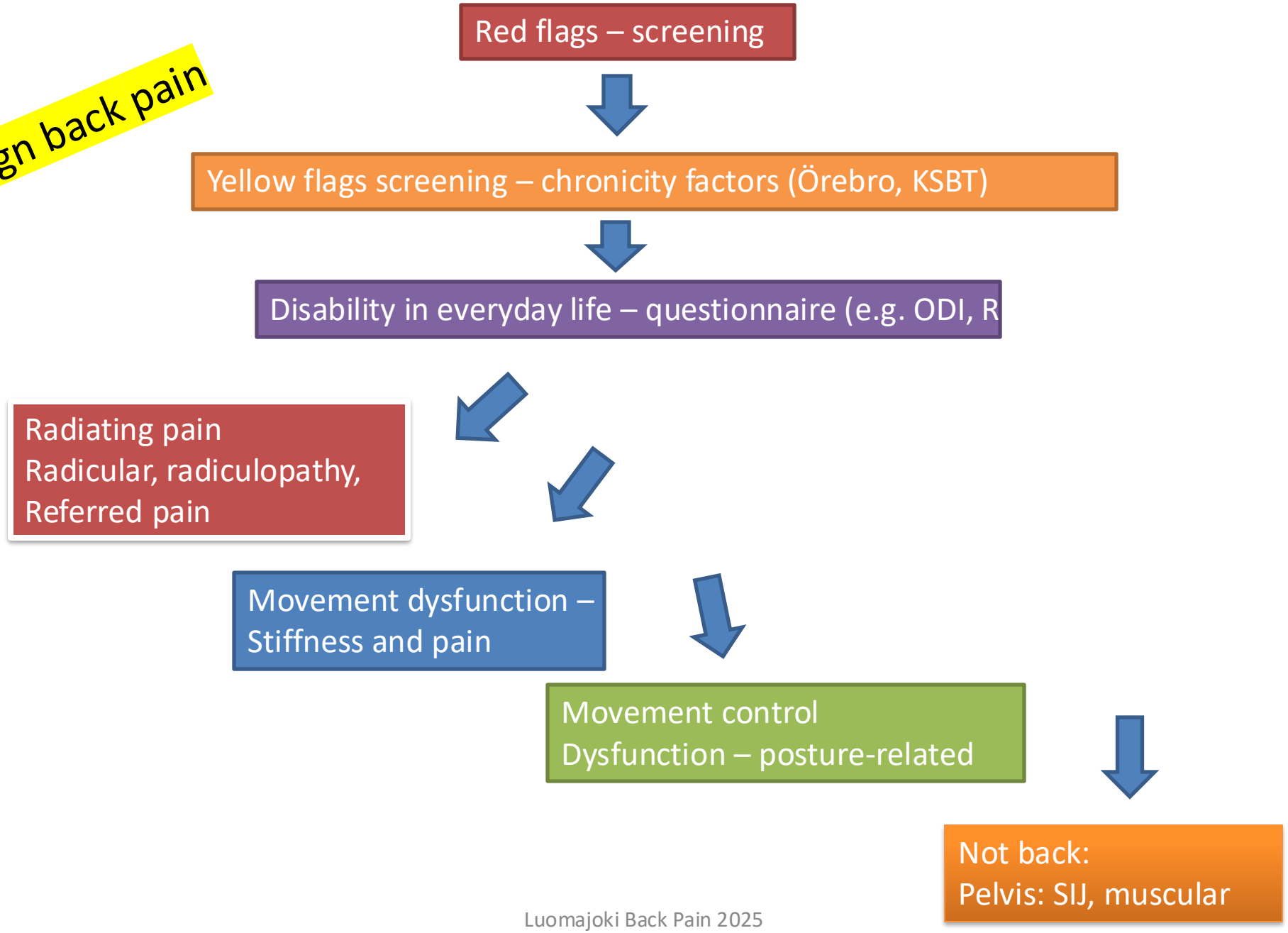
Infographic. 11 best practice recommendations for care in musculoskeletal pain

Ivan Lin,[1] Alan Rankin,[2] Louise Wiles,[3] Rob Waller,[4] Roger Goucke,[5] Yusuf Nagree,[6,7] Michael Gibberd,[8] Leon Straker,[4] Chris G Maher,[9] Peter B O'Sullivan[4]

Br J Sports Med 2019;**53**:1250.
doi:10.1136/bjsports-2019-100821



The benign back pain



Übersichtsarbeit

Rückenschmerzen

Welche Evidenz haben Prävention und Physiotherapie?

Hannu Luomajoki[1], Fabian Pfeiffer[1] und Thomas Benz[1,2,3]

Therapeutische Umschau (2023), 80(4), 175–182
https://doi.org/10.1024/0040-5930/a001432

physiopraxis
Das Fachmagazin für Physiotherapie

April 2023

Stratification

- Red flags
- Yellow flags

- Level of disability
- Disability questionnaires – ODI / RMQ

- Risk factors for chronicity

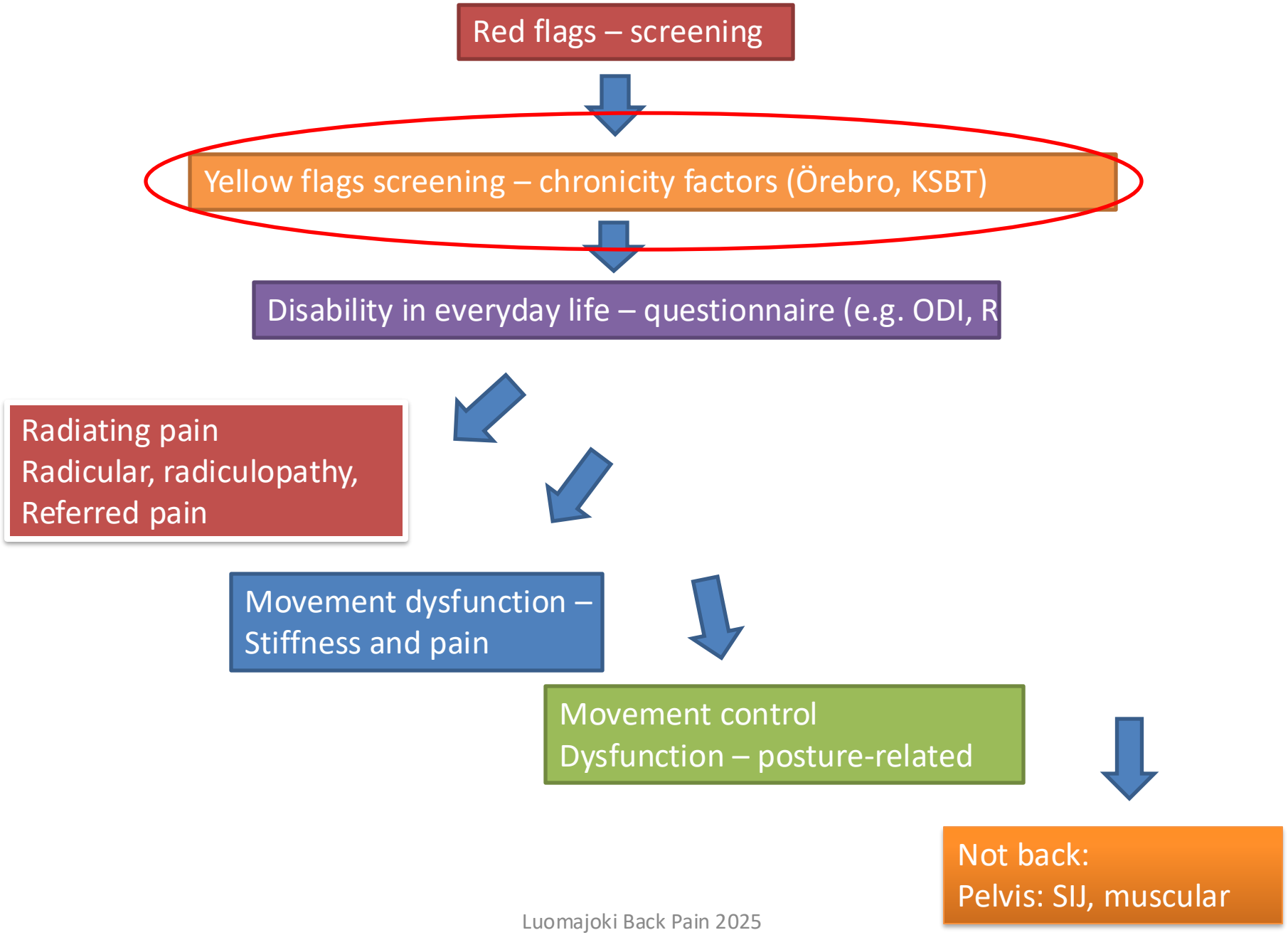
- Örebro short version
- Start back tool

Henschke et al 2009 Prevalence of and Screening for Serious Spinal Pathology in patients Presenting to Primary Care Settings With Acute Low Back Pain

ARTHRITIS & RHEUMATISM Vol. 60, No. 10, October 2009, pp 3072–3080

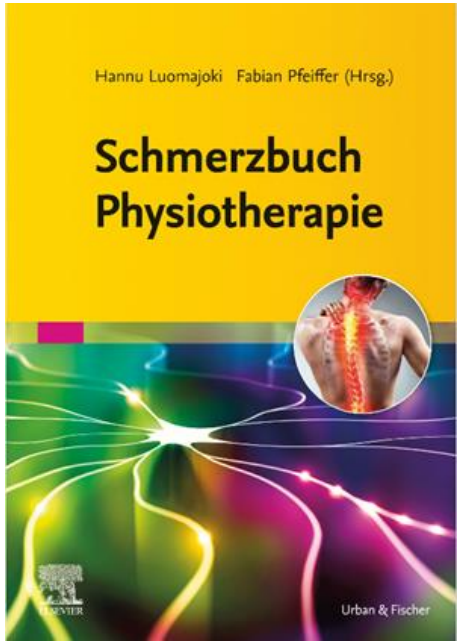
- cohort of 1,172 consecutive patients receiving primary care for acute low back pain
- primary care clinics in Sydney, Australia.

- **There were 11 cases (0.9%) of serious pathology, including 8 cases of fracture.**


Red flags – screening
Yellow flags screening – chronicity factors (Örebro, KSBT)
Disability in everyday life – questionnaire (e.g. ODI, R
Radiating pain
Radicular, radiculopathy,
Referred pain
Movement dysfunction –
Stiffness and pain
Movement control
Dysfunction – posture-related
Not back:
Pelvis: SIJ, muscular

„Words are like toothpaste…once out, it is hard to get it back…“

https://www.riikkaholopainen.fi/



DISABILITY AND REHABILITATION
https://doi.org/10.1080/09638288.2020.1861116

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

Patients' conceptions of undergoing physiotherapy for persistent low back pain delivered in Finnish primary healthcare by physiotherapists who had participated in brief training in cognitive functional therapy

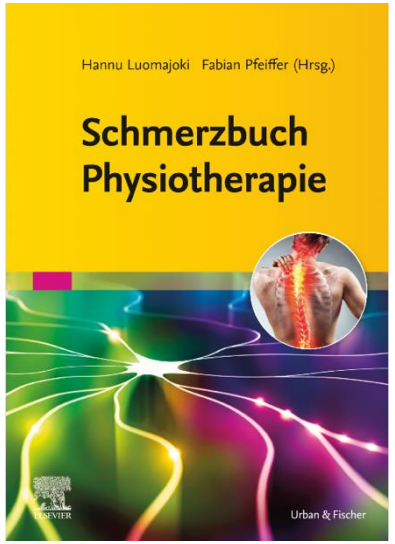
Riikka Holopainen[a], Pirjo Vuoskoski[a], Arja Piirainen[a], Jaro Karppinen[b,c,d] and Peter O'Sullivan[e,f]

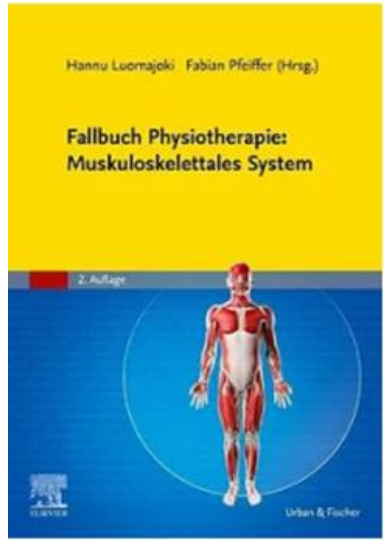
Chronic back pain patients
Feel that they are not understood

Using a biopsychosocial framework ‘is like sex among teenagers...

Everyone talks about it,no one really knows how to do it,everyone thinks everyone else is doing it,so everyone claims to be doing it.’

Dr. Fabian Pfeiffer, ZHAW





Zürcher Hochschule für Angewandte Wissenschaften
zh aw Gesundheit Institut für Physiotherapie

Start questionnaire

The Keele STarT Back Screening Tool

Name des Patienten: _____ Datum: _____

Bezüglich der **letzten 2 Wochen** beantworten Sie bitte die folgenden Fragen über Ihre Rückenschmerzen:

	Nein 0
Mein Schmerz hat während der letzten 2 Wochen zeitweise in die Beine ausgestrahlt.	☐
Zusätzlich zum Hauptschmerz hatte ich in den letzten 2 Wochen auch noch **an anderen Stellen** des Rückens Schmerzen.	☐
In den letzten 2 Wochen bin ich wegen meiner Schmerzen nur **kurze Strecken gegangen.**	☐
In den letzten 2 Wochen habe ich mich wegen meiner Schmerzen **langsamer als gewöhnlich angezogen.**	☐
Körperliche Aktivitäten sind für Menschen in meinem Zustand nicht ungefährlich. Better: eventuell gefährlich (omit the red).	☐
In den letzten 2 Wochen hatte ich viele Sorgen.	☐
Mein Schmerz ist sehr schlimm, und ich habe das Gefühl, dass er sich wahrscheinlich nie mehr bessern wird.	☐
In den letzten 2 Wochen hatte ich ganz allgemein **nicht mehr so viel Freude** an den Dingen, die mir sonst Freude bereiten.	☐

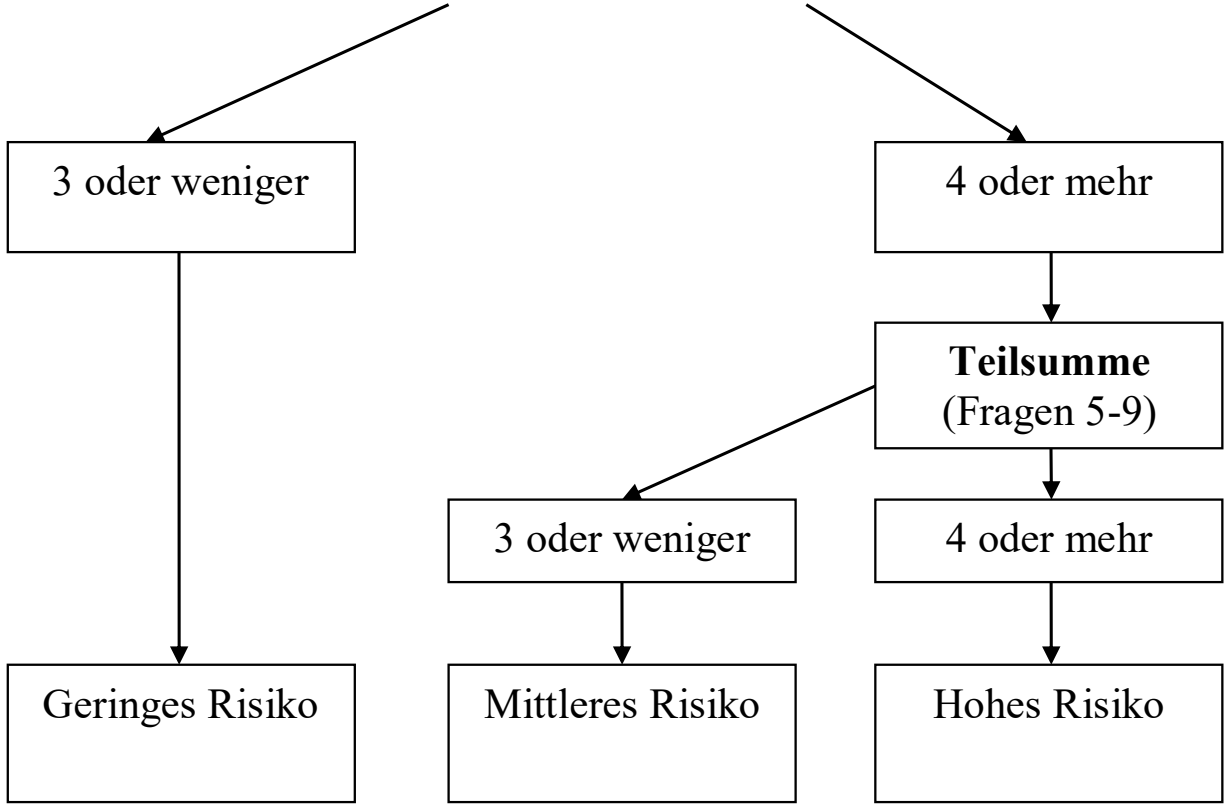
Wie **störend** war Ihr Schmerz in den letzten 2 Wochen insgesamt betrachtet?

Überhaupt nicht	Ein wenig	Mäßig	Sehr	Extrem
☐	☐	☐	☐	☐
0	0	0	1	1

Gesamtpunktzahl (alle 9): _____ **Teilsumme (Fragen 5-9):_____**

Funded by Arthritis Research UK

The STarT Tool Punktesystem



Örebro short version

1. Wo haben Sie ihre Schmerzen? (Mehrfachnennung möglich)

☐ Nacken ☐ Schultern ☐ oberer Rücken ☐ unterer Rücken ☐ Beine ☐ anderes Körperteil

2. Wie stark waren Ihre Rückenschmerzen in der letzten Woche?

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

keine Schmerzen … *stärkste vorstellbare Schmerzen*

3. Ich kann eine Stunde lang leichte Arbeit verrichten.

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

ohne Beeinträchtigung möglich … *wegen Schmerzen überhaupt nicht möglich*

4. Ich kann eine Stunde lang spazieren gehen.

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

ohne Beeinträchtigung möglich … *wegen Schmerzen überhaupt nicht möglich*

5. Ich kann meine übliche Hausarbeit erledigen.

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

ohne Beeinträchtigung möglich … *wegen Schmerzen überhaupt nicht möglich*

6. Ich kann die Einkäufe erledigen.

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

ohne Beeinträchtigung möglich … *wegen Schmerzen überhaupt nicht möglich*

7. Waren Sie in der letzten Woche traurig oder niedergeschlagen?

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

überhaupt nicht … *in extremer Weise*

8. Wie angespannt oder besorgt haben Sie sich in der letzten Woche gefühlt?

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

vollkommen ruhig und entspannt … *vollkommen angespannt und besorgt*

9. Körperliche Aktivität verstärkt meine Rückenschmerzen.

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

stimmt gar nicht … *stimmt vollkommen*

10. Zunehmende Rückenschmerzen zeigen mir, dass ich das, was ich gerade tue, unterbrechen sollte, bis der Schmerz nachlässt.

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

stimmt gar nicht … *stimmt vollkommen*

Örebro Kurzfassung © Kohlmann, Pfingsten, Schmidt, Chenot et al. 2010

1

Assessment non-mechanical issues by LBP

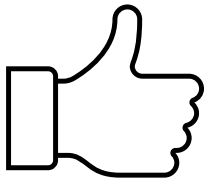
- Interview:
- What do you think yourself...?
- What do you think the problem is...?
- Are you afraid that it might be something dangerous...?
- What would need to happen for you to get well again?

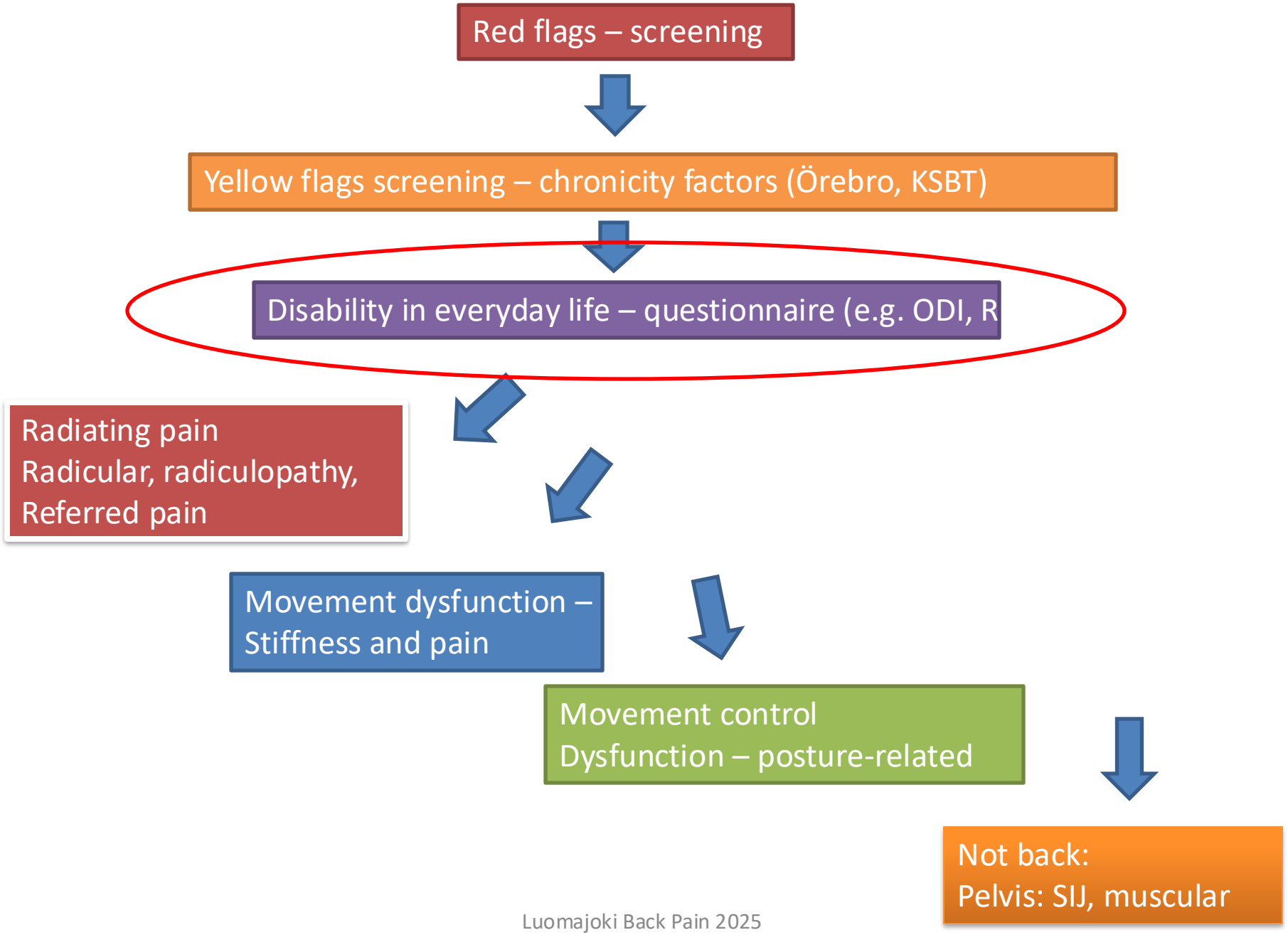
- Validated questionnaire:
- Fear Avoidance (FABQ)
- Örebro
- Pain Catastrophising (PCS)
- DETECT
- Etc.

Listening is therapy

- Responses that encourage dialogue
- Silence
- Non-verbal skills
- Active listening

Fabian Pfeiffer and
Silvia Careddu
ZHAW



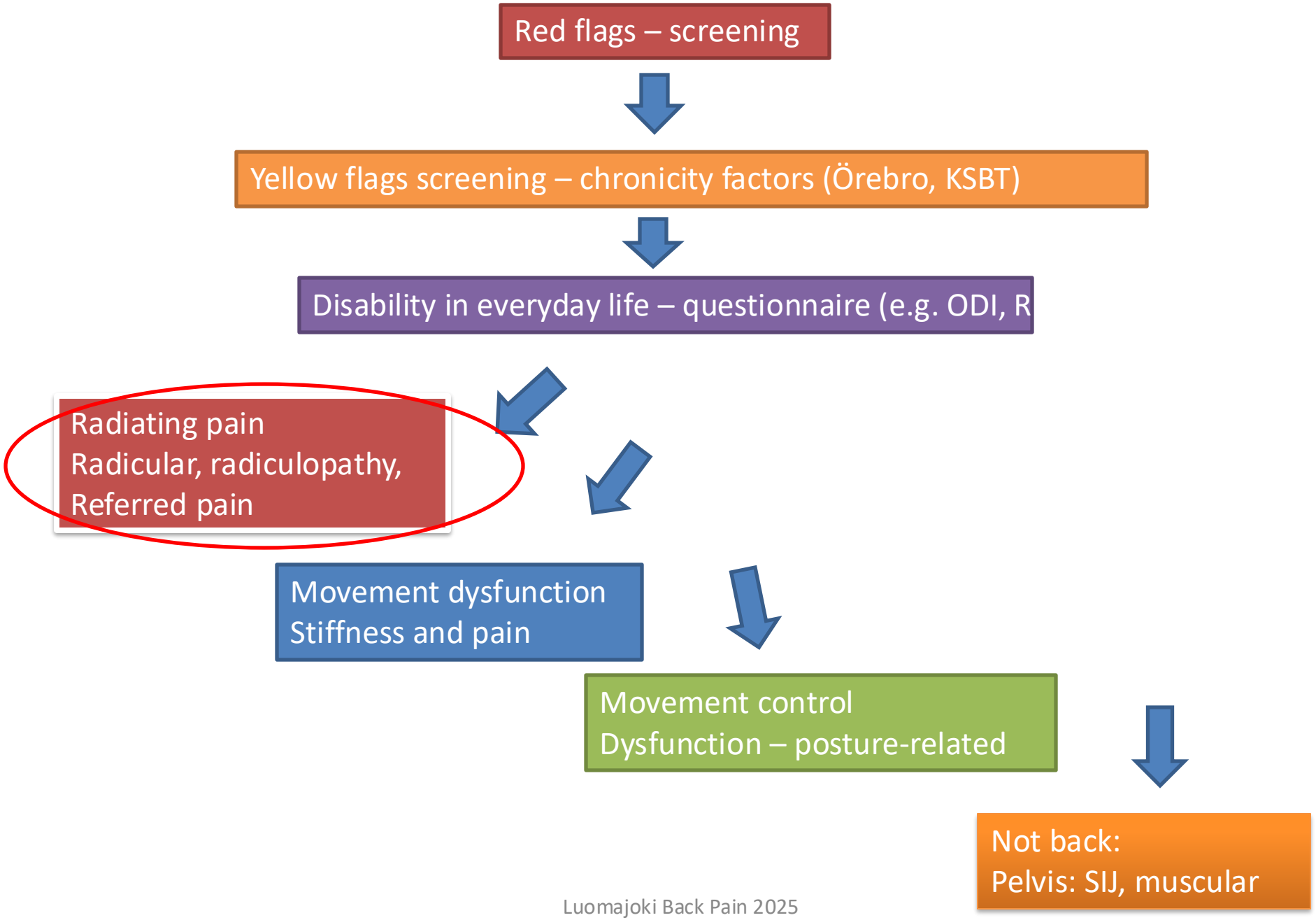

Red flags – screening
Yellow flags screening – chronicity factors (Örebro, KSBT)
Disability in everyday life – questionnaire (e.g. ODI, R
Radiating pain
Radicular, radiculopathy,
Referred pain
Movement dysfunction –
Stiffness and pain
Movement control
Dysfunction – posture-related
Not back:
Pelvis: SIJ, muscular

Roland Morris Questionnaire

How much does back pain hinder you in everyday life?

1.	Wegen meines Rückens bleibe ich die meiste Zeit zuhause.	❑0	❑1
2.	Ich ändere meine Körperhaltung häufig, um so für meinen Rücken eine bequeme Haltung zu finden.	❑0	❑1
3.	Wegen meines Rückens gehe ich langsamer als gewohnt.	❑0	❑1
4.	Wegen meines Rückens kann ich meine gewohnten Tätigkeiten zuhause nicht verrichten.	❑0	❑1
5.	Ich benutze beim Treppesteigen den Handlauf (Treppengeländer) wegen meines Rückens.	❑0	❑1
6.	Wegen meines Rückens lege ich mich vermehrt hin, um auszuruhen.	❑0	❑1
7.	Wegen meines Rückens muss ich mich beim Aufstehen aus einem Sessel an etwas festhalten.	❑0	❑1
8.	Wegen meines Rückens versuche ich, andere Personen dazu zu bringen, Dinge für mich zu tun.	❑0	❑1
9.	Wegen meines Rückens benötige ich mehr Zeit zum Ankleiden als sonst.	❑0	❑1
10.	Ich stehe jeweils nur für kurze Zeit auf wegen meines Rückens.	❑0	❑1
11.	Wegen meines Rückens vermeide ich, wenn möglich, Bücken und Niederknien.	❑0	❑1
12.	Wegen meines Rückens habe ich Mühe, mich von einem Stuhl zu erheben.	❑0	❑1
13.	Mein Rücken tut fast immer weh.	❑0	❑1
14.	Ich habe Mühe, mich wegen meines Rückens im Bett zu drehen.	❑0	❑1
15.	Mein Appetit ist wegen meines Rückens nicht sehr gut.	❑0	❑1
16.	Wegen meines Rückens habe ich Mühe, die Socken (oder Strümpfe) anzuziehen.	❑0	❑1
17.	Ich gehe nur kurze Strecken wegen meines Rückens.	❑0	❑1
18.	Ich schlafe weniger gut wegen meines Rückens.	❑0	❑1
19.	Wegen meines Rückens muss mir jemand beim Ankleiden behilflich sein.	❑0	❑1
20.	Tagsüber sitze ich die meiste Zeit wegen meines Rückens.	❑0	❑1
21.	Ich vermeide schwerere Arbeiten zuhause wegen meines Rückens.	❑0	❑1
22.	Wegen meines Rückens bin ich im Umgang mit anderen Personen schlecht gelaunt und gereizter als sonst.	❑0	❑1
23.	Wegen meines Rückens bin ich beim Treppesteigen langsamer als sonst.	❑0	❑1
24.	Ich bleibe die meiste Zeit im Bett wegen meines Rückens.	❑0	❑1

Add up scores for all 24 questions. (Total score, min=0, max = 24)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Stiffness and pain
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Dysfunction – posture-related
Not back:
Pelvis: SIJ, muscular

Eigenschaften	Fortgeleitete Schmerzen	Mechanosensitivität (Neurodynamik)	Radikulär (oder peripherer Nerv)	Radikulopathie	Sympathikus
Schmerzqualität **Ausbreitungsmuster**	→ diffus → ncihtdermatomal	→ eher im Verlauf eines Nervs/diffus	→ dermatomal → im Verlauf des Nervs	→ dermatomal	→ diffus → regional (z.B. die ganze Hand)
Zeichen/Tests	→ Provokationstests (z.B. Triggerpunkt-Palpation) → oder PA-Zusatzbewegung segmental	→ neurodynamische Tests	→ Provokationstests (z.B. Spurling Test HWS oder Ext./Latflex./Rot. LWS oder Phalen Sign bei KTS)	→ neurologische Tests, Neurodynamik, Spurling Test	→ Hauttemperatur → Schwellung → Schwitzen → Farbe
Neurologische Tests	→ negativ	→ negativ	→ negativ	→ positiv	→ negativ
Neurodynamische Tests	→ negativ	→ positiv	→ pos./neg.	→ pos./neg.	→ eher neg.
Therapieoptionen	→ nach Befund/TP-Behandlung, man. Mobilisation, Faszien-/Weichteiltechniken → aktives Training → Heimübungen	→ Interface Mobilisation → Slider Mob. → Interface Mob. unter neuraler Vorspannung → Tensioner Mob.	→ dekomprimieren, (Platz geben), Traktion, Latflex., Rot. Mobilisation, Neurodyn. Sliders	→ dekomprimieren, Platz geben, Traktion, Latflex., Rot. Mobilisation, Neurodyn. Sliders	→ BWS-Mobilisation, Entspannungs-/Atemübungen, MLD, vagale Stimulation (?)
Medikamente	→ keine spezifischen Medikamente	→ keine spezifischen Medikamente	→ nach Leidensdruck; Antikonvulsiva und Antidepressiva (Pregabalin, Gabapentin, Duloxetin etc.)	→ nach Leidensdruck; Antikonvulsiva und Antidepressiva (Pregabalin, Gabapentin, Duloxetin etc.), Lokale Kortikosteroid-Iniektionen	→ nicht nötig

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DOI: 10.1055/a-2298-9730

PDF herunterladen

Therapie

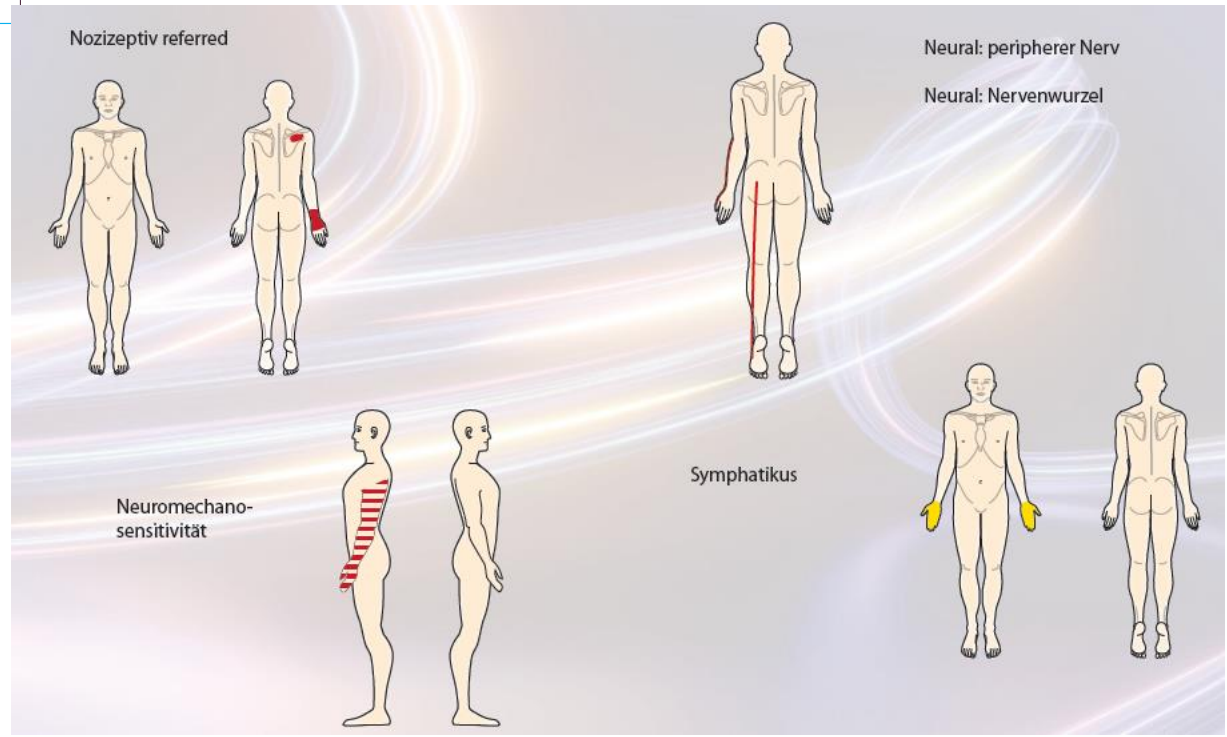
Die tatsächliche Ursache finden – Differenzierung ausstrahlender Schmerzen

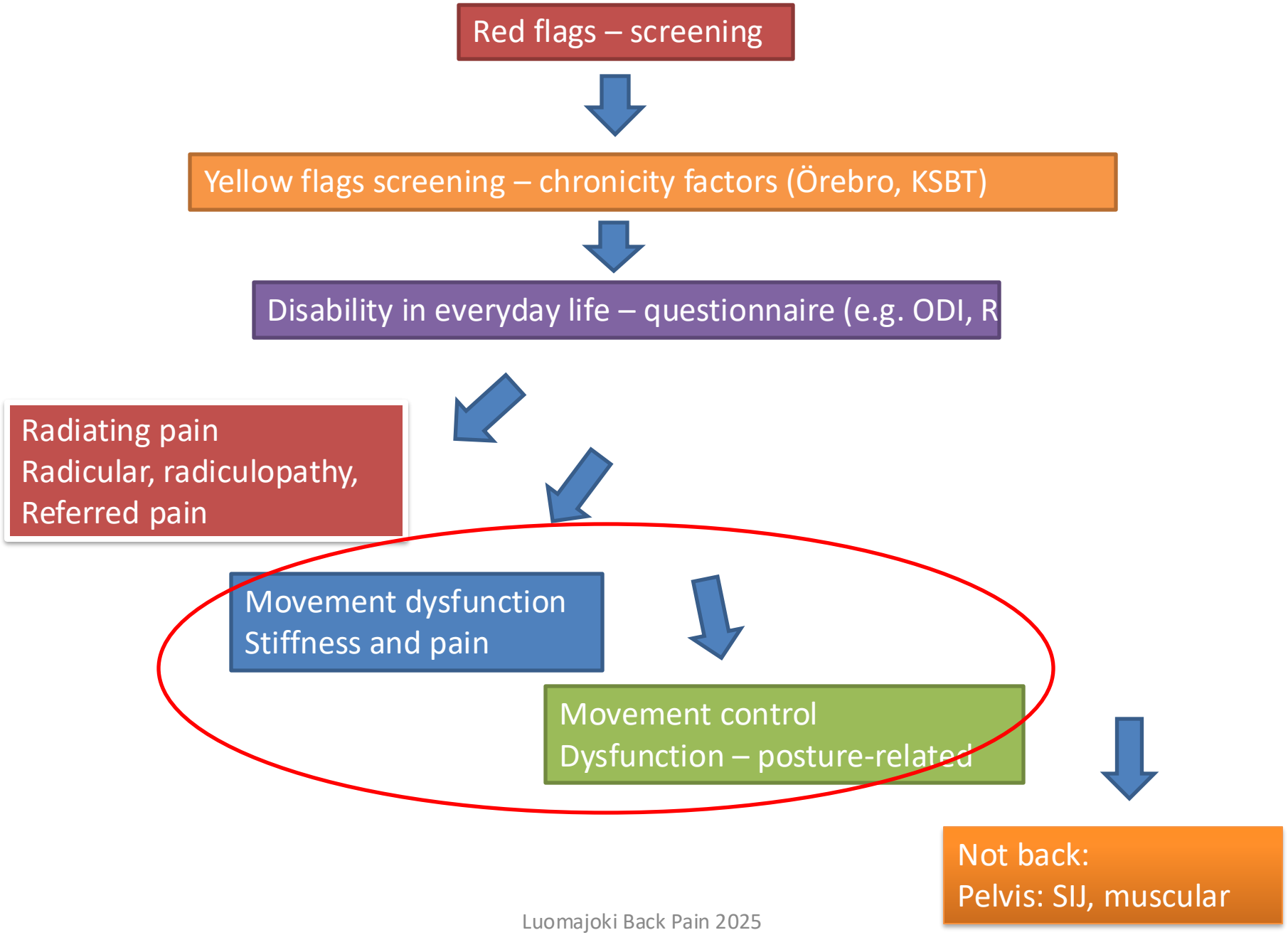
Authors

Hannu Luomajoki , Bernhard Taxer

Weitere Informationen

Auch verfügbar auf eRef Thieme physioLink

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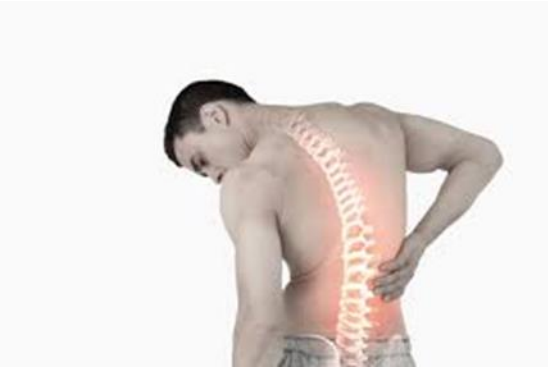
Dysfunction – posture-related
Not back:
Pelvis: SIJ, muscular

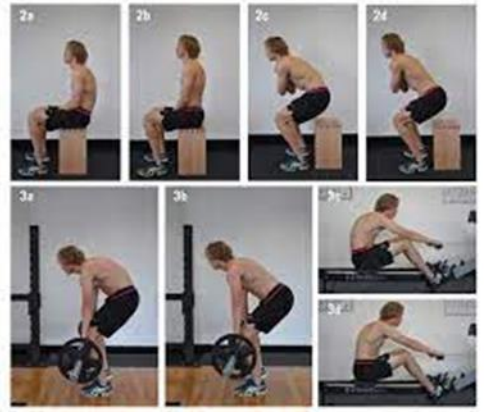
Movement dysfunction

- Limited mobility
- Stiffness
- Movement pain
- Tissue-based
- Tense muscles, fascia
- Hypomobility of the joints
- Blockages (e.g. facet or iliosacral joint
- Possible neurodynamic problem
- Pain mechanism: nociceptive, mechanical
- Acute/subacute/chronic

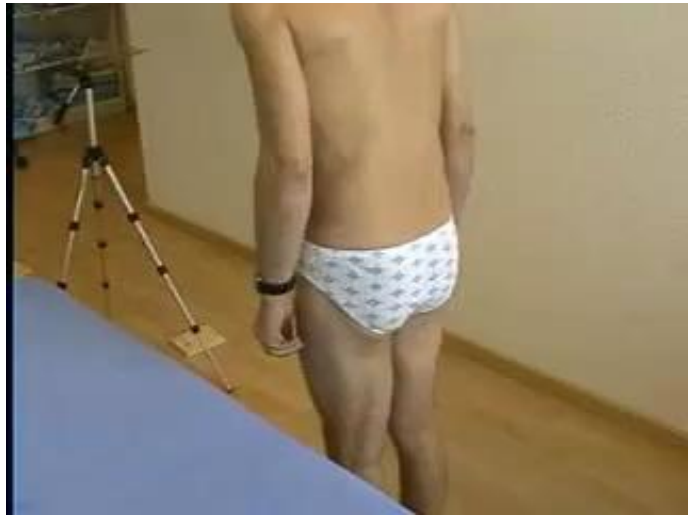


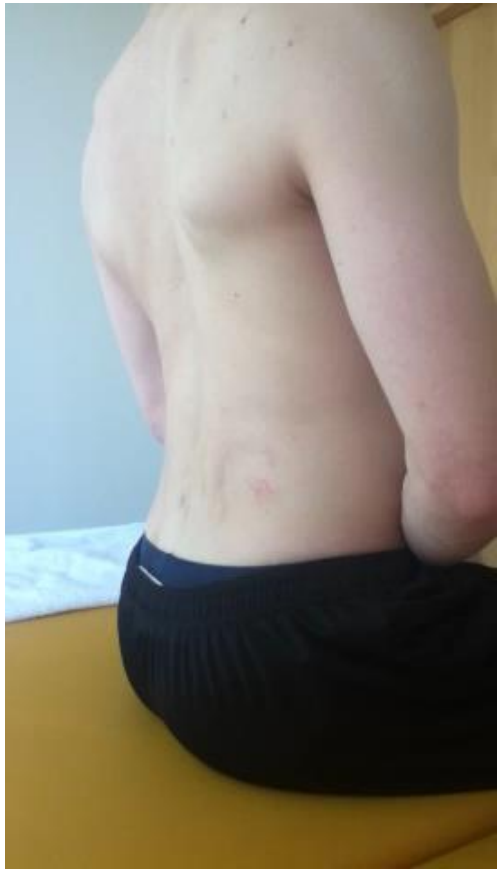
Dysfunction of movement control

- No restriction of movement
- May be hypermobility
- No movement pain; posture-dependent, e.g. sitting, standing
- Weak muscles, insufficient
- Muscular imbalance
- Pain mechanism: nociceptive ischaemia
- Almost synonymous: clinical instability, postural dysfunction, hypermobility syndrome
- Often chronic



Patient examples





BMC Musculoskeletal Disorders

BioMed Central

Research article

Open Access

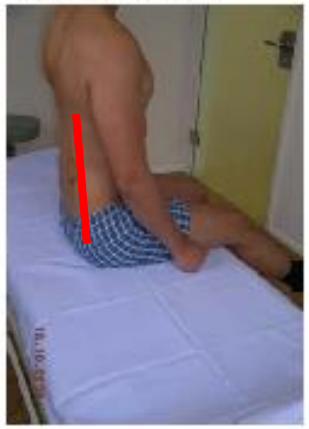
Reliability of movement control tests in the lumbar spine 2007

Hannu Luomajoki*[1,2], Jan Kool[3], Eling D de Bruin[4,5] and Olavi Airaksinen[2,6]

1. Waiter's bow

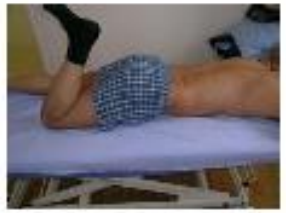
2. Pelvic tilt

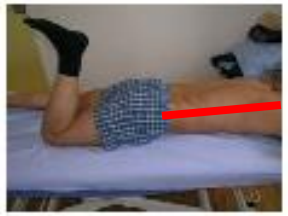
extension



4. One leg stance

5. Rocking all fours





6. Prone knee bend

Contents lists available at ScienceDirect

Manual Therapy

journal homepage: www.elsevier.com/math

Original article

A tailored exercise program versus general exercise for a subgroup of patients with low back pain and movement control impairment: A randomised controlled trial with one-year follow-up

Jeannette Saner [a, b, *], Jan Kool [a, 1], Judith M. Sieben [b, c], Hannu Luomajoki [a], Carolien H.G. Bastiaenen [b, d], Rob A. de Bie [b, d]

Many many studies...

JOSPT Journal of Orthopaedic & Sports Physical Therapy

Individualized Low-Load Motor Control Exercises and Education Versus a High- Load Lifting Exercise and Education to Improve Activity, Pain Intensity, and Physical Performance in Patients With Low Back Pain: A Randomized Controlled Trial

BJÖRN AASA, LARS BERGLUND, PETER MICHAELSON, ULRIKA AASA

volume 45 | number 2 | february 2015

- N=70 mechanical LBP
- Groups:low load motor control exercises and high load lifting exercise
- Main outcome: Patient specific functional scale (PSFS)

TABLE 2 Unadjusted Test Results of Pain Intensity, the PSFS, and Tests Included in the Physical Performance Test Battery at Baseline and at 3-Month and 12-Month Follow-ups*

BMC Musculoskeletal Disorders

Open Access

RESEARCH ARTICLE

Sub-classification based specific movement control exercises are superior to general exercise in sub-acute low back pain when both are combined with manual therapy: A randomized controlled trial

2016

- Same setting as Saner et al 2015
- 70 Pat. (drop-out rate: 12.9 %).
- Between group difference (PSFS) -1.9 Points (-3.9

ORIGINAL ARTICLE

Efficacy of classification-based cognitive functional therapy in patients with non-specific chronic low back pain: A randomized controlled trial

EJP European Journal of Pain

ODI

2013

MT n=39; CFT n=45

Baseline 23.5 (8.0); 21.6 (7.7)

3 months: 17.7 (7.3); 7.6 (6.8) = -9.2 (-11.9 to -6.5)***

15 months 19.3 (11.6); 9.5 (10.0) = -8.5 (-12.6 to -4.4)***

Musculoskeletal Science and Practice 36 (2018) 1–11

Contents lists available at ScienceDirect

Musculoskeletal Science and Practice

journal homepage: www.elsevier.com/locate/msksp

Review article

Effectiveness of movement control exercise on patients with non-specific low back pain and movement control impairment: A systematic review and meta-analysis

Hannu Antero Luomajoki[a,*], Maria Beatriz Bonet Beltran[a], Silvia Careddu[a,b], Christoph Michael Bauer[a,c]

[a] Zurich University of Applied Sciences ZHAW, School of Health Professions, Institute of Physiotherapy, Technikumstrasse 71, Postfach, 8401 Winterthur, Switzerland
[b] Physio & Sport Luzern, Bruchstrasse 11, 6003 Luzern, Switzerland
[c] University of Tampere, School of Medicine, Kalevantie 4, FI-33014, University of Tampere, Tampere, Finland

Study or Subgroup	Movement Control Exercise Mean	SD	Total	Control Intervention Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.1.1 No restriction								
Aasa et al. 2015	30	28.7	35	22	25.7	35	12.1%	0.29 [-0.18, 0.76]
Henry et al. 2014	16.4	18.1	23	16.3	13.6	16	10.2%	0.01 [-0.63, 0.64]
Jacobs et al. 2016	15	10	21	13	10	12	9.4%	0.20 [-0.52, 0.91]
Kent et al. 2015	39.5	51.8	35	54.5	41.4	37	12.2%	-0.32 [-0.78, 0.15]
Suni et al. 2006	11.9	17.4	38	18.7	19.2	42	12.4%	-0.37 [-0.81, 0.08]
Subtotal (95% CI)			**152**			**142**	**56.3%**	**-0.07 [-0.35, 0.20]**
Heterogeneity: Tau² = 0.03; Chi² = 5.63, df = 4 (P = 0.23); I² = 29%								
Test for overall effect: Z = 0.53 (P = 0.60)								
1.1.2 Restriction to MVCI								
Salamat 2017	24.5	12.1	12	29.1	15.6	12	8.4%	-0.32 [-1.12, 0.49]
Saner et al. 2015	10.2	5.3	41	13	5.5	49	12.7%	-0.51 [-0.93, -0.09]
Sheeran et al. 2013	29	11.5	25	45	14.9	24	10.5%	-1.19 [-1.80, -0.57]
Vibe Fersum et al. 2012	16	17	45	36	17	39	12.2%	-1.17 [-1.63, -0.70]
Subtotal (95% CI)			**123**			**124**	**43.7%**	**-0.82 [-1.25, -0.40]**
Heterogeneity: Tau² = 0.10; Chi² = 7.02, df = 3 (P = 0.07); I² = 57%								
Test for overall effect: Z = 3.83 (P = 0.0001)								
Total (95% CI)			**275**			**266**	**100.0%**	**-0.39 [-0.73, -0.04]**
Heterogeneity: Tau² = 0.20; Chi² = 29.70, df = 8 (P = 0.0002); I² = 73%								
Test for overall effect: Z = 2.22 (P = 0.03)								
Test for subgroup differences: Chi² = 8.44, df = 1 (P = 0.004), I² = 88.2%								

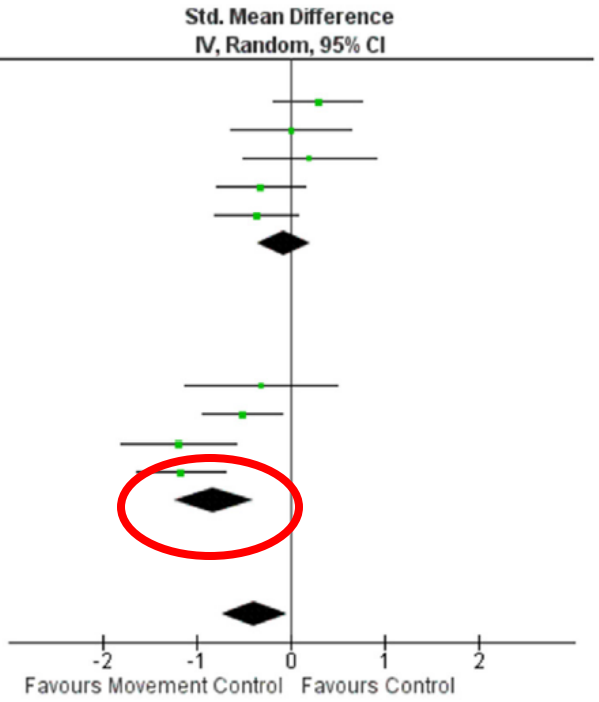
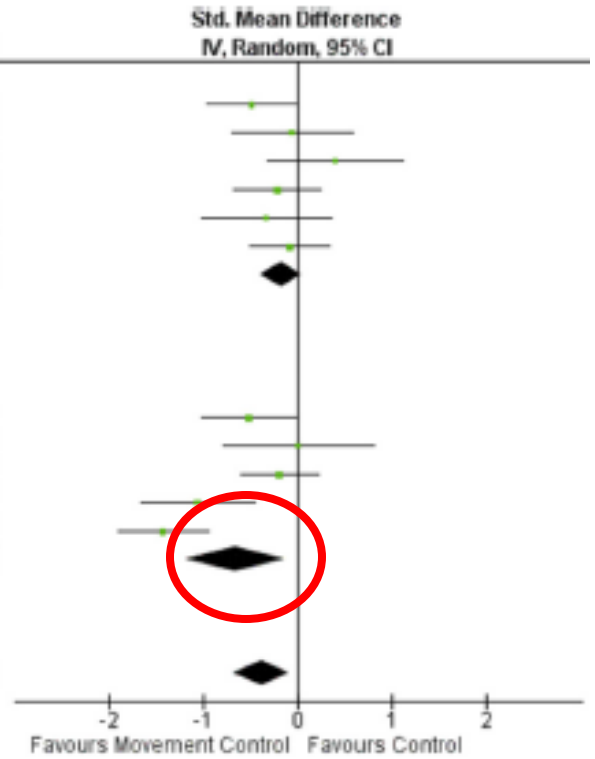


Fig. 2. Effects of MVCE intervention on pain intensity at the end of treatment, with or without sub-classification.

Disability by 3 months follow up

Meta-analyse

Study or Subgroup	Movement Control Exercise Mean	SD	Total	Control Intervention Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.1.1 No Restriction								
Aasa et al. 2015	22	18.1	35	32	22.6	35	10.0%	-0.48 [-0.96, -0.01]
Henry et al. 2014	12.8	10.6	23	13.4	8.3	16	8.3%	-0.06 [-0.70, 0.58]
Jacobs et al. 2016	11	6.8	21	8.4	5.7	12	7.5%	0.39 [-0.32, 1.11]
Kent et al. 2015	40.1	58.6	35	53.7	68	37	10.1%	-0.21 [-0.68, 0.25]
Leo Ng 2016	5	16.7	18	10.8	17.9	15	7.8%	-0.33 [-1.02, 0.36]
Suni et al. 2006	4.7	3.9	39	5	3.3	45	10.5%	-0.08 [-0.51, 0.35]
Subtotal (95% CI)			**171**			**160**	**54.2%**	**-0.17 [-0.39, 0.05]**
Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 4.55$, df = 5 (P = 0.47); $I^2 = 0\%$								
Test for overall effect: Z = 1.56 (P = 0.12)								
3.1.2 Restriction to MVCI								
Lehtola et al. 2016	9.3	6.7	31	13.9	10.6	33	9.8%	-0.51 [-1.01, -0.01]
Salamat 2017	16.4	8.8	12	16.3	11.1	12	6.8%	0.01 [-0.79, 0.81]
Saner et al. 2015	18.9	15.6	41	22	16	49	10.7%	-0.19 [-0.61, 0.22]
Sheeran et al. 2013	12.1	7.4	25	28.8	20.8	24	8.7%	-1.06 [-1.66, -0.46]
Vibe Fersum et al. 2012	7.6	6.8	45	17.7	7.3	39	9.9%	-1.42 [-1.90, -0.94]
Subtotal (95% CI)			**154**			**157**	**45.8%**	**-0.66 [-1.18, -0.13]**
Heterogeneity: $Tau^2 = 0.28$; $Chi^2 = 19.18$, df = 4 (P = 0.0007); $I^2 = 79\%$								
Test for overall effect: Z = 2.44 (P = 0.01)								
Total (95% CI)			**325**			**317**	**100.0%**	**-0.38 [-0.68, -0.09]**
Heterogeneity: $Tau^2 = 0.17$; $Chi^2 = 32.75$, df = 10 (P = 0.0003); $I^2 = 69\%$								
Test for overall effect: Z = 2.54 (P = 0.01)								
Test for subgroup differences: $Chi^2 = 2.76$, df = 1 (P = 0.10), $I^2 = 63.8\%$								



EXERCISE FOR ACUTE LOW BACK PAIN

C Physical therapists can use exercise training interventions, including specific trunk muscle activation, for patients with acute low back pain (LBP).

EXERCISE FOR ACUTE LOW BACK PAIN WITH LEG PAIN

B Physical therapists may use exercise training interventions, including trunk muscle strengthening and endurance and specific trunk muscle activation, to reduce pain and disability for patients with acute LBP with leg pain.

EXERCISE FOR CHRONIC LOW BACK PAIN

A Physical therapists should use exercise training interventions, including trunk muscle strengthening and endurance, multimodal exercise interventions, specific trunk muscle activation exercise, aerobic exercise, aquatic exercise, and general exercise, for patients with chronic LBP.

B Physical therapists may provide movement control exercise or trunk mobility exercise for patients with chronic LBP.

EXERCISE FOR CHRONIC LOW BACK PAIN WITH LEG PAIN

B Physical therapists may use exercise training interventions, including specific trunk muscle activation and movement control for patients with chronic LBP with leg pain.

EXERCISE FOR CHRONIC LOW BACK PAIN WITH MOVEMENT CONTROL IMPAIRMENT

A Physical therapists should use specific trunk muscle activation and movement control exercise for patients with chronic LBP and movement control impairment.

EXERCISE FOR CHRONIC LOW BACK PAIN IN OLDER ADULTS

A Physical therapists should use general exercise training to reduce pain and disability in older adults with chronic LBP.

EXERCISE FOR POSTOPERATIVE LOW BACK PAIN

C Physical therapists can use general exercise training for patients with LBP following lumbar spine surgery.

CLINICAL PRACTICE GUIDELINES

STEVEN Z. GEORGE, PT, PhD, FAPTA • JULIE M. FRITZ, PT, PhD, FAPTA • SHERI P. SILFIES, PT, PhD
MICHAEL J. SCHNEIDER, DC, PhD • JASON M. BENECIUK, DPT, PhD, MPH • TREVOR A. LENTZ, PT, PhD, MPH
JOHN R. GILLIAM, PT, DPT • STEPHANIE HENDREN, MLIS • KATHERINE S. NORMAN, DPT, MS

Interventions for the Management of Acute and Chronic Low Back Pain: Revision 2021

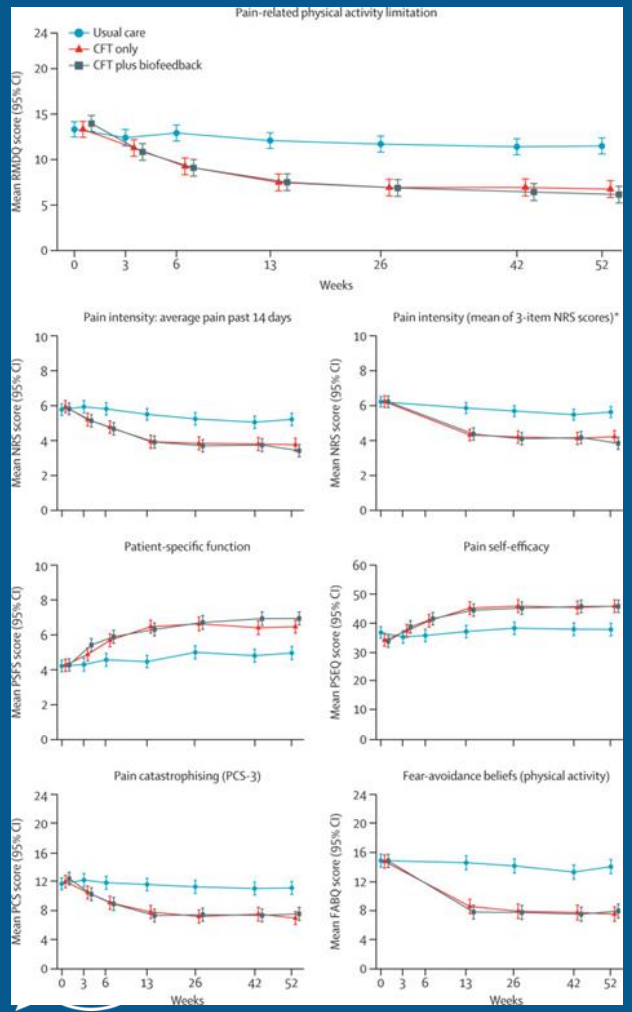
Clinical Practice Guidelines Linked to the International Classification of Functioning, Disability and Health From the Academy of Orthopaedic Physical Therapy of the American Physical Therapy Association

J Orthop Sports Phys Ther. 2021;51(11):CPG1-CPG60. doi:10.2519/jospt.2021.0304

LOOKING AHEAD…

Cognitive functional therapy with or without movement sensor biofeedback versus usual care for chronic, disabling low back pain (RESTORE): a randomised, controlled, three-arm, parallel group, phase 3, clinical trial

*Peter Kent, Terry Haines, Peter O'Sullivan, Anne Smith, Amity Campbell, Robert Schutze, Stephanie Attwell, J P Caneiro, Robert Laird, Kieran O'Sullivan, Alison McGregor, Jan Hartvigsen, Den-Ching A Lee, Alistair Vickery, Mark Hancock on behalf of the RESTORE trial team**

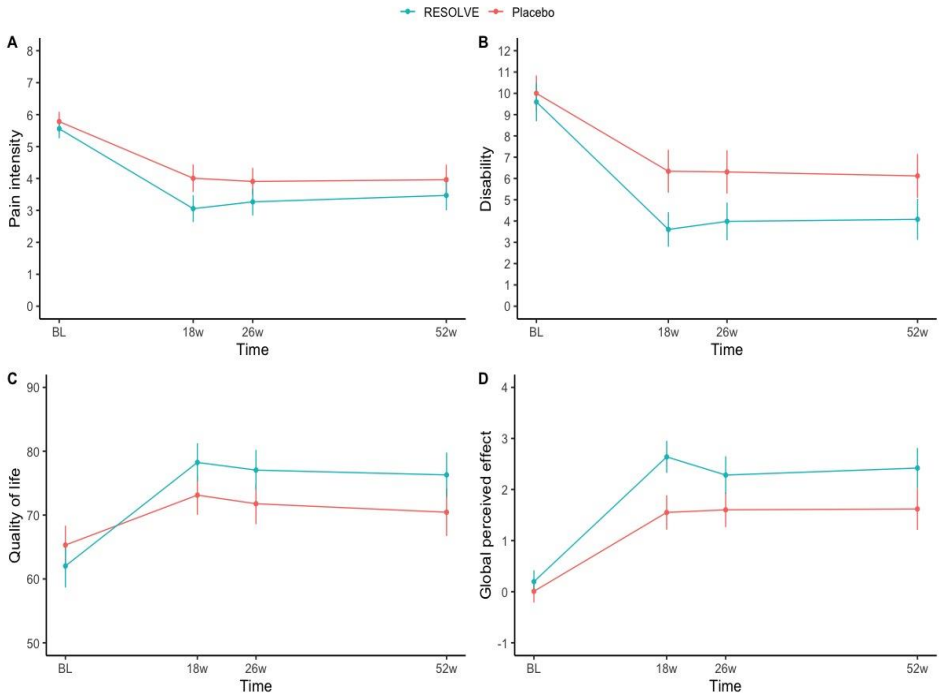


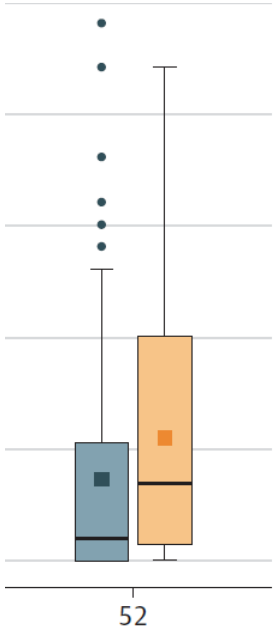
JAMA | Original Investigation

Effect of Graded Sensorimotor Retraining on Pain Intensity in Patients With Chronic Low Back Pain
A Randomized Clinical Trial

Matthew K. Bagg, PhD; Benedict M. Wand, PhD; Aidan G. Cashin, PhD; Hopin Lee, PhD; Markus Hübscher, PhD; Tasha R. Stanton, PhD; Neil E. O'Connell, PhD; Edel T. O'Hagan, MSc; Rodrigo R. N. Rizzo, MSc; Michael A. Wewege, MSc; Martin Rabey, PhD; Stephen Goodall, PhD; Sopany Saing, MPH; Serigne N. Lo, PhD; Hannu Luomajoki, PhD; Robert D. Herbert, PhD; Chris G. Maher, DMedSc; G. Lorimer Moseley, PhD; James H. McAuley, PhD

Lorimer Moseley



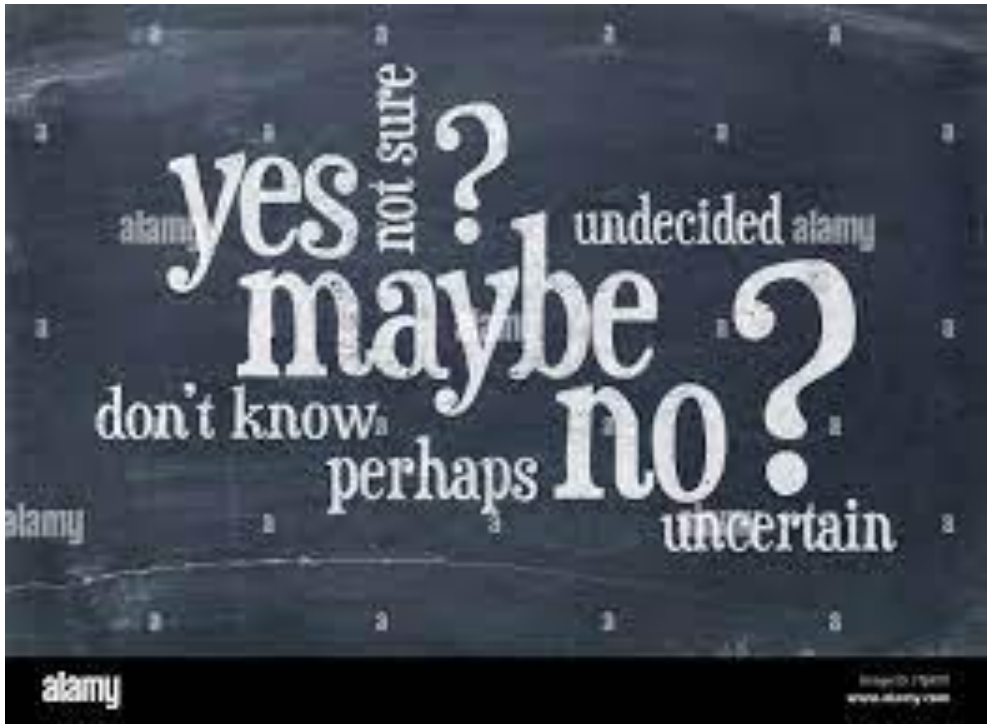


- Negative / dysfunctional thoughts
- Fear
- Catastrofisation

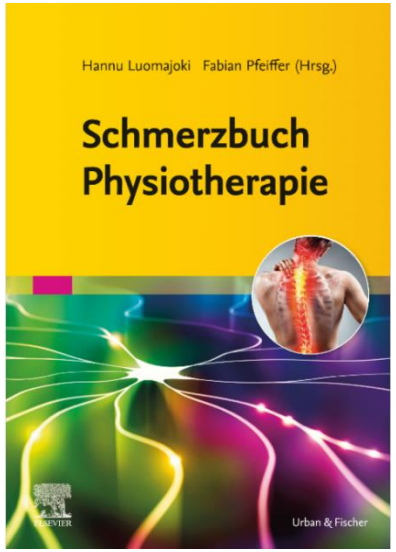
- Self efficacy
- Getting better

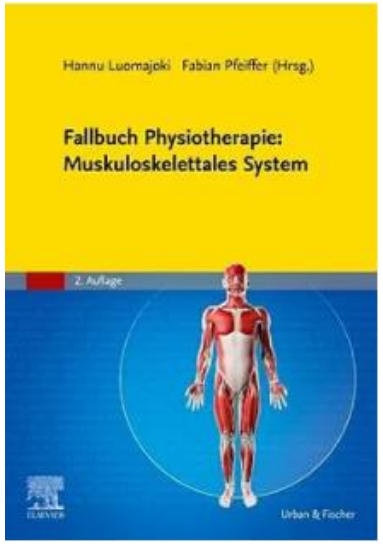
Key takeaways

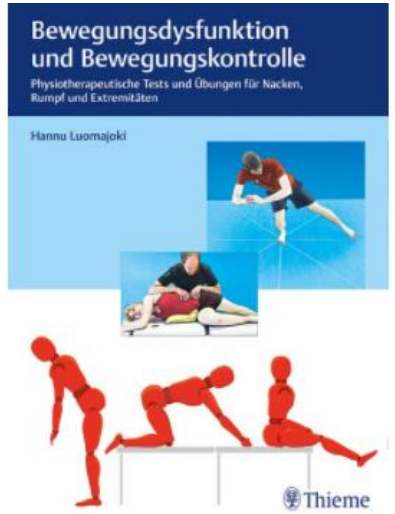
- Back pain costs more than anything else in the healthcare system = we don't have the problem under control
- Conventional medical approaches are of little use (imaging; medication; injections; surgery)
- We need to classify patients clinically: red flags, yellow flags; degree of disability (questionnaire); form subgroups – treat/manage subgroups specifically
- Should be possible?



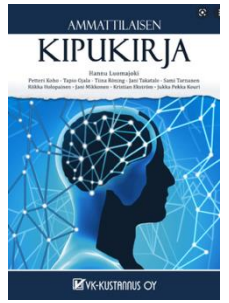
Books by Hannu

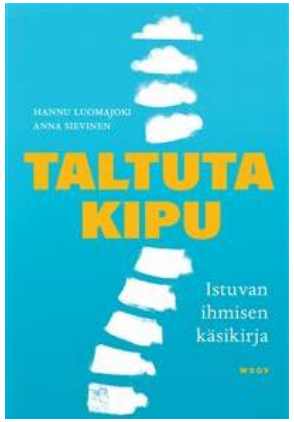






Hannu.luomajoki@icloud.com





Thank you for your attention!