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Discover The Invisible:
Pain and Depression in MS

October 10, 2017

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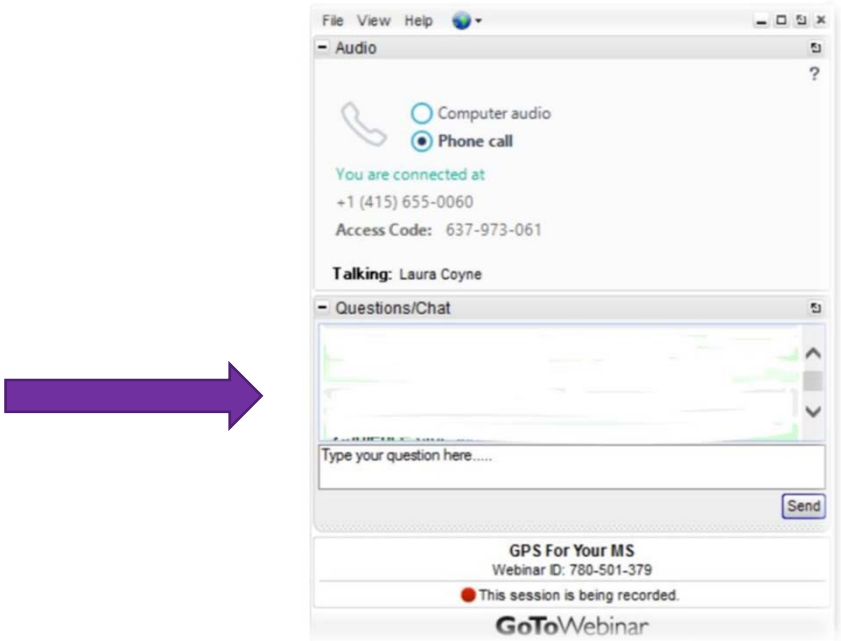

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Overview

- Types of pain
- Causes and effects of pain in MS - What's happening?
- Strategies for pain management and responses
- Types of depression
- Causes and effects of depression in MS - What's happening?
- How depression is associated with anxiety and pain
- Identifying and treating depression

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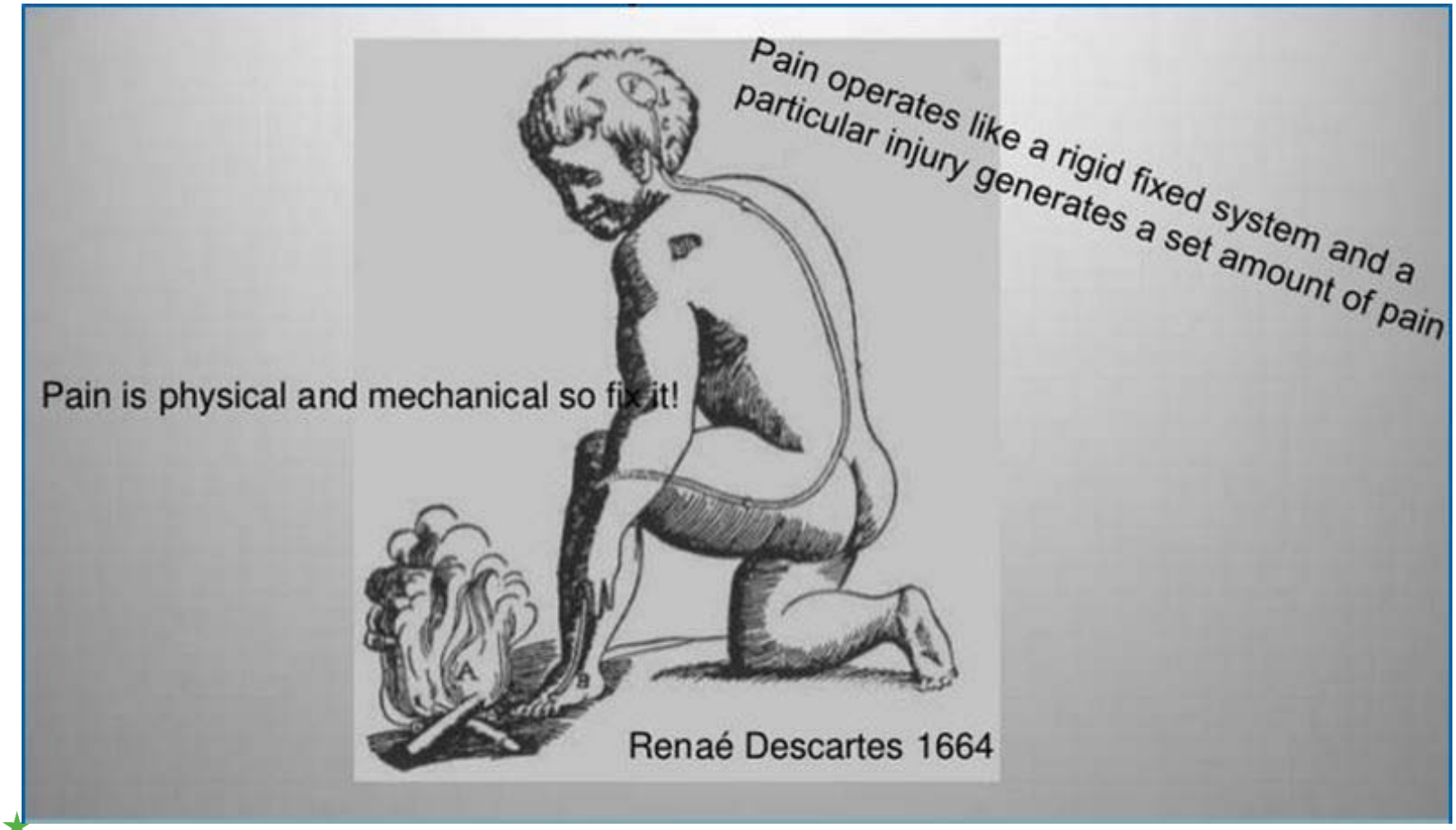
Pain Basics and definitions

- “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.” (IASP 1994)
- If a person is experiencing pain, that’s what pain is.
- Pain is an important factor in overall health related quality of life. (O’Connor, 2008)

Old Pain Models



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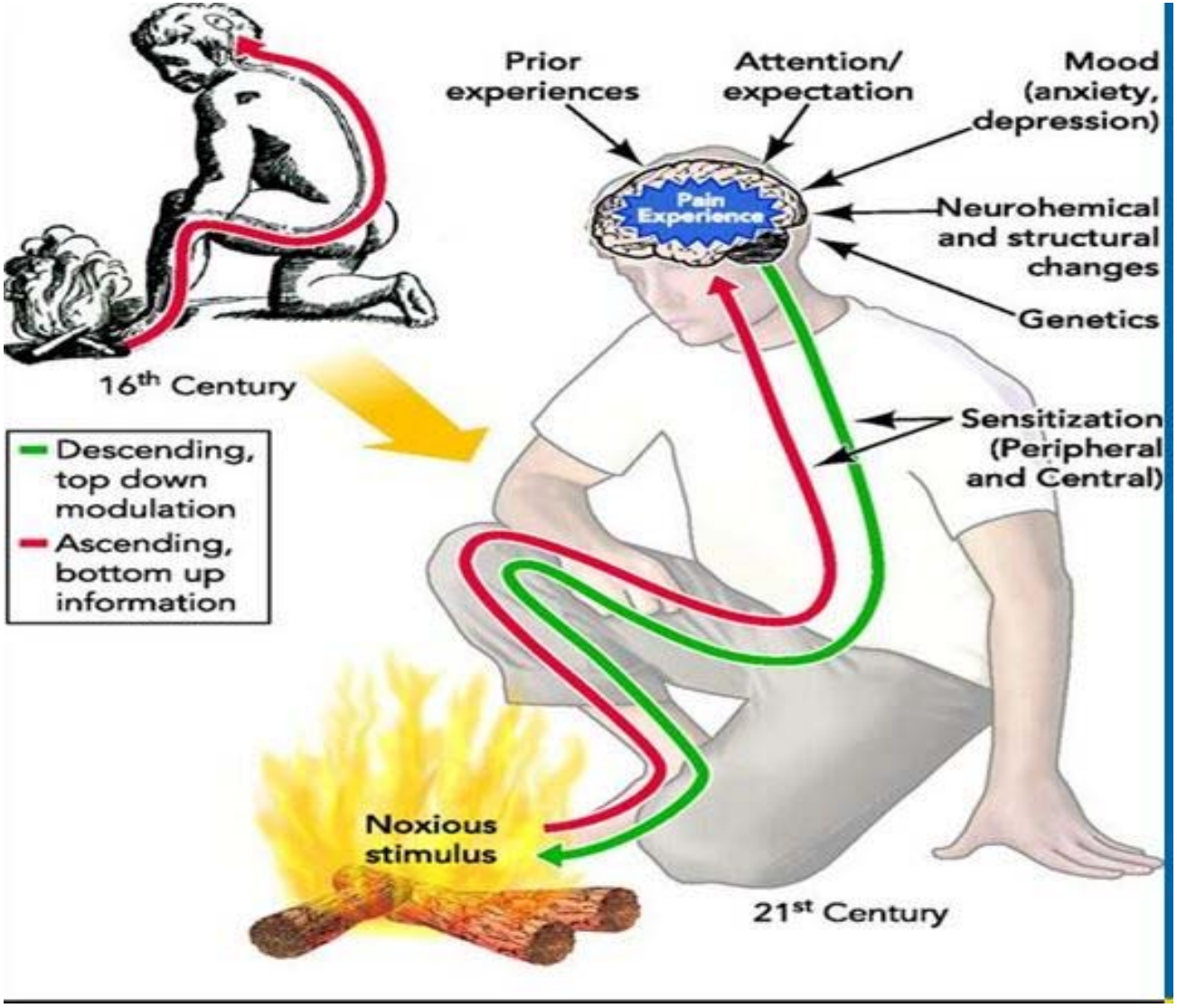
Biopsychosocial Model



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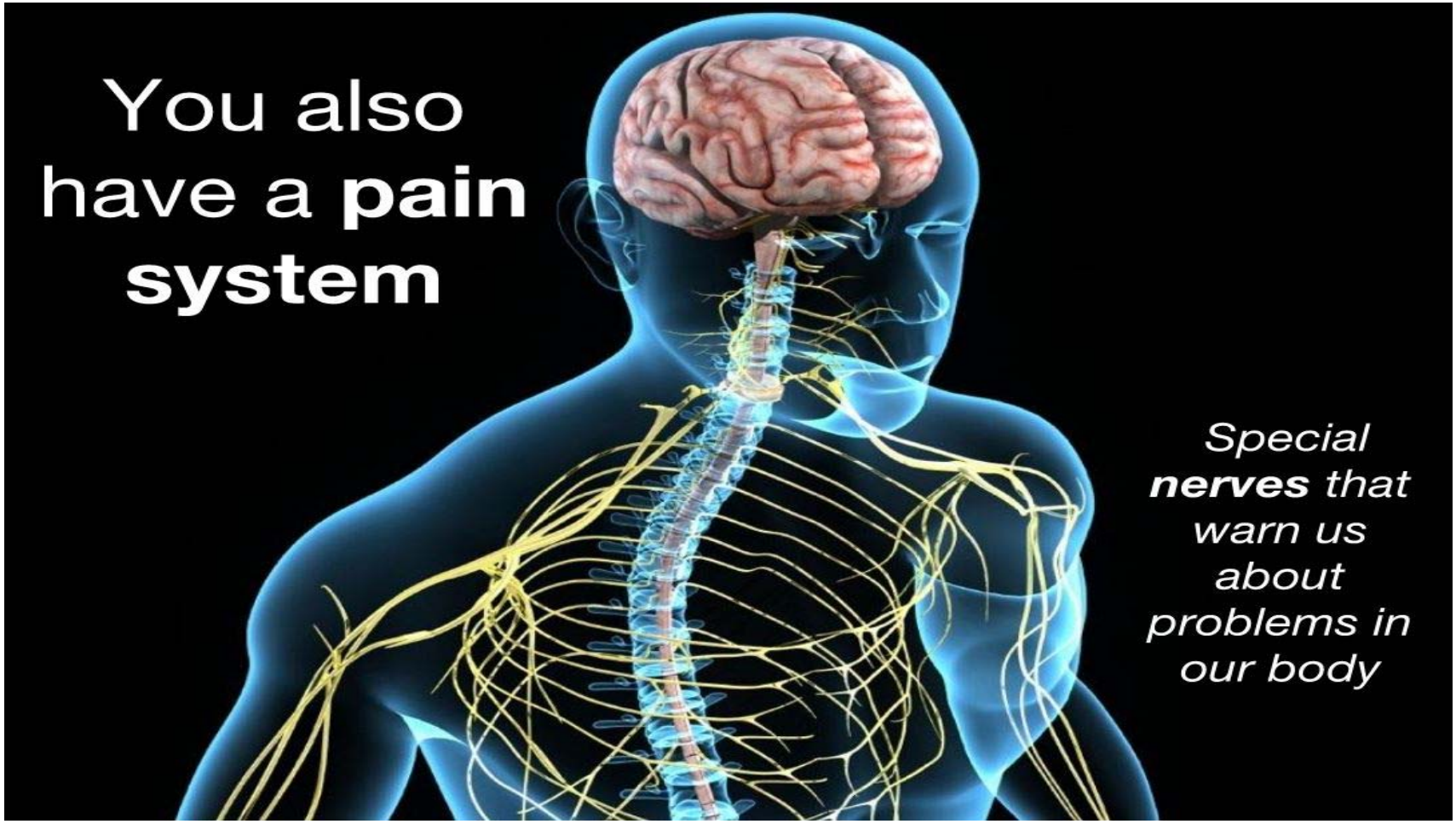
All Pain comes from the Brain



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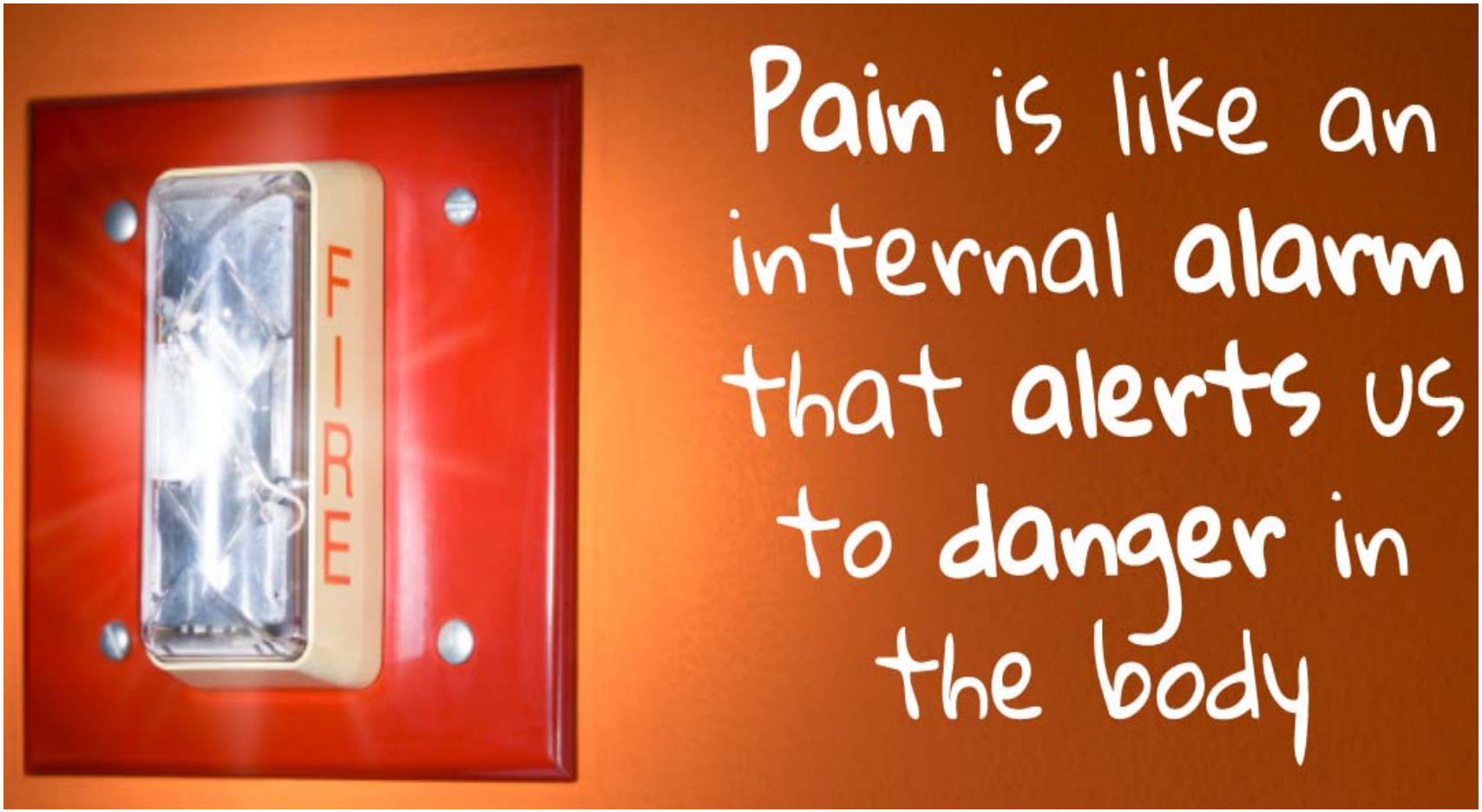
Pain is an alarm



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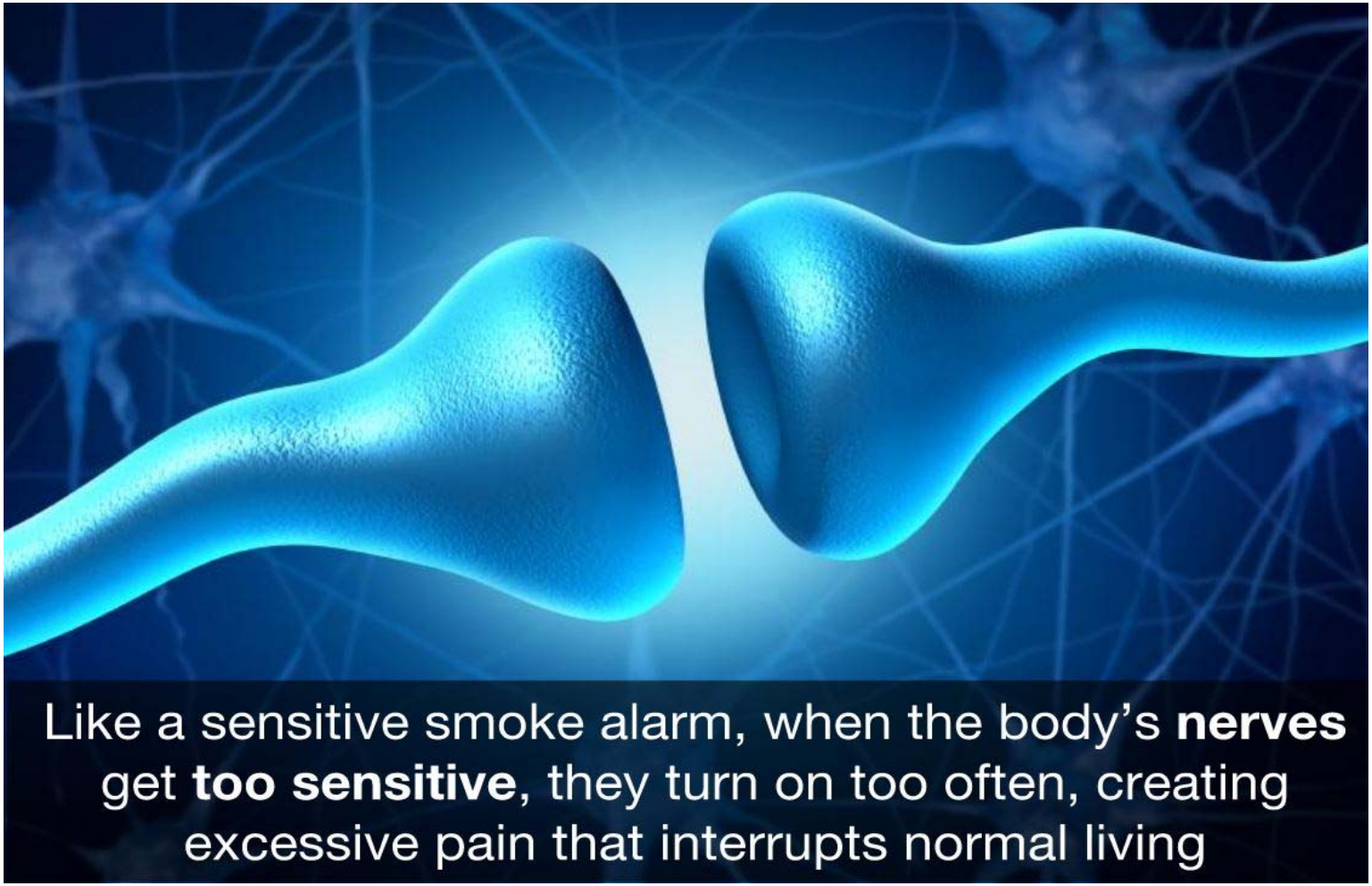
Chronic Pain



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About Pain

- The amount of pain you experience does not necessarily relate to the amount of tissue damage you have sustained.
- You can have life threatening tissue damage and no pain.
- Nociception is neither sufficient nor necessary for pain.

Butler, Moseley, Explain Pain 2012

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Types of pain

- Acute pain vs. Chronic pain

- Neuropathic pain unrelated to MS
- Nociceptive pain unrelated to MS

- Neuropathic pain due to MS
  - Neuralgias
  - Dysthesias
  - Painful tonic Spasms

- Nociceptive pain secondary to MS

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Prevalence of pain in MS

- Overall pain prevalence 63%
- Headaches 43%
- Neuropathic extremity pain 26%
- Back pain 20%
- Painful spasms 15%
- Lhermitte sign 16%
- Trigeminal Neuralgia 3.8%

(Foley, 2013)

Pain Vocabulary to know

- **Neuropathic pain**- caused by a lesion or disease of the somatosensory nervous system.
- **Nociceptive pain**- arises from actual or threatened damage to non-neural tissue; due to the activation of nociceptors.
- **Musculoskeletal pain**- arises from actual or threatened damage to non-neural tissue; due to the activation of nociceptors.
- **Allodynia**- due to a stimulus that does not normally provoke pain
- **Hyperalgesia**- increased pain from a stimulus that normally provokes pain
- **Dysesthesia**-an abnormal sensation that is considered to be unpleasant.
- **Neuralgia**- pain in the distribution of a nerve or nerves.

Risk factors for pain in MS

- Not entirely clear in the research
- Reduced risk with relapsing-remitting MS
- Longer disease duration
- Age
- Greater severity of disease
- Gender- comparable risk in women & men
  - Women may have greater severity of pain

(Hadjimichael et al, 2005) (O'Connor et al. , 2008)

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Telling Your Doctor About Pain

Try to include the following:

- Where it happens-
  - Does it travel? Stay in one spot?
- When it happens
  - Sometimes? During certain activities? Always? In the morning? Late in the day?
- Describe the feeling as best you can
- What makes it better or worse?

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Pain Descriptors

- Numbness
- Pins and Needles
- Burning
- Tingling
- Throbbing
- Stabbing
- Shooting
- Radiating
- Tightness
- Grabbing
- Weird stuff
- Electric Shock
- Aching
- Annoying
- Water trickling
- Gnawing
- Itching
- Crawling
- Itching
- Sore
- Constant
- Intermittent

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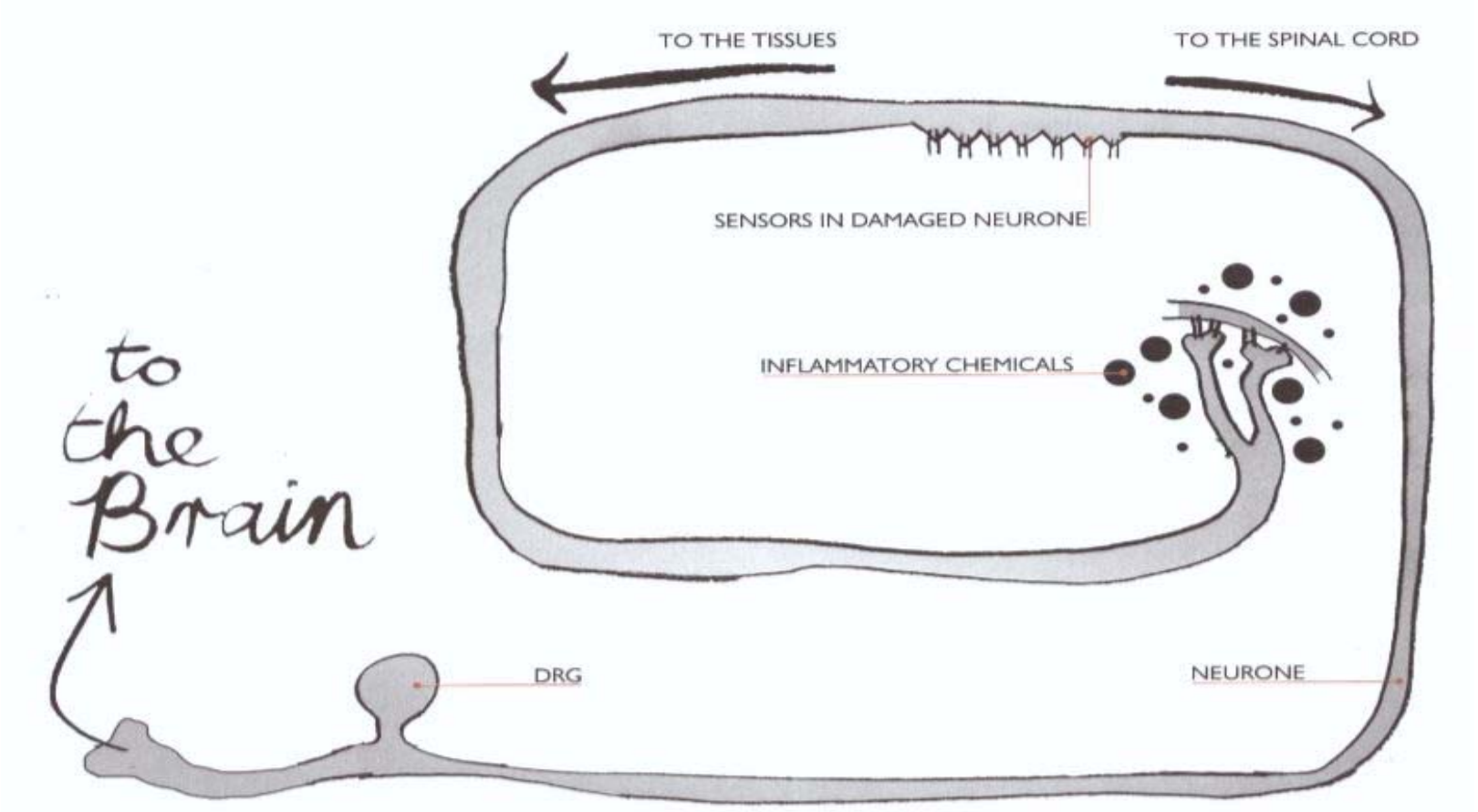
More Pain types in MS

- Normal pain from something not related to MS -
  - People with MS still have people stuff happen! - accidents, emotional experiences, sports injuries, etc.
- Infections - Bladder infections
  - May seem like an exacerbation, fatigue, spasms, fatigue, fever
- Medication side effects
  - Headaches
  - Reactions to drugs or injection sites

Neuropathic pain in MS

- Central Neuropathic pain- pain consistent with a central nervous system lesion
- Pain in a neurologic distribution with altered sensation- “dysesthetic pain”
- Most common central neuropathic pain in MS
  - Extremity pain
  - Trigeminal neuralgia
  - Lhermitte’s sign

Neuropathic pain in MS
"*noisy nerves*"



Explain Pain, p65.

Neuropathic Pain in MS

- Dysesthesias
  - Burning
  - Hyperesthesia
  - Lhermitte's sign
  - MS Hug- banding – dysesthesia or spasticity
- Neuralgias
  - Trigeminal Neuralgia
  - Occipital Neuralgia

Addressing pain with Medications

- Treatment for Dysesthesias-

Anti-convulsants- Neurontin (gabapentin)

Lyrica (pregabalin)

Tegretol (carbamazepine)

Trileptal (oxcarbazepine)

Anti-depressants- Cymbalta (fluoxetine)

Savella (milnacipran)

Amitriptyline

Nortriptyline

Topical patches and compounded preparations

Lidoderm

Compounded Preparations

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Opioids for Pain Management

- For short term pain
- Not a preferred choice for long-term pain
- Tends to be less effective over time
- Addiction risk
- Some newer opioids are less addicting, but insurance is reluctant to approve them because of costs- “catch 22”

Musculoskeletal Pain in MS

- Nociceptive pain - arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors.
- May be related to altered movement patterns.
- Back Pain
- Joint pain

Spasticity /Spasms

- Spasticity = a state of chronic increased tone
  - Can result in contractures, tissue changes
  - Not all spasticity is bad, e.g. transfers, gait.
- Spasm = a wave of increased tone
- Increased muscle tone due to an insult to the brain and/or spinal cord
- Spasticity tends to result in upper extremity flexion and lower extremity extensor tone.
- Spasticity can be painful
  - Therapy, Stretching, Medications, Acupuncture, Dry Needling

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Spasticity Management

- Change irritating or noxious stimulus
- Assess for infections
  - Respiratory infection
  - Bladder Infection
- Physical Therapy- stretching, exercise, safety with movement, orthotics
- Occupational Therapy – stretching, splinting, casting, activities of daily living

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Spasticity Medications

- Baclofen
- Zanaflex (tizanedine)
- Benzodiazepines
  - Klonopin (clonazepam)
  - Ativan (Lorazepam)
  - Valium (diazepam)
- Dantrium
- Anticonvulsants, botox, cannabinoids

What goes with MS Pain?

- Greater pain severity is associated with poorer health-related quality of life. (O'Connor 2008)
- Interference with daily life
- General health, energy/vitality
- Social Functioning
- Poor Sleep
- Fatigue
- Attention/concentration

What goes with MS Pain?

- Mental Health- Mood- Anxiety- Depression
- Ability to walk / move around
- Deconditioning
- Normal Work
- Recreational activities
- Enjoyment of life
- Physical and emotional functioning (Hadjimichael 2007)

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Pain Management

- **Education-** Reduces the threat associated with pain; positive effect on all of the input and response systems.
- **Movement-** increases health of tissues; nourishes brain as it reestablishes fine functional sensory and motor representation;
- **Healthy Behaviors-** Medication, diet, CBT, relaxation strategies, love, spiritual health, physical therapy/activity

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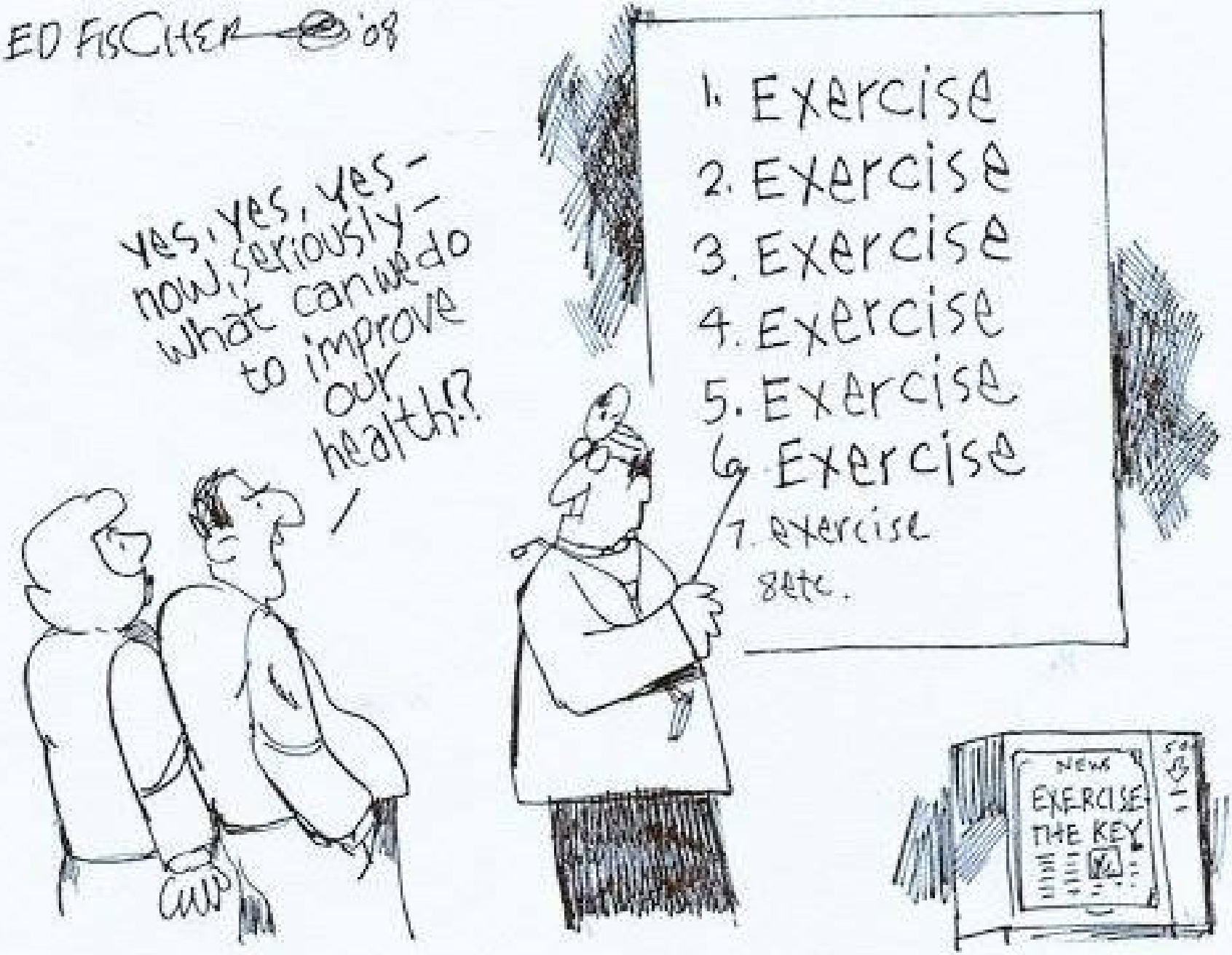

Physical Therapy and Exercise

- Fatigue
- Depression
- Functional Mobility
- Safety
- Preventing Falls
- Ergonomics, Body Mechanics
- Pacing Activity

Addressing Pain with Behaviors

- Pain should be addressed through behaviors of person experiencing pain *and* the people sharing their lives with them
- Positive Coping strategies
- Avoid catastrophizing- excessively negative and unrealistic thoughts about pain- correlated with changes in pain, as well as physical & psychological functioning (Jensen et al, 2010)

Thought Viruses

Thoughts and beliefs are nerve impulses too…

There are thought processes powerful enough to maintain a pain state.

(Price, D.D. , Psychological Mechanisms of pain and analgesia. Vol.15.200, IASP press. 223)

"The CT scan couldn't find it so it must be really bad."

"Aunt Diedre had back pain, too. Now she's in a wheelchair."

"I don't think I can take this anymore."

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Responding Positively to Pain

- Participating actively in your care plan
- Cognitive Behavioral Therapy
- Optimism
- Active movement, exercise, and therapy
- Socializing
- Wellness programs, gym activities
- Education- (try retrainpain.org)
- Doing what you CAN DO!

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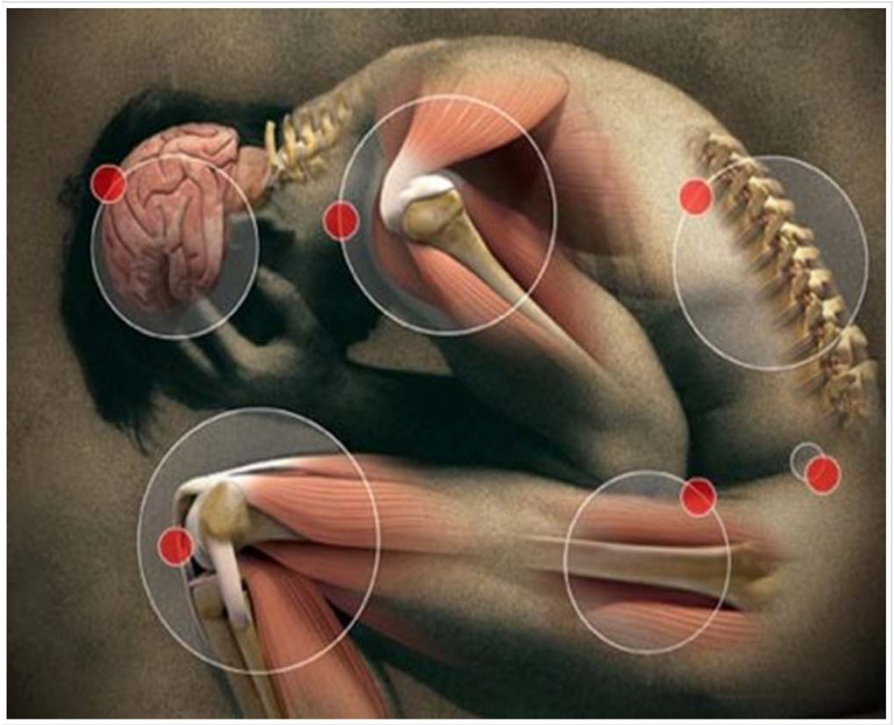
MS, Depression, and Pain



- Between 6 and 19% of patients with MS have both depression and pain
- Individuals who are depressed are more likely to report pain
- **When both pain AND depression are present treatment should target both**

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Depression and MS

…of persons with MS will develop a form of depression in their lifetime

In persons with MS age 18 to 45 there is a 25% chance one will develop a form of depression over the course of…

Depression is more common in MS than…

in the general population (people without MS)

in individuals with other long-term medical illnesses

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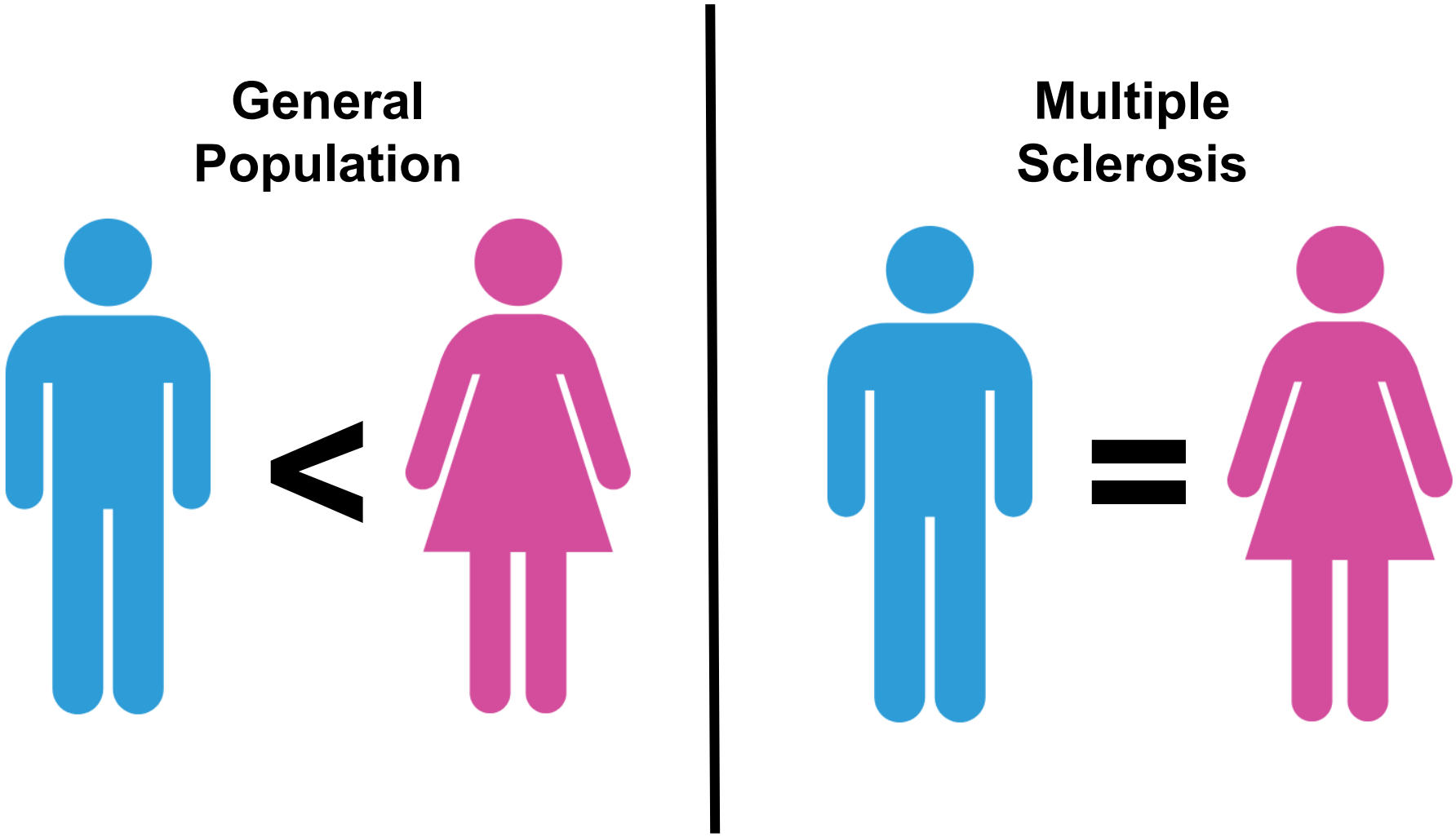

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Depression and MS

Depression is associated with…

- increased disease severity, including neurodegeneration – cell loss
- MS relapses
- co-occurring diagnoses such as **PAIN**, fatigue, anxiety, and cognitive changes
- life stress, such as financial stress

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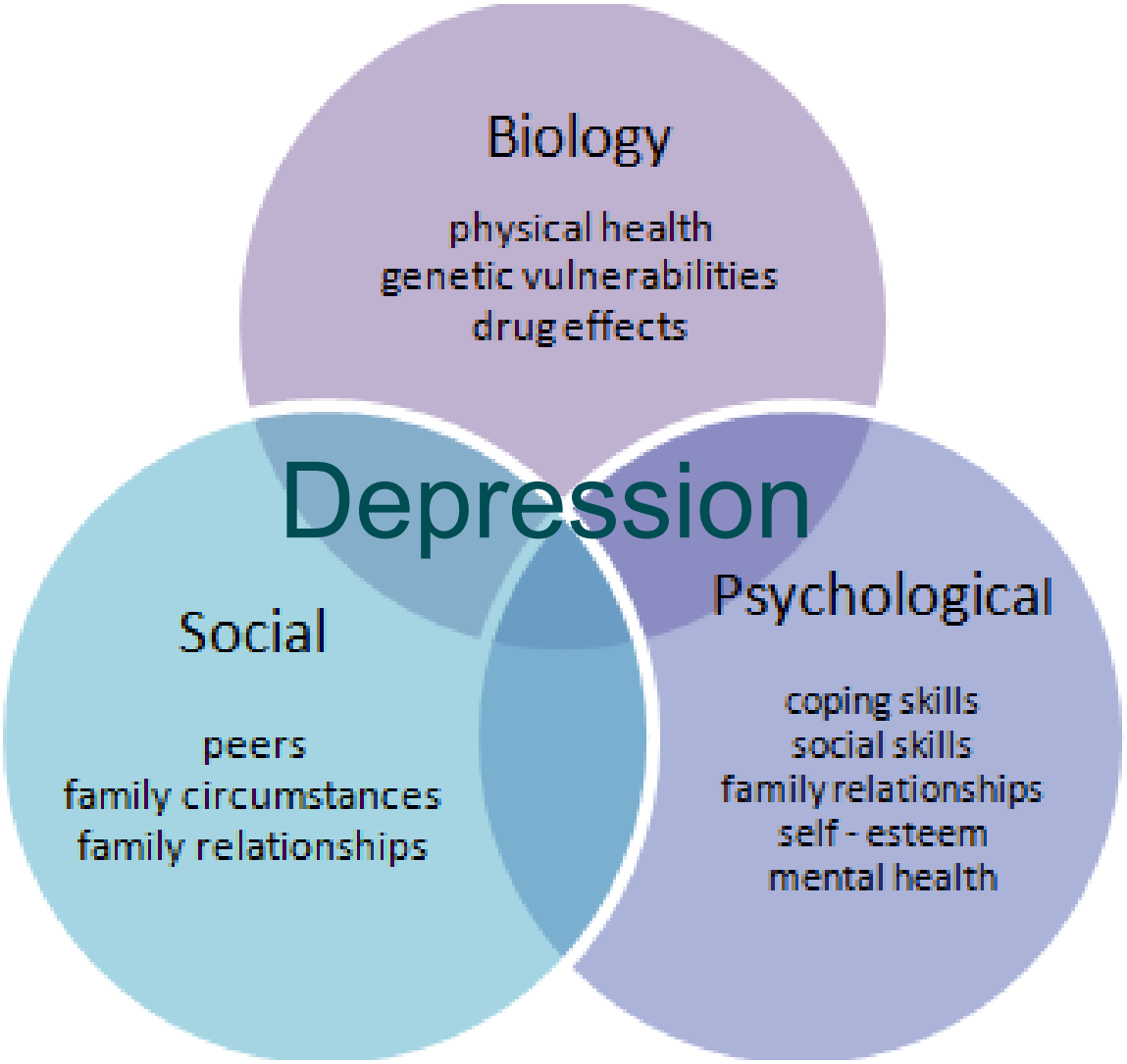

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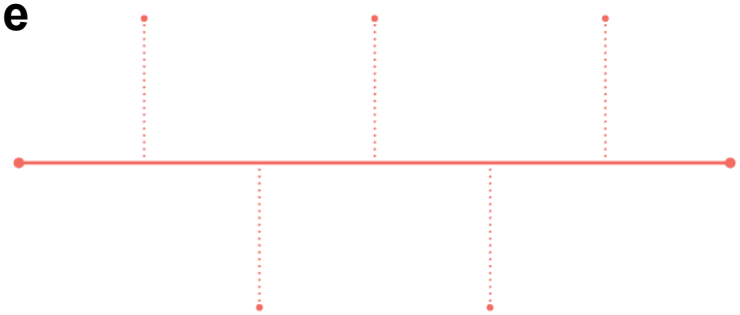
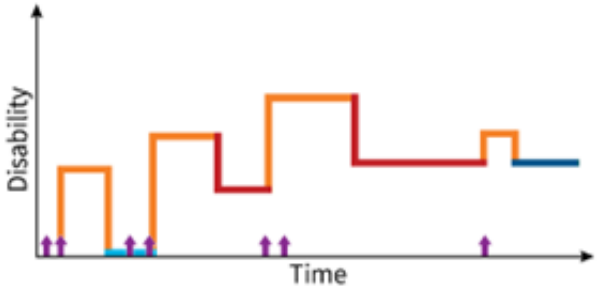
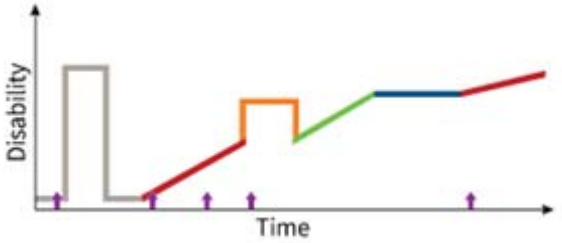
Depression is less common early in the disease



Higher rates of depression in RRMS may be suggestive of an inflammatory cause



Depressive thoughts and hopelessness are more common in SPMS suggestive of a reactive cause



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Types of Depression

Adjustment Disorder

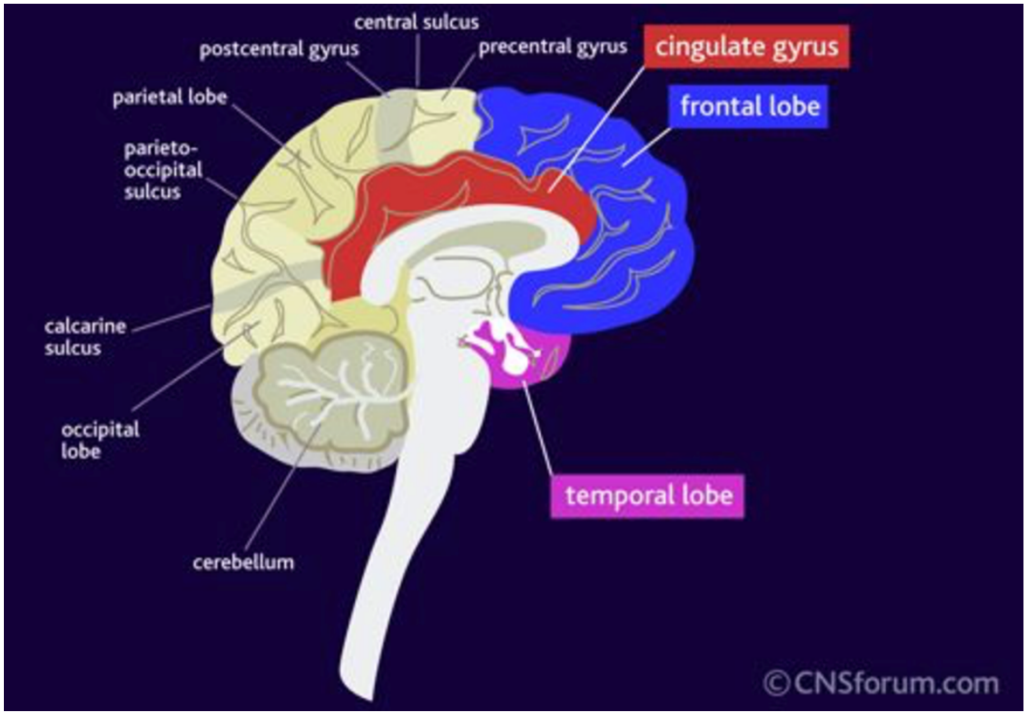
Depression Due to Medical Condition

Major Depressive Disorder

Diagnosing Depression

1. ***Feeling down, depressed, or hopeless**
2. ***Anhedonia – Little interest or pleasure in the things you can do**
3. Feeling bad about yourself, such as feeling like a failure or that you've let yourself or others down
4. Fatigue
5. Change in sleep – trouble falling asleep, or sleeping too much
6. Changes in thinking skills: concentration and memory
7. Moving and speaking slowly or being fidgety or restless
8. Change in appetite
9. Thoughts of suicide or hurting yourself

MS, Depression, and the Brain



Anatomical changes have been noted in the brains of depressed individuals with MS.

Specifically, atrophy (cell loss) and increased number of lesions in frontal and temporal areas of the brain.

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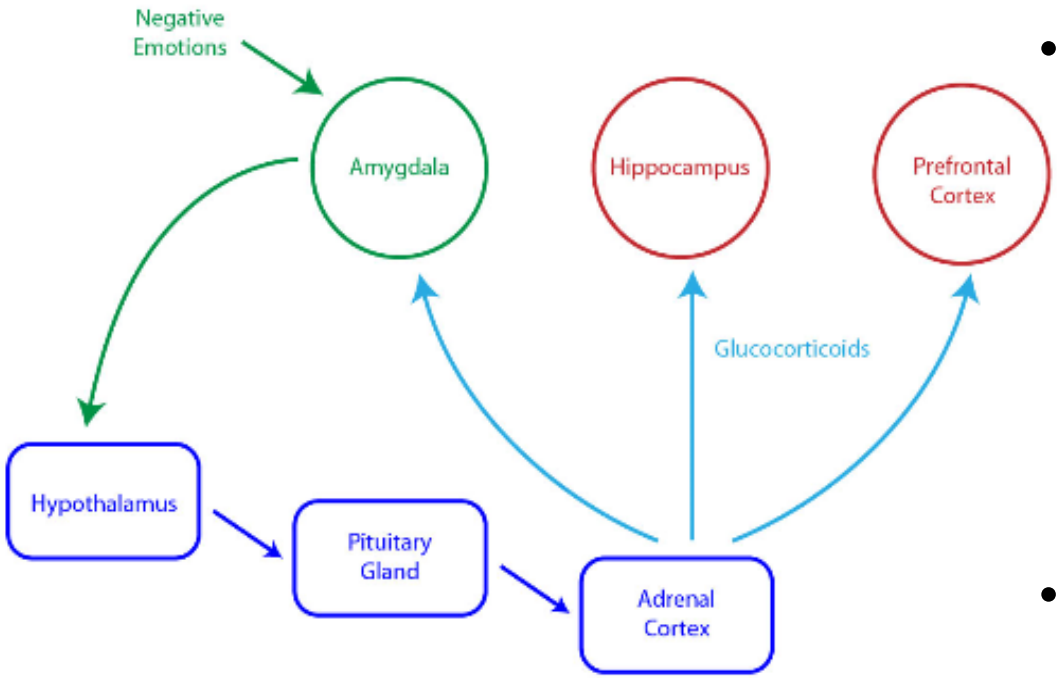

HPA axis

https://qbi.uq.edu.au/brain/brain-diseases/depression/depression-and-brain

- **Reactive**: Negative emotions or thoughts activate the amygdala, which in turn activates the HPA axis via the hypothalamus. Glucocorticoids are released reactivating the amygdala.
- **Immune Mediated:** molecules that are associated with inflammation, proinflammatory cytokines, also activate the HPA axis. Elevated levels of these molecules have been reported in MS.

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MS, Depression, and the Brain

In MS, immune changes are thought to occur before depression

HOWEVER

Depression can impact the immune system, so the impact might be bidirectional.

HPA activation in persons with MS has been linked to increased neurodegeneration.

In persons without MS, increased HPA activation has been linked to cell death in the hippocampus and prefrontal cortex.

MS, Depression, and Anxiety

Approximately half of depressed individuals with MS also experience anxiety

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MS, Depression, and Anxiety

Anxiety disorders are 3x greater in MS than the general population

3x

Anxiety alone is associated with increased risk of excessive alcohol use

Anxiety can exacerbate cognitive dysfunction, specifically processing speed

MS, Depression, and Anxiety

When anxiety and depression occur together…

- Thoughts about self-harm are more prevalent
- Individuals experience more social dysfunction
- **Individuals experience and report more pain**

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Do a Self-Test

Over the past 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things (the things you CAN DO)	0	1	2	3
Feeling down, depressed, or hopeless	0	1	2	3

Score of 3 or more? Consider talking to a medical provider.

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Next Steps: Treatment

- Depression is underdiagnosed and undertreated
- One study's findings:
  - Up to 2/3 of MS patients with depression receive no treatment
  - Of those that did receive an antidepressant, only 25% were given an adequate dose

Kalb, 2010; Sadovnick et al., 1991; Stenager & Stenager, 1992; Mohr et al., 2006

Next Steps: Treatment

Treatment Options:

- Psychotherapy: CBT or ACT
- Medication
- Best: Medication + Psychotherapy

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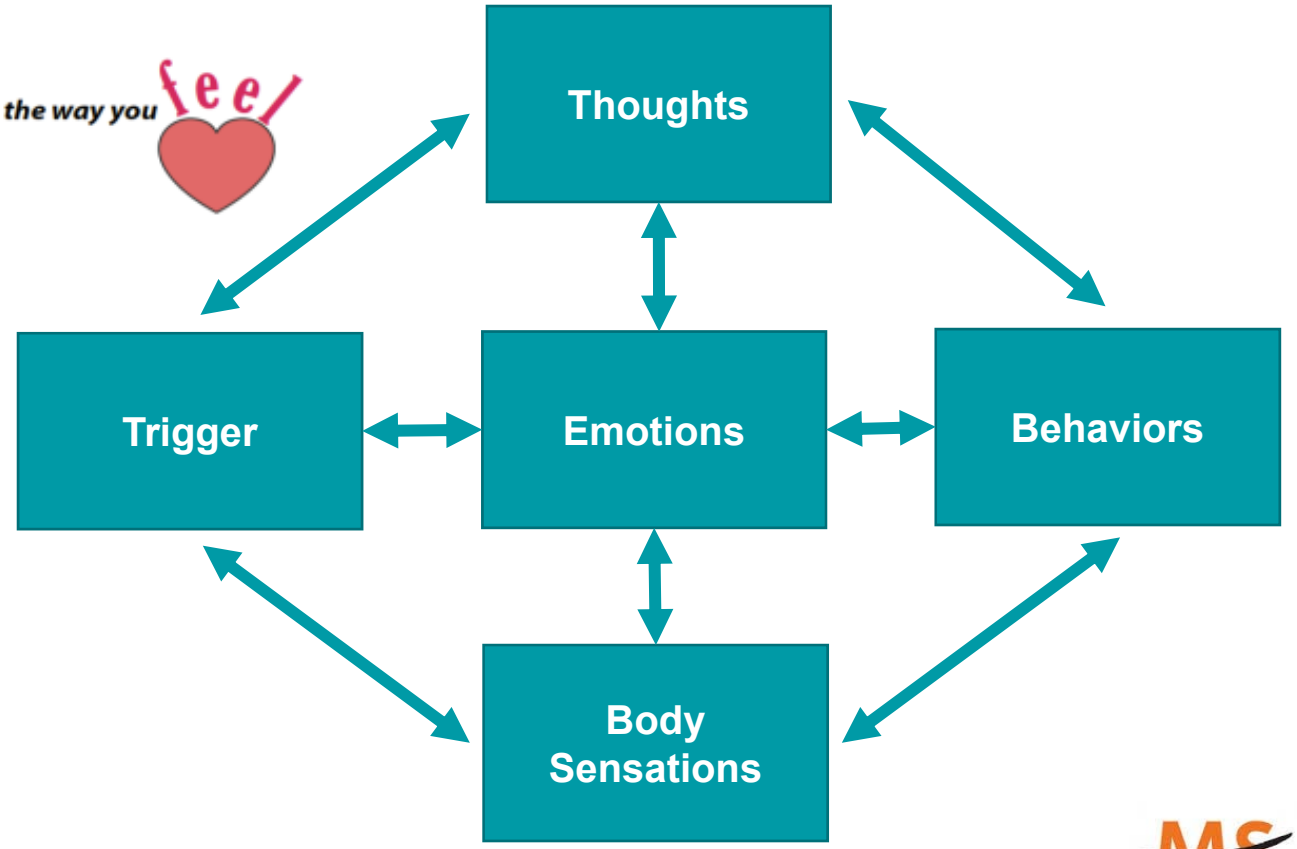
Cognitive Behavioral Therapy (CBT)



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Summary

- Depression is common in MS
- Depression may be caused by the disease, a reaction, or both
- Depression co-occurs with other diagnoses such an anxiety or pain
- Depression is underdiagnosed and undertreated, BUT it can be treated
- Treatment can be medication, talk therapy, or both

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Questions/Comments

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your best life update

Q&A

Can Do Library

Find these resources at www.MSCanDo.org.

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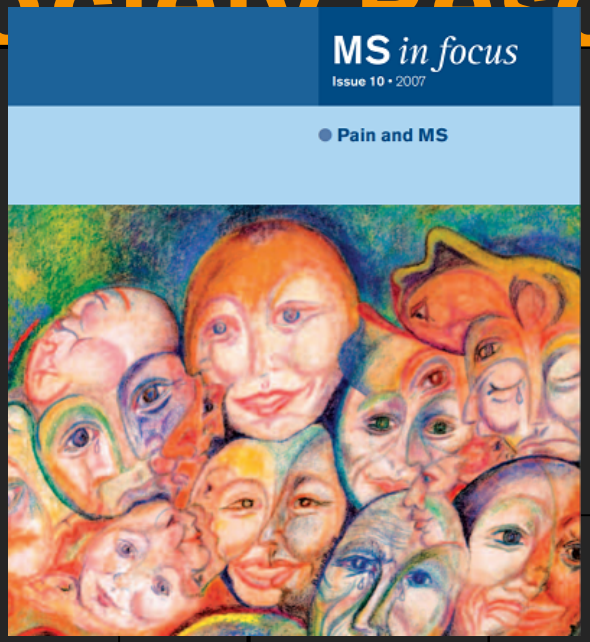

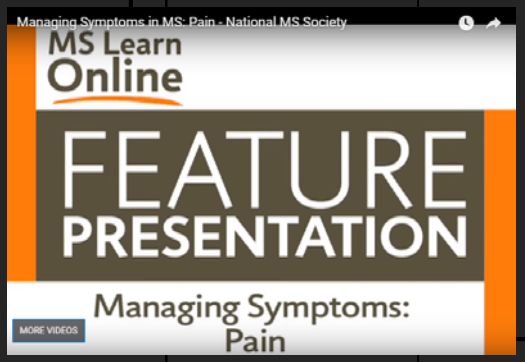

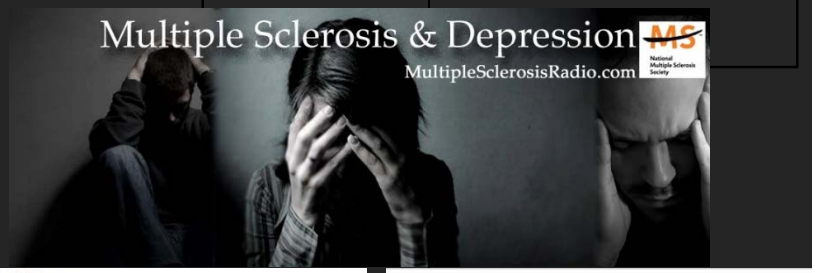

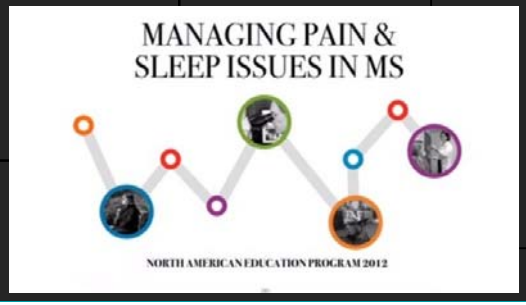

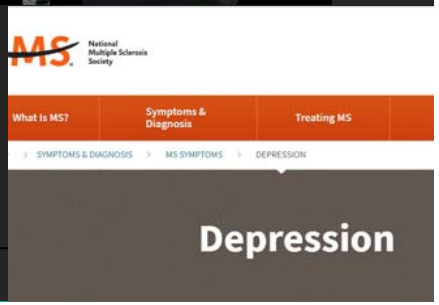

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