Musculoskeletal Injuries and Chronic Pain among Working Patients

Andrea Furlan, MD PhD
Institute for Work & Health

Nov 19, 2021

Faculty/Presenter Disclosure

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

- **Relationships with financial sponsors:**
  - **Grants/Research Support:** Health Canada, CIHR, Ontario Health, Canadian Generic Products Association, WSIB Grants Program, WorkSafe BC, Desjardins Insurance
  - **Speakers Bureau/Honoraria:** No
  - **Consulting Fees:** WSIB Drug Advisory Committee
  - **Patents**: No
  - **Other:** YouTube monetized channel, Amazon affiliate marketing

Disclosure of Financial Support

- **This program has received financial support from the Workplace Safety and Insurance Board (WSIB) in the form of an educational grant.**
- **This program has received in-kind support from** – N/A

- **<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 problem

2) Explain the indications of opioids for nociceptive, neuropathic and nociplastic chronic pain

3) Cite 10 evidence-based treatments for low back pain

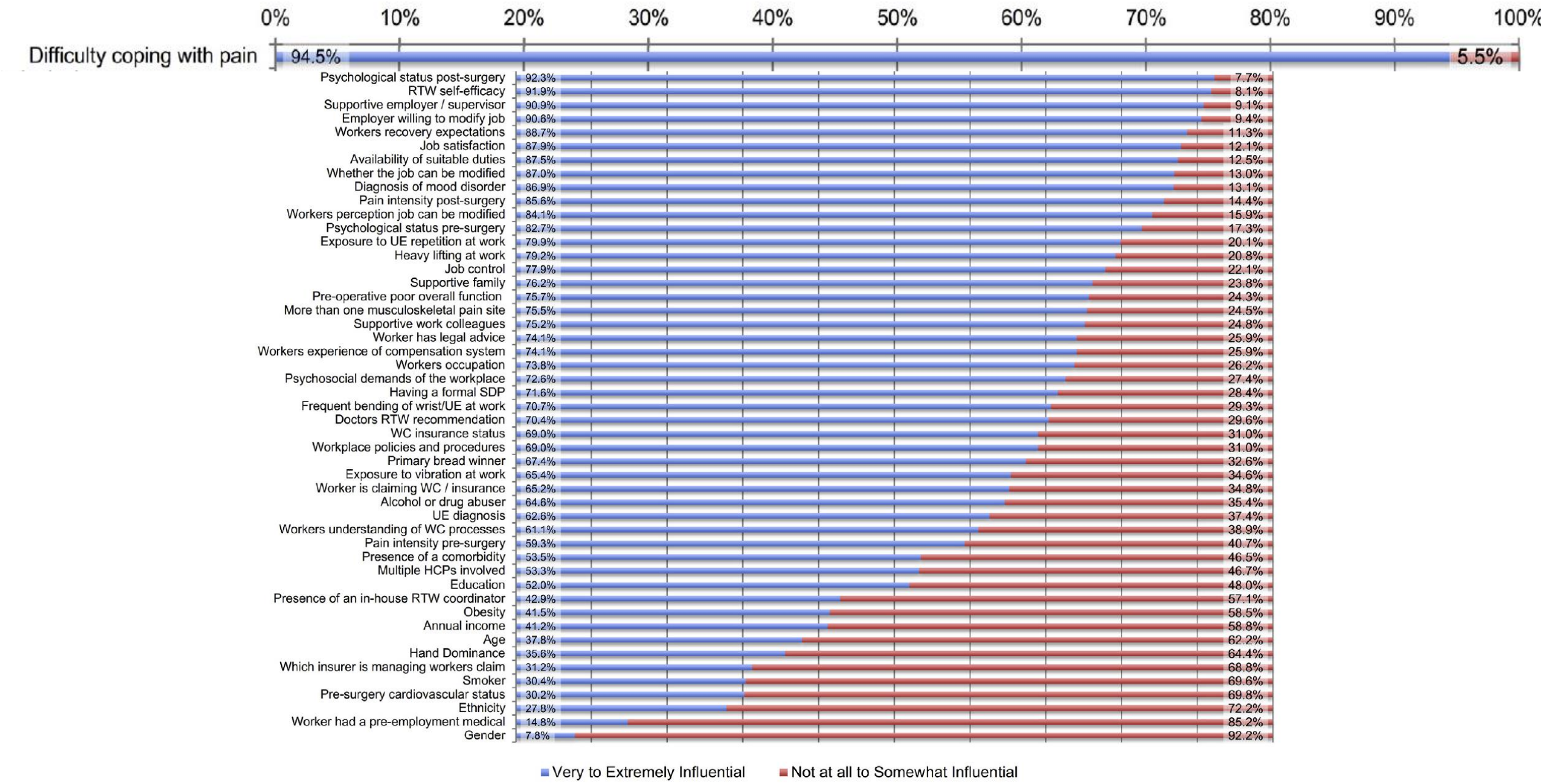
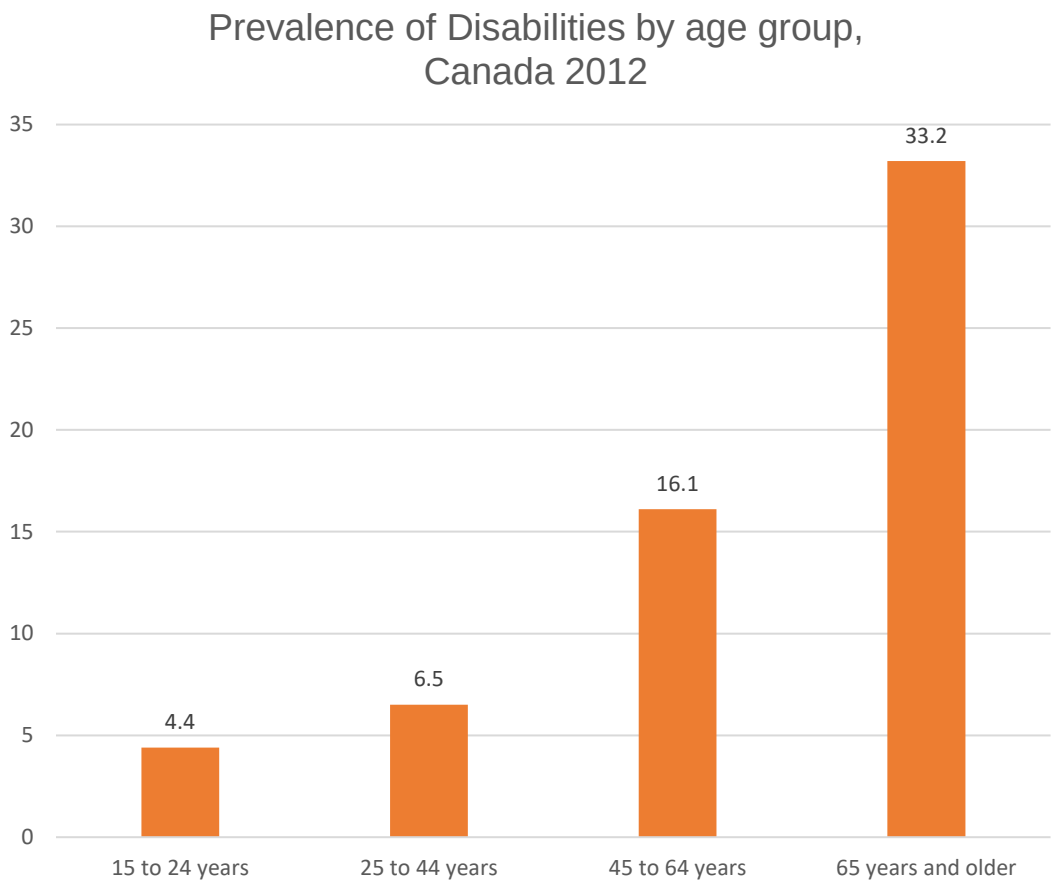
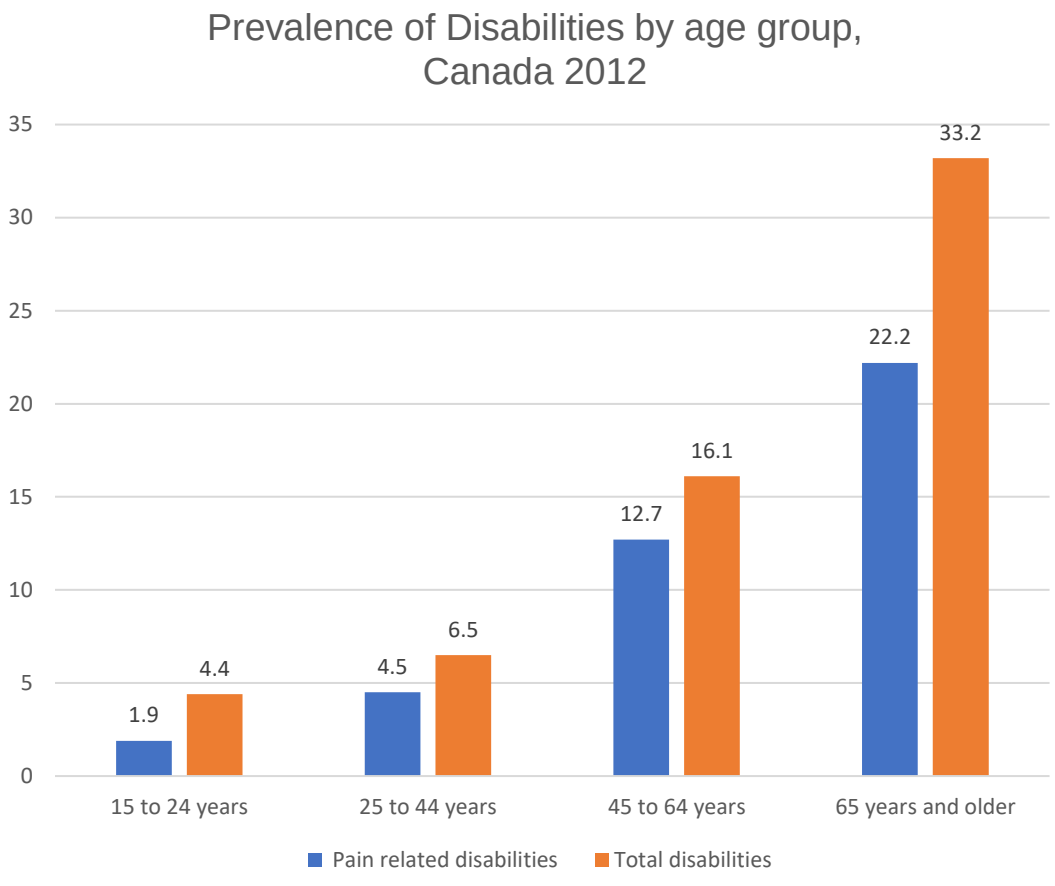


Fig. 2. Stakeholders' rating of factors influencing return to work. RTW = return to work; UE = upper extremity; HCP = health-care provider; SDP = suitable duties program; WC = workers' compensation.

Prevalence of Disability by Age Group, Canada





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

Tousignant-Laflamme, 2017
J Pain Research

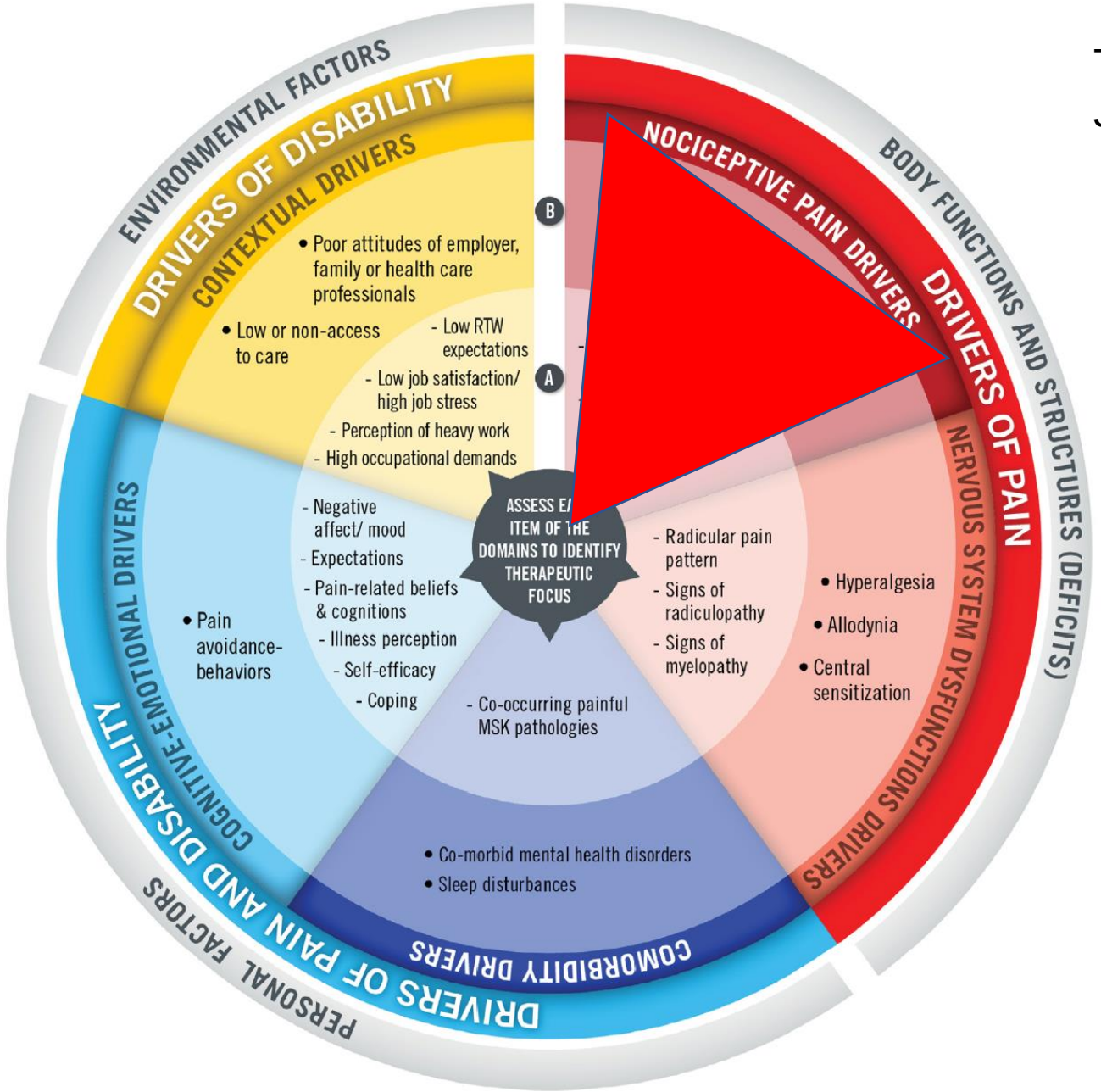


Figure 1 Pain and disability driver management model. (**A**) refers to more common and/or modifiable elements; (**B**) refers to elements that are more complex and less modifiable, and that will prompt more aggressive or require interdisciplinary care to effectively address the problematic domain.
Abbreviations: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

MSK Lesions

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

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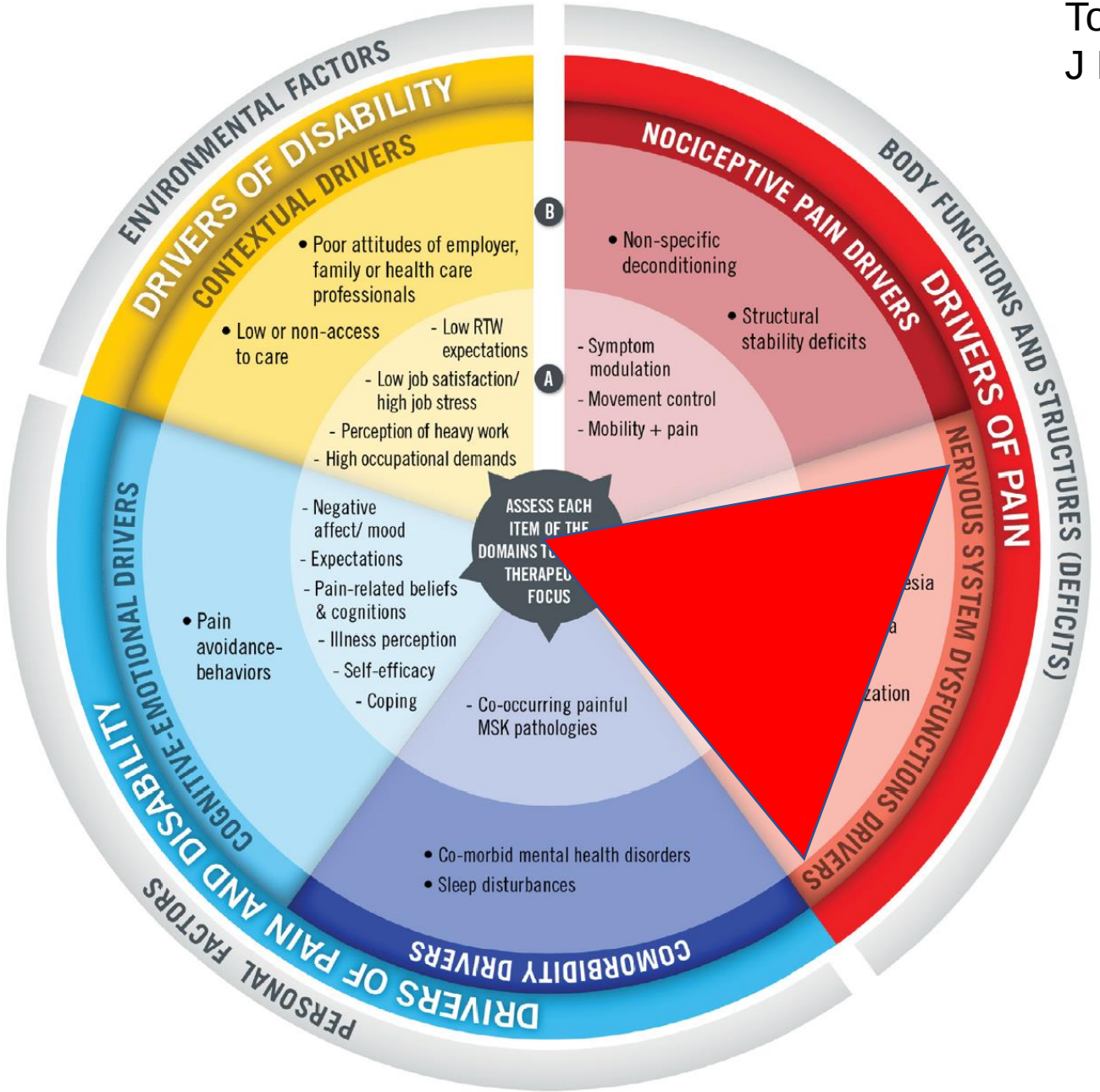
	weeks						months						
	1	2	3	4	5	6	2	4	6	8	10	12	18
Muscle Tendon Ligament injury		Grade 1 (mild)											
							Grade II						
										Grade III (tear)			
Shoulder	Subluxation												
							Dislocation						
									Frozen Shoulder				
	Forming calcific tendinitis (no pain)							Little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

Tousignant-Laflamme, 2017
J Pain Research



What is Pain?

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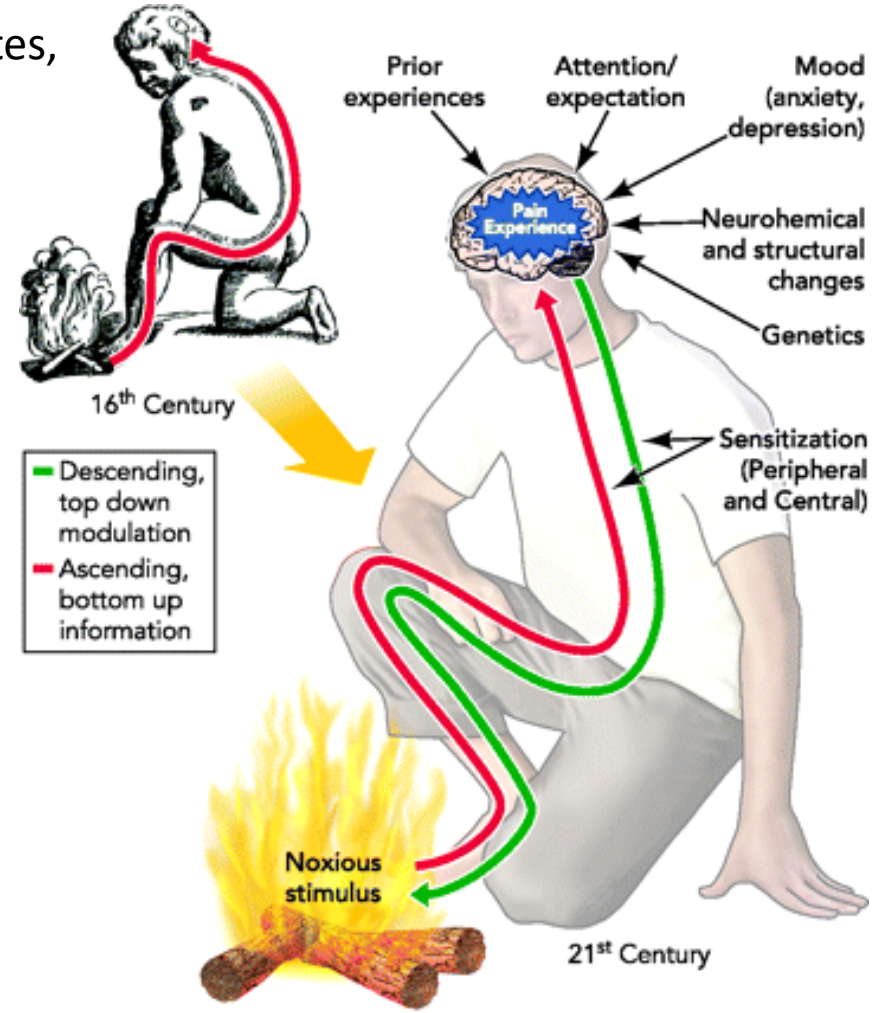
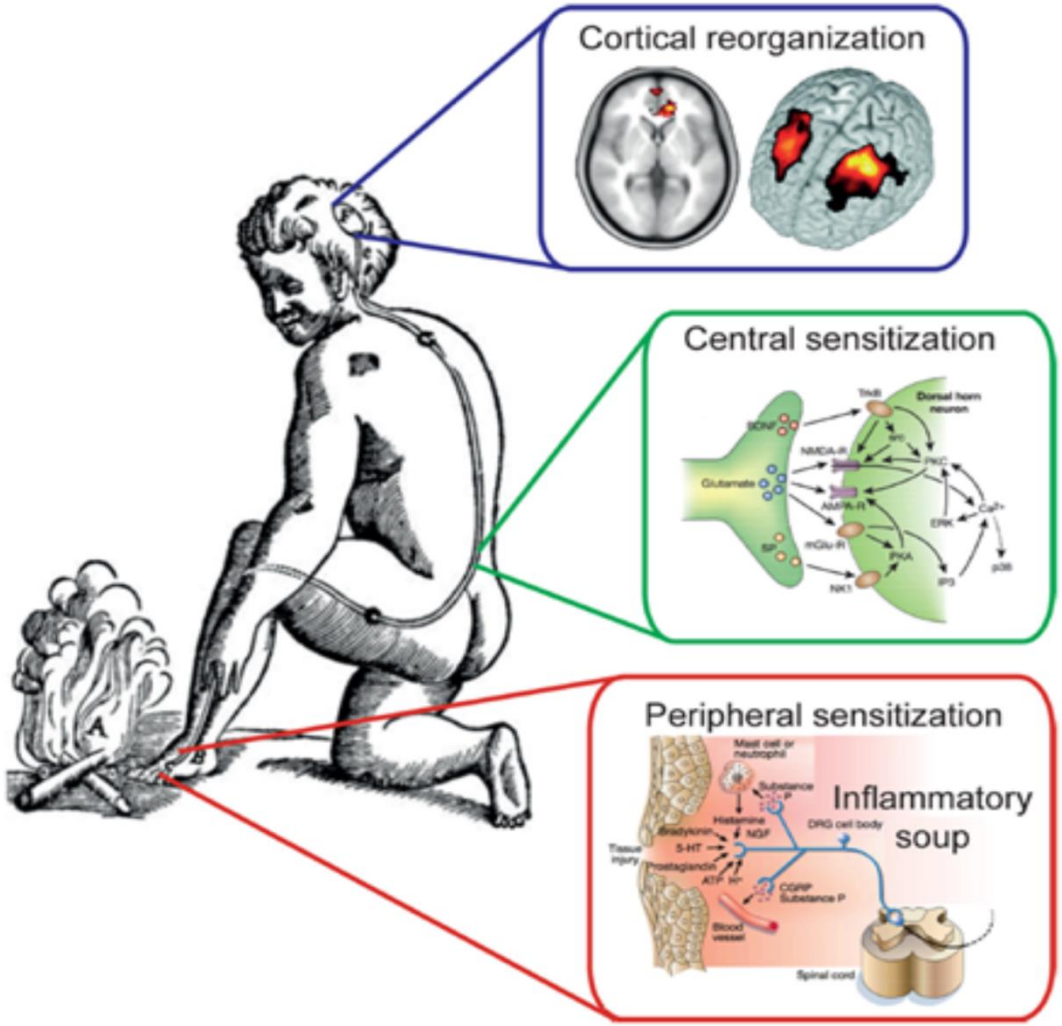
Descartes, 1644





Chronic Pain is a Disease

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.

Not All Chronic Pains are the Same

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Without central sensitization (secondary)

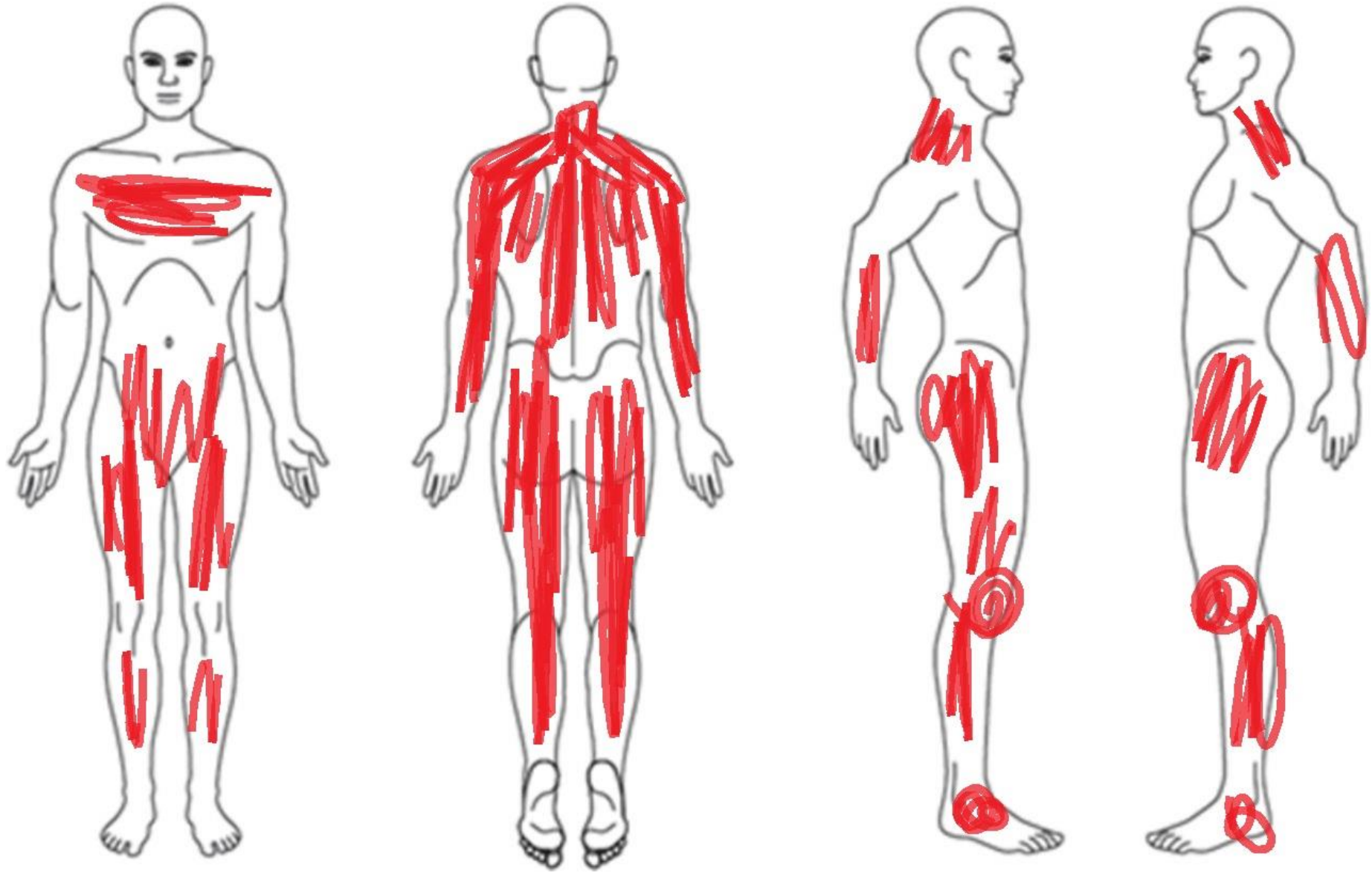
- Ascending pain pathways are intact
- Descending inhibitory pathways are intact
- Underlying chronic pathology - pain
- No signs of central sensitization
- Expected (normal) psychological response
- Its function is to alert the individual to seek treatment
- For example: hip osteoarthritis

With central sensitization (primary)

- Malfunction of pain system
- No underlying pathology
- Many signs of central sensitization
- Abnormal psychological response to pain
- Difficulty with concentration, 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)

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)

Management of Chronic Pain with CS

First and most important: TAPER OPIOIDS SLOWLY TO THE LOWEST POSSIBLE DOSE.

Opioids at the WSIB

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

→Allows prescriptions for a maximum 12 weeks

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

→Endorses the 2017 Canadian Opioid Guideline

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

“5M IS” of Management of Chronic Pain with CS

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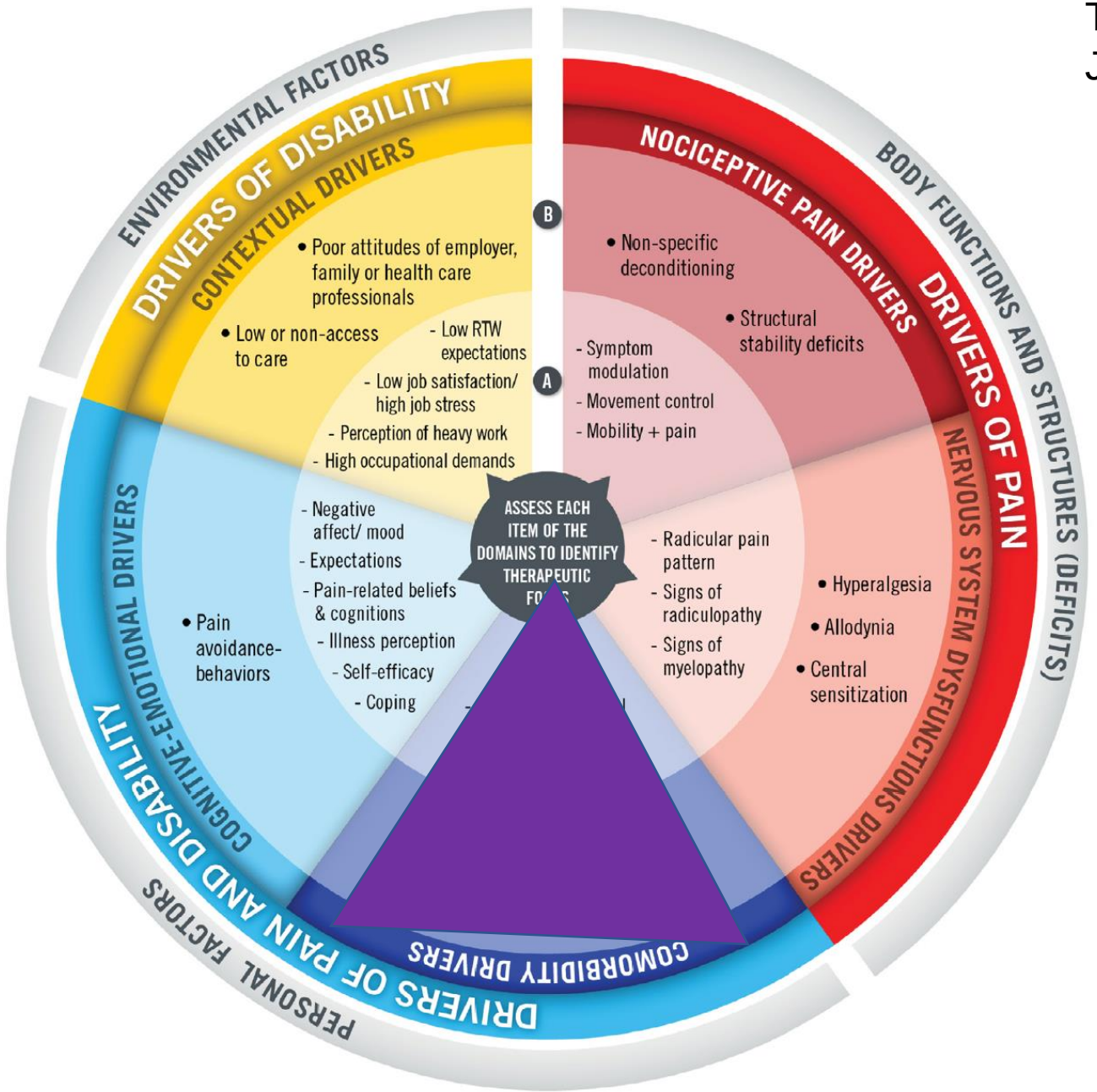
Mind	Movement	Modalities Manual	Medications	Interventional	Surgery
CBT, MI, group sessions, written emotional expression, psychomotor therapy, MBSR, EMG-biofeedback, distraction, hypnosis, guided imagery, mind-body therapies, Transcranial magnetic stimulation (TMS)	Aerobics, strengthening, water, home-based, group-based, Pilates, relaxation, Tai Chi, Yoga, Tui Na	CAMs (?), Chinese herbs, Acupuncture, Tai Chi, Qigong, Hydrotherapy, spa-therapy 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 Neuromuscular junction Regenerative medicine	Joint replacements Spinal cord stimulator Deep brain stimulator Intrathecal pumps

Mind Move

FMguidelines.ca

Tousignant-Laflamme, 2017
J Pain Research



Chronic Pain and Comorbidities

Chronic Pain has a 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

Chronic Pain and Comorbidities

Insomnia

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

Anxiety

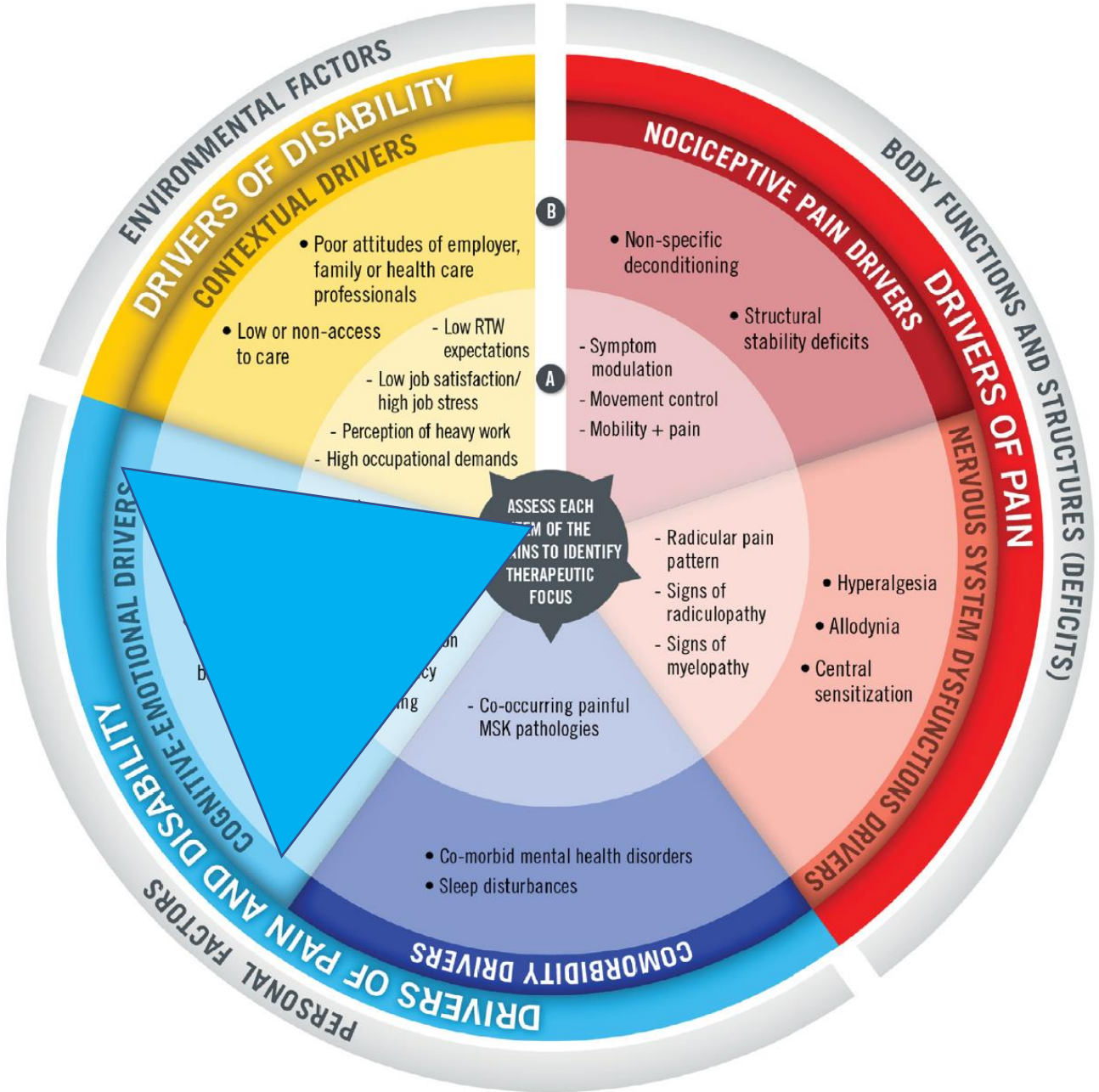
- Two-dimensional model of anxiety and depression.
- Highly correlated with depression and pain

Stressful situations in healthy individual → analgesia

Stressful situation in an individual with central sensitization → hyperalgesia

Arango-Davila, 2018

Tousignant-Laflamme, 2017
J Pain Research



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 from 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

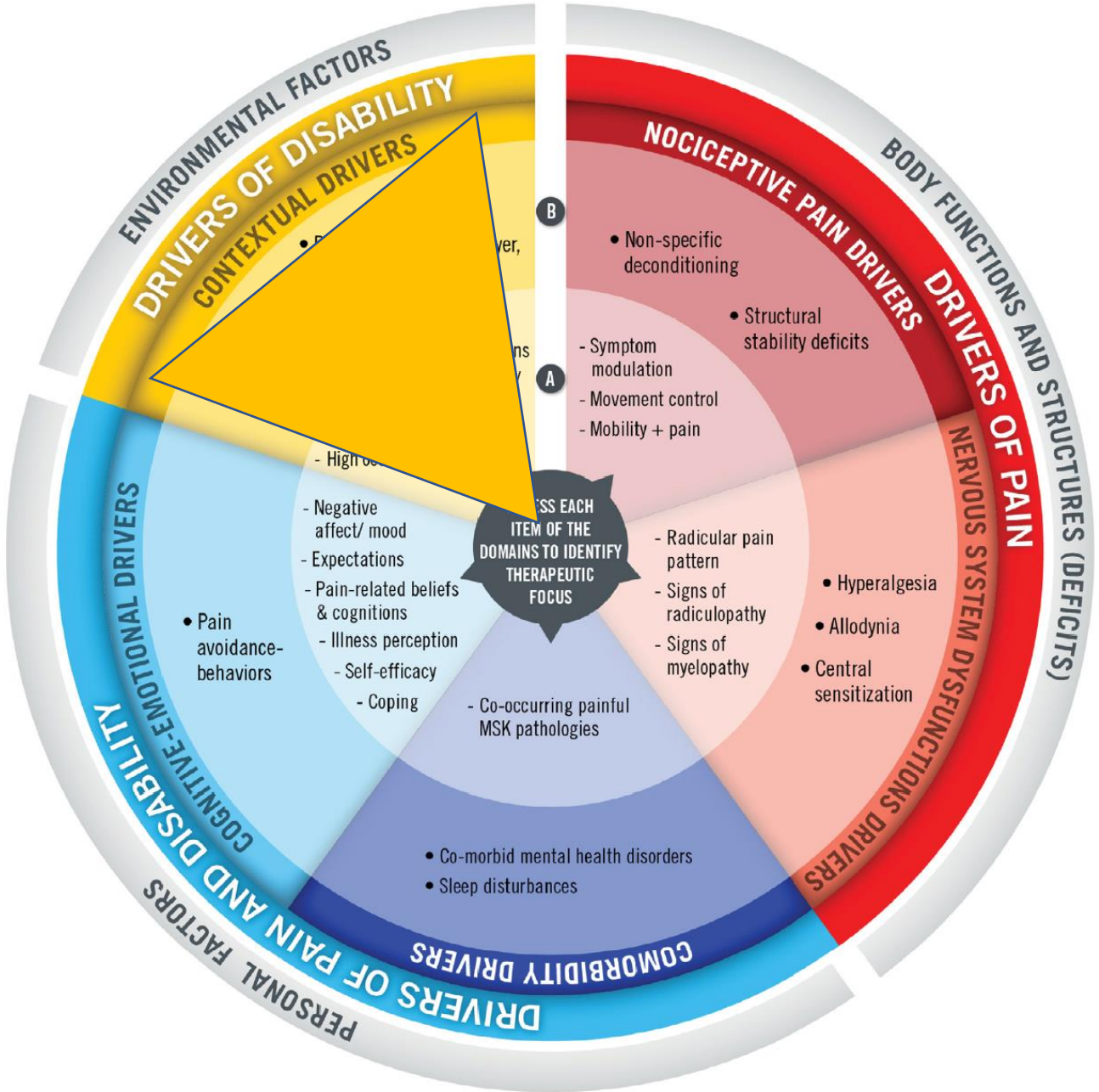
Strongest predictor of work outcome for patients with pain

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.

Tousignant-Laflamme, 2017
J Pain Research



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 behaviours 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

Dr. Andrea Furlan
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Project ECHO®
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Email
afurlan@iwh.on.ca

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