En dag i smertens tegn

Morten Høgh, PhD MSc SpecPT

Kolding Kommune | Sundhed og Træning | 11. december 2023

Program

08.00-08.30 Kaffe

08.30-10.00 Undervisning: Hvad er smerte?

10.00-10.15 Kaffe

10.15-12.00 Undervisning: Nociception, sensibilisering og descenderende modulation

12.00-12.45 **Frokost**

12.45-14.00 Undervisning: Behandlingseffekter og placebo/nocebo effekter

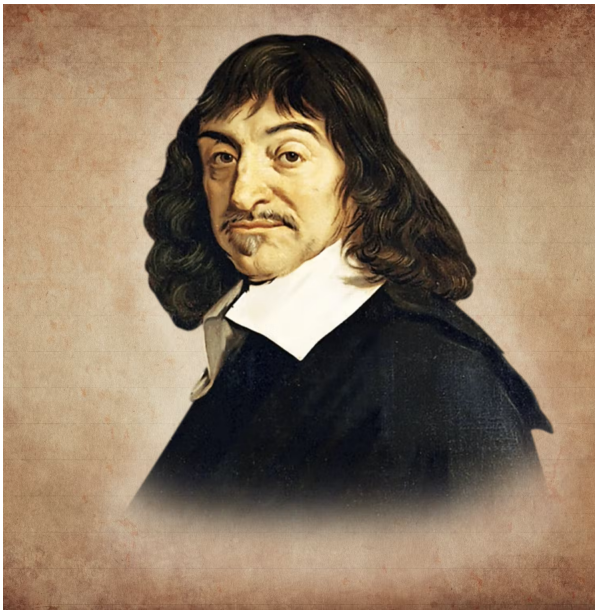
14.00-14.15 Kaffe/kage

14.15-**15.30** Undervisning: Praktiske råd til håndtering af mennesker med kroniske smerter

Hvad er smerte?

René Descartes

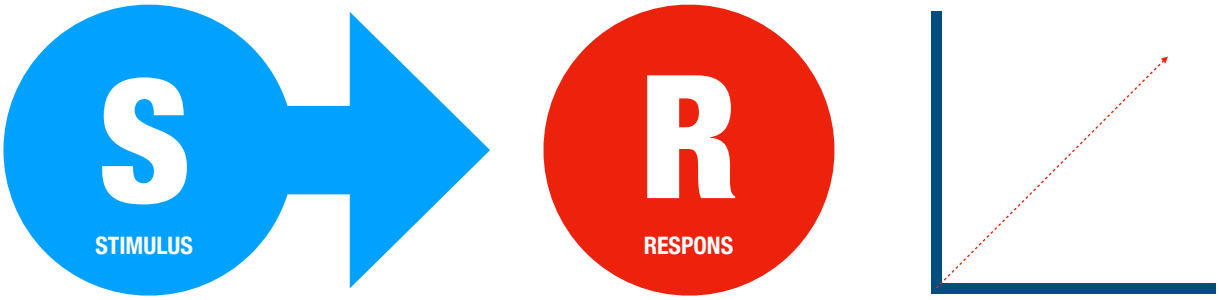
“Krop/psyke Dualisme”



Giovanni Battista Morgani

“Patologi”

Lineære årsagssammenhænge



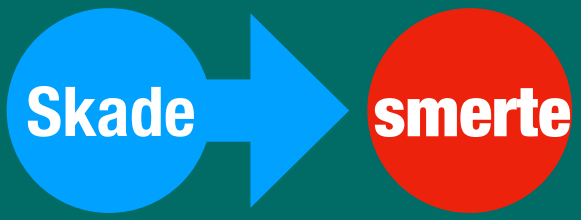
Er du enig i følgende:

- Jeg bliver sulten hvis jeg mangler kalorier
- Jeg bliver tørstig hvis jeg mangler blod/væske i kroppen
- Det gør ondt at få en skade, fx et brækket ben

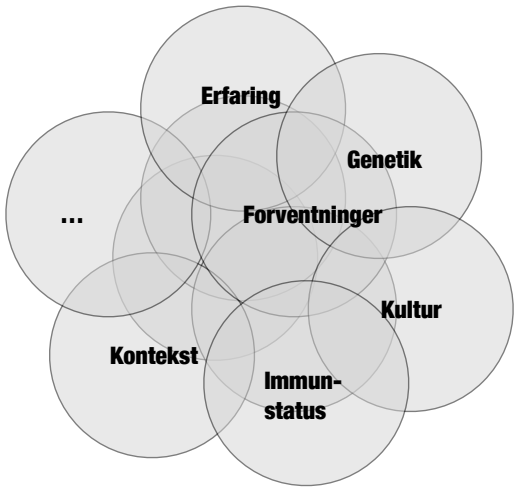
Er du stadig enig?

- Hvis jeg er sulten, er det **fordi** mangler jeg kalorier
- Hvis jeg er tørstig, er det **fordi** mangler jeg blod/væske i kroppen
- Hvis jeg har ondt, er det **fordi** jeg er skadet

Vi **oplever smerte** sådan her:

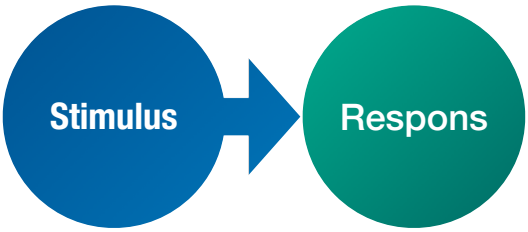


Men vi forstår **årsagen** til smerte sådan her:



Smerteteorier: **De simple**

- **Biomekaniske forklaringer**
  - "Korrekt holdning" og ergonomi
  - "Optimale bevægelser", motor control og "stabilitet"
  - Load-isme
- **Patofysiologiske forklaringer**
  - Muskelsmerte, ledsmerte, tendinopati etc.
- **Psyksomatiske forklaringer**
  - Fear-of-pain, katastrofetanker, kultur etc.
- **Neurocentriske forklaringer**
  - Central sensitization-pain, pro-nociceptiv fænotype, pain-matrix etc.



Smerte kan være et tegn på skade

- men alt, der gør ondt, er ikke nødvendigvis en skade!

Eksempler på gener

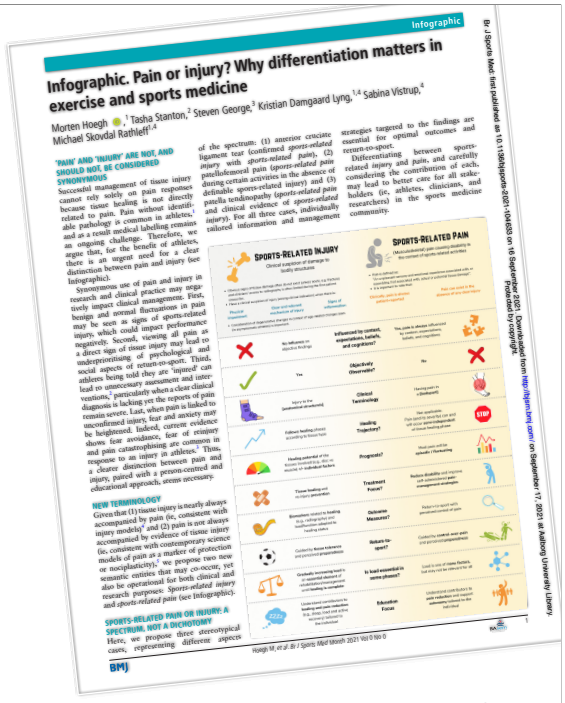
uden kendt eller entydig årsag

- Lænderygsmerter
- Spændingshovedpine
- Nakkesmerter
- Tennisalbue
- Musearm
- Nakkespændinger
- Triggerpunkter
- Løberknæ
- Springerknæ
- Afklemningssyndrom (impingement)

Akutte smerter

Smerter som går væk igen?

- Føles som alle andre smerter
- Påvirker også patientens humør, livskvalitet, søvn etc.
- Skyldes måske en patologi, men ligeså ofte er den uspecifik (måske oftere?)
- Behov for mere præcise definitioner på (idræts)skade og smerte



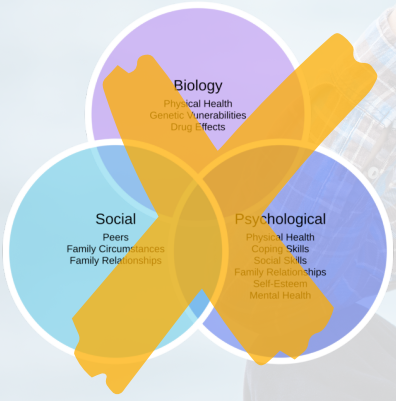
Infographic. Pain or injury? Why differentiation matters in exercise and sports medicine

Morten Hoegh, Tasha Stanton, Steven George, Kristian Damgaard Lyng, Sabina Vistrup, Michael Skovdal Rathleff

Hoegh et al. BJSM 2021

Adapted from: Engel GL. The need for a new medical model: a challenge for biomedicine. Science. 1977 Apr 8;196(4286):129-36

Smerteteorier: **De komplekse**

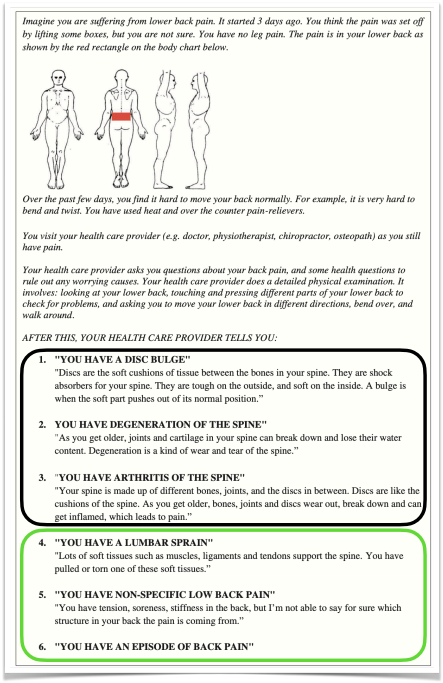


Det betyder noget hvad vi “kalder det”

Behov for skanning

Behov for kirurgi

Noget alvorligt galt med mig



Imagine you are suffering from lower back pain. It started 3 days ago. You think the pain was set off by lifting some boxes, but you are not sure. You have no leg pain. The pain is in your lower back as shown by the red rectangle on the body chart below.

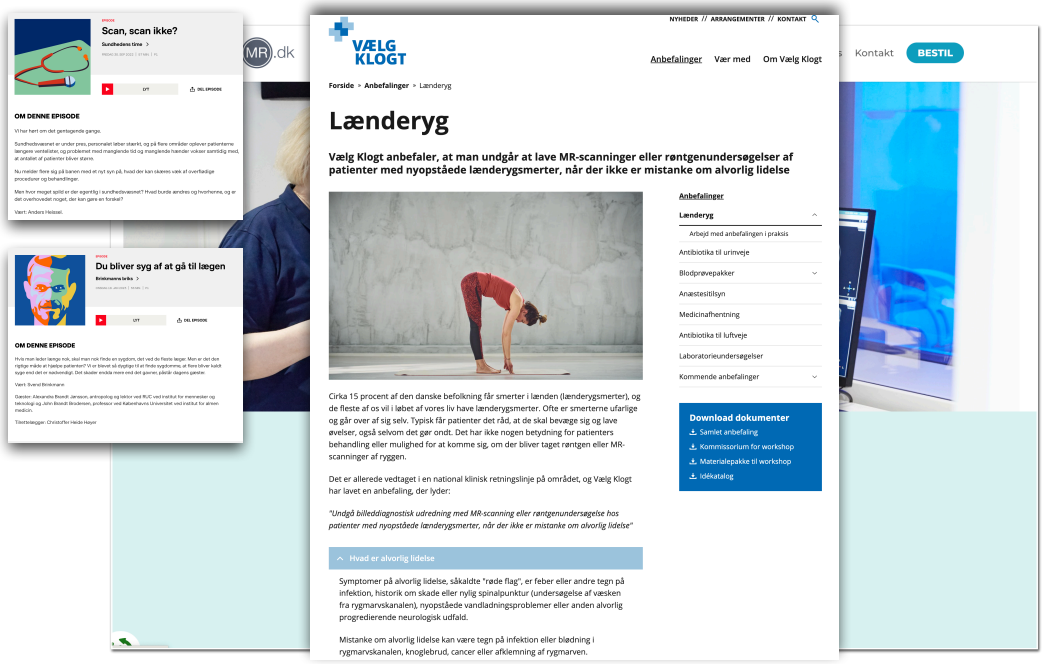
Over the past few days, you find it hard to move your back normally. For example, it is very hard to bend and twist. You have used heat and over the counter pain-relievers.

You visit your health care provider (e.g. doctor, physiotherapist, chiropractor, osteopath) as you still have pain.

Your health care provider asks you questions about your back pain, and some health questions to rule out any worrying causes. Your health care provider does a detailed physical examination. It involves: looking at your lower back, touching and pressing different parts of your lower back to check for problems, and asking you to move your lower back in different directions, bend over, and walk around.

AFTER THIS, YOUR HEALTH CARE PROVIDER TELLS YOU:

1. **"YOU HAVE A DISC BULGE"**
   "Discs are the soft cushions of tissue between the bones in your spine. They are shock absorbers for your spine. They are tough on the outside, and soft on the inside. A bulge is when the soft part pushes out of its normal position."
2. **YOU HAVE DEGENERATION OF THE SPINE"**
   "As you get older, joints and cartilage in your spine can break down and lose their water content. Degeneration is a kind of wear and tear of the spine."
3. **"YOU HAVE ARTHRITIS OF THE SPINE"**
   "Your spine is made up of different bones, joints, and the discs in between. Discs are like the cushions of the spine. As you get older, bones, joints and discs wear out, break down and can get inflamed, which leads to pain."
4. **"YOU HAVE A LUMBAR SPRAIN"**
   "Lots of soft tissues such as muscles, ligaments and tendons support the spine. You have pulled or torn one of these soft tissues."
5. **"YOU HAVE NON-SPECIFIC LOW BACK PAIN"**
   "You have tension, soreness, stiffness in the back, but I'm not able to say for sure which structure in your back the pain is coming from."
6. **"YOU HAVE AN EPISODE OF BACK PAIN"**



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DENMARK

Billeddiagnostik

"*Imaging findings of spine* ***degeneration are present in high proportions of asymptomatic individuals****, increasing with age. Many imaging-based degenerative features are likely* ***part of normal aging and unassociated with pain****. These imaging findings* ***must be interpreted in the context of*** *the patient's* ***clinical condition****."*

Brinjikji et al. AJNR Am J Neuroradiol 36:811–16 Apr 2015

"*High-quality evidence was found for the longitudinal association between* ***low back pain (LBP) intensity****, and both* ***disc space narrowing and osteophytes****, as well as for the association between* ***LBP-related physical functioning*** *and* ***lumbar disc degeneration,*** *the presence of* ***spinal morning stiffness and disc space narrowing****"*

Chamoro et al. Osteoarthritis and Cartilage 31 (2023) 1158–1175

Iatrogene konsekvenser af tidlig MRi for LBP

RESEARCH Open Access

The association between early MRI and length of disability in acute lower back pain: a systematic review and narrative synthesis

Bara A. Shraim[1], Muath A. Shraim[2], Ayman R. Ibrahim[1], Mohamed E. Elgamal[1], Basem Al-Omari[3,4] and Mujahed Shraim[5*]

Abstract

Background: Clinical guideline recommendations are against early magnetic resonance imaging (eMRI) within the first 4 to 6 weeks of conservative management of acute low back pain (LBP) without "clinical suspicion" of serious underlying conditions (red flags). There is some limited evidence that a significant proportion of patients with LBP receive eMRI non- indicated by clinical guidelines, which could be associated with increased length of disability (LOD). The aim of this systematic review was to investigate whether eMRI for acute LBP without red flags is associated with increased LOD. The LOD was defined as the number of disability days (absence from work).

Methods: Medline, EMBASE, and CINAHL bibliographic databases were searched from inception until June 5, 2021. Two reviewers independently assessed the methodological quality of included studies using the Newcastle–Ottawa scale and extracted data for the review. The search identified 324 records, in which seven studies met the inclusion criteria. Three of the included studies used the same study population. Owing to between-study heterogeneity, a narrative synthesis of results was used.

Results: All included studies were of good methodological quality and consistently reported that patients with acute LBP without red flags who received eMRI had increased LOD compared to those who did not receive eMRI. Three retrospective cohort studies reported that the eMRI groups had a higher mean LOD than the no eMRI groups ranging from 9.4 days (95% CI 8.5, 10.2) to 13.7 days (95% CI 13.0, 14.5) at the end of 1-year follow-up period. The remaining studies reported that the eMRI groups had a higher hazard ratio of work disability ranging between 1.75 (95% CI 1.23, 2.50) and 3.57 (95% CI 2.33, 5.56) as compared to the no eMRI groups.

Conclusion: eMRI is associated with increased LOD in patients with acute LBP without red flags. Identifying reasons for performing non-indicated eMRI and addressing them with quality improvement interventions may improve adherence to clinical guidelines and improve disability outcomes among patients with LBP.

Keywords: Systematic review, Magnetic resonance imaging, Low back pain, Sick leave, Work disability, Return to work

Shraim et al. BMC Musculoskeletal Disorders (2021) 22:983

Kan scanninger have iatrogene konsekvenser?

- 5% er korrekt indikerede (306 MSK-MRIs)
  - Men alle patienter oplevede forsinkelse I deres forløb pga skanningen.
- 16% fik relevant terapi *før* skanningen
- 1% af skanningerne ledte til ændring I behandlingen
  - Men mange patienter, som fik skanning, oplevede en sammenhæng mellem deres smerter og platoanatomi (typisk alder eller slid).
- 65% fik 'low-value care' (ineffektiv, skadelig eller unødvendig behandling) efter MR-skanningen pga. fejldiagnoser eller overdiagnoser.

Table 1 Expected age or activity related epidemiological findings in musculoskeletal MRI

Body part	Prevalence
Neck	Up to 87% of asymptomatic individuals may have bulging discs,[107] with 58% of younger, asymptomatic athletes showing cervical disc degeneration.[108]
Shoulder	60% of asymptomatic older adults show subacromial bursitis on MRI and around half have rotator cuff tears,[109 110] whilst up to 72% of middle-aged individuals have asymptomatic superior labral tears.[111] In younger, asymptomatic athletes, 65% can have rotator cuff tears and 88% rotator cuff tendinosis.[112] 52% of pre-teen athletes demonstrate asymptomatic activity-related 'abnormal' shoulder MRIs.[113] With the exception of large rotator cuff tears, systematic review suggests little-to-no correlation between shoulder imaging findings and shoulder symptoms.[28 114]
Low back	At age 60, 88% of asymptomatic adults will have disc degeneration, 70% will show disc bulges, 50% will show facet degeneration and 23% spondylolisthesis.[115] Lumbar stenosis is seen in upto 20% of those under the age of 40.[116] Moderate or severe spinal stenosis is seen in up to 64% of those in their 50s and 93% in those in their 80s. The majority are asymptomatic, as only 17.5% of those with severe central stenosis may have symptoms.[117] In younger, asymptomatic adolescent sports players, up to 85% may show MRI changes including disc bulges, facet arthropathy as well as pars lesions.[118] Even 22% of asymptomatic children can show disc degeneration on MRI.[119]
Hip	Labral tears are seen in up to 69% of asymptomatic adults,[120] or even 89% of asymptomatic athletes[121] and labral cysts in 50% of dancers.[122] Acetabular dysplasia is seen in around 15% of asymptomatic people, with bilaterality in up to 39.5% of cases.[123 124] Cartilage defects may be seen in 12% of asymptomatic individuals.[125]
Knee	The majority of people with meniscal tears have no recent symptoms.[126] Meniscal tears are seen in around a third of middle-aged asymptomatic individuals, where 97% of knees will show incidental 'abnormalities', including bucket-handle tears.[127] Above the age of 40, MRI shows osteoarthritis features in up to 43% of asymptomatic individuals[128]
Ankle and Foot	Tibial stress fractures have been seen in 41% of asymptomatic runners.[129] In ankle MRI of asymptomatic amateur marathon runners, up to 80% may show tendon changes, 48% ligament injuries and 27% achilles tendinopathy.[130] Up to 37% of people may have incidental 'abnormal' anterior talofibular ligaments.[131 132] Achilles tendon changes may be seen in up to 63% of asymptomatic individuals, and retrocalcaneal bursal changes in 68% of runners.[133] Morton Neuroma's is present in 26%–33% of asymptomatic individuals.[134 135]

Saji IM, et al. Unintended consequences: quantifying the benefits, iatrogenic harms and downstream cascade costs of musculoskeletal MRI in UK **primary care**. BMJ Open Quality 2021;**10**:e001287.

Følger "vi" guidelines?

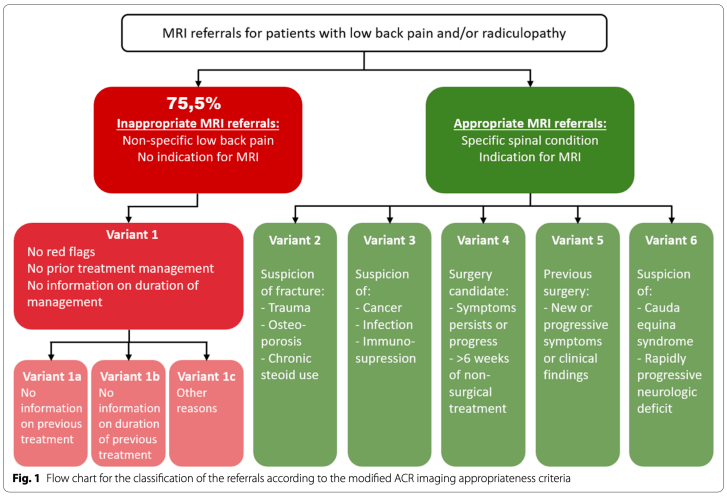


Fig. 1 Flow chart for the classification of the referrals according to the modified ACR imaging appropriateness criteria

Krogh et al. Chiropractic & Manual Therapies (2022) 30:9

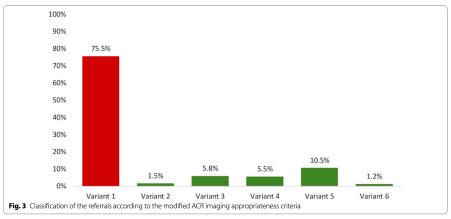


Fig. 3 Classification of the referrals according to the modified ACR imaging appropriateness criteria

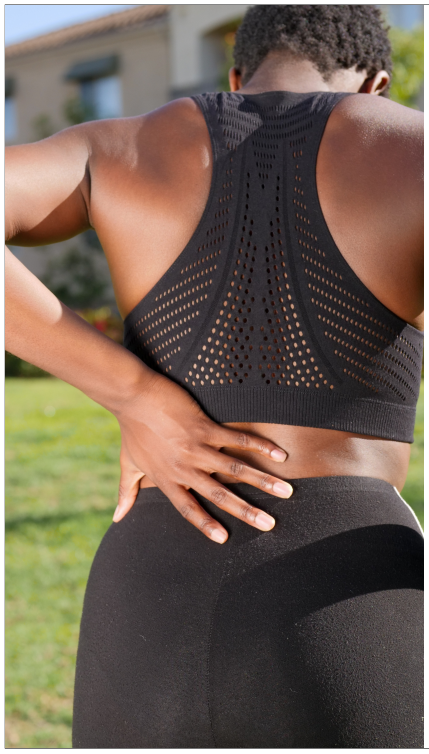
Barriers to following guidelines for MRi

- Vi **tror skanninger er nødvendige** for at
  - *Imødekomme patienten*
  - *Berolige patienten*
- Der er **ikke nok tid** til at forklare og retfærdiggøre ikke-skanning
- **Bekymring** om at overse relevant patologi
- **Ikke klar over** hvilke konservative metoder, der findes (ud over medicin)
- **Ikke tilstrækkelig adgang** til konservativ behandling (fx uddannelse, træning og manuel terapi)

Hall, A.M.. et al. BMJ 2021;372:n291

What you need to know

- Less than 5-10% of all low back pain is due to a specific underlying spinal pathology
- The remaining 90-95% has no indication of a serious cause and should be managed with conservative treatments such as advice and reassurance, exercise, physical therapy, chiropractic care, cognitive-behavioural therapy, or pain management
- Diagnostic triage based on clinical history and examination can help distinguish between non-specific or more serious low back pain
- Imaging may do more harm than good when serious conditions are not suspected and is likely to prolong recovery in patients with non-specific low back pain
- Patients' primary concerns of whether their pain is caused by something serious and what they should do to aid recovery can be addressed by sound education and reassurance, without the need for imaging



Hvad fejler man egentligt når man har

ONDT I RYGGEN?!?

Tal på rygsmerter

2022 Sygdomsbyrden i Danmark, Sygdomme

- **2.354 ekstra dødsfald** blandt personer i alderen 30 år eller derover
- **80.573 ekstra** antal akutte somatiske **indlæggelser** svarende
- **784.868 ekstra** antal planlagte somatiske ambulante **hospitals-kontakter**
- **2.907.486 ekstra sygedage**
- **4.154 ekstra** personer med nytilkendt **førtidspension** svarende til **38,1%**
- **21.011,7 mio. i ekstra omkostninger til tabt produktion** på grund af fravær fra arbejdsmarkedet og tidlig død.

AALBORG UNIVERSITY
DENMARK

Ny og forældet model

DET ER KOMPLEKST

95% skyldes ukendte årsager

(Næsen) al behandling hjælper lidt

Det rammer de fleste af os - men vi påvirkes ikke ens

"God behandling leder til et funktionelt liv"

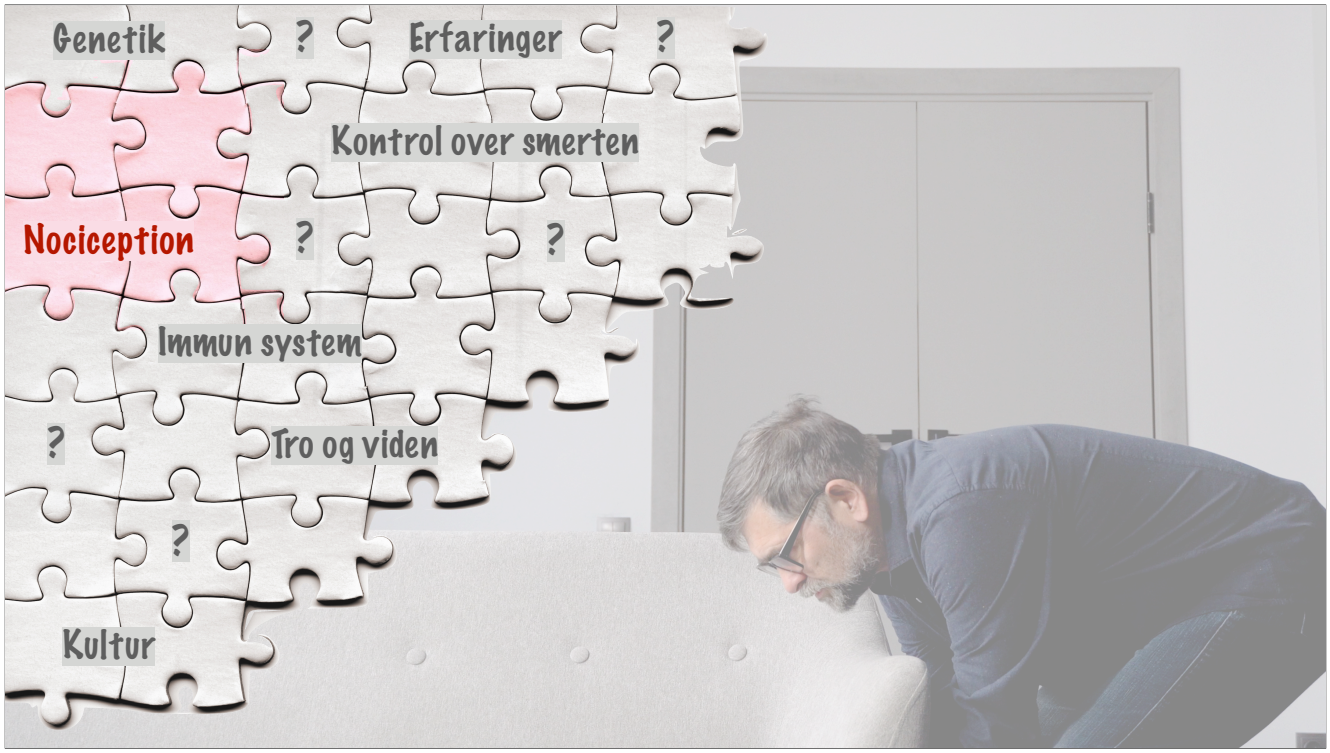
≠

DER ER NOGET GALT I RYGGEN

(eller i psyken)

Smerten er et symptom, fx på slid, svaghed, guddommelig straf eller skader som endnu ikke er fundet

"God behandling helbreder smerterne"



Ondt i ryggen skyldes ikke…

slid, spændte muskler, gamle prolapser, låsninger og stramme organer!

- Mange undersøgelser (fx skanninger) er **unødvendige** og kan have skadelige virkninger
  - *fx flere sygedage, øget risiko for tab af arbejdsevne, bivirkninger og død*
- Selve **målet for behandling** af langvarige rygsmerter (+3 måneder) er *ikke* nødvendigvis smertereduktion, men
  - *Fastholdelse af og hurtig tilbagevenden til arbejde*
  - *Tilbagevenden til normale sociale og fysiske aktiviteter*
  - *Hjælp til at mestre tilbagefald og opblussen af smerterne*
- Rygsmerter *skyldes* **ikke dårlige siddestillinger eller forkert/tunge løft** - men de kan forværres midlertidig af dem
  - Men der er *ngen generel effekt af ergonomi*
- Rygsmerter mærkes af borgeren, men **skal løses i fællesskab** mellem borger, arbejdsplads, kommune og sundhedsvæsen

Vores **syn på smerte** er **afgørende for** hvilke **løsninger** vi søger!

A

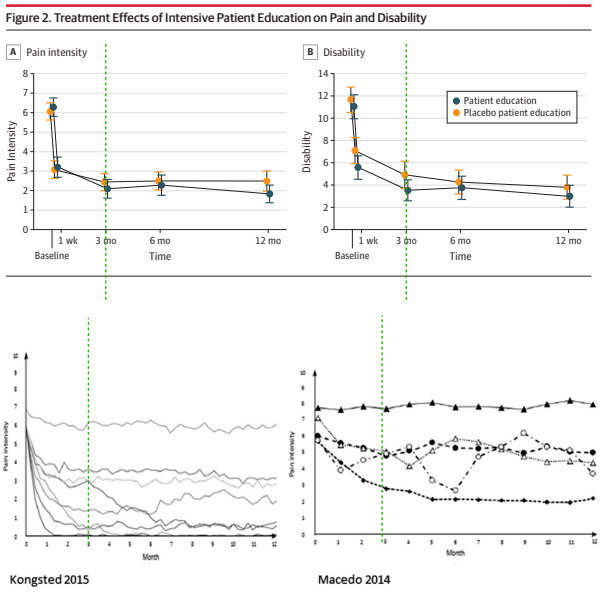
Eksperterne ved bedst; de kan finde fejlen

- *Diagnosen stilles af en ekspert*
- *Diagnosen leder til en logisk og effektiv behandling*
- *Borgen har ingen kompetence, og deres holdninger er partsindlæg uden faglig relevans*

B

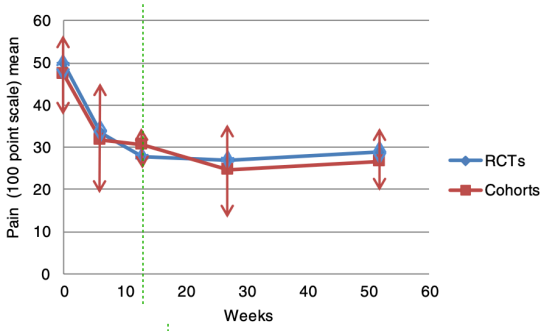
Borgeren spiller en hovedrolle

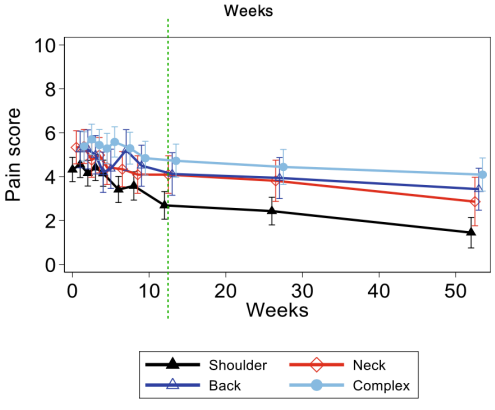
- *Eksperterne kan udelukke alvorlig sygdom og skade*
- *Borgeren er ekspert i hvad smerterne betyder*
- *God sagsbehandling støtter borgeren i at bevare egne kompetencer gennem fx rådgivning*



Kongsted 2015

Macedo 2014





Kongsted et al. BMC Musculoskeletal Disorders (2016) 17:220
Traeger AC, et al. JAMA Neurol. 2019 Feb 1;76(2)
Aasdahl L, BMC Musculoskelet Disord. 2021 May 19;22(1):455
Artus M, BMC Musculoskelet Disord. 2014 Mar 7;15:68

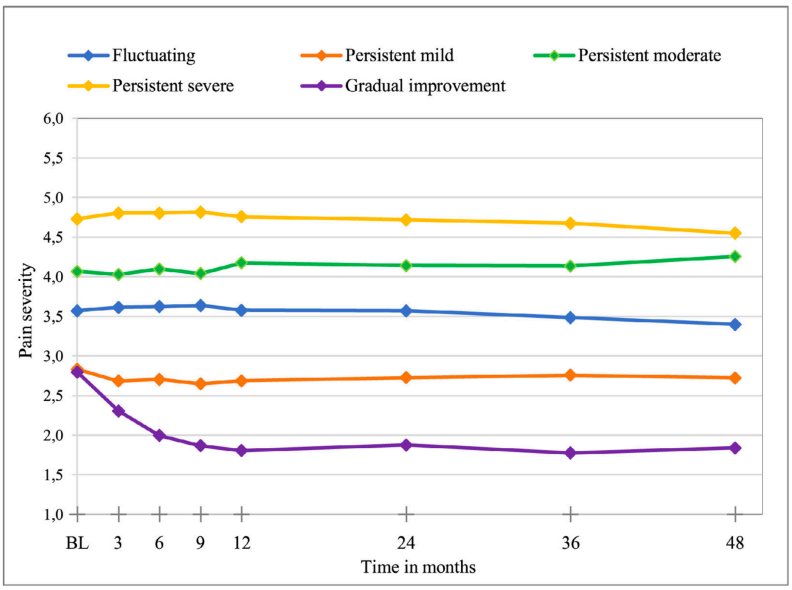


Figure 2. Average pain intensity values for all the 5 trajectory groups identified over all 8 follow-up time points.

Glette M, Stiles TC, Borchgrevink PC, Landmark T. The Natural Course of Chronic Pain in a General Population: Stability and Change in an Eight-Wave Longitudinal Study Over Four Years (the HUNT Pain Study). J Pain. 2020 May-Jun;21(5-6):689-699

"Men mine borgere bliver da bedre"?

Akutte smerter

Kroniske smerter

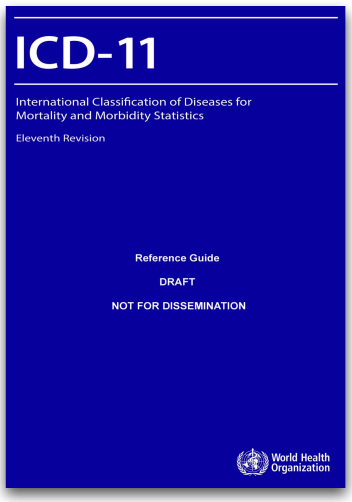
Kroniske smerter er et samfundsproblem

Mennesker med kroniske smerter oplever bl.a.

- **Skyld**, selvbebrejdelse og bekymring for fremtiden
- Misforståelser, mistillid og **konflikter** på bl.a. arbejdspladsen
- **Stigmatisering**, diskrimination og mobning
- Ustabilt **humør** og konflikter i bl.a. i familien
- Ensomhed og social **isolation**
- **Svært ved at forklare og forstå smerterne**
- Sociale **identitet** udfordres

Bean DJ, Dryland A, Rashid U, Tuck NL. The Determinants and Effects of Chronic Pain Stigma: A Mixed Methods Study and the Development of a Model. J Pain. 2022 Jun 11

Kroniske primære/sekundære smerter



- **Smerte i længere end 3 måneder** (evt. i perioder)
- **Skal påvirke livet *i udtalt grad*** (fx job, humør og sociale relationer)

KRONISKE PRIMÆRE SMERTER

"Smerten er sygdommen"

Fx fibromyalgi, piskesmæld, kronisk træthed og Funktionel Lidelse

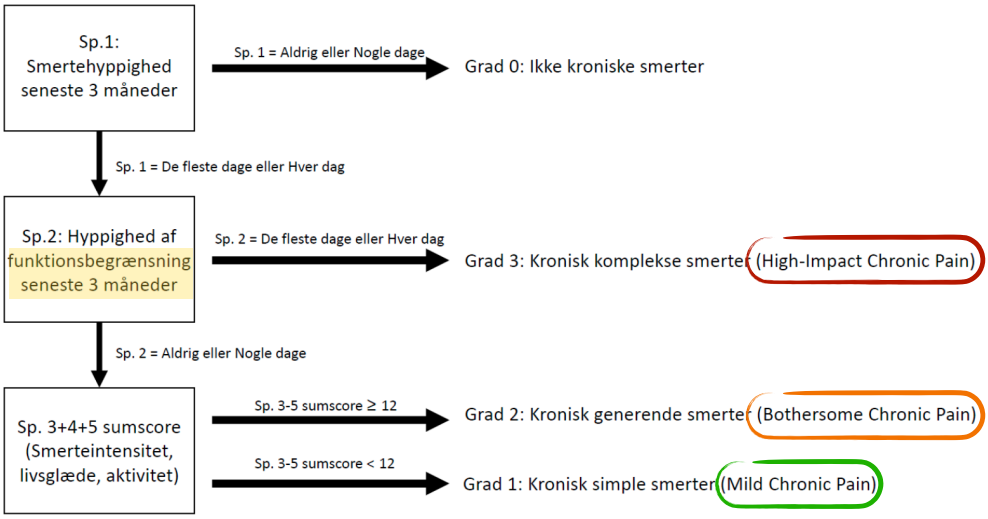
KRONISKE SEKUNDÆRE SMERTER

"Der er en sygdom eller skade oveni smerten"

Fx smerter efter kræft og kirurgi, samt smerter samtidig med slidgigt, betændelsessygdomme og nerveskader

Chronic pain impact

Måske skal vi se på grader af kroniske smerter for at skabe mening?



Terapi er også **kompetencer** til at:

- Validere patientens smerter:
  - Forklar at **negative undersøgelser ikke betyder at der *ikke* er et problem**
  - Forstærke forståelsen for at kroniske primære smerter er en positiv diagnose med **mange håndterings strategier**
  - Tale om at **smerte kan påvirke** mange andre dele af livet (**kognition, søvn, humør, bevægelse og arbejde**), og at disse ligeledes kan påvirke smerten
- Forklare at det er **usandsynligt at medicin eller kirurgi vil løse problemet** (det samme gælder manuel terapi, træning etc, hvis det allerede er tilstrækkeligt afprøvet)
- Kunne **forklare smerterne med en rationel forklaring**: Selvom vi ikke kender forklaringen på smerter kan det være hjælpsomt for patienter at lære mere om smerte som en "oplevelse" (fremfor som et sanse-stimulus)

Kang Y, Trewern L, Jackman J, McCartney D, Soni A. Chronic pain: definitions and diagnosis
BMJ 2023; 381 :e076036

Nociception, sensibilisering og descenderende modulation

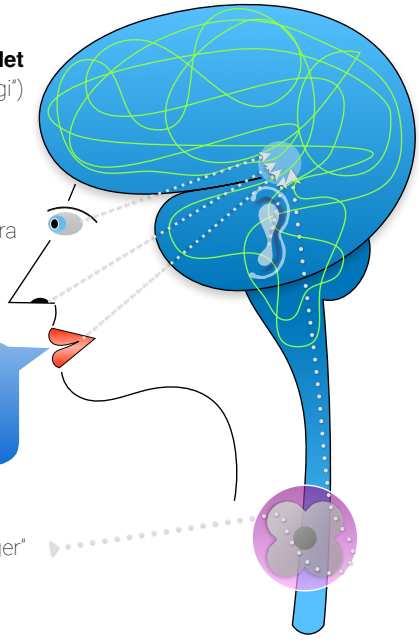
Nervesystemet og smerte

De sensoriske input bliver **bearbejdet** og bevidsthed opstår ("magi")

Samtidig får hjernen informationer fra **alle vores sanser** om konteksten

Men SMERTE bliver altid oplevet af et helt menneske!

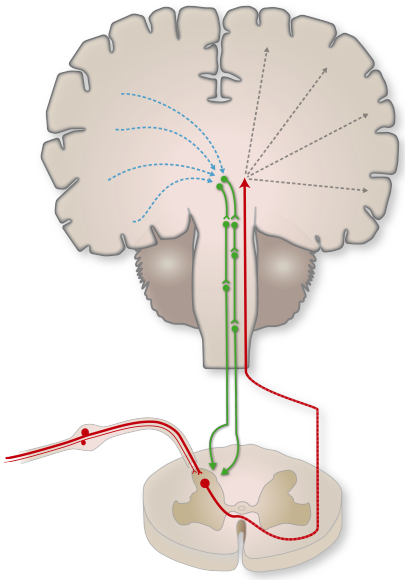
Nociception er den perfekte "Smerte-trigger"



Tre principper

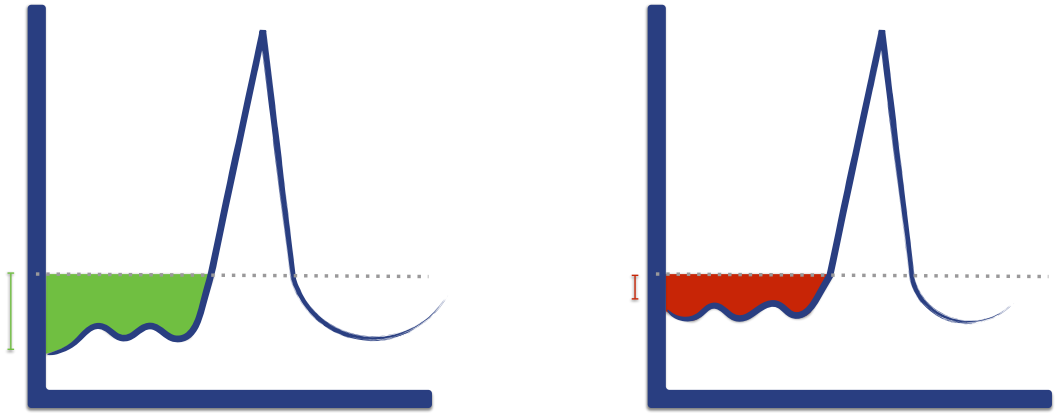
Mekanisme-baseret forståelse for smerte(forskning)

- **Perifer sensibilisering**
  - Observation/klinisk kendetegn er primær hyperalgesi
- **Central sensibilisering**
  - Observationer kan være:
    - Sekundær hyperalgesi
    - Eftersensationer
    - Nedsat grænse for temporal summation
- **Descenderende Modulation**
  - Normalt en balance mellem inhiberende og faciliterende mekanismer
  - Udgør placebo og nocebo-effekterne
  - Aktiveres både bottom-up (fx smertefulde tryk) og top-down (fx distraktion)

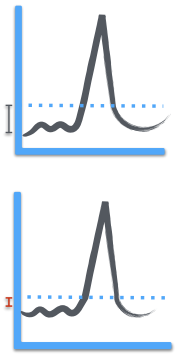


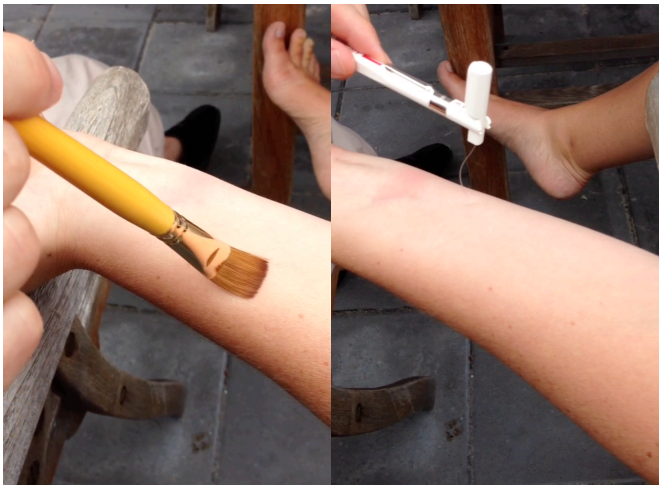
Sensibilisering

Et naturligt og reversibelt fænomen - både central og perifert



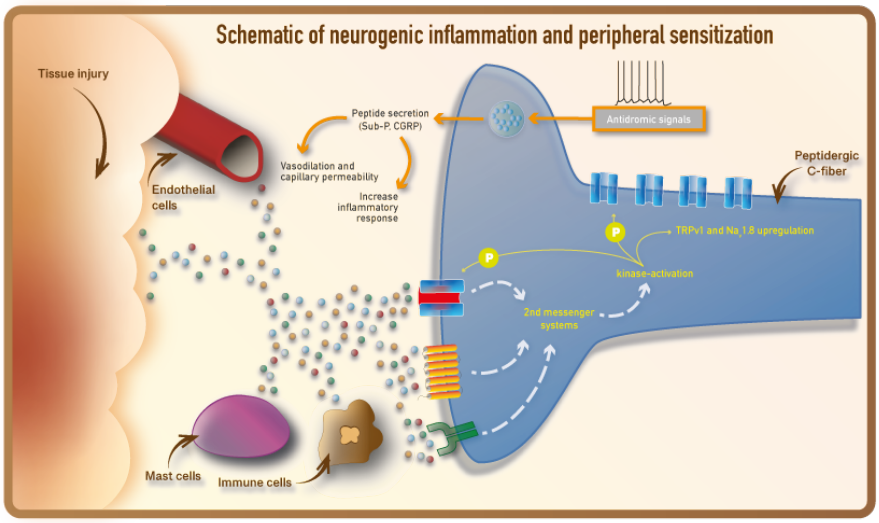
DIY…





Neurosciences' svar på "hvorfor gør det ondt"

1



Hoegh M., Pain Science in Practice (Part 3): Peripheral Sensitization ; J Orthop Sports Phys Ther 2022;52(6):303-306.

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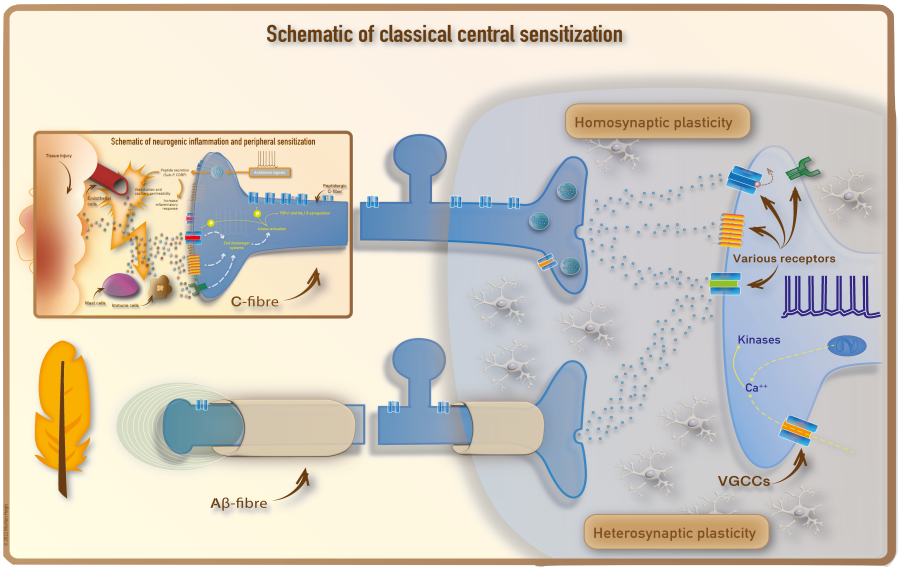
Neurosciences' svar på "hvorfor gør det ondt"

2



Hoegh M. Pain Science in Practice (Part 5): Central Sensitization. J Orthop Sports Phys Ther 2023;53(2):55-58.

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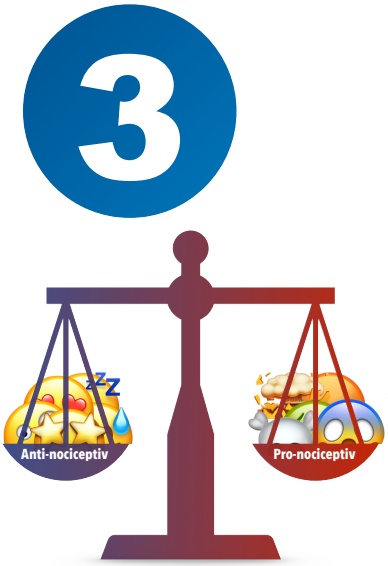
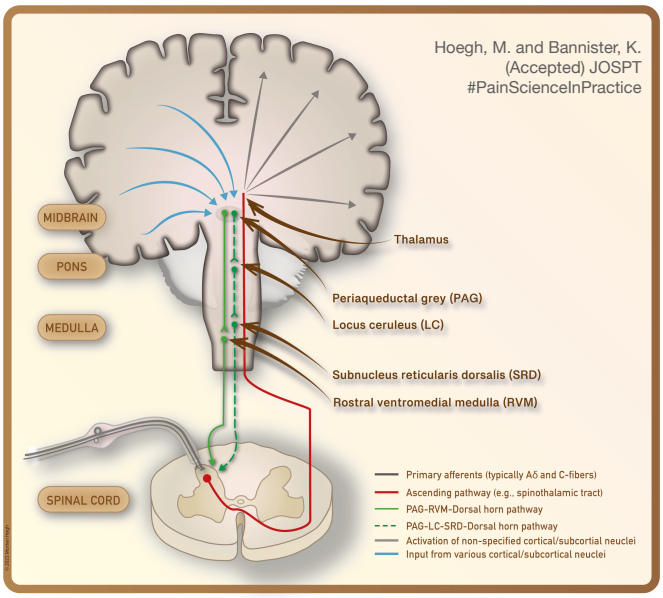
Neurosciences' svar på "hvorfor det (ikke) gør ondt"





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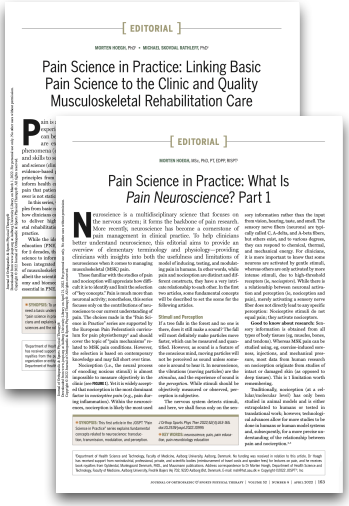
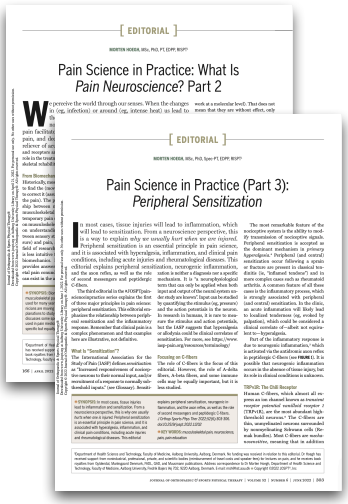
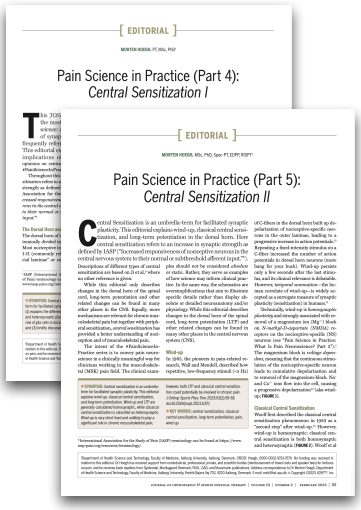
Hoegh, M. et al. JOSPT 2022-23

An introduction to neuroscience for clinicians







#PainScienceInPractice

Send an email to msh@hst.aau.dk if you want pdf-copies

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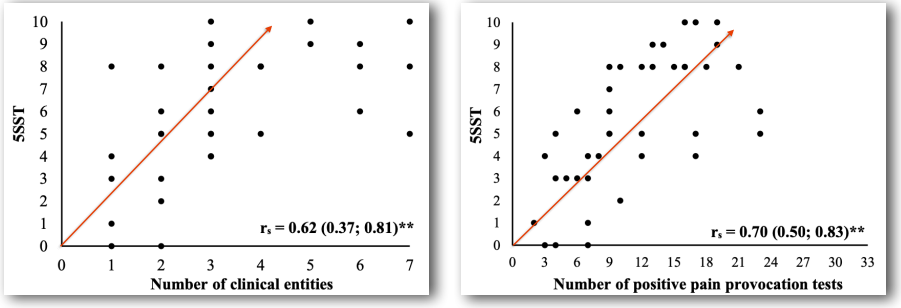
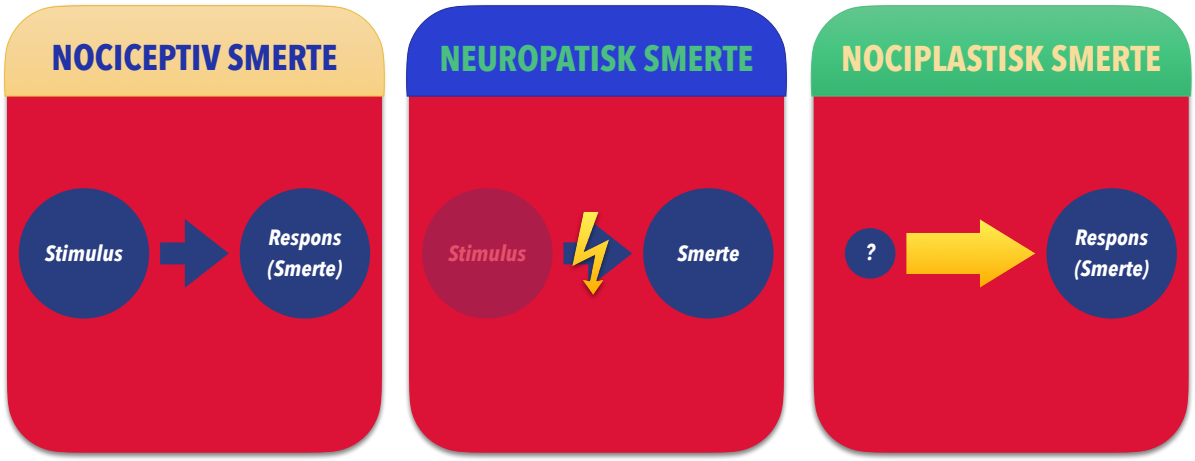
Lyskesmerter >6 uger - et smerteproblem?



Nielsen MF, Ishøi L, Juhl C, Hölmich P, Thorborg K. Pain provocation tests and clinical entities in male football players with longstanding groin pain are associated with pain intensity and disability. Musculoskelet Sci Pract. 2023 Feb;63:102719

"In male football players with longstanding groin pain, ***the number of positive pain provocation*** *tests and clinical entities shows weak to strong* ***correlations with pain intensity and disability****".*

Smerte - set med videnskabens øjne



Skader og sygdomme
kan lede til smerte

- Kroppen helbreder sig selv med inflammation
- Inflammation øger sensitiviteten af nervesystemet
- Det sensitiverede nervesystem leder til flere smerter
- Sensitiveringen forsvinder med inflammationen

Måske forandrer
nervesystemet sig **over tid?**

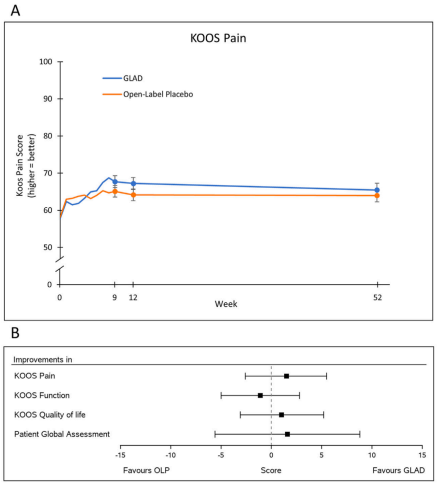
- Hos hvem?
- Hvorfor?
- Immun system?
- Kan vi ændre det?
- Kan vi forudse det?
- Kan vi ændre smerte på trods af forandringer i nervesystemet?

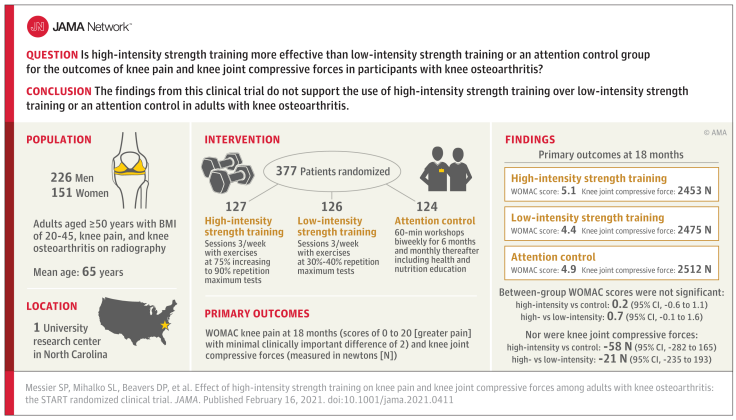
Lessons learnt fra smerteforskningen

- **Smerte opleves *altid* på samme måde som skade**, også når vi ikke er skadet **-** *Definition of pain, IASP 2011*
- Vi er afhængige af **kontekst og interoception** for at beskytte os
- For at optimere overlevelse **lærer** vi **gennem** bl.a. **erfaring, "eksperimentering"** og vores **kultur**
- **Nociception** er den mekanisme vi forstår bedst
- **Behandling af smerte er anderledes** end behandling af **nociception**
- **Smerte er altid komplekse**, og der findes oftest **mange "triggere"** men **ikke alle kan** manipuleres/**ændres** i terapeutisk sammenhæng
- Smerte og nociception er ikke det samme; **behandling af smerte tager udgangspunk i hvad smerten gør ved os**

Behandlings-, placebo- og nocebo effekter

Måske "virker" behandling ikke (kun) som vi tror?





Henriksen M, et al. Exercise and education vs intra-articular saline for knee osteoarthritis: a 1-year follow-up of a randomized trial. Osteoarthritis Cartilage. 2023 May;31(5):627-635.

Runhaar J, et al. Mechanisms of action of therapeutic exercise for knee and hip OA remain a black box phenomenon: an individual patient data mediation study with the OA Trial Bank. RMD Open 2023;9:e003220

Increase in strength can only **explain 2% of the effect** from a knee-OA exercise regime!

"As **98% of the effectiveness** of therapeutic exercise compared with non-exercise controls **remains unexplained**, more needs to be done to understand the underlying mechanisms of actions."

"…sports-related **disability** at 6 months appears to be **independent of** lower extremity muscle **strength, or depression/anxiety and knee confidence** in adolescents with non-traumatic anterior knee pain…"

Holden S, Lee H, van Middelkoop M, et al Exploring the pain and disability continuum in adolescents with non-traumatic anterior knee pain: a mediation analysis using individual participant data of prospective studies British Journal of Sports Medicine 2023;57:1388-1394.

*"This study suggests that **at least half of the overall treatment effect** observed in clinical trials across conditions **is attributable to contextual effects** rather than to the specific experimental intervention on trial."*

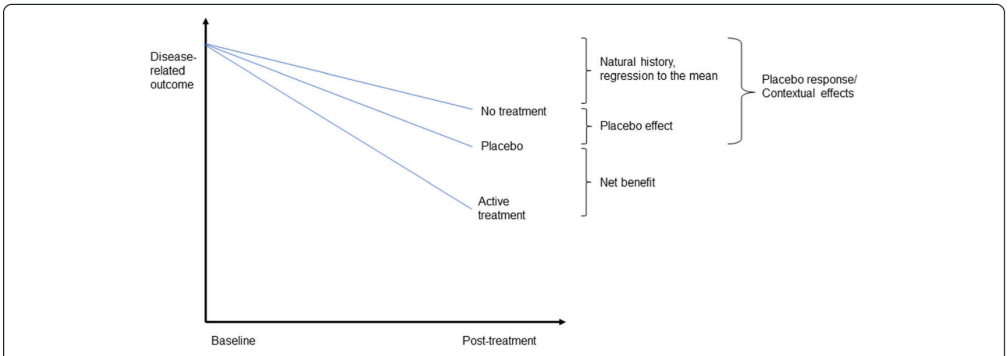


Fig. 1 Explanatory diagram illustrating the contribution of the placebo effect and placebo response relative to the estimated effect of active treatment

Hafliðadóttir, S.H., Juhl, C.B., Nielsen, S.M. *et al.* Placebo response and effect in randomized clinical trials: meta-research with focus on contextual effects. *Trials* 22, 493 (2021).

Turner JA, Deyo RA, Loeser JD, Von Korff M, Fordyce WE. The Importance of Placebo Effects in Pain Treatment and Research. *JAMA.* 1994;271(20):1609–1614.

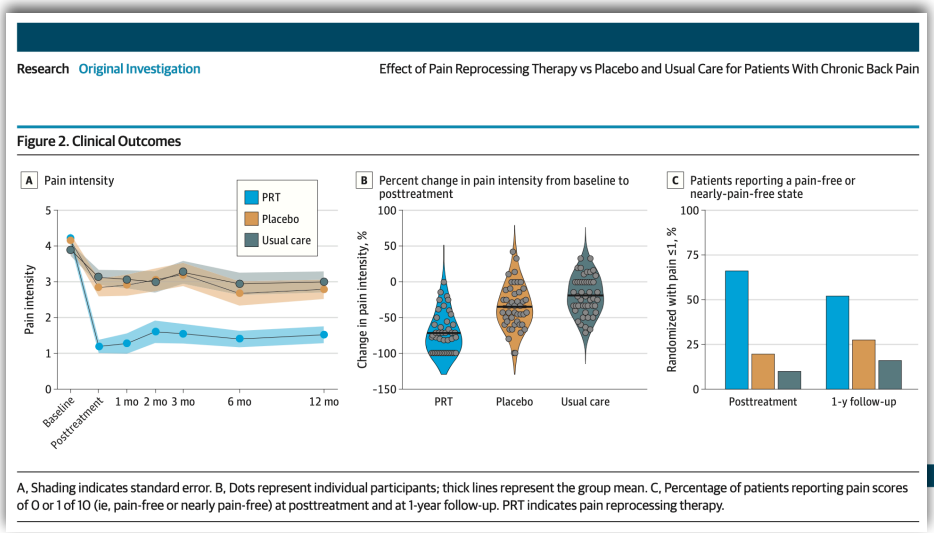
Placebo Effects in Studies of Medical and Surgical Treatments for Painful Conditions

Source	Condition	Treatment(s)	% Improved	Comments
Roberts et al[6] (review of treatments originally believed efficacious but later found to be ineffective)	Herpes simplex virus infections	Levamisole*	85% excellent or good	Average across uncontrolled trials that asserted the efficacy of levamisole
		Photodynamic inactivation treatment*	85%-100% excellent or good	Average across 5 uncontrolled trials
		Topical application of organic solvents*	83% excellent or good	Average across 5 uncontrolled trials
	Duodenal ulcers	Gastric freezing*	98%-100% marked or complete relief 65% good/excellent	Results in initial studies Average across 8 studies that asserted the efficacy of gastric freezing
Cobb et al[7]	Angina pectoris	Internal mammary artery ligation	63% significant improvement, 34% decrease in nitroglycerine use	During first 6 mo after surgery
		Skin incision only	56% significant improvement, 42% decrease in nitroglycerine use	
Dimond et al[8]	Angina pectoris	Internal mammary artery ligation	After surgery, 100% improved	During year after surgery, 69% reported over 50% improvement in angina
		Skin incision only	After surgery, 100% improved in exercise tolerance, nitroglycerine use, and angina	During year after surgery, 100% reported over 50% improvement in angina
Goodman et al[9]	Myofascial pain dysfunction (temporomandibular disorder)	Sham tooth-grinding	64% total or near-total symptom remission	

*Treatment subsequently found to be no better than placebo in controlled trials.

"Super-duper Remifentanil"

"Det her er placebo…"



Research Original Investigation — Effect of Pain Reprocessing Therapy vs Placebo and Usual Care for Patients With Chronic Back Pain

Figure 2. Clinical Outcomes

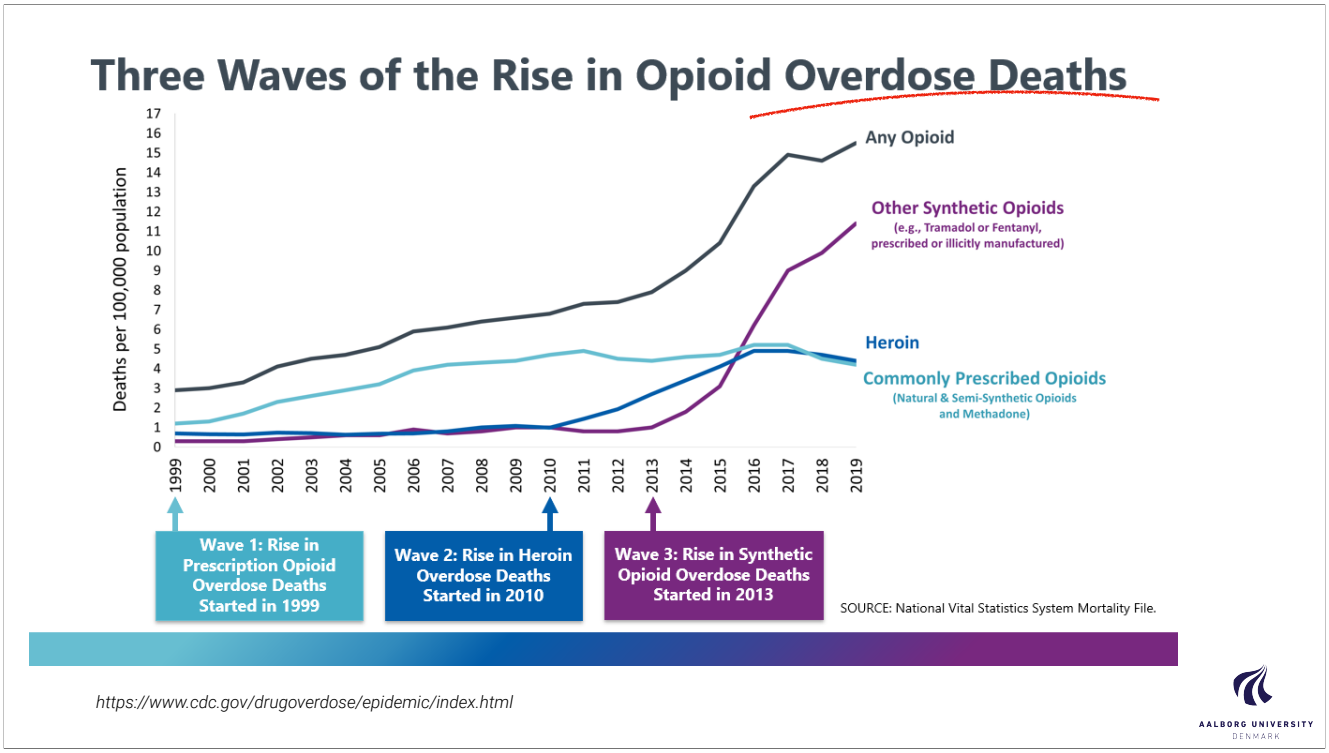
A, Shading indicates standard error. B, Dots represent individual participants; thick lines represent the group mean. C, Percentage of patients reporting pain scores of 0 or 1 of 10 (ie, pain-free or nearly pain-free) at posttreatment and at 1-year follow-up. PRT indicates pain reprocessing therapy.

JAMA Psychiatry | Original Investigation

Effect of Pain Reprocessing Therapy vs Placebo and Usual Care for Patients With Chronic Back Pain
A Randomized Clinical Trial

Yoni K. Ashar, PhD; Alan Gordon, LCSW; Howard Schubiner, MD; Christie Uipi, LCSW; Karen Knight, MD; Zachary Anderson, BS; Judith Carlisle, MA; Laurie Polisky, BA; Stephan Geuter, PhD; Thomas F. Flood, MD, PhD; Philip A. Kragel, PhD; Sona Dimidjian, PhD; Mark A. Lumley, PhD; Tor D. Wager, PhD

Praktiske råd til håndtering af mennesker med kroniske smerter



https://www.cdc.gov/drugoverdose/epidemic/index.html

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Added value of this study

This study is not sponsored by industry and is the first placebo-controlled trial of an opioid analgesic, without the addition of another pain medicine, for acute low back and neck pain. The study reports data on the safety and efficacy of opioids up to the 12-month follow-up, as opposed to many other studies of opioids in acute and chronic low back pain and neck pain, which had short-term follow-ups only and used an enrichment design.

Implications of all the available evidence

Our findings support the results from other studies and reviews on similar populations, which found that the effects of opioids on back and neck pain, and musculoskeletal pain in general, were probably small to none. Our findings also go further to say that not only are opioids not going to benefit individuals with back and neck pain, but they might also cause worse outcomes even after short-term judicious use.

PRAKTISERENDE LÆGERS ORGANISATION EFTERUDDANNELSE

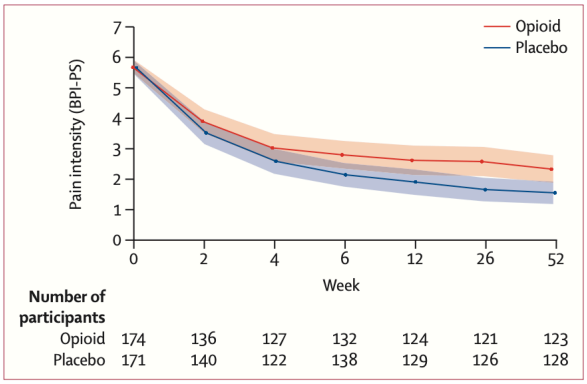


Figure 2: **Longitudinal plot of mean pain severity score**
Datapoints show mean scores at each timepoint, and the shaded areas show 95% CIs. Estimates are raw values (not modelled). BPI-PS=Brief Pain Inventory, pain severity subscale.

Jones CMP, Day RO, Koes BW, Latimer J, Maher CG, McLachlan AJ, Billot L, Shan S, Lin CC; OPAL Investigators Coordinators. Opioid analgesia for acute low back pain and neck pain (the OPAL trial): a randomised placebo-controlled trial. Lancet. 2023 Jul 22;402(10398):304-312

WHO guideline for non-surgical management of chronic primary low back pain in adults in primary and community care settings: Executive summary
ISBN 978-92-4-008555-8

WHO anbefalinger

Kroniske LBP i almen praksis

Overvej

- Patientuddannelse og rådgivning
- Struktureret træningsprogram
- Nålebehandling (akupunktur)
- Manuel behandling (massage og manipulation)
- Hjælp til at øge funktion (fx ergonomiske redskaber)
- Adfærdsterapi, inkl. CBT/ACT
- NSAID
- Chili-plastre
- Multidisciplinær behandling

Brug ikke (og ingen anbefaling)

- Non-farmakologisk: Traktion, ultralydsbehandling, TENS og lændebælter
- Kognitiv terapi, respondent terapi og MSBR
- Medicin: Opioider, SNRI, TCA, anticonvulsiva, relexantia, glucokortikosteroider, paracetamol, benzodiazepiner, cannabinoider, lokalbedøvelse,
- Urter: “djævlens klo”, White willow, Brazilian arnica, ingefær, white lily, urteomslag
- Øvrige: Vægttab (farmakologisk og non-farmakologisk),

Table 1

Ten proposed actions to improve care for low back pain.

Hea…**…hold op med at betale for uvirksom og skadelig behandling…**
New tests and treatments should not be marketed, introduced into practice, or publicly reimbursed, before they have been adequately tested for safety, efficacy, and cost-effectiveness
Health and socia…**…støt og stimulér tidlig tilbagevenden til arbejde…**…pted to employee capacity
Patients should be taught to self-manage low back pain and seek care only when really needed
Widespread and inaccurate beliefs about low back pain in the population and among health professionals should be challenged, and a focus put on reducing the impact of low back pain o…**Patienterne skal lære selv at håndtere deres rygsmerter**
Clinical pathways, care plans, and other standardized tools for managing low back pain should be redesigned to integrate with health and occupational care but only after establishing their comparative effectiveness and cost-effectiveness
Payments syst…**Udbredte og upræcis viden om LBP …skal udfordres**
The World Health Organization should support new public policies and urgent political action to ensure strategies are put in place to reduce global disability from low back pain as a priority
Research and fu…**Tilskud o.lign. skal ændres så de understøtter EBM**…s implementation research to determine how best to put existing knowledge and evidence to use
Journals and the media should have greater editorial and peer reviewer oversight to ensure that trial results are accurately portrayed and do not reflect unwarranted belief in the efficacy of new (or established but unproven) therapies

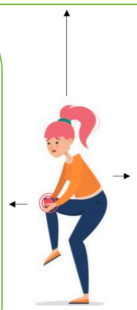
En troværdig og brugbar forklaring

1. What is Patellofemoral Pain and what does it mean?

- Patellofemoral Pain is the experience of pain in one or more places around your knee (often at the front) and can lead to you feeling a lot of pain in that area. About 1 in 14 (6-7%) adolescents your age have Patellofemoral Pain.
- You may feel that your pain changes from day to day, or perhaps even during the day. This is normal and is not a sign of damage to your knee, even though it can be very painful.
- If we perform a scan (for example x-ray) of your knee, it might not look the same as the knee of someone who does not have pain. This is not always related to how much pain you feel and does not change how you should manage your knee pain.
- When you receive the diagnosis of Patellofemoral Pain, the healthcare professional is certain that there is not any serious damage in your knee, and nothing has been missed. Further examinations are not needed to confirm the diagnosis or determine the treatment.

2. What is causing my knee pain?

- Children and adolescents who are active in sports are more likely to have Patellofemoral Pain.
- It can be hard to find the exact reason why you have Patellofemoral Pain because it is rarely caused by a single event or movement. The balance between activity and rest seems to play an important role.
- How much pain you feel depends on several things that do not always relate directly to your knee. These could be your mood and thoughts or how you use your knee when feeling pain.
- Some might worry about their knee pain. Things like running, jumping, and walking on stairs might be painful and some might wonder "should I stop?" or "am I making things worse?". Worrying about pain, being afraid of hurting your knee, and worrying about how the future will be, can make everything feel worse.

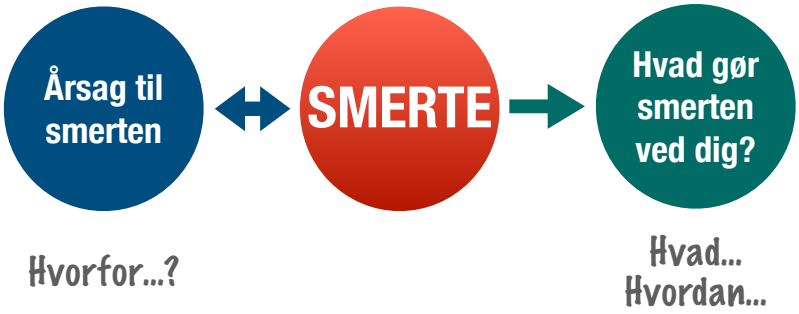


3. How do I manage my knee pain?

- Understand which things affect your pain will help you choose the right treatment for you and help you to control how much pain you feel.
- Most children with Patellofemoral Pain feel that their lives change because their knee hurts. Changes might include how much sport they can take part in. Luckily, you can learn to be physically active even though you have Patellofemoral Pain. In fact, physical activity is good for you in many ways.
- Your body and knee will respond best to small changes in activity. Finding a balance between physical activity and rest may be a good place to start when you have knee pain. It is completely normal to feel more pain sometimes when you are trying to find the right balance.

Chris Djurtoft, Marlene Kjær Bruun, et al. Eur J Pain, December 2023

Stop fixing, start listening!



Hvorfor...?

Hvad...
Hvordan...

Illness beliefs

- **Identitet**
  - "Hvad tror du, at det er?"
- **Årsag**
  - "Hvad tror du årsagen til dine problemer er?"
- **Tidslinje**
  - "Hvor længe tror du, at det vil vare ved?"
- **Konsekvenser**
  - "Hvad tror du vil ske som følge af dine smerter/lidelser?"
- **Helbredelse / kontrol**
  - "Hvad tror du vil gøre dig/det bedre?"

Petrie, K.J., Weinman, J., 2006

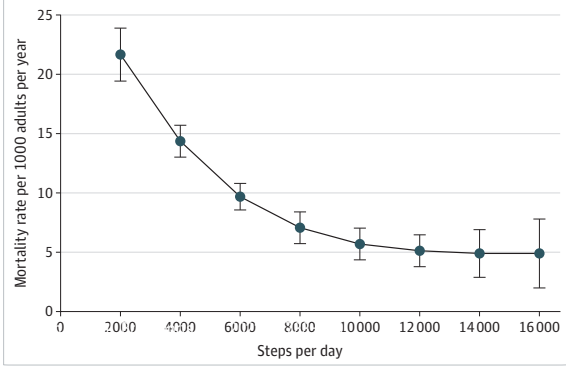
Den, som har smerterne skal kunne:

- **Forstå**
- **Forudse**
- **Forklare**

God grund til at gå en tur:

Flere skridt = nedsat dødelighed

Figure 1. Steps per Day and All-Cause Mortality in a Study of the Association of Daily Step Count and Step Intensity With Mortality Among US Adults Aged at Least 40 Years



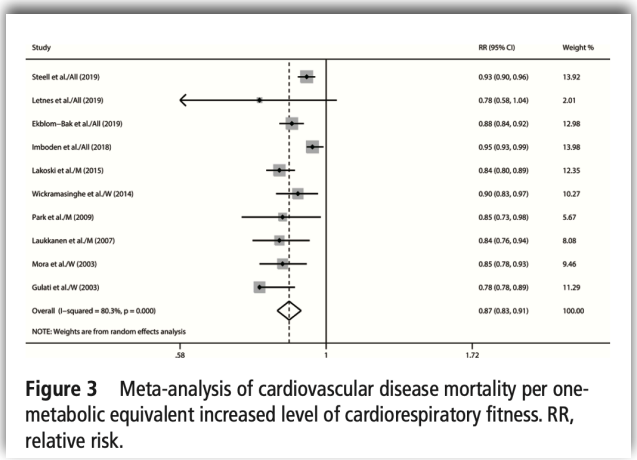
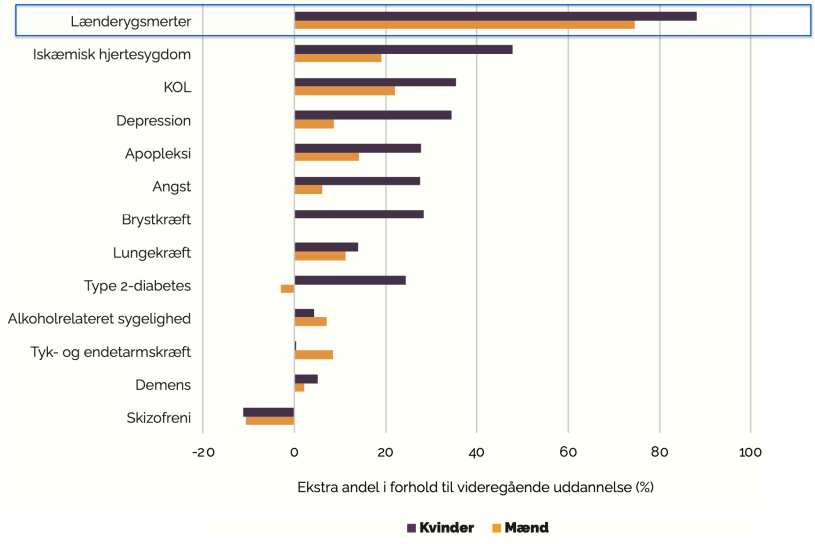


Figure 3 Meta-analysis of cardiovascular disease mortality per one-metabolic equivalent increased level of cardiorespiratory fitness. RR, relative risk.

EKSTRA dødsfald!

Figur 1.2.3 Andelen (%) af ekstra antal dødsfald blandt mænd og kvinder med udvalgte sygdomme, der kunnet have været undgået eller tillagt, såfremt alle personer med den givne sygdom havde haft samme dødelighed som i gruppen af personer med videregående uddannelse. Årligt gennemsnit for perioden 2017-2018 blandt 30+-årige.



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Overdødelighed?

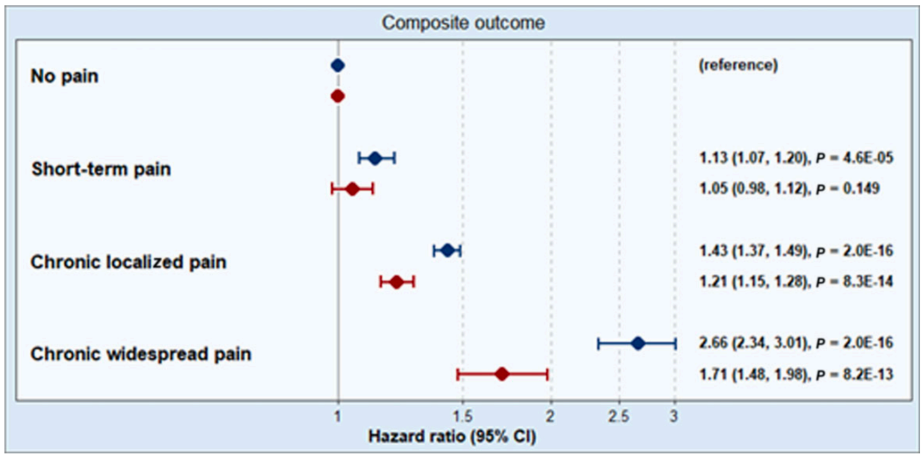


Figure 2 Hazard ratios in the pain groups for the composite cardiovascular outcome (myocardial infarction, stroke, heart failure, or cardiovascular death). Blue: adjusted for age and sex. Red: adjusted for age, sex, and cardiovascular risk factors.

Rönnegård, A-S, et. al, The association between short-term, chronic localized and chronic widespread pain and risk for cardiovascular disease in the UK Biobank, *European Journal of Preventive Cardiology*, Volume 29, Issue 15, October 2022

Heissel A, Heinen D, Brokmeier LL, et al. Br J Sports Med 2023;57:1049–1057.

Flere grunde til at tænke fysisk aktivitet ind i enhver behandling

*"…large effects (individuals with **major depression disorder** favouring exercise interventions **which corresponds to the number needed to treat (NNT)=2** (95% CI 1.68 to 2.59)."*

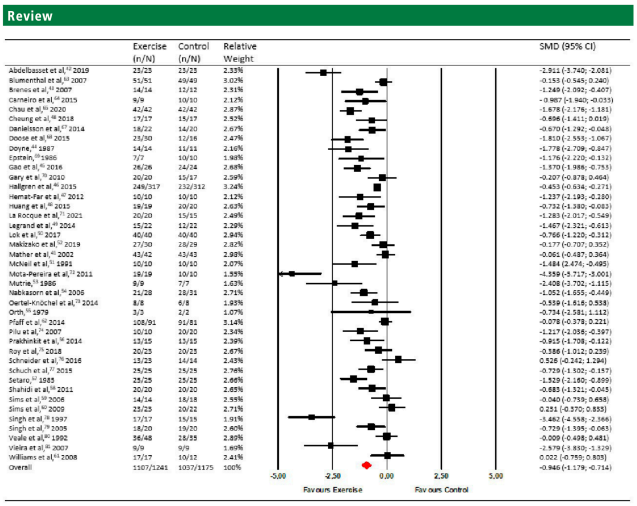
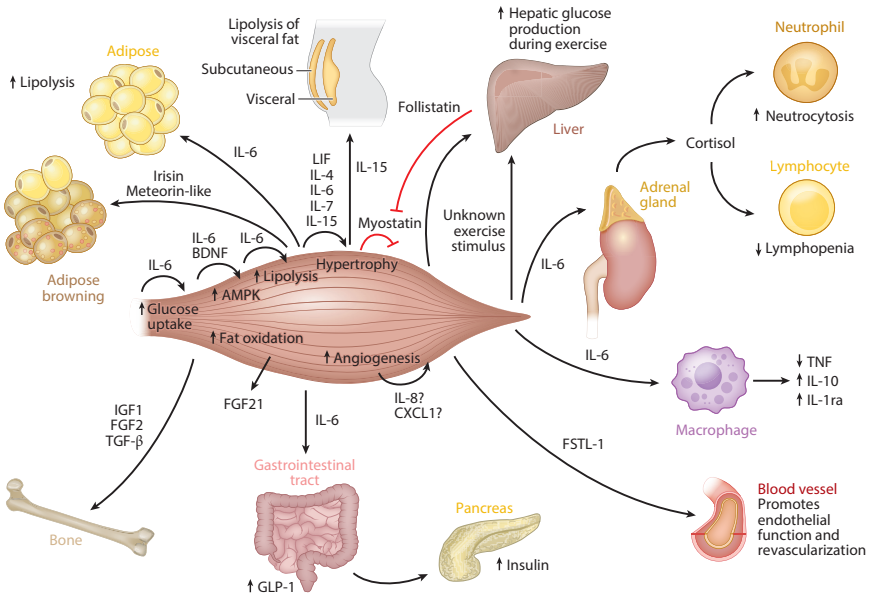


Figure 2 Meta-analysis of overall studies. N, preintervention n, postintervention, SMD, standardised difference.



CBT

some caution ⚠ may be necessary

Study or Subgroup	CBT Mean	CBT SD	CBT Total	Active control Mean	Active control SD	Active control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Alda 2011	36.9	8.3	56	37.1	10.5	53	3.7%	-0.02 [-0.40, 0.35]
Carson 2006	14	12.7	60	15	10.4	33	3.6%	-0.08 [-0.51, 0.34]
Ersek 2008	4.9	1.9	123	5	2.1	101	3.9%	-0.05 [-0.31, 0.21]
Greco 2004	1.98	0.87	32	1.97	0.91	33	3.5%	0.01 [-0.48, 0.50]
Kaapa 2006	3.3	2.5	59	3.4	2.4	61	3.8%	-0.04 [-0.40, 0.32]
Keefe 1990	4.61	1.73	31	5.67	1.65	35	3.5%	-0.62 [-1.12, -0.13]
Keefe 1996	4.21	1.48	28	5.22	2.06	27	3.4%	-0.56 [-1.10, -0.02]
Kraaimaat 1995	14.8	4.3	24	15.4	4.6	28	3.4%	-0.13 [-0.68, 0.41]
Litt 2009	2.7	1.4	52	2.7	1.3	49	3.7%	0.00 [-0.39, 0.39]
Lumley 2014	2.7	0.7	130	2.7	1.1	134	4.0%	0.00 [-0.24, 0.24]
Lumley 2017	4.7	1.7	75	5.2	1.7	76	3.8%	-0.29 [-0.61, 0.03]
Mangels 2009	15.9	5.3	232	16.4	5.8	131	4.0%	-0.09 [-0.31, 0.12]
Monticone 2013	2.7	1	45	5	1.3	45	3.4%	-1.97 [-2.47, -1.46]
Monticone 2016	1.4	1.2	75	4.5	1.8	75	3.7%	-2.02 [-2.41, -1.62]
Monticone 2017	2.1	0.9	85	5.3	1.5	85	3.7%	-2.58 [-2.98, -2.17]
Nicholas 2013	4.6	2.1	49	5.3	2.1	53	3.7%	-0.33 [-0.72, 0.06]
Smeets 2006	42.3	25.6	55	44.6	28.9	52	3.7%	-0.08 [-0.46, 0.30]
Tavafian 2011	-65.8	22.6	92	-56.4	23.6	97	3.9%	-0.40 [-0.69, -0.12]
Thieme 2006	3.5	1	42	3.8	1.1	40	3.6%	-0.28 [-0.72, 0.15]
Thorn 2011	5.3	2.4	32	4.6	2.3	29	3.5%	0.29 [-0.21, 0.80]
Thorn 2018	5.4	2.3	83	5.7	2	80	3.9%	-0.14 [-0.45, 0.17]
Thorsell 2011	7.2	2.9	52	8	2.5	38	3.6%	-0.29 [-0.71, 0.13]
Turner 2006	5.2	1.9	72	5.2	2.1	76	3.8%	0.00 [-0.32, 0.32]
van Eijk 2013	5.5	2.1	108	5.5	2.1	95	3.9%	0.00 [-0.28, 0.28]
Vitiello 2013	4.3	3.5	232	4.2	2.9	122	4.0%	0.03 [-0.19, 0.25]
Vlaeyen 1996	1	1.8	42	0.4	1.8	30	3.5%	0.33 [-0.14, 0.80]
Zautra 2008	32.5	19.3	51	27.5	18	40	3.7%	0.26 [-0.15, 0.68]
Total (95% CI)			**2017**			**1718**	**100.0%**	**-0.33 [-0.56, -0.10]**

Heterogeneity: Tau² = 0.32; Chi² = 293.71, df = 26 (P < 0.00001); I² = 91%
Test for overall effect: Z = 2.82 (P = 0.005)

Std. Mean Difference IV, Random, 95% CI

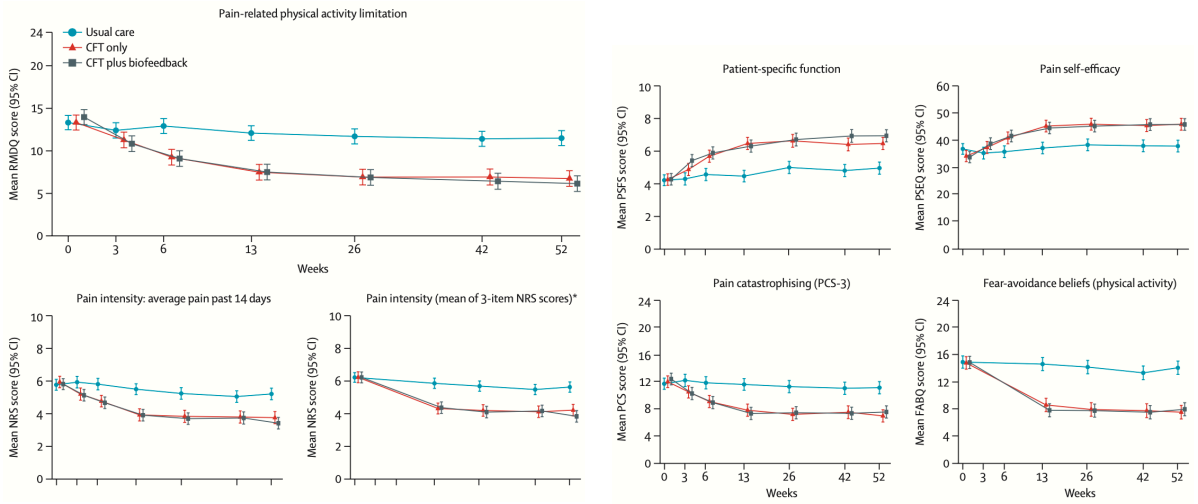
-2 -1 0 1 2
Favours CBT Favours active control

*"**Trustworthiness screening identified concerns about research governance, data plausibility at baseline, the results, and apparent data duplication**.*

We discuss the findings within the context of methods for establishing the trustworthiness of research findings generally. Important concerns regarding the trustworthiness of these trials reduce our confidence in them. ***They should probably not be used to inform the results and conclusions of systematic reviews, in clinical training, policy documents, or any relevant instruction regarding adult chronic pain management**.*

O'Connell N.E. et al. PAIN *Investigating the veracity of a sample of divergent published trial data in spinal pain.* DOI: 10.1097/j.pain.0000000000002659 (Publish Ahead of Print)

Cognitive Functional Therapy?

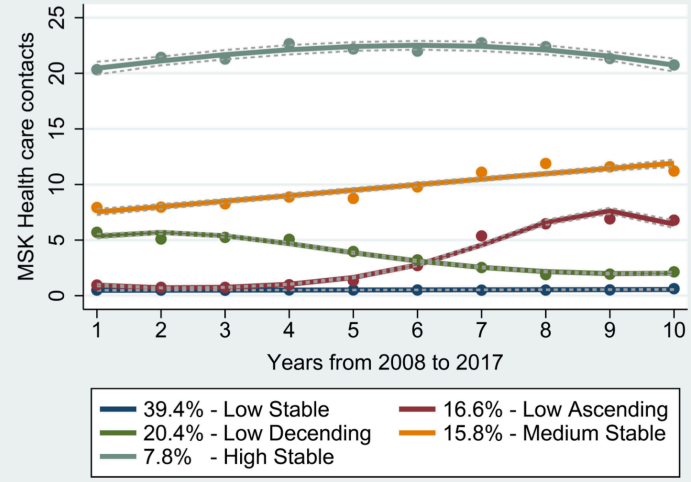


Peter Kent et al., The Lancet May 2023

Kirurgi

Det konkluderes, at det ikke er tilfredsstillende, at ***omkring 20%****, blandt gruppen af 30 til 60 årige i fuld beskæftigelse et år før diagnose,* ***ikke fastholder deres beskæftigelsesgrad efter hospitalskontakten.***

Arbejdstilknytning



- Dansk kohorte, n=2929, 10-års follow-up
- 64% var i arbejde (hele gruppen)
- I gruppen "high stable" var kun 29% i arbejde, heraf 46% på ydelser som fx flexjob

Mose S. et al. Clin Epidemiology 2021:13 (825-843)

Fasthold arbejde!

Research Paper
PAIN 164 (2023) 2104–2111
PAIN®

Prognostic factors for high societal costs: a register-based study on 561,665 patients with shoulder disorders

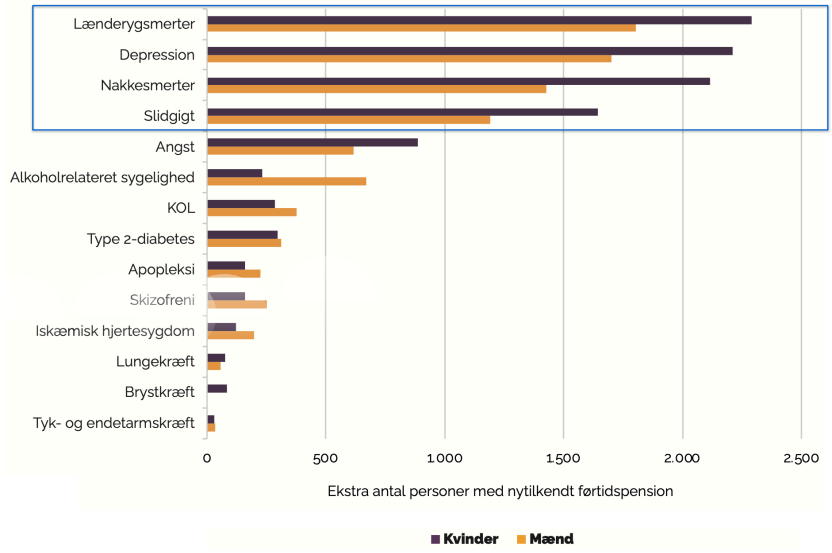
Lotte Sørensen[a,*], Johanna Maria van Dongen[b], Maurits van Tulder[c], Lisa Gregersen Oestergaard[a,d,e]

Abstract
Shoulder disorders are common and associated with high societal costs, especially for a small group of patients. Prognostic factors can help identify high-cost patients, which is crucial to optimize early identification and develop tailored interventions. We aimed to identify prognostic factors for high societal costs, to examine whether the prognostic factors were similar for high healthcare costs and high costs of sick leave, and to investigate the model's robustness across 4 diagnostic categories. Using national Danish registers, potential prognostic factors (age, sex, educational level, long-term sick leave, admission, visits to general practitioner and physiotherapist, comorbidity, diabetes, low back pain, and neck pain) were included in a logistic regression model with high societal costs, defined by the top 10th percentile, as the main outcome. The model's prognostic accuracy was assessed using the Nagelkerke R^2 and its discriminative ability using area under the receiver operating curve (AUC). Data on 80% of the patients (n = 449,302) were used to develop the model and 20% (n = 112,363) to validate the model. By far the strongest prognostic factor for high societal costs and high costs of sick leave was sick leave at the time of diagnosis (OR: 20.2, 95% CI: 19.5-20.9). Prognostic factors for high healthcare costs were high age, comorbidity, and hospital admission the year before diagnosis. The model was robust across diagnostic categories and sensitivity analyses. In the validation sample, the primary model's discriminative ability was good (AUC = 0.80) and the model explained 28% of the variation in the outcome (Nagelkerke R^2).

Keywords: Shoulder disorders, Prognostic factors, High-cost patients, Societal costs, Healthcare costs, Costs of sick leave

EKSTRA antal førtidspension

Figur 1.1.8 Ekstra antal personer med nytilkendt førtidspension blandt mænd og kvinder i alderen 16-64 år i Danmark med udvalgte sygdomme i forhold til en referencepopulation matchet på køn, alder, uddannelse og CCI. Årligt gennemsnit for perioden 2017-2018.



SYGDOMSBYRDEN I DANMARK – SYGDOMME © Sundhedsstyrelsen, 2022

Pain control **beliefs are associated with disability pension** among eldercare workers with persistent pain.

Vinstrup J, Bláfoss R, López-Bueno R, Calatayud J, Villadsen E, Clausen T, Doménech-García V, Andersen LL. Pain Control Beliefs Predict Premature Withdrawal From the Labor Market in Workers With Persistent Pain: Prospective Cohort Study With 11-Year Register Follow-up. J Pain. 2023 Oct;24(10):1820-1829

"…working conditions modify the association between having a chronic disease and being able to work"

*"**better support** at work, and lower psychological job demands were associated with a **reduction in receiving disability benefits** by 82%, 49%, and 11%, respectively"*

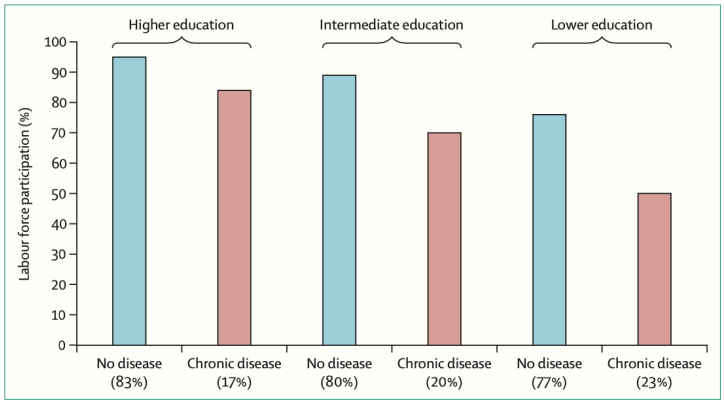


Figure 1: **Increasing gap in labour force participation between men with a chronic disease and men without a chronic disease across educational levels**
Similar patterns were observed among women.[34,35]

Burdorf, A., Fernandes, RCP., Robroek, SJ. *Health and inclusive labour force participation,* Lancet 2023; 402 : 1382–92

Lighed i sundhed?

- Jeg har *sukkersyge*, der er brug for nogle ændringer i mit job så jeg kan passe sygdommen
- Jeg har *sukkersyge* og derfor er der nogle forholdsregler som jeg bliver nødt til at tage
- Jeg har *sukkersyge* og derfor er der ting som jeg bliver nødt til at lave mindre af eller helt undlade at lave

Nøglen til at fastholde **arbejdstilknytning** på trods af smerter **kan afhænge af de redskaber patienten lærer** til at styre sine smerter

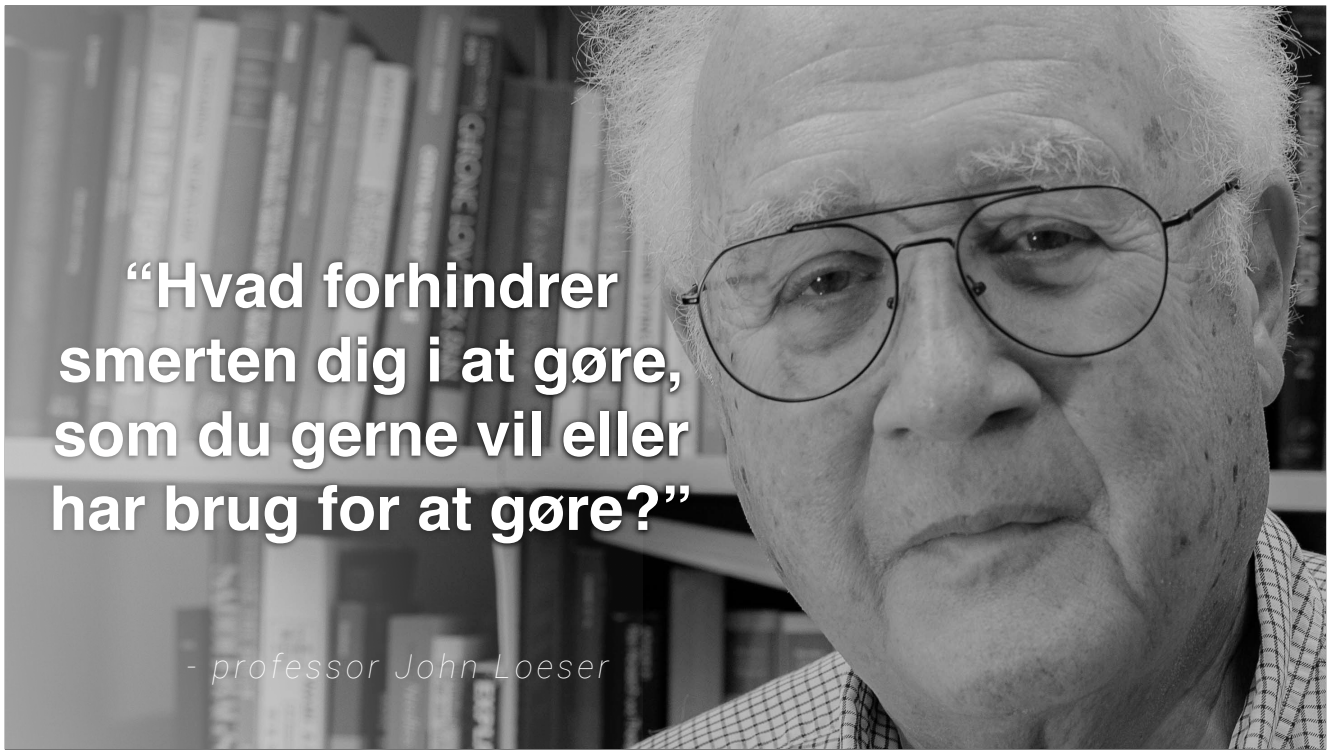
*Terapien bør **fremme funktioner** (redskaber til at styre/fastholde dem) og **problemløsning** så patienten selvstændigt og selvsikkert kan **se muligheder** for at lykkes: Dette kan afhænge af **viden om smerterne**/tilstanden og **mulighed for at tilpasse omgivelserne** til individuelle behov!*

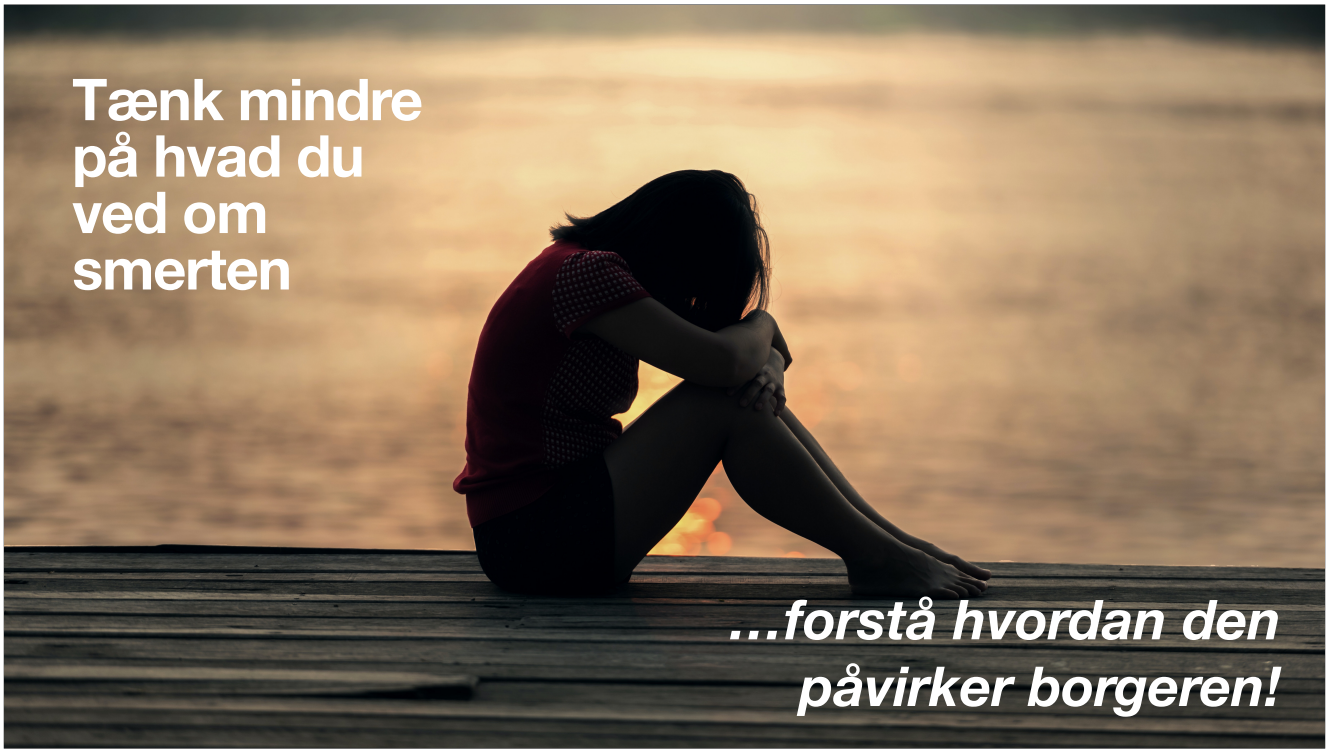
Cochrane A, Higgins NM, Rothwell C, Ashton J, Breen R, Corcoran O, FitzGerald O, Gallagher P, Desmond D. Work Outcomes in Patients Who Stay at Work Despite Musculoskeletal Pain. J Occup Rehabil. 2018 Sep;28(3):559-567.

Traditionelle barrierer for RTW

- **Usikkerhed** omkring smerterne eller helbredet (nu eller i fremtiden)
- **Uvished** omkring omkring hvordan man kan gøre det eller hvordan det føles at "være klar" til det
- **Uafklaret** omkring mulighederne for yderligere behandling eller afslutning på igangværende behandling
- **Ude af kontrol** når det kommer til smerterne (afmagt)
- **Usynligheden** og stigmatiseringerne omkring kroniske smerter gør det svært at fortælle om til andre

Patel, S. Greasley K and Watson PJ, Eur J Pain: 11 (2007) 831–840




Tænk mindre på hvad du ved om smerten
...forstå hvordan den påvirker borgeren!


Tak for opmærksomheden
Infographic. Pain or injury? Why differentiation matters in exercise and sports medicine
Pain Science in Practice: Linking Basic Pain Science to the Clinic and Quality Musculoskeletal Rehabilitation Care
Smerte bogen
Læg smerterne på hylden
Lotte Heise
Morten Høgh
SmerteVejleder Podcast
msh@hst.aau.dk
Find links to interviews etc on linkt.ee
https://linktr.ee/mhdk_drmortenhoegh
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