



Pains & Brains

Fibromyalgia

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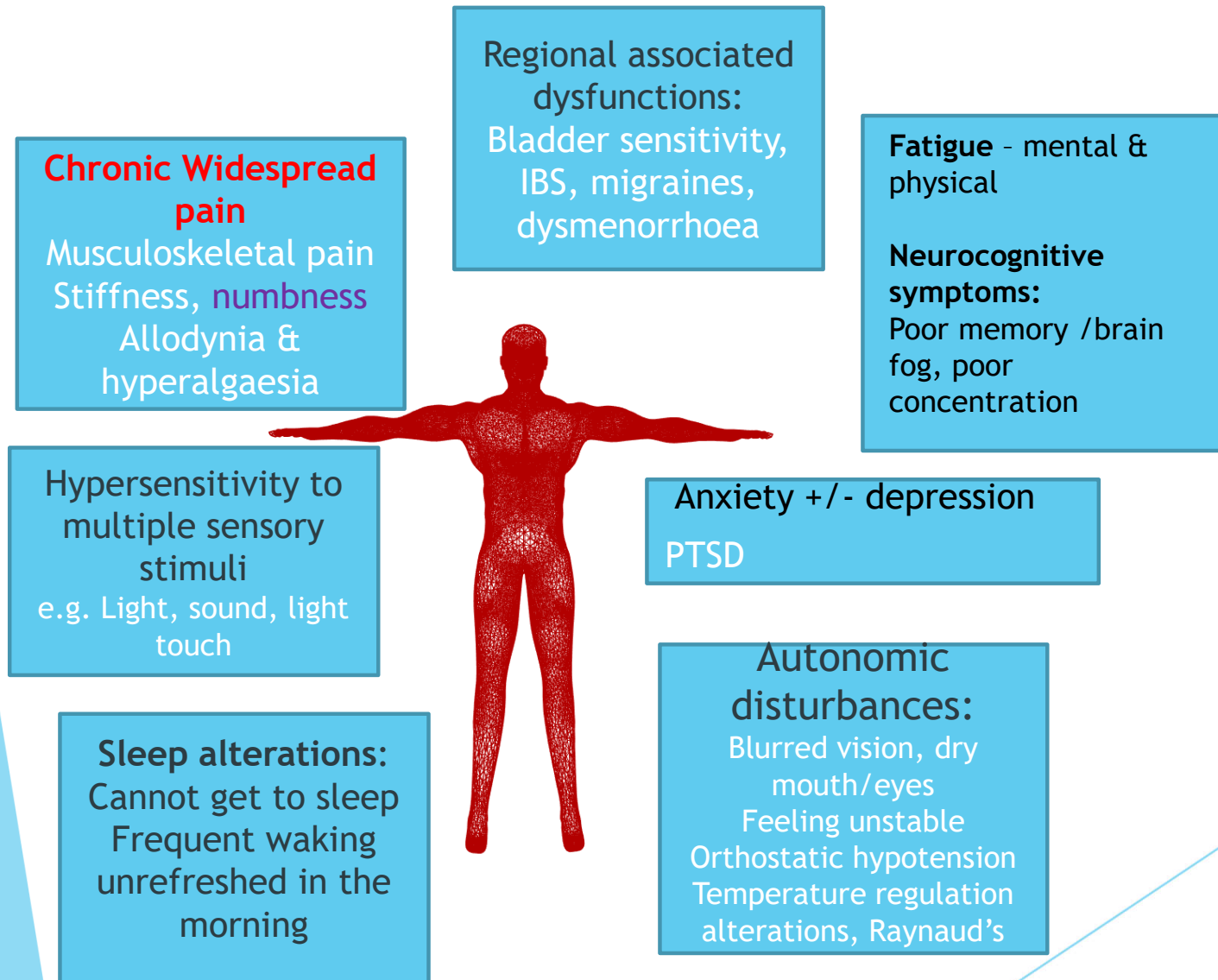
Registered Specialist Pain Physiotherapist

Member of the Pain in Motion international research collaboration

Overview

- ▶ Characteristics of FM
- ▶ Clinical Diagnosis (and differential diagnosis)
- ▶ Possible causative factors
 - ▶ Stress responses
 - ▶ Immune and Autoimmune
 - ▶ Gut Microbiome
- ▶ Treatment & Physical Management
- ▶ Discussions

Characteristics of FM

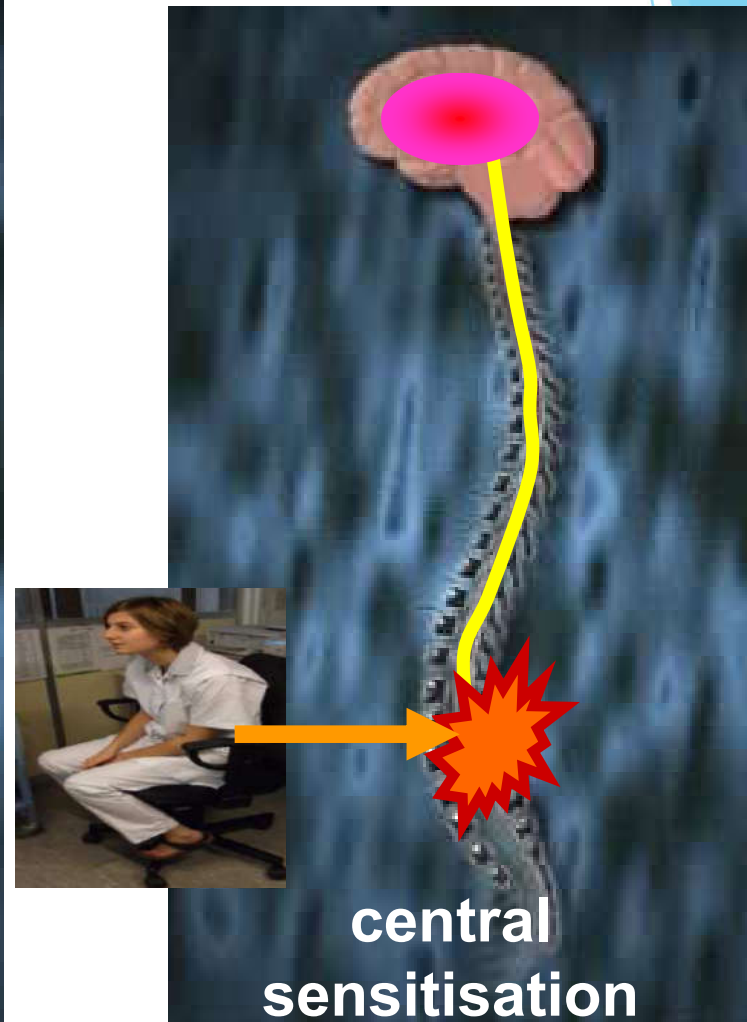
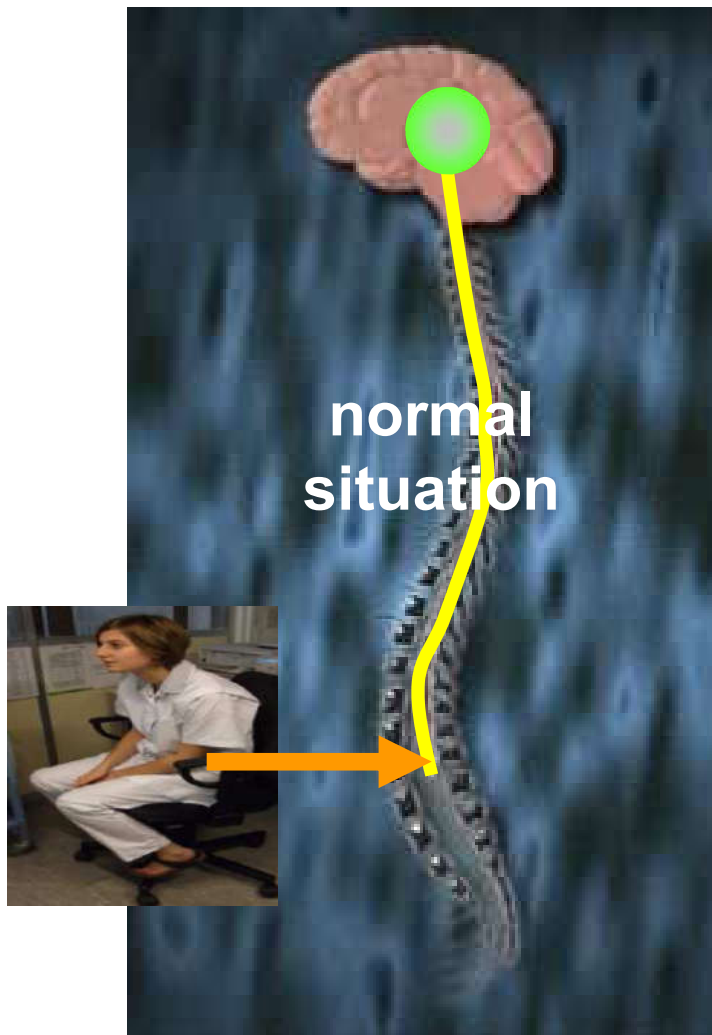


Some stats:

- ▶ 30% of FM patients report restless leg syndrome
- ▶ Accompanies insomnia
 - ▶ Frequent waking, unrefreshed in the morning.
- ▶ Frequent headaches +/- migraines
 - ▶ 48% of severe HA / migraine patients (N=205) were diagnosed with FM. (Nicolodi et al 1995)
 - ▶ 35% of chronic migraine patients (N=101) were diagnosed with FM (Perez et al, 2001)
- ▶ High trait anxiety over a lifetime in 60%
- ▶ Depression in 14-36%, compared with 6.6% in healthy populations - reactive?
- ▶ Widespread numbness or **hypo-sensitivity** affects 30% of people with FM

IASP classifies pain as primary or secondary

- ▶ Chronic Secondary Pain Syndrome
 - ▶ Central sensitisation is secondary to a concurrent disease e.g. RA, Ca, work accident etc..
- ▶ Chronic Primary Pain Syndrome
 - ▶ No concurrent pathology - Pain is the disease itself
 - ▶ Central sensitisation. Nociceptive pain.
 - ▶ E.g. FM



PAIN IN MOTION

Overlap with CFS

2015 Proposed Diagnostic Criteria for ME/CFS also coined systemic exertion intolerance disease (SEID)

Diagnosis requires that the patient have the following three symptoms

1. A substantial reduction or impairment in the ability to engage in pre-illness levels of occupational, educational, social, or personal activities, that persists for more than 6 months and is accompanied by fatigue, which is often profound, is of new or definite onset (not lifelong), is not the result of ongoing excessive exertion, and is not substantially alleviated by rest
2. Post-exertional malaise,*
3. Unrefreshing sleep*

At least one of the two following manifestations is also required:

1. Cognitive impairment* or 2. Orthostatic intolerance

* Frequency and severity of symptoms should be assessed. The diagnosis of ME/CFS should be questioned if patients do not have these symptoms at least half of the time with moderate, substantial, or severe intensity.

Diagnosis of FM

2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria

Frederick Wolfe, MD^{a,b,*}, Daniel J. Clauw, MD^c, Mary-Ann Fitzcharles, MD^d,
Don L. Goldenberg, MD^{e,f}, Winfried Häuser, MD^{g,h}, Robert L. Katz, MDⁱ, Philip J. Mease, MD^{j,k},
Anthony S. Russell, MD^l, Irwin Jon Russell, MD, PhD^m, Brian Walitt, MD, MPHⁿ

Fibromyalgia (2016 revision criteria) may now be diagnosed in adults when all of the following criteria are met:

- (1) **Generalized pain, defined as pain in at least 4 of 5 regions, is present.**
- (2) Symptoms have been present at a similar level for at least 3 months.
- (3) Widespread pain index (WPI) > or equal to 7 and symptom severity scale (SSS) score > or equal to 5 or WPI of 4–6 and SSS score > 9.
- (4) **A diagnosis of fibromyalgia is valid irrespective of other diagnoses.** A diagnosis of fibromyalgia does not exclude the presence of other clinically important illnesses.

From the 2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria article, which appeared in Volume 46, Issue 3 of the Seminars in Arthritis and Rheumatism journal. The full article is available at [www.semearthritisorheumatism.com/article/S0049-0172\(16\)30208-6/fulltext](http://www.semearthritisorheumatism.com/article/S0049-0172(16)30208-6/fulltext).

Quick screen tool

Needs minimum 5/6

Screening tools		PAIN [®]
		2010
Development and validation of the Fibromyalgia Rapid Screening Tool (FiRST)		
Serge Perrot ^{a,b,c,*} , Didier Bouhassira ^a , Jacques Fermanian ^{c,d} , the CEDR (Cercle d'Etude de la Douleur en Rhumatologie)		
	Yes	No
I have pain all over my body		
My pain is accompanied by a continuous and very unpleasant general fatigue		
My pain feels like burns, electric shocks or cramps		
My pain is accompanied by other unusual sensations throughout my body, such as pins and needles, tingling or numbness		
My pain is accompanied by other health problems such as digestive problems, urinary problems, headaches or restless legs		
My pain has a significant impact on my life, particularly on my sleep and my ability to concentrate, making me feel slower generally		

Cut-off of 5

Score of 5/6 = FM

Possible causative factors

Not yet fully understood - Various mechanisms interplay

- ▶ Genetic predisposition
- ▶ Stressful life events / psychological distress
- ▶ Early life stressors / traumas
- ▶ Physical Trauma, commonly *MVAs*
- ▶ Inflammatory mechanisms
 - ▶ Viral infection can trigger FM
 - ▶ Peripheral sensitisation
 - ▶ Small fibre neuropathy
 - ▶ neuroinflammation
- ▶ Cognitive-emotional mechanisms

Aetiology - some science!

- ▶ Stress hormones may play a role:
 - ▶ PTSD commonly found in FM patients 10.9%, c.f. 2% non-FM populations.
 - ▶ Life-threatening illness, abuse, trauma, rape.
(Hauser, PAIN 2012)
- ▶ Shock activates immune response in neuronal system within 20 mins of event
 - ▶ How well they remember the event is proportional to the size of immune response. (Hutchinson 2021)
- ▶ Post-infection
 - ▶ Cytokines and chemokines may play a role
 - ▶ Immune system messengers
 - ▶ Pro-inflammatory and anti-inflammatory
 - ▶ Glial cells express some receptors for bacteria and viruses

Controversy

- ▶ Is FM an autoimmune disease?
 - ▶ Some think so yes. However:
 - ▶ (-) FM not associated with fever or periodic fever
 - ▶ (-) Unresponsive to anti-inflammatory meds
 - ▶ (-) Elevated CRP only seen in a minority of (obese) FM patients

Controversy

- ▶ Is FM an autoimmune disease? In Favour:
 - ▶ (+) Viruses can induce FM
 - ▶ Glial cell activation, cytokines etc. activated and are associated with FM symptoms
 - ▶ (+) 4 factors in autoimmune diseases: genetic, hormonal, immunity defects, environmental leading to **hyper-stimulation**
 - ▶ Reduced check-point inhibitors
 - ▶ Brakes off!
 - ▶ Auto-reactive t-cells - autoimmune attack!
 - ▶ Breast implant immune reactions create same Sx as FM
(Shoenfeld, Y, 2020)

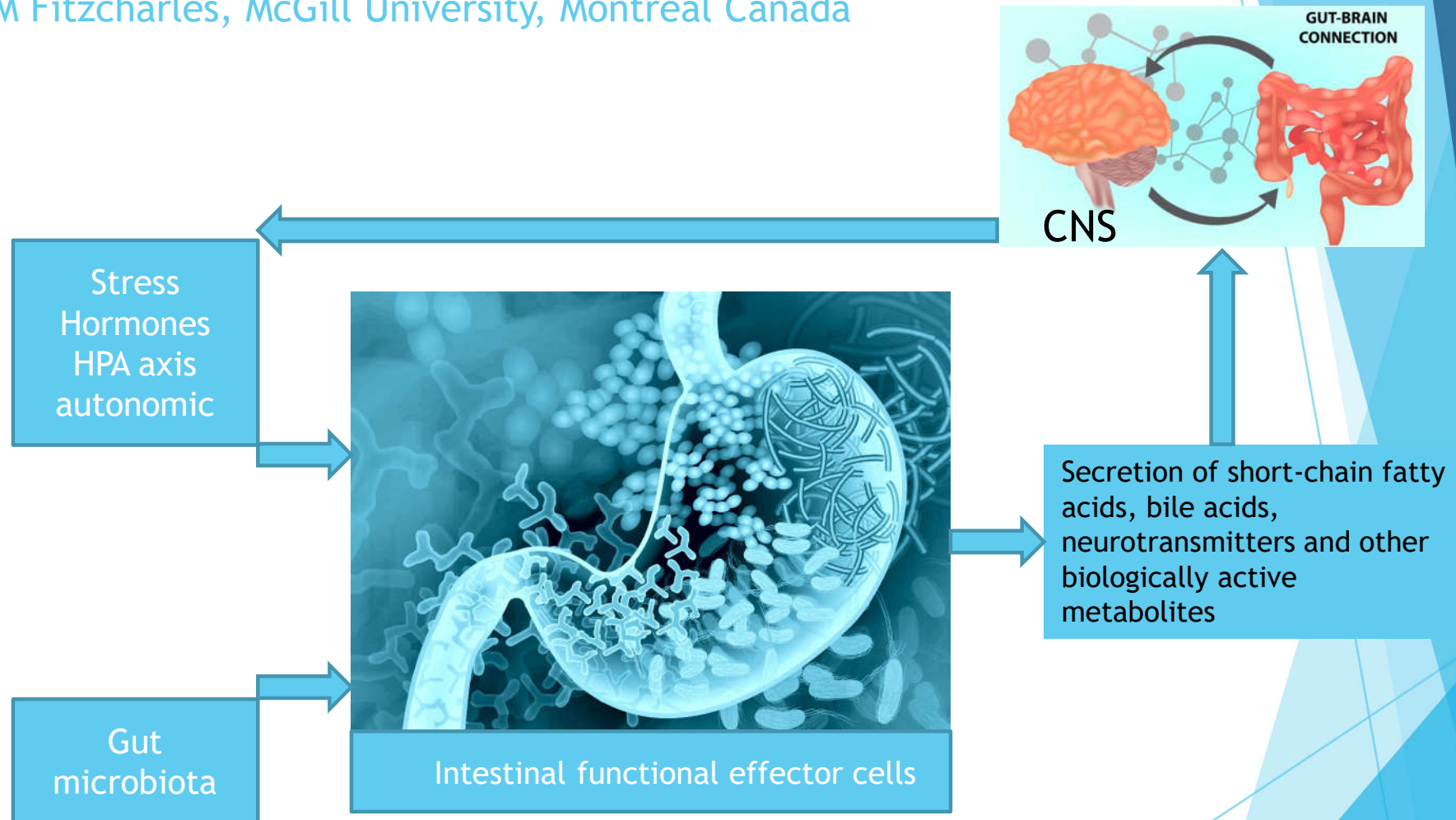
Post viral fatigue and FM

Prof Daniel Clauw

- ▶ People with pre-morbid high sensitivity are more likely to suffer CFS and FM after a virus
- ▶ Sensory amplification leads to feeling more pain and fatigue when neuroinflammation occurs in viral infections
- ▶ Some infections known to trigger chronic pain and fatigue:
 - ▶ EBV, Ross River virus, Q fever, Lyme disease.
- ▶ Post-Covid Sx now being investigated by FM and CFS researchers for similarities and cross overs.
 - ▶ COVID trauma of being in ICU in isolation triggers CFS & FM Sx
 - ▶ Those with post viral fatigue were those with more severe acute symptoms

Gut microbiome and FM

M Fitzcharles, McGill University, Montreal Canada



Gut microbiome and FM

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▶ Disturbance of the microbiome composition

→ alteration in its

- ▶ metabolic function
- ▶ interactions with the host physiology.

→ Pain and Pathology

Multiple influences on gut microbiome:

Diet, age, physical activity, medications, stress factors Etc.

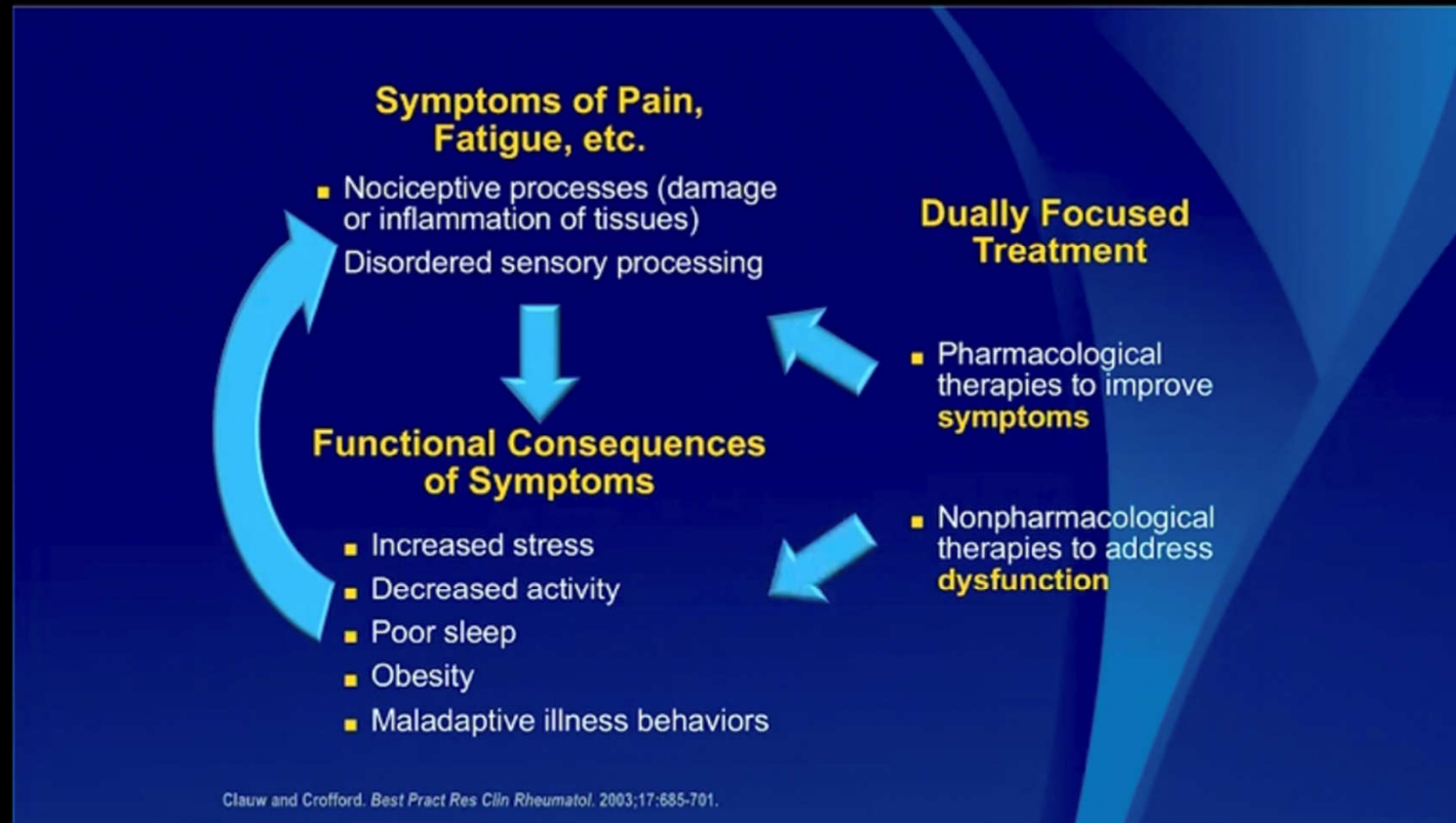
Gut microbiome and FM

M Fitzcharles, McGill University, Montreal
Canada

- ▶ Emerging evidence that FM patients have different specific gut-microbiome composition, with either over- or under-abundance of some bacterial types.
- ▶ Abundance relates to severity of Symptoms



FM treatment





Nociplastic pain

- ▶ Identify or rule-out pathology
- ▶ Understand central sensitisation
- ▶ Understand nociplastic pain
 - ▶ Amplification of input
 - ▶ Interpretation for threat
 - ▶ Reassurance that extent of pain does not reflect extent of damage
- ▶ Retrain Awareness...

Poor awareness...

Sensory profile and personality trait specific

- ▶ **Sensory Sensitive** - High physiological arousal
- ▶ **Defensive High Anxious**
Explain physiological arousal, interpretation for threat tendency. Reassure++
- ▶ **Low Registration** - Low Bodily feedback
 - ▶ Explain need for stimulation
 - ▶ CNS threat perception of low feedback?
- ▶ **Repressor**
 - ▶ high physiological arousal
 - ▶ Explain pacing+

FM rehab

Stress

Sleep

Food

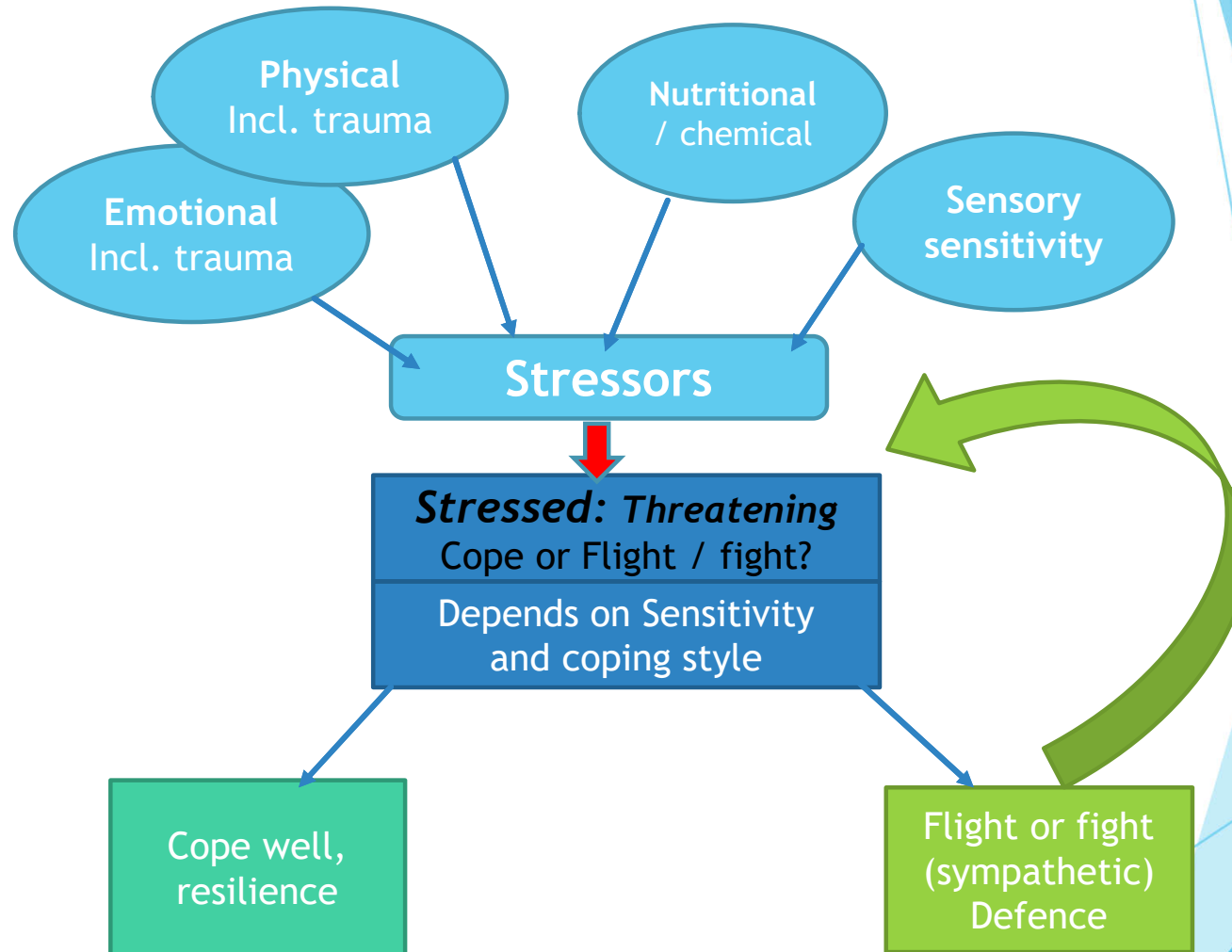
Move

Stress, sleep, food, move.

- ▶ Stress & anxiety management
 - ▶ Identify stressors
 - ▶ Emotional, physical, nutritional
 - ▶ Psychology input



Significant principle: Stressors and stressed



Stress, sleep, food, move.



- ▶ Stress & anxiety management
 - ▶ Identify stressors
 - ▶ Emotional, physical, nutritional
 - ▶ Psychology input
- ▶ Rest and Reassurance
 - ▶ Breathing strategies; Moro reflex
 - ▶ Feel safe in your body - sensory grounding
- ▶ Pacing
 - ▶ “be kind to yourself”
- ▶ Learning to say no to overload (people pleasing)

Resilience

Cognitive reappraisal



Passive response:

“ My Pain is really bad and there is nothing I can do about it.”

CBT: Re-appraisal

- ▶ “Although my pain is bad there are things I can do to regain some control and live better around it.”
- ▶ Down-regulates the amygdala (brain's fear evaluating centre) reducing responses to stress by the brain

Stress, sleep, food, move.



▶ Sleep hygiene

- ▶ Yellow light; Pre-bed-time wind down
- ▶ Journaling - put worries away for the night
- ▶ Eye masks
- ▶ Ear plugs
- ▶ Weighted blanket
- ▶ Moro reflex integration
- ▶ Dodow rhythmic visual sleep aid
- ▶ Calm sleep App distraction

- ▶ Be assessed for sleep apnoea

Stress, sleep, food, move.

- ▶ **Nutrition & Gut Health**
- ▶ **Sugar and caffeine are stimulants**
 - ▶ Nutrient-dense food
 - ▶ Identify food sensitivities (stressors)
 - ▶ Reduces neuro-inflammation?
 - ▶ No wholefood diet has been found to be better than others, but *all whole food diets improve persistent pain*
(Field et al 2021; systematic review)



(Nijs et al., 2019; Ford et al, 2020; Staudacher et al., 2020; Eswara et al., 2020)

Stress, sleep, food, move.

- ▶ **Moving for wellbeing**
 - ▶ Exercise may reduce neuroinflammation
 - ▶ Graded exposure
 - ▶ Sensory input - body feedback

(Wand et al 2012; Clark et al 2019a, 2019 b)



More Science: Exercise and FM

- ▶ Too little - no improvement
- ▶ Too much - exacerbate Sx
- ▶ Effectiveness of exercise on fatigue and sleep quality in FM was moderate. [Meditative exercise better for sleep quality](#) (Estevez-Lopez et al., 2020 Review)
- ▶ 24 week breathing and stretching routine daily, 5 days a week (web-based) (Salaffi et al 2020)
 - Low impact, non-repetitive cardio 20 mins, strength 10 mins, flexibility 5 mins, balance 5 mins, relaxation 5 mins
 - ▶ Compared with 'usual FM care'
 - ▶ Results: significant improvement in fatigue and quality of sleep ... from 14 weeks onwards



Normalise Sensory and Motor feedback

Re-connect person with body.

- ▶ “Personhood theory” is prevalent in western society

(Pearcey, N R ., 2018)

- ▶ Abuse disengages body (Walker et al 1997; Liesner et al 2014)
- ▶ A body in pain “has a mind of its own”
- ▶ CNS sensory processing alterations, in chronic pain (Moseley and Butler 2005; Wand et al 2010; Nijs et al 2014, 2015, 2016)
- ▶ Trauma Informed Care



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