Occupational and Environmental Medicine

Musculoskeletal Conditions and Chronic Pain Among Working Patients

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Faculty/Presenter Disclosure

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- **Faculty:** Andrea Furlan, MD PhD

- **Relationships with financial sponsors:**
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Faculty/Presenter Disclosure

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- **Presenter:** Lynn Cooper, BES

  Lived Experience – work injury & persistent pain

- **Relationships with financial sponsors:**
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- **<u>Potential for conflict(s) of interest</u>:**
  - None

Mitigating Potential Bias

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- The information presented in this program is based on recent information that is explicitly “evidence-based”.

- This Program and its material is peer reviewed and all the recommendations involving clinical medicine are based on evidence that is accepted within the profession; and all scientific research referred to, reported, or used in this CME/CPD activity in support or justification of patient care recommendations conforms to the generally accepted standards

Learning Objectives

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By the end of this session, participants will be able to:

1. Describe an approach to examine a person with a musculoskeletal (MSK) problem
2. Explain the indications of opioids for nociceptive, neuropathic and nociplastic chronic pain
3. Cite 10 evidence-based treatments for low back pain
4. Understand the impact of working with chronic pain on the person

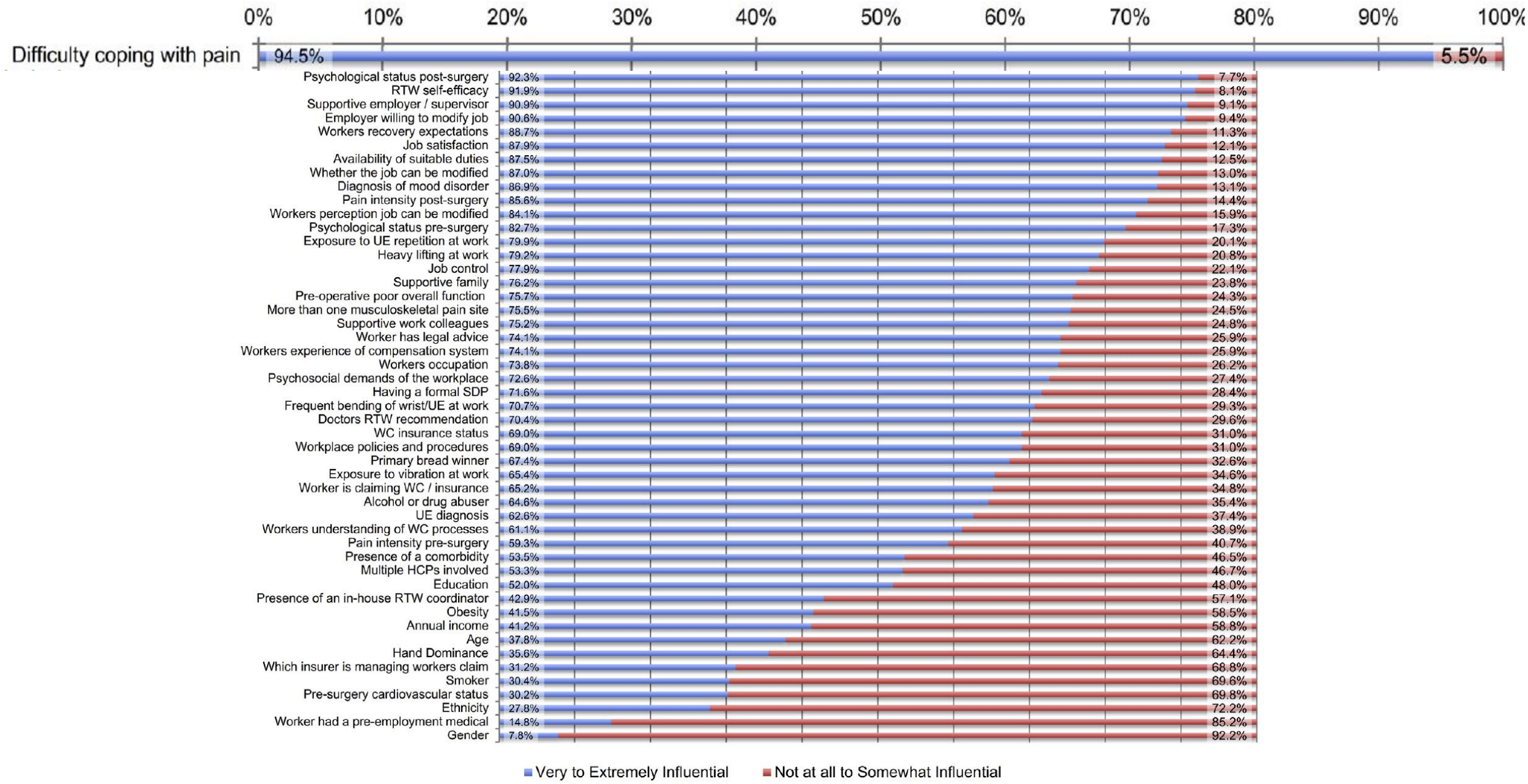

Fig. 2. Stakeholders' rating of factors influencing return to work. RTW = return to work; UE = upper extremity; HCP = health-care provider; SDP = suitable duties program; WC = workers' compensation.

Prevalence of Disability by Age Group, Canada

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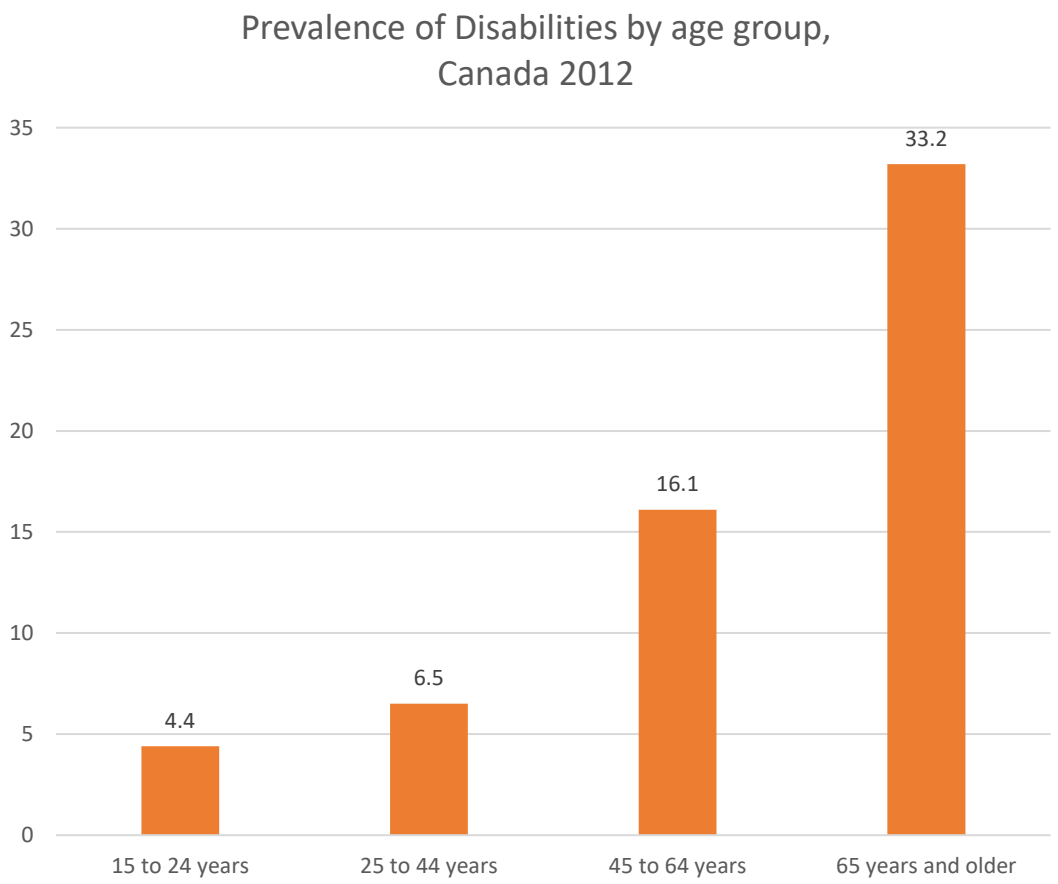
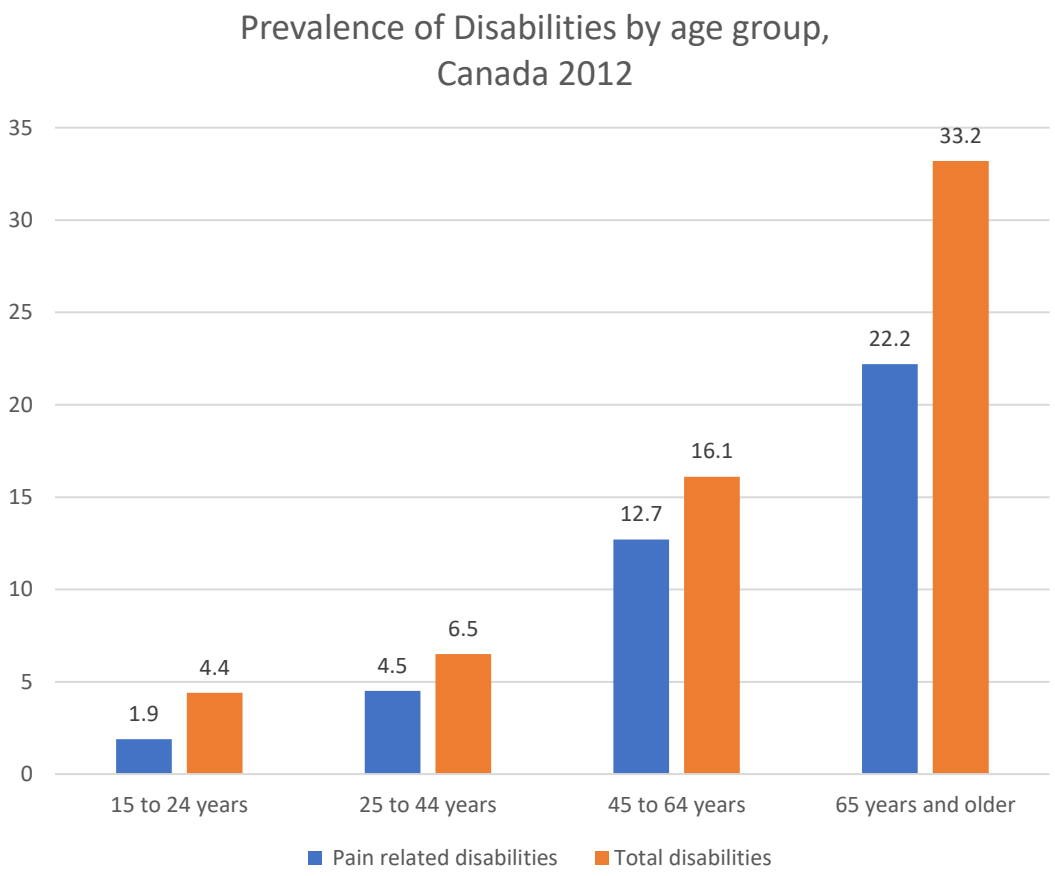
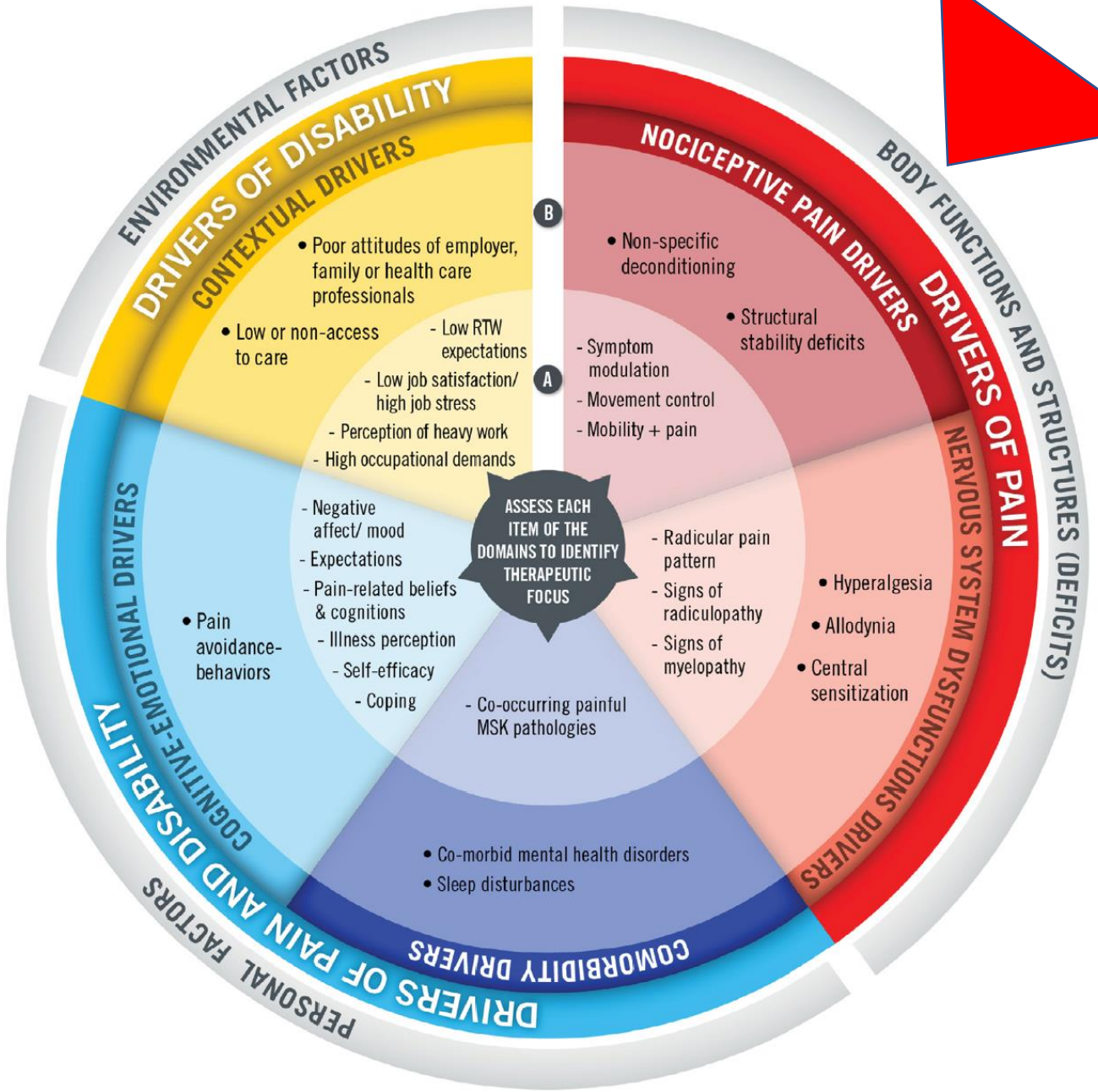




The most prevalent underlying pain-related conditions reported by those with pain-related disabilities were arthritis, dorsalgia, and dorsopathy.



Nociceptive Drivers

Tousignant-Laflamme, 2017
J Pain Research

Figure 1 Pain and disability driver management model. (**A**) refers to more common and/or modifiable elements; (**B**) refers to elements that are more complex and less modifiable, and that will prompt more aggressive or require interdisciplinary care to effectively address the problematic domain.
Abbreviations: RTW, return to work; MSK, musculoskeletal.

MSK Lesions

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Strain	
Sprain	
Contusion	

Dislocation	
Subluxation	

Synovitis	
Bursitis	

Rupture	
Tear	

Tendinopathy	
Tenosynovitis	
Tendinitis	
Calcific tendinitis	
Tendinosis	

Overuse syndrome	
Cumulative trauma disorder	
Repetitive strain injury	

MSK Lesions

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Strain	Overexertion in a muscle/tendon Grades: I (mild), II or III (rupture)
Sprain	Injury to a ligament Grades: I (mild), II or III (rupture)
Contusion	Capillary rupture, bleeding

Dislocation	Displacement with soft tissue damage
Subluxation	Partial dislocation

Synovitis	Inflammation of synovial membrane
Bursitis	Inflammation of a bursae

Rupture	Rupture and Tear are synonyms. Partial = pain; Complete = painless
Tear	

Tendinopathy	General term for tendon injury
Tenosynovitis	Inflammation of synovial membrane covering a tendon
Tendinitis	Inflammation of tendon
Calcific tendinitis	Tendinitis with calcium deposit
Tendinosis	Degeneration due to repetitive microtrauma

Overuse syndrome	Repeated, submaximal overload and/or frictional wear to a muscle or tendon resulting in inflammation and pain.
Cumulative trauma disorder	
Repetitive strain injury	

MSK Lesions – Time to Heal

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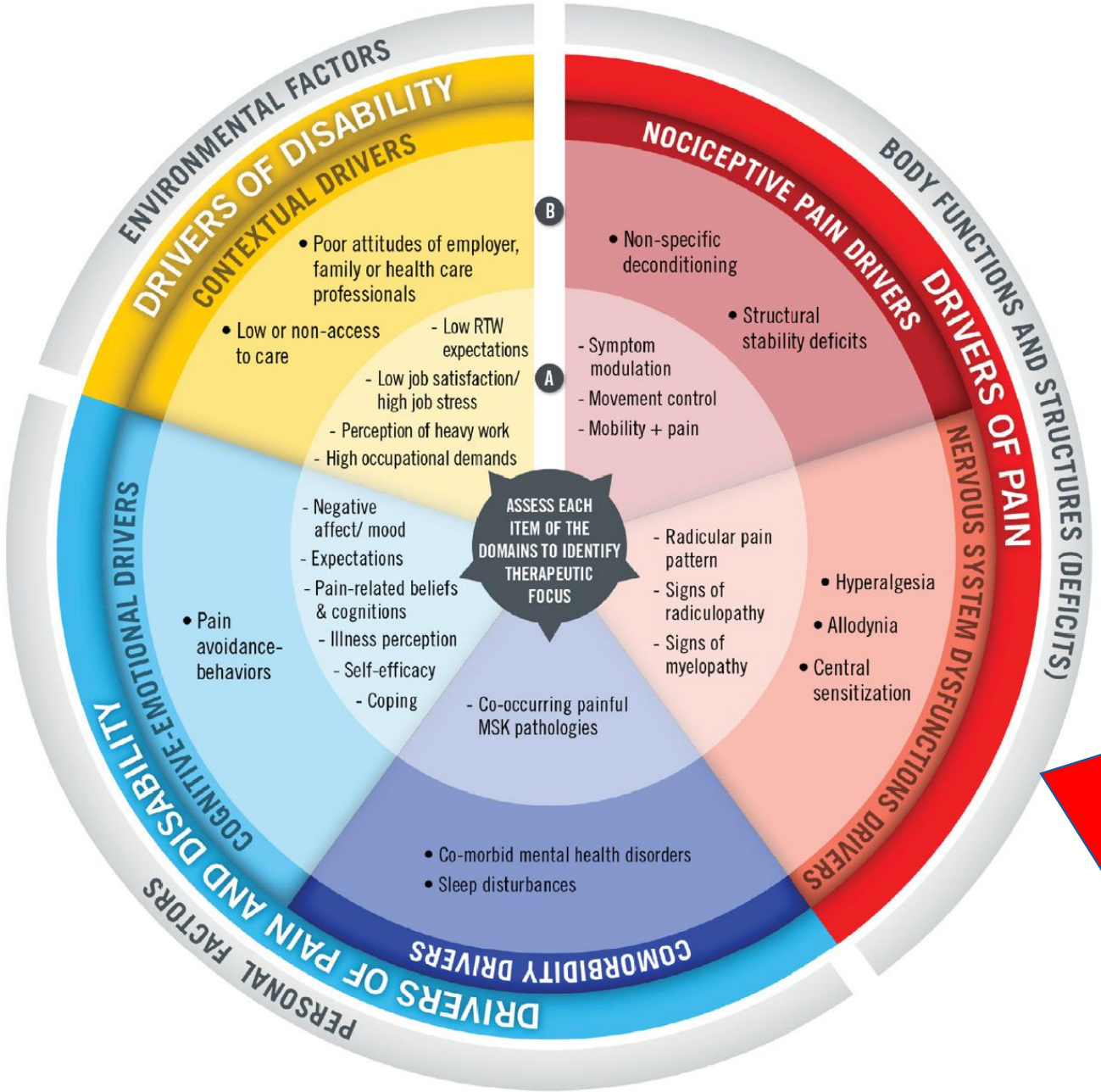
	weeks						months						
	1	2	3	4	5	6	2	4	6	8	10	12	18
Muscle Tendon Ligament injury		Grade 1 (mild)											
							Grade II						
										Grade III (tear)			
Shoulder	Subluxation												
							Dislocation						
									Frozen Shoulder				
	Forming calcific tendinitis (no pain)							Little pain		Severe pain		No pain	
Nerve				Post carpal tunnel release									
			Sciatica										

Canadian, PEI, Free resource, 2003 → http://www.gov.pe.ca/photos/original/wcb_disabilityg.pdf

US, paid subscription, up-to-date → https://www.mcg.com/odg/

Tousignant-Laflamme, 2017
J Pain Research



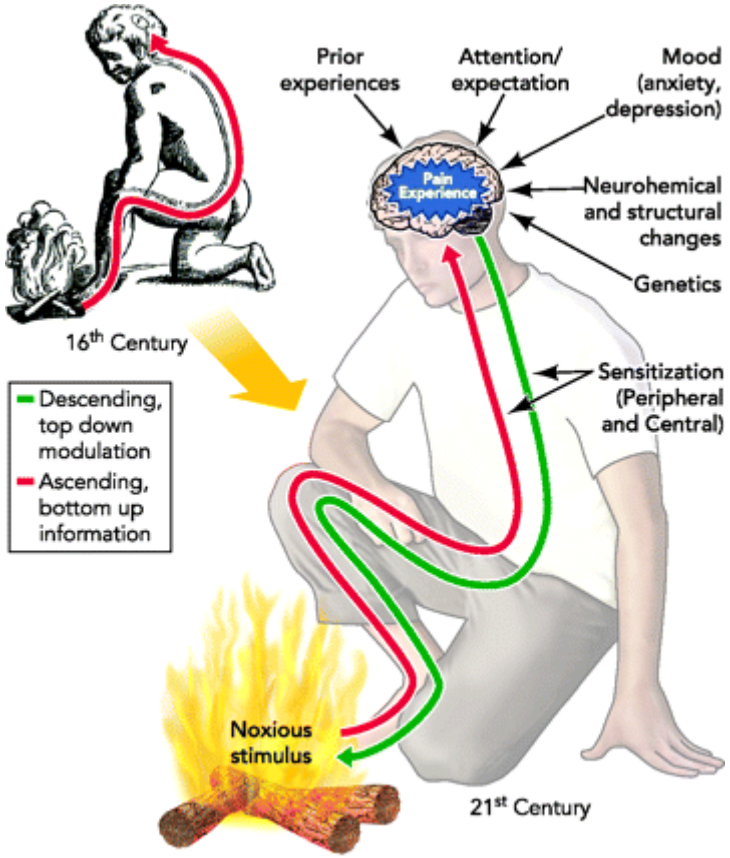
Nociplastic pain is defined as 'Pain that arises from altered nociception despite no clear evidence of actual or threatened tissue damage causing the activation of peripheral nociceptors or evidence for disease or lesion of the somatosensory system causing the pain (IASP)

3 types of pain
Nociceptive
Neuropathic
Nociplastic
Kosek, 2016 Do we need a third mechanistic description for chronic pain states?

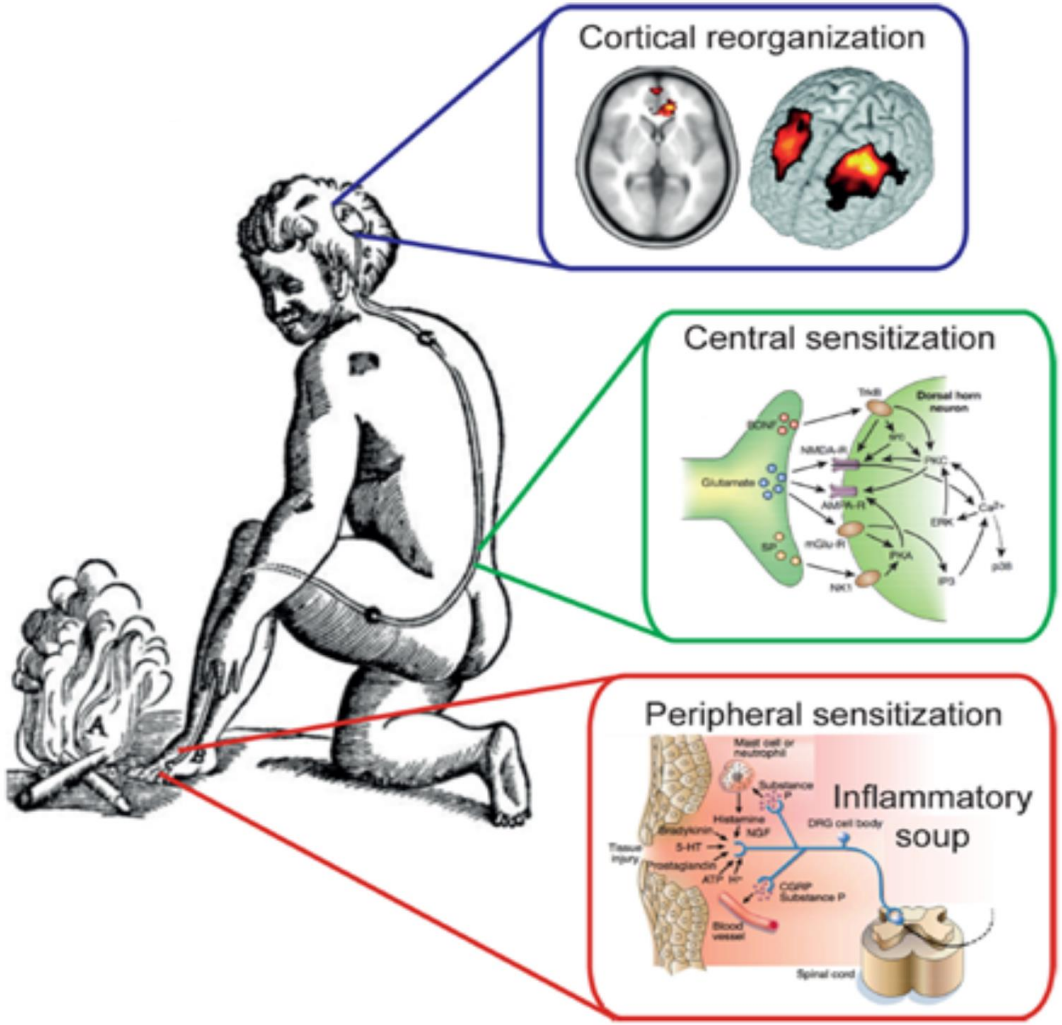
What is Pain?

Pain is "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage." (IASP 2020)

Descartes, 1644



What is Nociplastic Pain?



Chronic Pain is a Disease

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Chronic pain was recently recognized by the World Health Organization (WHO) as a disease in its own right, resulting in revisions to the latest (11th) version of the International Classification of Diseases (ICD-11).

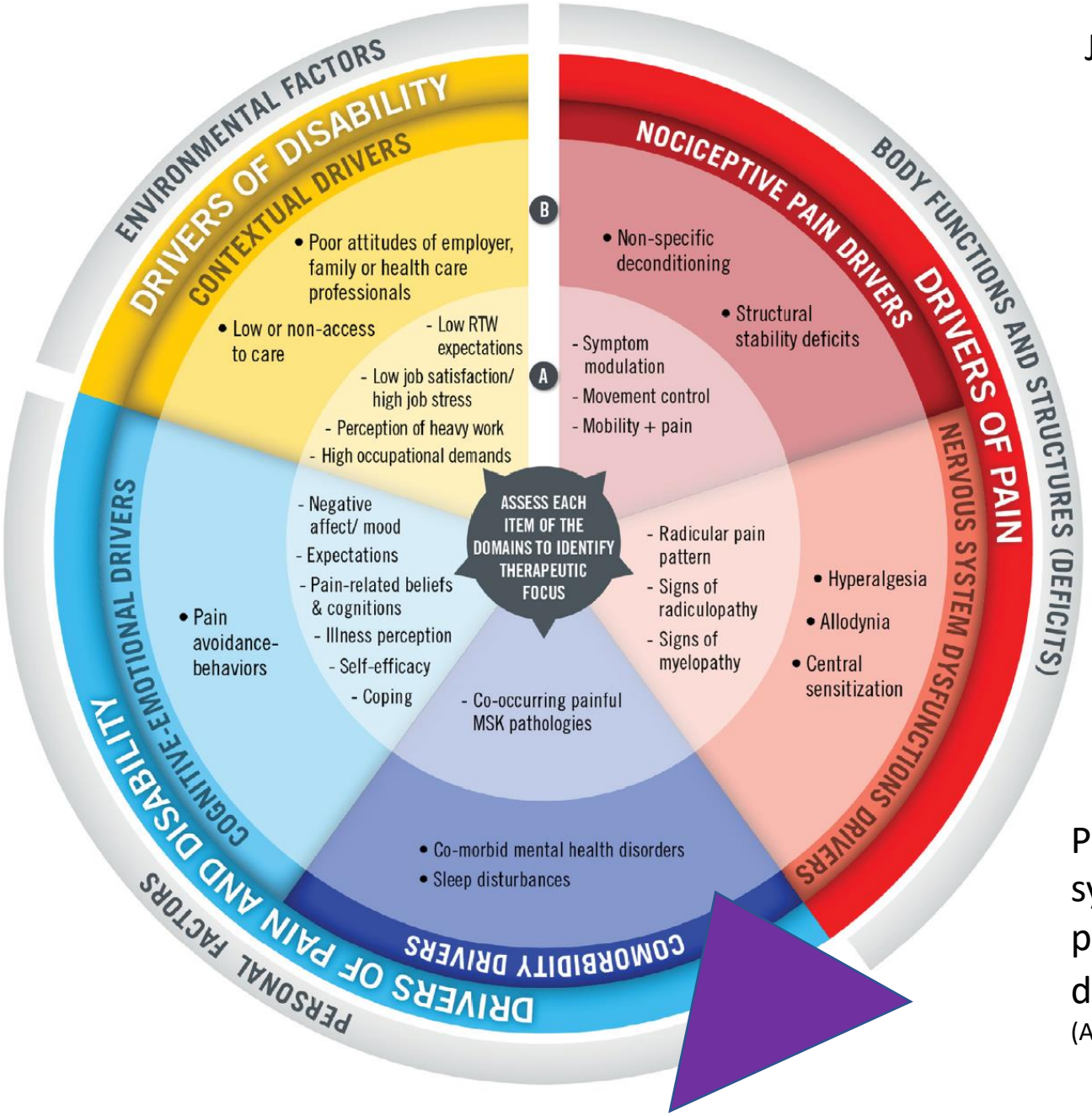
According to ICD-11, chronic pain can be further classified as **chronic primary pain** or chronic secondary pain.

Chronic primary pain is pain in one or more anatomical regions that:

1. Persists or recurs for longer than 3 months; and,
2. Is associated with significant emotional distress (e.g., anxiety, anger, frustration, depressed mood) and/or significant functional disability (interference in activities of daily life and participation in social roles); and,
3. The symptoms are not better accounted for by another diagnosis (Nicholas et al., 2019).

Chronic primary pain includes the following sub-diagnoses: chronic widespread pain, complex regional pain syndrome, chronic primary headache or orofacial pain, chronic primary visceral pain, and chronic primary musculoskeletal pain.

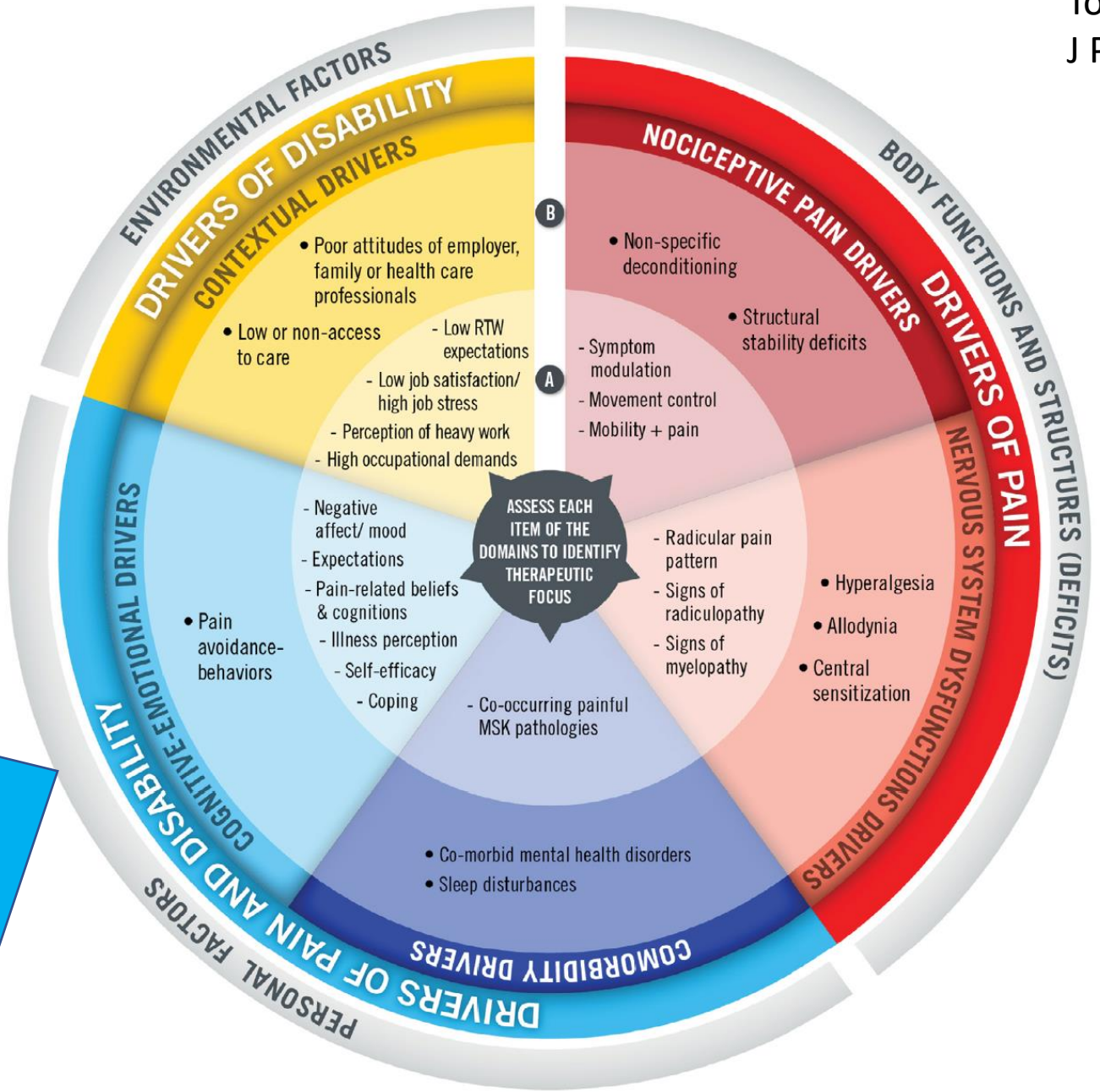
Tousignant-Laflamme, 2017
J Pain Research



Presence of painful symptoms reduce the probability of recovery from depression: 9% versus 47%
(Arango-Davila, 2018)

LC

Tousignant-Laflamme, 2017
J Pain Research



Catastrophizing was the strongest and most consistent psychosocial factor associated with persistence of pain and poor function in persons with chronic pain, even after controlling for depression.

Catastrophizing is a modifiable risk factor (Arango-Davila, 2018)

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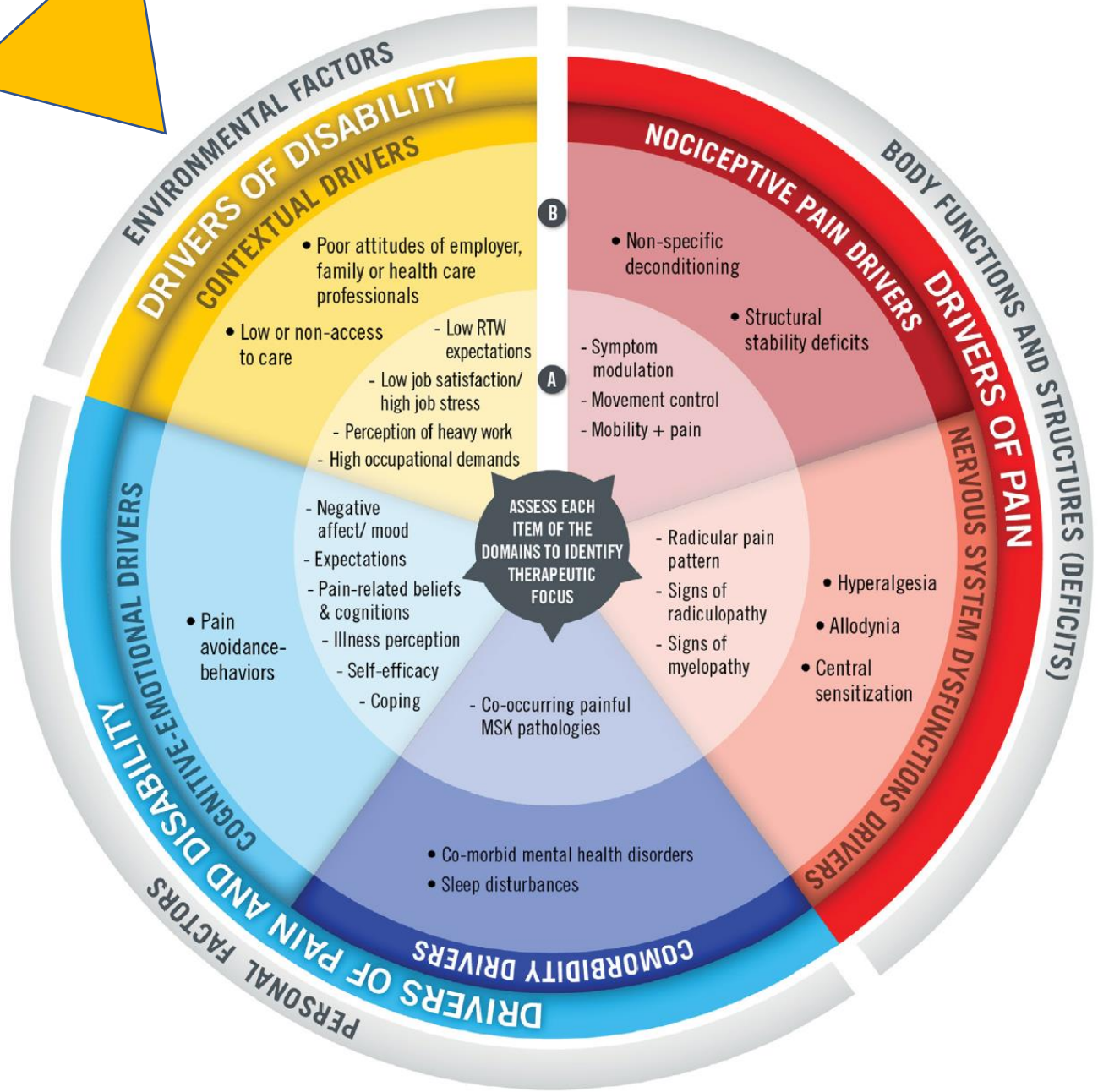
Tousignant-Laflamme, 2017
J Pain Research



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Flag System for Prognosis in Low Back Pain

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	Issue	Description	Actions
Red	Medical Issues	Neurological (cauda equina), Infection, Fracture, Tumour, Inflammation → NIFTI	Admit to hospital Refer to specialist
Orange	Psychiatric Issues	Major personality disorder, Substance Use Disorder, PTSD, Psychosis, High levels of anxiety, distress	Refer to psychiatry consult
Yellow	Psychological Behavioural	Poor coping strategies, Low self-efficacy, Fear avoidance, maladaptive behviours and beliefs, Family reinforcement, litigation, compensation	Refer to multidisciplinary pain management team
Blue	Perception of Work	Not working, fear of re-injury, poor work satisfaction, work-related stress	Address issues in collaboration with employer
Black	Actual Work Conditions	Poor work conditions, manual work, unsociable hours	Consultation with employer and policy makers

Assessment of Patients with Chronic Pain

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Questionnaires

Before the visit

- Screening for depression, anxiety, somatization
- Central Sensitization Inventory
- Neuropathic Pain Screening
- List of current and past treatments (effectiveness and failures)
- Past medical and family history
- Previous investigations/consults

On the day of the visit

- Brief Pain Inventory: pain intensity x 4 and pain interference
- Body pain diagram
- Specific depending on condition (e.g. OHRT if work disability, Fibromyalgia Diagnostic Criteria if widespread pain, or STOP-BANG if sleep apnea.

Clinical Assessment

Patient's goals

History of present illness (SOCRATES*)

Physical examination:

- mental status
- mobility
- focused MSK
- neurological screening

* Site, Onset, Characteristics, Radiating, Associated symptoms, Timing, Exacerbating/Ameliorating, Severity

“5M IS” of Management of Chronic Primary Pain

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Mind	Movement	Modalities Manual	Medications	Interventional	Surgery
Pain Reprocessing Therapy (PRT)* Pain Neuroscience Education (PNE)** Graded Motor Imagery (GMI)*** CBT, ACT, MI, Group sessions, Written emotional expression, Psychomotor therapy, MBSR, EMG-biofeedback, distraction, hypnosis,	Aerobics/Cardio Strengthening Stretching Relaxation Water-based Home/group based Pilates Tai Chi Qigong Yoga	Acupuncture Electrotherapy TENS Manipulation Mobilization Massage	Lower dose rational polypharmacy Simple analgesics Serotonin Gaba Tramadol Low-dose naltrexone THC/CBD?	Trigger point injections Nerve blocks Nerve ablation Intra-articular injections Capsular distension Botulinum toxin Regenerative medicine	Joint replacements Spinal cord stimulator Deep brain stimulator Intrathecal pumps

FMguidelines.ca; *Ashar 2021 JAMA Psychiatry; **Jo Nijs; ***Lorimer Moseley

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Opioids at the WSIB

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REMEMBER: Management of (primary) chronic pain: TAPER OPIOIDS SLOWLY TO THE LOWEST POSSIBLE DOSE (Canadian Opioid Guideline recommendation #9)

Approach based on 2 key principles:

- Authorization of opioids for workers should support treatment goals that include improvement in function, pain relief, quality of life, and safe and sustained return to work
- Management of pain is consistent with current best practice

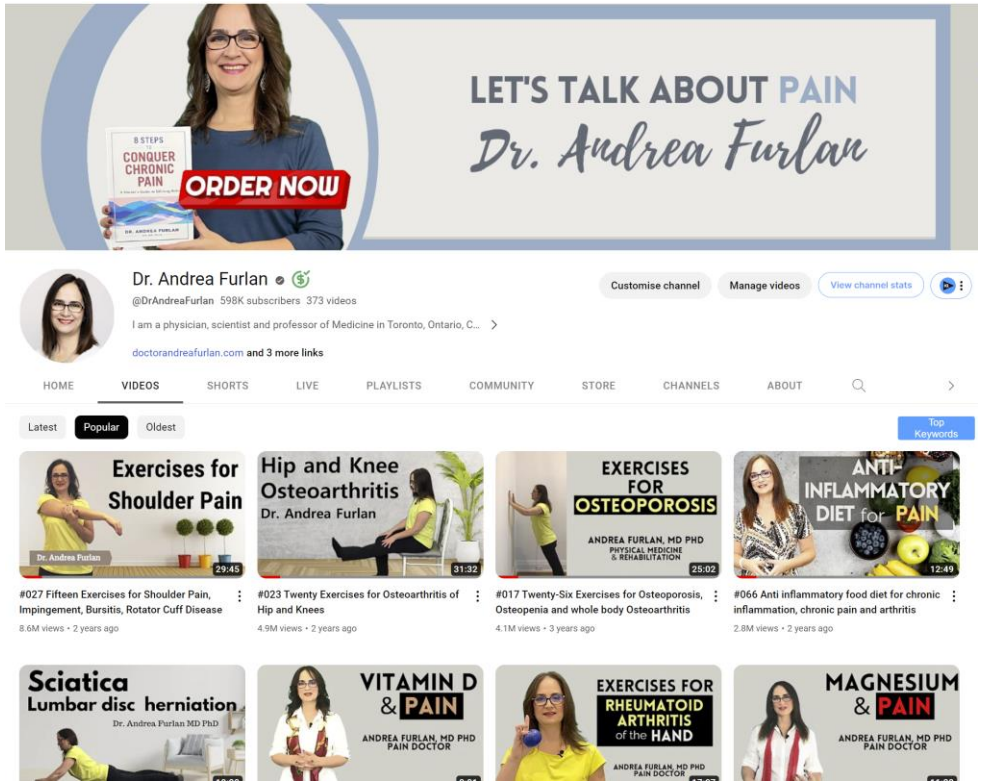
→Allow prescriptions for a maximum of 12 weeks

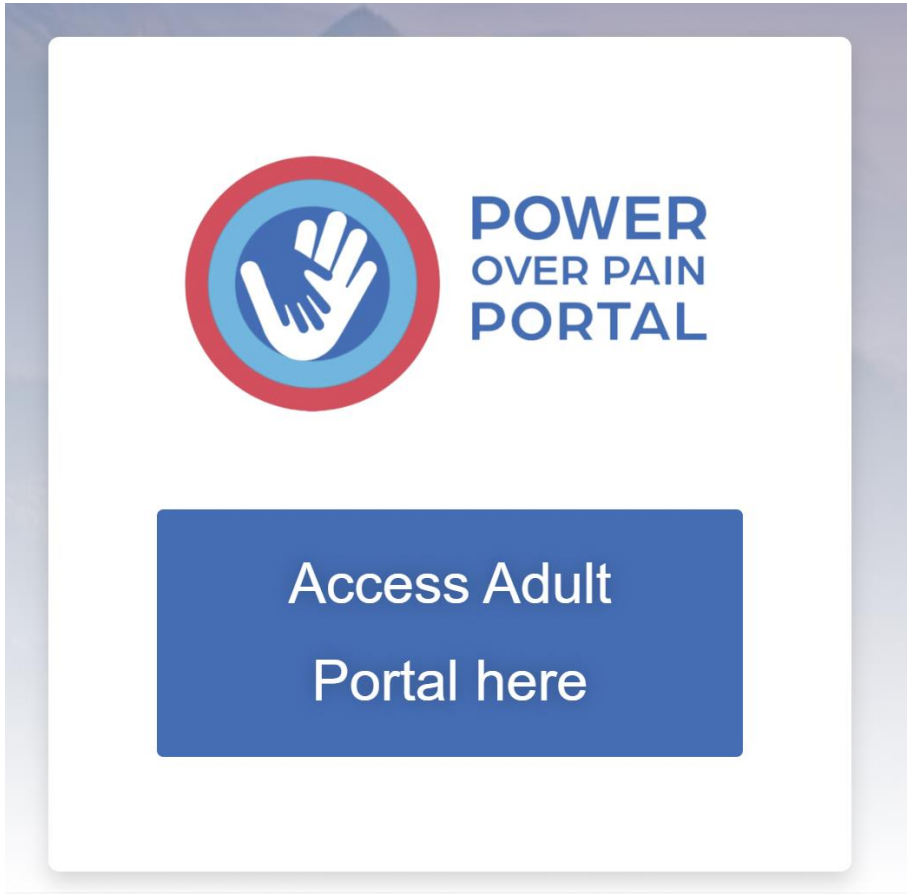
→Opioid coverage beyond 4 weeks will be subject to clinical review

→Endorse the 2017 Canadian Opioid Guideline

https://www.wsib.ca/en/opioids-wsib

Thank you





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Extra slides

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Chronic Pain and Comorbidities

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Insomnia

- Prevalence in the general population:
  - 9% chronic
  - 30% occasional
- Prevalence among persons with chronic pain: 65% to 89%

Anxiety

- Stressful situations in healthy individual → analgesia
- Stressful situations in an individual with central sensitization → hyperalgesia

Arango-Davila, 2018

Not all Chronic Pains are the Same

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Without central sensitization (secondary)

- Ascending Pain pathways are intact
- Descending inhibitory pathways are intact
- Underlying chronic pathology - pain
- No signs of central sensitization
- Expected (normal) psychological response
- Its function is to alert the individual to seek treatment
- For example: hip osteoarthritis

With central sensitization (primary)

- Malfunction of pain system
- No underlying pathology
- Many signs of central sensitization
- Abnormal psychological response to pain
- Difficulty to concentrate, sleep, relationships, work
- Chronic fatigue (physical and mental)
- It has no function to the individual
- For example: fibromyalgia

"Nociceptive pain"

"Neuropathic pain"

"Nociplastic pain"

Symptoms of Central Sensitization (CS)

Project ECHO

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Hypersensitivity to bright light, noise, touch, pesticides, food, mechanical pressure, medication, temperature, weather

Widespread pain

Fatigue (physical and mental)

Sleep disturbance

Numbness

Swelling sensations

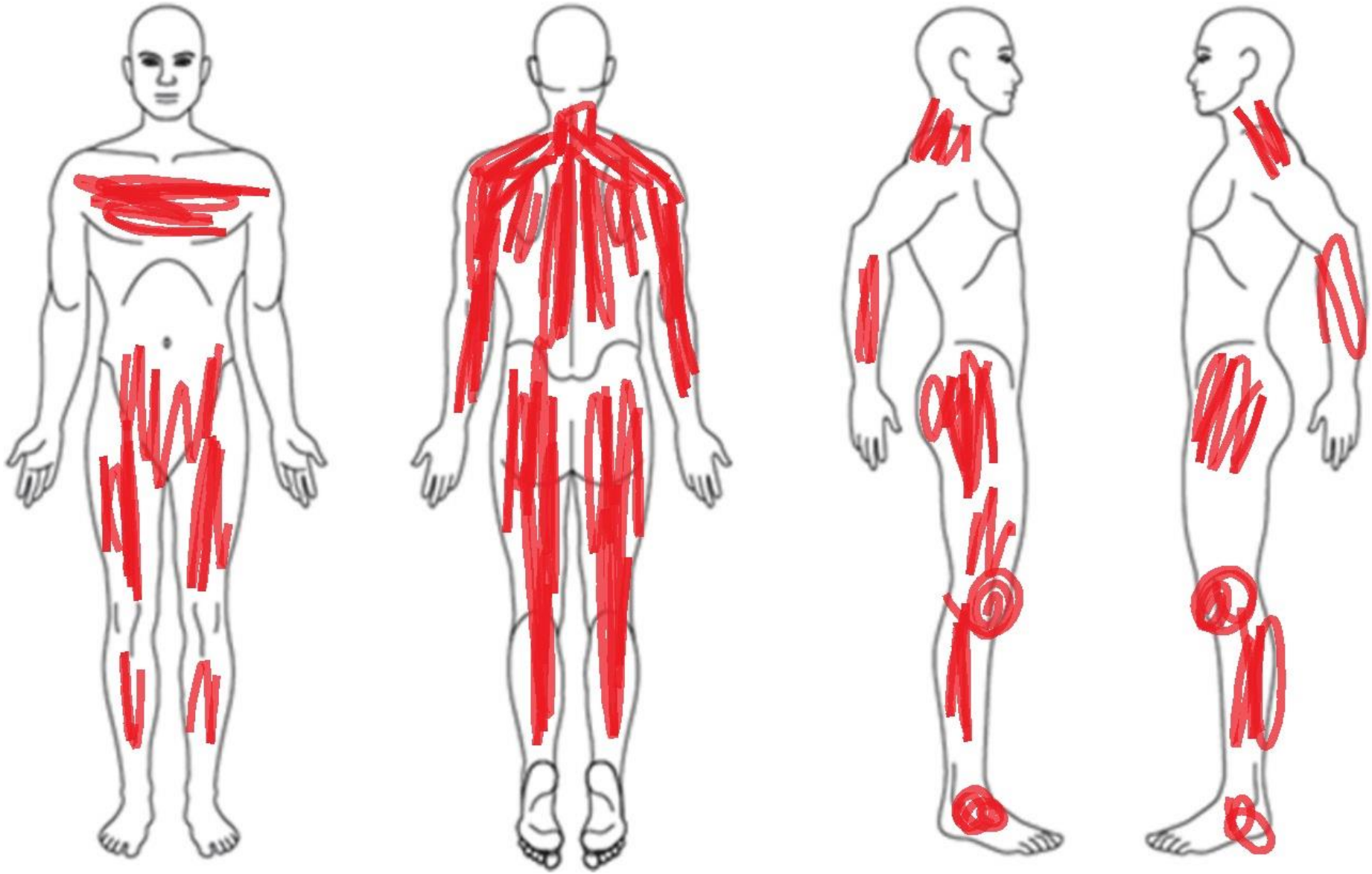
Low libido

Low mood

Confirmation with physical exam (sensory examination)

Project ECHO

Occupational and Environmental Medicine



Chronic Pain and Comorbidities

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Chronic Pain has worldwide prevalence:
1 in 5 children and adults; 1 in 3 older adults

Pain and Depression

- Prevalence of pain symptoms in patients with depression: 65% (range 15% to 100%)
- Presence of painful symptoms reduce the probability of recovery from depression:

  9% versus 47%

Arango-Davila, 2018

Psychology of Pain Catastrophizing

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A maladaptive coping style.

A construct with three components:

- magnification or amplification of pain
- ruminating thoughts about pain
- perceived helplessness in the face of pain

The strongest and most consistent psychosocial factor associated with persistence of pain and poor function in persons with chronic pain, even after controlling for depression.

Catastrophizing **is modifiable** and, if treated by psychosocial interventions, pain improves with a decrease in catastrophizing.

Psychology of Pain Fear Avoidance

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Another maladaptive coping style.

The avoidance of work, movement, or other activities due to fear that they will damage the body or worsen pain.

Pain patients high in fear avoidance have worse long-term outcomes.

Fear avoidance is associated with catastrophic misinterpretations of pain, hypervigilance, increased escape and avoidance behaviors, and increased pain intensity and functional disability.

Pain-related fear may increase the risk for developing new-onset back pain, for its chronification, and for its persistence.

The value of **changing beliefs about pain early in its course** has been shown in studies involving patient education in physician's offices and over the public radio.

Psychology of Pain Job Satisfaction

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Job satisfaction **is NOT** a prognostic factor for duration of sick leave form chronic pain

Supervisor support **may be a factor** in duration of sick leave from chronic pain

Inconclusive evidence for the effects of job demands, job control, job strain, skill discretion, decision authority, job security, co-worker support, supervisory support, psychological demands, physical demands, and work flexibility on duration of work absenteeism

There is **strong evidence**, however, that heavy work is a predictor for longer duration of sick leave. Although assignment to light duties as commonly used for a rapid return to work appears not to shorten sick leave in workers with acute low back pain, staying active and modified work are supported

Psychology of Pain

Recovery expectation

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Strongest predictor of work outcome for patients with pain

Recovery expectations measured within weeks of new-onset of pain can identify people at risk of poor outcome.

Expectation is a complex construct composed of numerous variables such as concerns about pain exacerbations, recurrent pain, financial security, support at work, and self-confidence.

Practitioners may need to further inquire why patients have beliefs of delayed recovery and address specific concerns.