

The background features a gradient from red at the top to blue at the bottom, overlaid with various white circular and arc patterns. Some of these patterns include numerical scales, such as one on the left with markings from 140 to 260. There are also dashed lines and arrows, suggesting a technical or scientific theme.

CONCEPTS IN PAIN CARE

GUIDING MOVEMENT, MOOD, AND REST

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DISCLOSE

- No disclosures

OBJECTIVES

1. Participants will be comfortable identifying different types of pain.
2. Participants will be able to identify which pharmacologic agents are best for nociceptive pain, neurological pain, and centralized pain.
3. Participants will gain skills in recommending treatments that focus on movement, mood, and rest.

TREATMENTS FOR PAIN

- Analgesic Drug Development
- Contemporary View of Pain
- Opioid use disorder is a significant public health problem, but is of limited relevance when treating patients with chronic pain
 - Tolerance
 - Misuse
 - Perceived benefit in the setting of actual harm
- Working in the spirit of functional gains

OPIOIDS ARE THE GOLD STANDARD FOR THE
TREATMENT OF ALL PAIN:

- False

ANALGESIC DRUG DEVELOPMENT

- Widely acknowledged to be a failure
 - Not due to lack of effort
 - Many drug companies have left this field due to lack of success
- Most commonly used analgesics in modern day are from drug classes that have been in existence for centuries
 - NSAIDs, opioids, cannabinoids, tricyclics
- Why is this?

WHY HAS ANALGESIC DEVELOPMENT BEEN UNSUCCESSFUL

- Animal models used for pain research remain unchanged in spite of advances of understanding of pain
- Most models are models of nociception and focus on peripheral pain mechanisms
- Newer models of pain experience will better measure analgesic efficacy but require skill to quantify
- Most drug companies have not integrated modern pain clinical research techniques (neuroimaging) into drug development programs

IMAGING AND TESTING

It is easy to predict pain based on imaging, right?

THE CONTEMPORARY VIEW OF PAIN

Which person has pain?



OSTEOARTHRITIS OF THE KNEE

- This is a classic “peripheral” pain syndrome
- There is a poor relationship between structural abnormalities and symptoms
- 30-40% of individuals with grade 3-4 radiographic findings of OA have NO SYMPTOMS!
- 10% of individuals with normal radiographs have SEVERE PAIN!
- Psychological factors do not explain these differences
- We often are under the impression that our current therapies are sufficient
 - NSAIDs, acetaminophen, and opioids all have small effect sizes
 - Joint replacement does not predictably relieve pain

CHARACTERIZATION OF PAIN

Peripheral (nociceptive)

- Inflammation or mechanical tissue damage
- NSAID, Opioid responsive
- Responds to procedures
- Classic examples
 - Acute injury, osteoarthritis, rheumatoid arthritis, cancer pain

Peripheral Neuropathic

- Damage of nerves
- May respond to both peripheral (NSAIDs, Opioids, Na channel blockers) and central (TCAs, neuroactive compounds) pharmacologic therapy
- Classic examples
 - Diabetic neuropathy
 - Post-herpetic neuralgia

Centralized Pain

- Disturbance in pain processing (diffuse symptoms)
- Responds to neuroactive medications
- Classic examples
 - Fibromyalgia, irritable bowel syndrome, TMD, tension headaches

Mixed Pain States

CENTRALIZED PAIN STATES

- Not a well understood concept
- May be the most common and costly illness in humans
- Chronic and multi-symptom illnesses that begins in childhood and/or while in young adulthood
 - Various body regions and moves throughout the body over the life of the individual
 - Multiple other somatic symptoms (fatigue, sleep, mood, memory)
 - Over sensitivity to normal stimuli

CENTRALIZED PAIN STATES – GOES BY MANY NAMES

- **Chronic overlapping conditions**
 - Fibromyalgia, IBS, headache, TMD, IC, dry eye disease
- **By the stressful trigger**
 - Gulf war syndrome or mild TBI
 - Post-Lyme or chronic EBV
- **Central sensitization**
 - Chronic pain conditions where there is no known nociceptive input
- **Somatization**
 - A psychiatric term which is falling by the wayside as we learn more about the biology of painful illness

FIBROMYALGIA IS A “BUCKET TERM” WHEN PROVIDERS CANNOT FIND ANYTHING ELSE WRONG

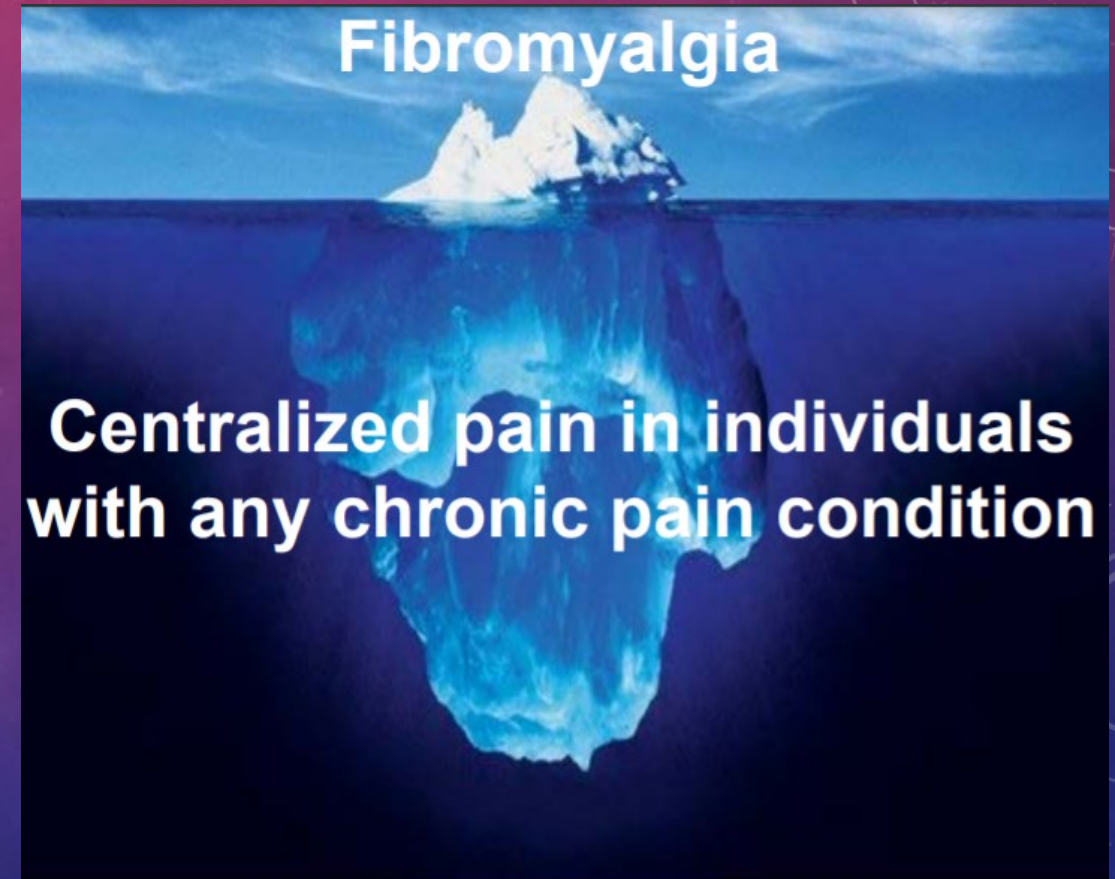
False

FIBROMYALGIA (THE “F-WORD”)

- Classified by the American College of Rheumatology
- 2010 diagnostic criteria
- This is a discrete illness with focal areas of tenderness
- For many there are psychologic and behavioral factors
- Many somatic symptoms

THE CONCEPT OF “FIBROMYALGIA-NESS”

- Coined in 2009 by Wolfe who stated that this condition occurs along a continuum in the population rather than being present or absent
- In rheumatologic disorders, lupus, low back pain and so-on, this fibromyalgia-ness score is more predictive of pain levels than objective disease measures

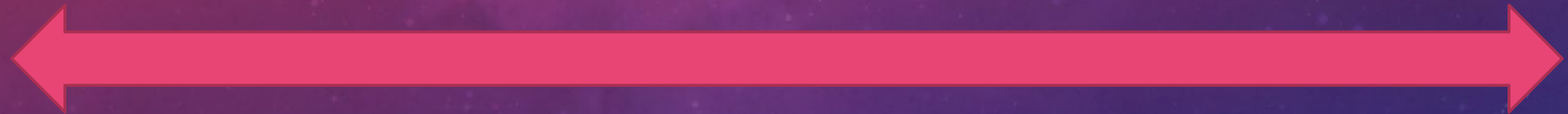


THE CENTRALIZATION CONTINUUM

Proportion of individuals in chronic pain states that have centralized their pain

Peripheral

Centralized



Acute pain

Osteoarthritis

Ehler's Danlos

Fibromyalgia

Rheumatoid
arthritis

Low Back Pain

Tension Headache

TMD

IBS

PAIN AND SENSORY SENSITIVITY

- Humans have a “volume control” setting for how the brain and spinal cord process pain
- This is likely genetically wired and the MODIFIED by neurohormonal factors
- The higher the setting on the volume button, the more pain is perceived REGARDLESS of stimuli

FUNCTIONAL MRI IN CHRONIC PAIN STATES

- There are OBJECTIVE findings on imaging for people in hyperalgesic states
- Depression and pain are overlapping
- How individuals think about their pain will affect their pain processing
- Chronic pain may be associated with decreased size of brain areas responsible for pain processing (research is still in young stages here)

SOME THINGS THAT RAISE AND LOWER PAIN VOLUMES

Volume Up

- Substance P
- Glutamate and Essential Amino Acids
- Nerve Growth factor
- Opioids

Volume Down

- Norepinephrine-serotonin
- Dopamine
- Gaba
- Cannabinoids

PHARMACOLOGIC TREATMENT FOR CENTRALIZED PAIN

Strong & Modest Evidence

- Tricyclic antidepressants
- SNRI (milnacipran, duloxetine, venlafaxine)
- Anticonvulsants (pregabalin, gabapentin)
- Older and less selective SSRIs
- Low dose naltrexone
- Cannabinoids

Weak or No Evidence

- Growth hormone
- Opioids
- Corticosteroids
- NSAIDs
- Benzodiazepines and sedatives
- Guaifenesin

TREATMENT BASED ON MECHANISMS

	Peripheral (nociceptive)	Neuropathic	Centralized Pain
NSAIDs	+	-	-
Opioids	+	-	-
Surgery/injections	+	+	-
Tricyclics	+	+	+
SNRIs	+	+	+
Gabapentinoid	-	+	+
Cannabinoid	-	+	+

A STUDY BY DANIEL CLAUW “FIBROMYALGIA-NESS”

Fibromyalgia Symptoms (Modified ACR 2010 Fibromyalgia Diagnostic Criteria)

1. Please indicate below if you have had pain or tenderness over the past 7 days in each of the areas listed below. Check the boxes in the diagram below for each area in which you have had pain or tenderness. Be sure to mark right and left sides separately.

No Pain

Left **Right**

2. Using the following scale, indicate for each item your severity over the past week by checking the appropriate box.

No problem
Slight or mild problems: generally mild or intermittent
Moderate: considerable problems; often present and/or at a moderate level
Severe: continuous, life-disturbing problems

	No problem	Slight or mild	Moderate	Severe
a. Fatigue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Trouble thinking or remembering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Waking up tired (unrefreshed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. During the past 6 months have you had any of the following symptoms?

	No	Yes
a. Pain or cramps in lower abdomen	<input type="checkbox"/>	<input type="checkbox"/>
b. Depression	<input type="checkbox"/>	<input type="checkbox"/>
c. Headache	<input type="checkbox"/>	<input type="checkbox"/>

4. Have the symptoms in questions 2-3 and pain been present at a similar level for at least 3 months? No Yes

5. Do you have a disorder that would otherwise explain the pain? No Yes

- Modified ACR Criteria
- Scores 0-31
- For each additional 1 point:
 - 7-9 mg more morphine during hospitalization
 - 20-25% greater chance of failed joint replacement
 - Findings independent of psychological factors

THE PROBLEM WITH OPIOIDS

- Opioids intended for acute pain are being used for chronic pain
- Most providers are not willing to initiate a new opioid for chronic pain
- 30-40% of individuals with chronic pain are on chronic opioids
- New starts are generally happening with acute pain treatment in those who have chronic pain
- Patient may perceive benefit for their chronic pain, so it is continued
- Treating providers are empathetic and continue a drug they would not have started

NEW OPIOID STARTS FOLLOWING JOINT REPLACEMENT

- In opioid naive patients 8.2% of total knee replacement and 4.3% of total hip replacement patients were still on opioids 6 months after surgery.
- 53% of total knee replacement and 35% of total hip replacements who entered surgery already on an opioid continued the opioids at 6 months.
- Those taking greater than 60 mg MME preoperatively had 80% likelihood of persistent use postoperatively.
- Chronic opioids prior to joint replacement increases risk of infection, slow healing times, longer hospital stays, and long-term dysfunction.

SOME TAKE HOME MESSAGES

- The development of new analgesic drugs has been a flop
- It is more profitable for drug companies to develop drug “cousins” than to develop drugs with new mechanism of actions
- Pharma needs to move on
- CNS acting drugs need to be tried earlier in pain
- Our current pain taxonomy for chronic pain assumes that chronic pain in one part of the body or due to one underlying disease all has the same underlying mechanism
- The regulatory guidance for opioids is in place due to safety concerns, but may inhibit discovery of how an opioid may be useful in some chronic pain conditions
- Tamper resistant opioids does nothing to help this issue

BEYOND THE PILL

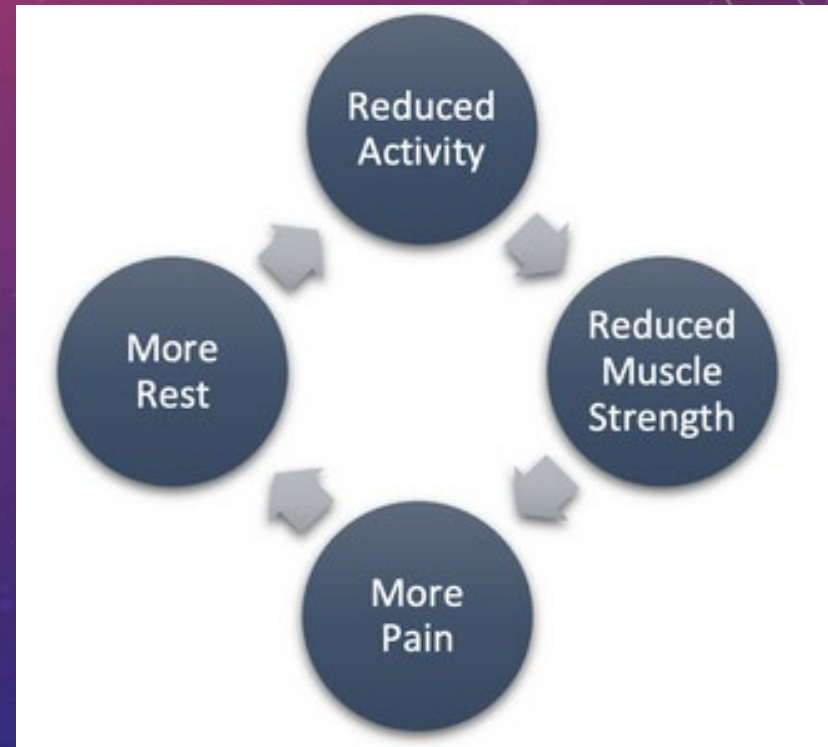
- There is far more to pain care than prescribing a pill
- Pain is not a stand-alone experience
- Pain affects many aspects of a person's function and quality of life

IMPORTANT ASPECTS OF THE HISTORY

- Where in the body is your pain?
- How does your pain affect your ability to move?
- How does your pain affect your mood?
- How does your pain affect your ability to rest?
- What are your goals?

BENEFITS OF MOVEMENT

- Builds strength and flexibility
- May control body weight
- Reduces sensitivity to pain
- Reduces inflammation
- Improves sleep
- Improves mood



ENGAGEMENT IN MOVEMENT

- People in pain rarely feel like moving more
- Encourage, but don't shame
- Meet people where they are
- Find out if there is a previous activity that they enjoyed
- Encourage people to try new things
- You Tube is a wonderful resources to check out yoga, tai-chi, and may more things!
- Align movement with other goals

MANAGING MOOD

- Mood is often affected by chronic pain
- Chronic pain is often affected by mood
- Some people demand that YOU fix their pain and their mood will follow
- It is important for people in pain to realize that by improving mood, the pain will follow
- Avoid allowing a patient to think you are indicating that their pain is “all in my head.”
- However, the brain is an important body part when experiencing pain
- First line mood therapy is CBT and/or counseling
- Sometimes pharmacology is needed

REST

- The “drugged” sleep, is sometimes not recuperative, alcohol lacks REM waves
- Lying down is not necessarily recuperative
- Striking a balance of rest with non-rest
- ASK about ability to rest
- There are some medications, but often with higher risk and not approved for long term use
- First line is CBTi
- There are now phone apps for sleep
- Sleep hygiene does not have great evidence (sorry)
- Think people, places, things

SOME PEARLS

- You do not have to prescribe medications to treat pain, but often you will
- Match prescriptions and treatments to patient goals and document functional gains
- Often the pain levels (pain scale) will not change
- Move focus AWAY from diagnoses unless there are problems that can be corrected
- Move focus TOWARD how someone spends their time in order to restore their personality, spirit, and relationships.

QUESTIONS

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