



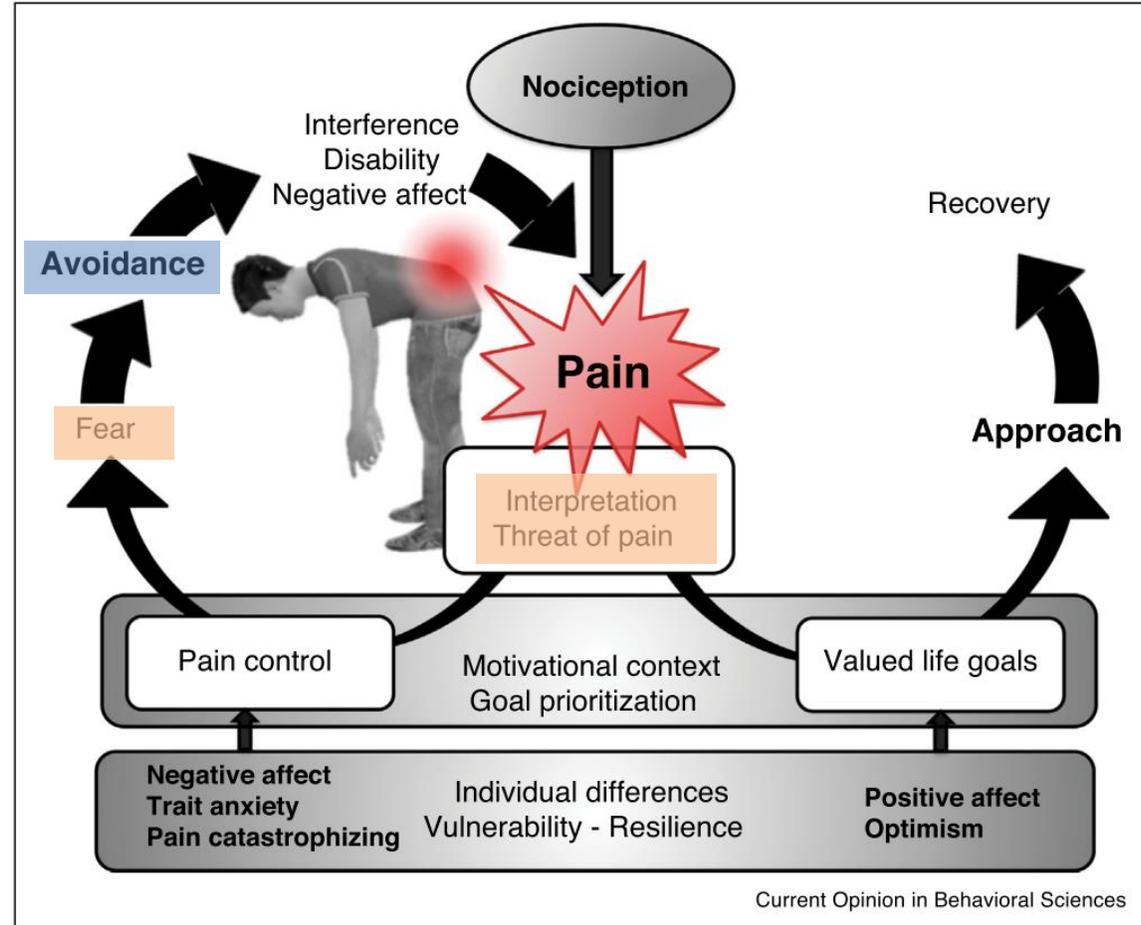
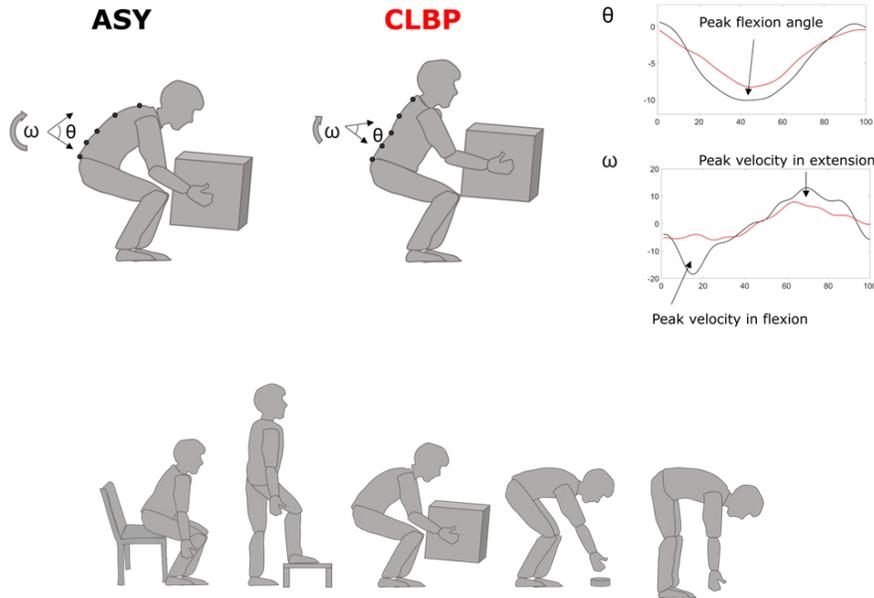
# Mouvement et douleur en rééducation

17 novembre 2022

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Physiothérapeute, Maître d'Enseignement HES, MSc PT, PhD

# Douleur et Mouvement



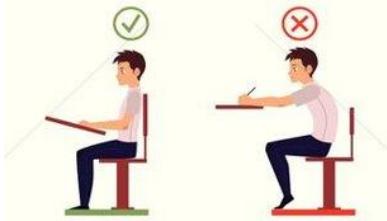
Meulders, A. (2019)



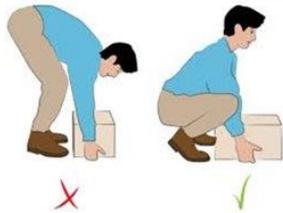
Evitement des activités



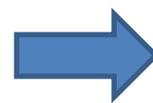
Influence des croyances et de la peur



1129 PARTICIPANTS DE LA POPULATION SUISSE ROMANDE



LE DOS EST FACILE À BLESSER → **LE DOS EST FRAGILE**  
IL FAUT ÉVITER CERTAINS MOUVEMENTS/POSTURE  
→ **LE DOS DOIT ÊTRE PROTÉGÉ**  
QU'IL FAUT SAVOIR EXACTEMENT CE QUI SE PASSE DANS LE DOS  
→ **LE MAL DE DOS EST CONSIDÉRÉ COMME UN PROBLÈME GRAVE**



Croyances très présentes dans la population générale et chez les patients

## Beliefs about hip pain and its care

Systematic review

**What we did:**

- Review of **qualitative studies** - guided by the **Common-Sense Model of Self-Regulation**
- Middle-age and older adults with chronic hip pain**
- 28 studies included**

➔ Forte influence des croyances sur le comportement et les choix de traitement

### What we found - beliefs and expectations:

- People believed hip pain was due to **age, wear and tear, overuse, and posture**
- People **wanted and needed more information** about hip pain
- People believed that **nonsurgical treatments** were **unhelpful** or reported they were **not offered**
- People **rested or avoided activities** to cope with pain
- People expected that **surgery is inevitable**
- Difficulties with movement, personal and social activities, and sleep**

# Relation thérapeute – patient

## Avant

« J'ai mal au dos »



Effet du thérapeute

## Après

« J'ai mal au dos »  
« J'ai pas de muscles »  
« J'ai une vertèbre bloquée »  
« J'ai le bassin décalé »  
...



De nombreux patients pensent que leur douleur de dos est liée à des structures physiques en mauvais état, et la majorité ont indiqué avoir appris cela d'un professionnel de santé

Setchell et al. 2017

Original article

Physiotherapists' attitudes and beliefs about low back pain influence their clinical decisions and advice

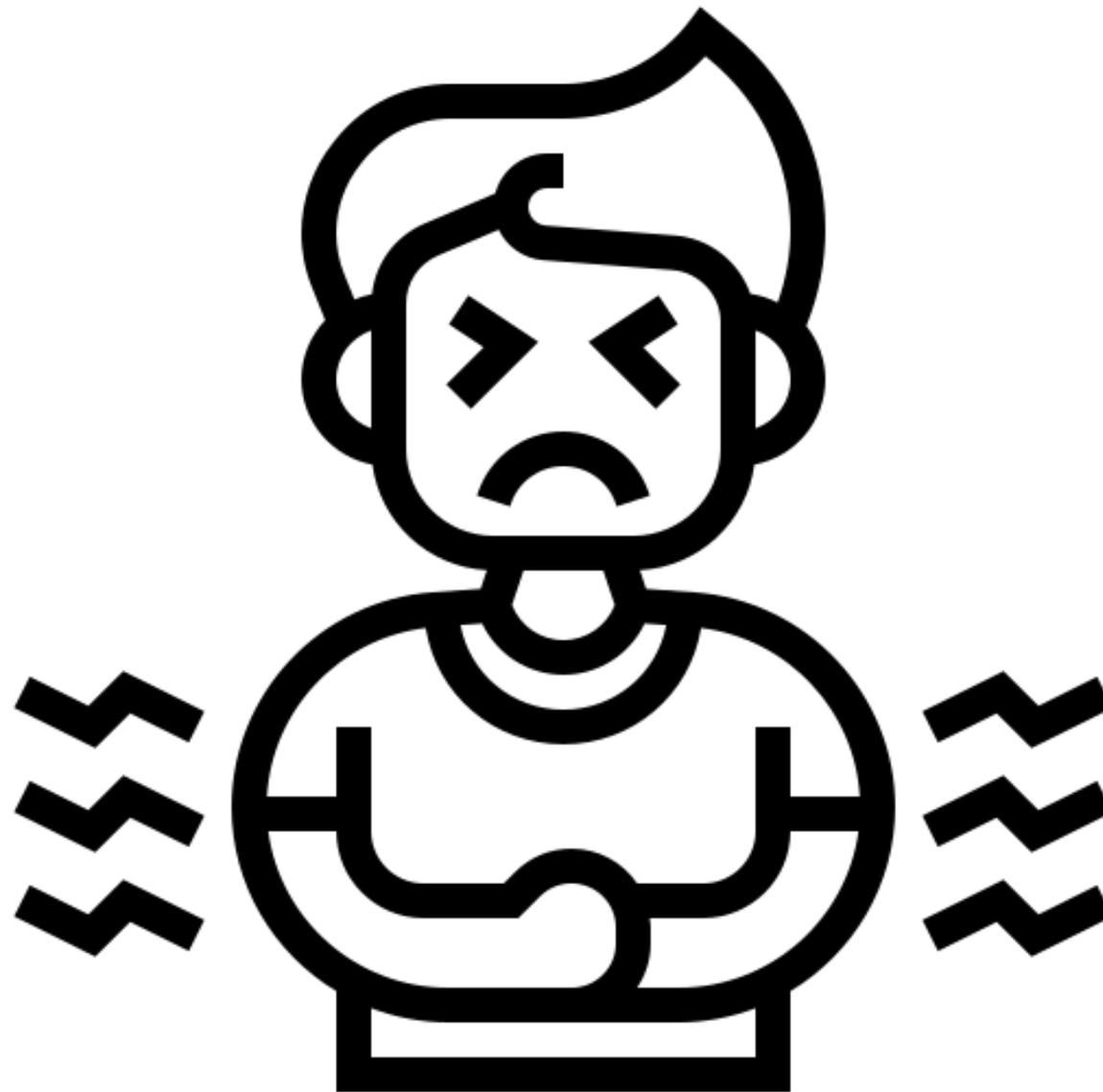
Guillaume Christe<sup>a,b,\*</sup>, Jessica Nzamba<sup>a</sup>, Ludovic Desarzens<sup>a</sup>, Arnaud Leuba<sup>a</sup>, Ben Darlow<sup>d</sup>,  
Claude Pichonnaz<sup>a,c</sup>



288 PHYSIOTHÉRAPEUTES  
EN SUISSE ROMANDE

- **Prévalence importante de croyances négatives sur le dos**
  - Le dos doit être protégé
  - Le dos a besoin d'une prise en charge spécifique
- **Conseils de protection et de reprise d'activités**
- **Croyances négatives associées avec traitement plus éloignées des guidelines et favorisant plus l'évitement**

# Mythes et faits



**Douleur  $\neq$  lésion**

# Abnormalities found on scans in asymptomatic people

1,211 - age 20 - 70  
**Disk Bulging = 87%**  
Nakashima et al. (2015). Spine

Systematic review - 3,110  
**Disk Degeneration = 37%** (20 y/o) to **96%** (80 y/o)  
Brinjikji et al. (2015) Am J Neuroradiol

51 men - age 40 - 70  
**Partial R.C Tear = 22%**  
**Bursal thickening = 78%**  
**Overall abnormalities = 96%**  
Girish et al. (2011). Am J Roent

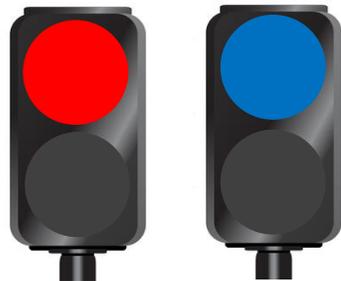
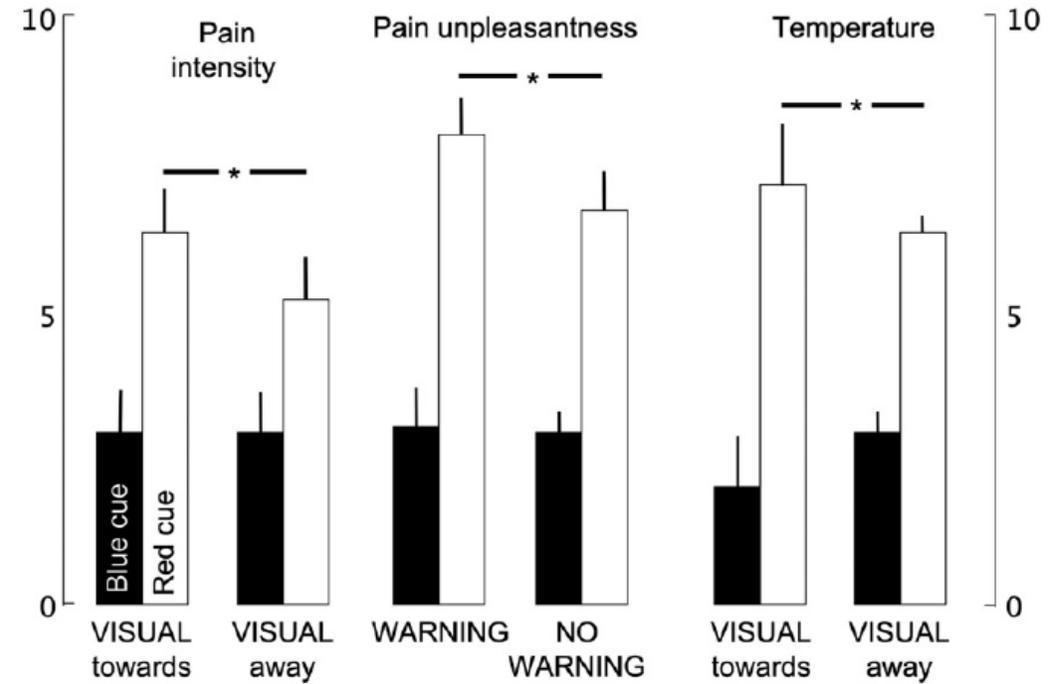
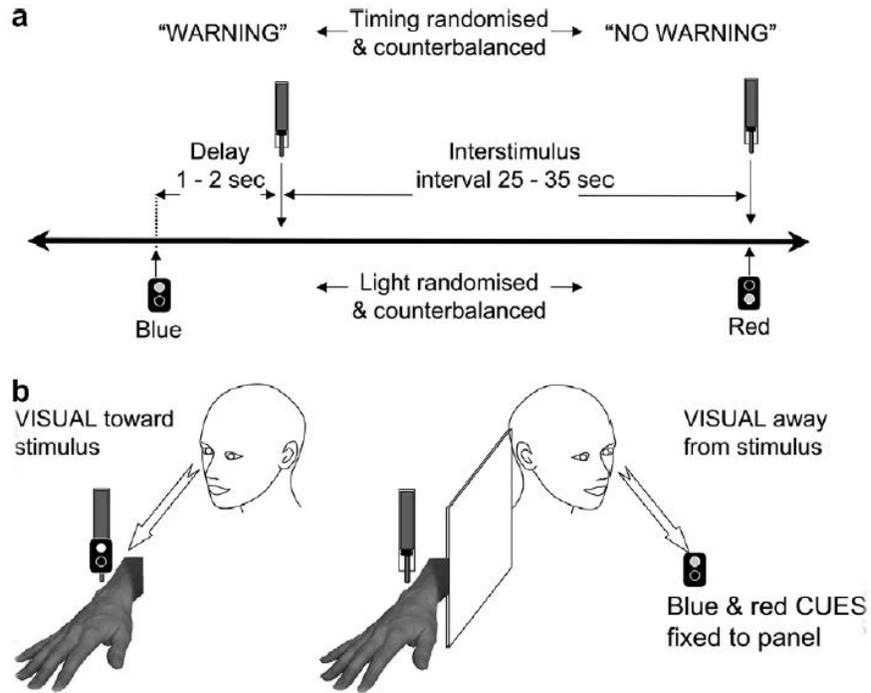
Systematic review 5,397 knees  
(>40yrs / <40yrs)  
**OA = 19 - 43%** / **4 - 14%**  
**Cartilage Defect = 43%** / **11%**  
**Meniscal Tear = 19%** / **4%**  
Culvenor et al. (2018). BJSM

Systematic review - 2,114  
asymptomatic hips  
**CAM Deformity = 37%**  
**Pincer deformity = 67%**  
**Labral Injury = 68%**  
Frank et al. (2015). Arthroscopy

48 - mean age 47  
**Mortons Neuroma = 54%**  
Symeonidis et al. (2012). Foot Ankle Int

320 MRIs - Median age 51  
**ATFL pathology = 37%**  
O'Neil et al. (2017). Foot Ankle Ortho

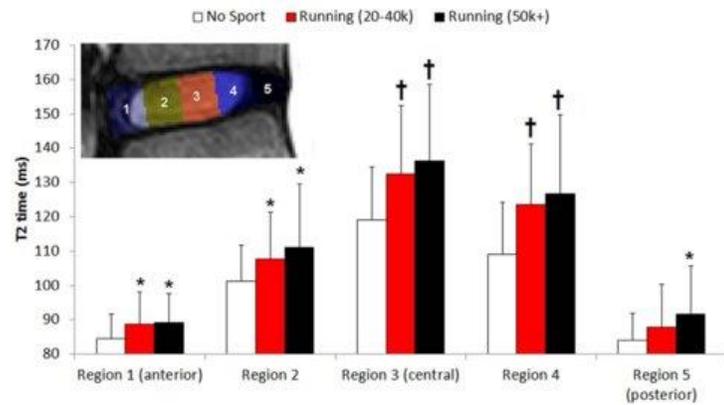
# Douleur ≠ lésion



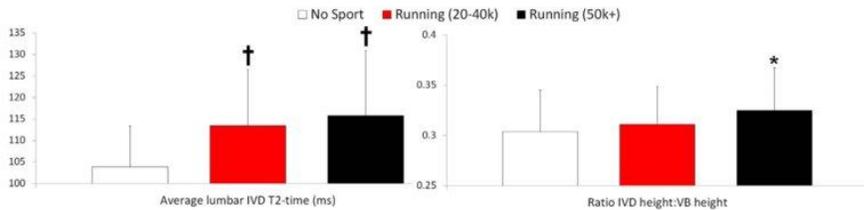
- Stimulus  $-20^{\circ}$
- Perception: chaud quand rouge, froid quand bleu
- Plus douloureux quand la lumière rouge est allumée

## Running exercise strengthens the intervertebral disc

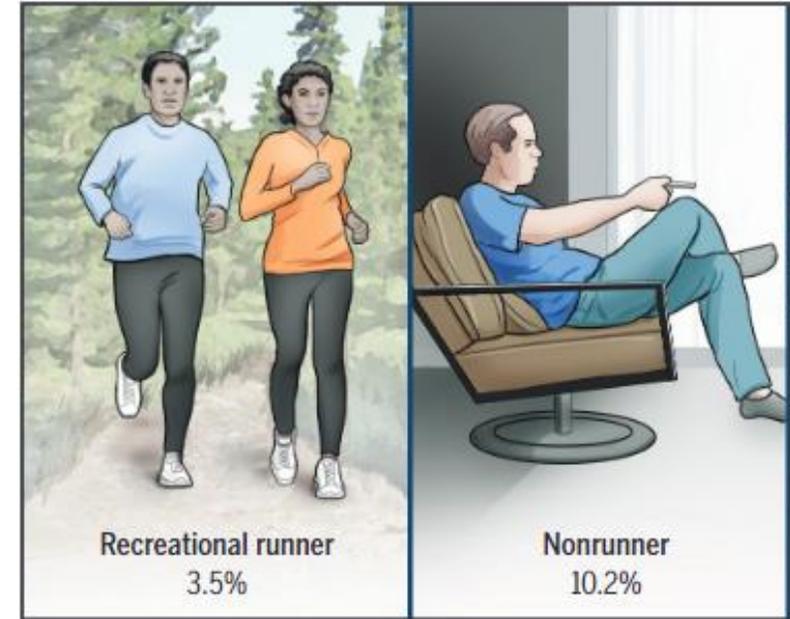
Daniel L. Belavý<sup>1</sup>, Matthew J. Quittner<sup>1</sup>, Nicola Ridgers<sup>1</sup>, Yuan Ling<sup>2</sup>, David Connell<sup>2,3</sup> & Timo Rantalainen<sup>1</sup>



**Figure 3.** The impact of running on the disc is strongest in the nucleus. Top: 3D plot of mean T2-time across entire IVD volume. Bottom: At the mid-line (sagittal) portion of the IVD the impact of running can be seen to be greatest in the central, nuclear, portion of the IVD. \* $p < 0.05$ ; † $p < 0.01$  versus non-sporting group. Greater T2-times indicate<sup>13</sup> better IVD hydration and glycosaminoglycan content.



**Figure 1.** Runners have more hydrated (left) and hypertrophied (right) lumbar IVDs. Values are mean(SD) averaged across all lumbar discs. Left panel: Higher T2-times indicate<sup>13</sup> better IVD hydration and glycosaminoglycan content. Right panel: IVD height relative to vertebral body height. \* $p < 0.05$ ; † $p < 0.01$  and indicate significance of difference to the non-sporting group.



## Running Does Not Increase Symptoms or Structural Progression in People with Knee Osteoarthritis: Data from the Osteoarthritis Initiative

**Conclusions**—Among individuals over 50 years old with knee OA, self-selected running is associated with improved knee pain and not with worsening knee pain or radiographically defined structural progression. Therefore, self-selected running, which is likely influenced by knee symptoms and may result in lower intensity and shorter duration sessions of exercise, need not be discouraged in people with knee OA.

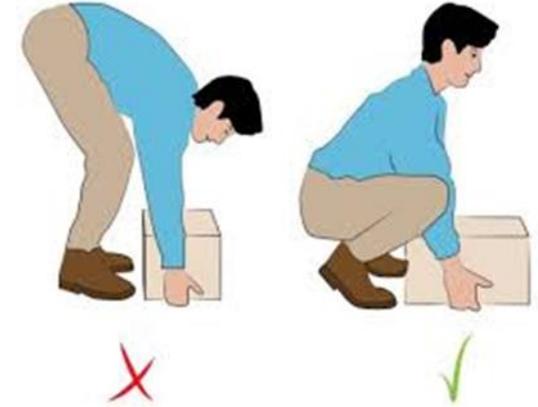
# Facteurs biomécaniques

## Causal assessment of occupational bending or twisting and low back pain: results of a systematic review.

Wai EK<sup>1</sup>, Roffey DM, Bishop P, Kwon BK, Dagenais S.

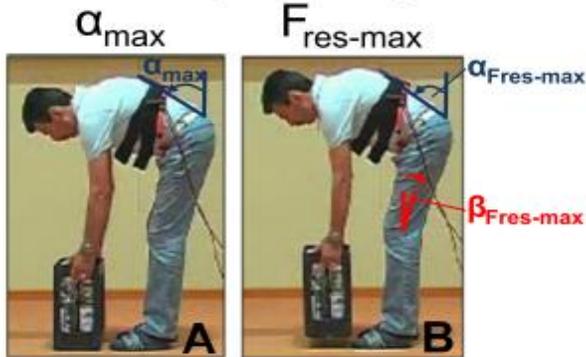


LA FLEXION N'EST PAS UN FACTEUR DE RISQUE INDÉPENDANT DE LOMBALGIE



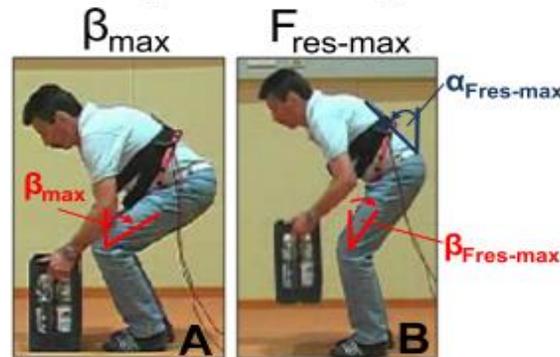
Schmidt et al. 2015

### Stoop lifting



4% de différence sur le disque !

### Squat lifting



## Manual material handling advice and assistive devices for preventing and treating back pain in workers: a Cochrane Systematic Review

J Verbeek, K P Martimo, J Karppinen, P P Kuijer, E P Takala and E Viikari-Juntura

UN PROGRAMME DE MANUTENTION N'A PAS D'EFFET SUR LES DOULEURS DE DOS

# Posture

> [Phys Ther.](#) 2021 Jan 13;pzab007. doi: 10.1093/ptj/pzab007. Online ahead of print.

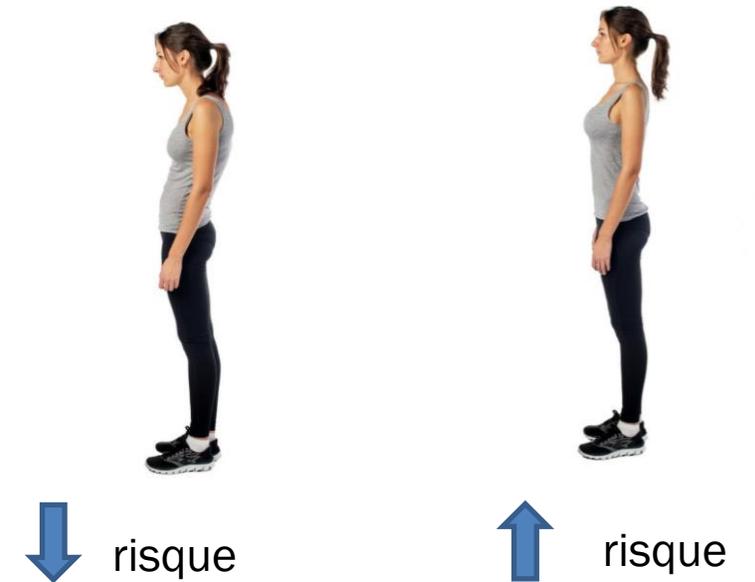
## Is Neck Posture Subgroup in Late Adolescence a Risk Factor for Persistent Neck Pain in Young Adults? A Prospective Study

Karen V Richards<sup>1 2</sup>, Darren J Beales<sup>1 3</sup>, Anne L Smith<sup>1 4</sup>, Peter B O'Sullivan<sup>1 5</sup>, Leon M Straker<sup>1 4</sup>

**Impact:** Women in late adolescence who sat in slumped thorax/forward head or intermediate posture rather than upright sitting posture had a lower risk of PNP as a young adult. The practice of generic public health messages to sit up straight to prevent neck pain needs rethinking.



@Professor\_MRay



de développer des douleurs de nuque persistantes !



**QUELS SONT LES FACTEURS QUI SONT IMPORTANTS AFIN D'AMÉLIORER LE PATIENT ?**

## Is a positive clinical outcome after exercise therapy for chronic non-specific low back pain contingent upon a corresponding improvement in the targeted aspect(s) of performance? A systematic review

F. Steiger · B. Wirth · E. D. de Bruin ·  
A. F. Mannion

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© Springer-Verlag 2011

### Abstract

**Introduction** The effect size for exercise therapy in the treatment of chronic non-specific low back pain (cLBP) is only modest. This review aims to analyse the specificity of the effect by examining the relationship between the changes in clinical outcome (pain, disability) and the changes in the targeted aspects of physical function (muscle strength, mobility, muscular endurance) after exercise therapy.

**Methods** We searched for exercise therapy trials for cLBP published up to 15 April 2010 in Medline, Embase, Cochrane Library, Cinahl, and PEDro. Two independent reviewers selected studies according to the inclusion criteria. Data extraction: one author extracted the data of the articles.

**Results** Data synthesis: 16 studies with a total of 1,476 participants met the inclusion criteria. There was little evidence supporting a relationship between the changes in pain or physical function and the changes in performance for the following measures: mobility (no correlation in 9 studies, weak correlation in 1 study), trunk extension strength (7 and 2, respectively), trunk flexion strength (4 and 1, respectively) and back muscle endurance (7 and 0, respectively). Changes in disability showed no correlation with changes in mobility in three studies and a weak correlation in two; for strength, the numbers were four (no correlation) and two (weak correlation), respectively.

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**Conclusions** The findings do not support the notion that the treatment effects of exercise therapy in cLBP are directly attributable to changes in the musculoskeletal system. Future research aimed at increasing the effectiveness of exercise therapy in cLBP should explore the coincidental factors influencing symptom improvement.

**Keywords** Chronic non-specific low back pain ·  
Correlation · Clinical outcome · Physical performance ·  
Exercise therapy

### Introduction

Studies examining the effects of exercise therapy in the treatment of chronic non-specific low back pain (cLBP) show in general only moderate effectiveness [1–3]. This is often explained by the contradiction between the heterogeneity of cLBP patients and the uniformity of the exercise therapy approach [4]. In line with this approach lies the recommendation to sub-group patients and to develop relevant exercise programs for each group. However, there is little evidence that individually tailored or specific exercise programs show better success, which tends to question this approach [4]. Most exercise therapy trials report the changes in key outcome variables such as patient-rated pain, disability and global improvement, but they rarely examine these in relation to improvements in the targeted aspect of performance, e.g. strength or mobility. Hence, it cannot be assumed that the observed positive clinical outcome is a direct result of improvements in the specific functional deficit targeted by the treatment.

Recently, alternative theories have been proposed that aim to explain the lack of specificity of exercise therapy in cLBP. One suggests that the treatment effects of many cLBP therapies may be attributable to changes within the brain of

**Pas ou peu de relation** entre changement de douleur et de handicap fonctionnel et changement :

- **Mobilité** dos
- **Force** des extenseurs
- **Force** des fléchisseurs
- **Endurance** des paravertébraux
- **Activité** du Transverse de l'A.



L'amélioration des patients ne se fait pas par l'amélioration **des facteurs physiques** !

# Facteurs importants à changer



Lombalgie chronique (n=62)

3 semaines de rééducation

L'amélioration du handicap (après rééducation et à 1 année):

- ➔ Associé à une **diminution de la douleur dans le mouvement**
- ➔ Associé à une **diminution de la peur spécifique au mouvement**
- ➔ Pas associé avec **un changement des mesures biomécaniques spécifiques**

## Biomécaniques



Peur du mouvement

Douleur lors du mouvement

# Que faut-il changer en rééducation ?

✓ Confiance/Peur

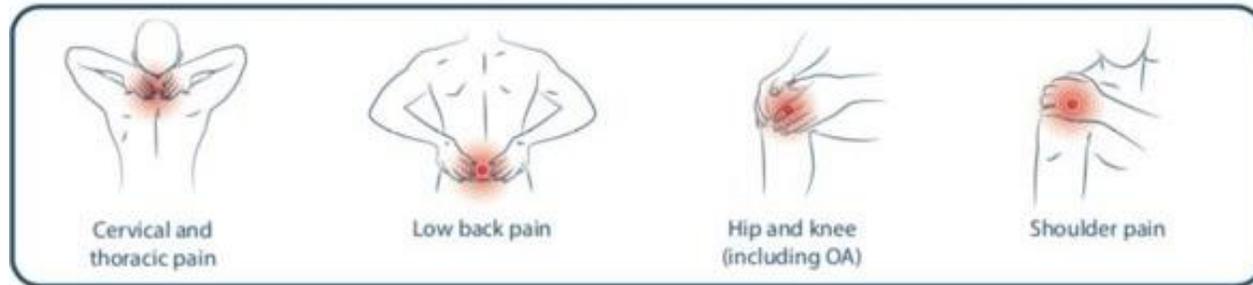
✓ Croyances

✓ Douleur

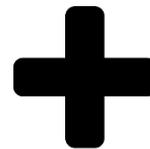
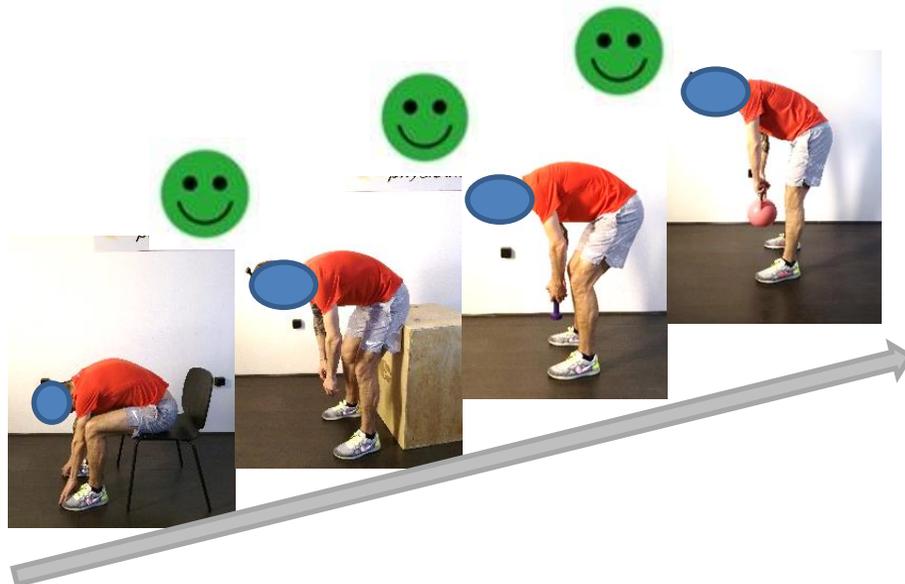
✗ Biomécanique

# Exercices – activité physique

## Exercices traitement n°1 en rééducation



↓ Douleur  
↓ Handicap

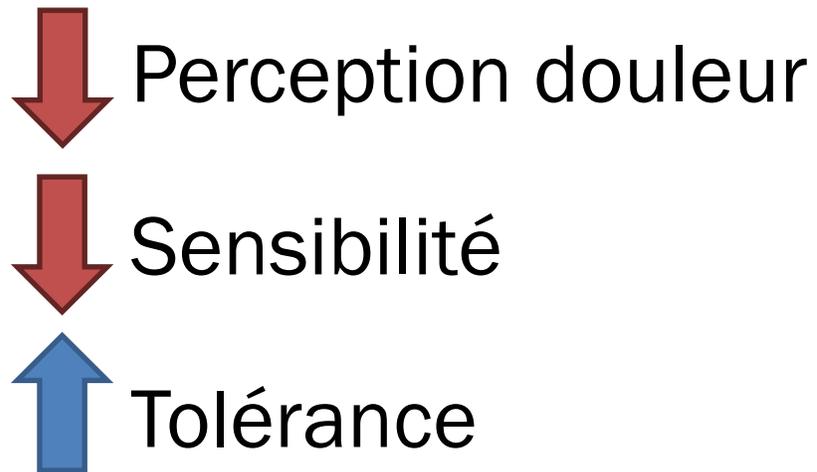


# Effets des exercices

## A Meta-Analytic Review of the Hypoalgesic Effects of Exercise

Kelly M. Naugle, Roger B. Fillingim, and Joseph L. Riley, III

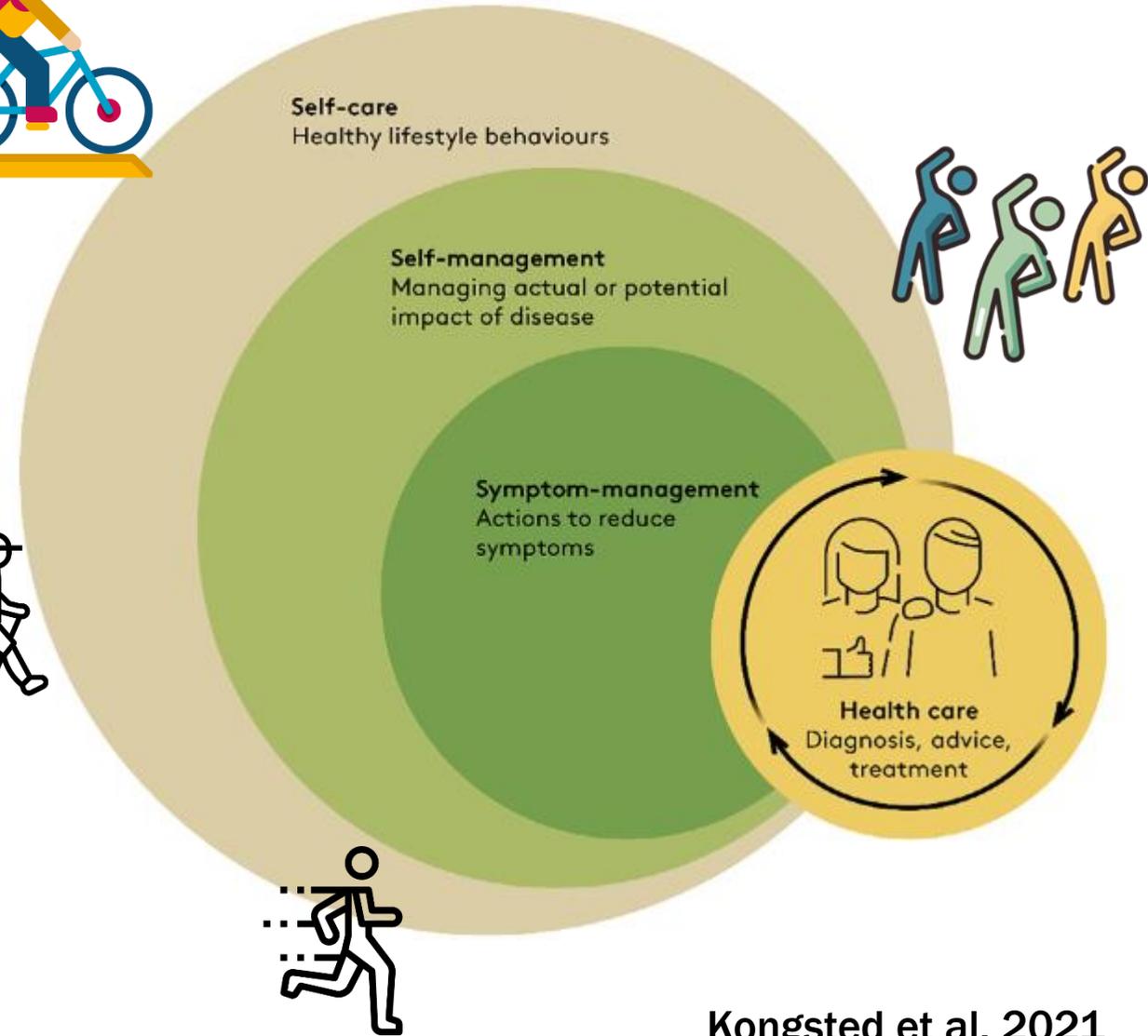
*Pain Research and Intervention Center for Excellence, University of Florida, Gainesville, Florida.*

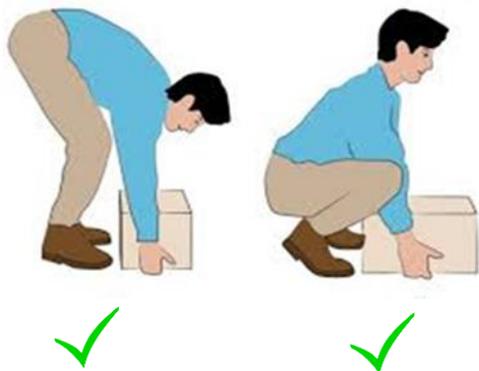


Activation des voies inhibitrices de la douleur

# Opportunités

Musculoskeletal conditions are a costly and growing problem





➔ **Importance de changer le discours sur les problèmes musculosquelettiques !**



[www.infomaldedos.ch](http://www.infomaldedos.ch)





**Merci de  
votre  
présence !**



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