

Treating Chronic Pain with Mind Body  
Medicine:  
The New Neuroscience

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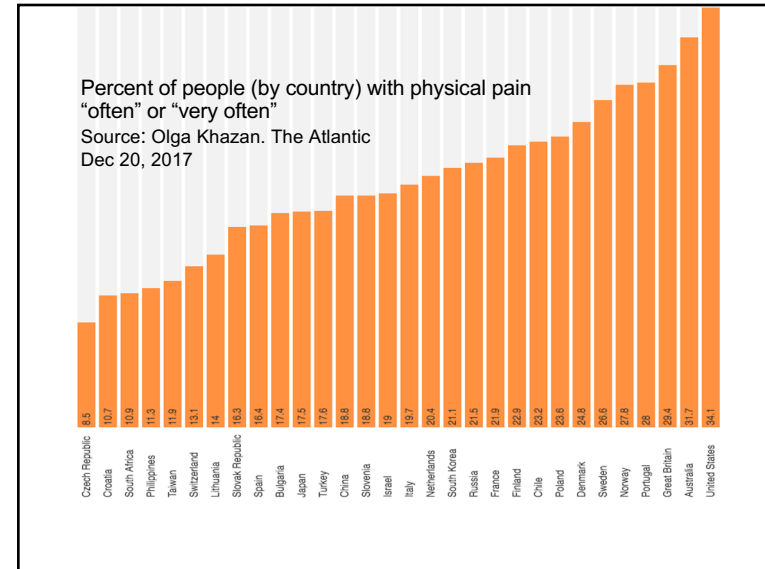
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## Definitions

**Acute pain:** sudden onset, sharp rise, short course

**Chronic pain:** continuing or occurring again and again for a long time

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“...the evolution of various neuroimaging techniques has opened new windows into the brain and spurred new avenues of pain research that hold real promise for developing new, more effective treatments. **Neuroimaging has shown us that chronic pain is different from acute pain, and that it can become a separate disease entity...**”

Martucci K, et al. Future Neurol. 2014 Nov; 9(6): 615–626. doi: 10.2217/FNL.14.57

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## Chronic Pain is a Disease of the Brain

- Chronic Pain is **NOT** a result of ongoing **tissue damage** in the area where the pain is felt.
- fMRI shows that chronic pain involves the **emotional and learning centers of the brain**
- No wonder we are doing such a lousy job treating chronic pain – we are treating the wrong thing!



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## Case History: Laura F.

76 yo RN with history of 9 spine surgeries and persistent chronic back pain. She got temporary relief or partial improvement from the first 7 surgeries. But got worse after surgery 8 and worse again after surgery 9 in 2005. Realized that she was going to be in pain with or without the surgery, and opted to treat with pain medications. Used Fentanyl patches and oral oxycodone for 15+ years. Had daily pain. Used lots of muscle relaxants. Restricted her activity.

After treatment in 2018: "I have no back pain." Discontinued Fentanyl patch and all pain medications. Active throughout the day without pain.



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## The New Neuroscience

Pain is a warning signal created by your **brain.**



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## Hypervigilant Danger-Alarm Mechanism



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## Your Autonomic Nervous System is Running You

(your Operating System)

- Bowel
- Bladder
- Heart Rate
- Breathing
- Blood Pressure
- Sweat glands
- Muscle tension in all your body



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## Predictive Coding



"The boss wants me to create a computer algorithm that can convert hindsight into foresight."



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## Learned Neural Pathways

- Everything you do is a neural pathway.
- Pain is a learned neural pathway that your brain is running because it believes it needs to warn you about danger in that area of your body.



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## Can Neural Pathways (including pain pathways) be UN-learned?

- YES!
- Because of another new understanding in neuroscience called neuroplasticity
- Search YouTube.com for "backwards brain bicycle" and watch the video with 25M views about "unlearning" how to ride a bike.



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## Two New Ideas in Neuroscience

1. Your brain controls everything you feel, using predictive coding and learned neural pathways.
2. You can change the neural pathways your brain is running because of the concept of neuroplasticity.



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## Prevalence of degenerative spine imaging finding in asymptomatic patients, n=3,300

Imaging finding	Age (yrs)							
	20	30	40	50	60	70	80	
<b>Disk degeneration</b>	37%	52%	68%	80%	88%	93%	96%	
<b>Disk bulge</b>	30%	40%	50%	60%	69%	77%	84%	
<b>Disk protrusion</b>	29%	31%	33%	36%	38%	40%	43%	
<b>Annular fissure</b>	19%	20%	22%	23%	25%	27%	29%	
<b>Facet degeneration</b>	4%	9%	18%	32%	50%	69%	83%	
<b>Spondylolisthesis</b>	3%	5%	8%	14%	23%	35%	50%	

Brinjiki W, et. al. Am J Neuroradiol. 2015, 36:811-6

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## Opioids

- Can be helpful for some people with chronic pain, but decision needs to be individualized
- Many potential risks
  - Central sensitization
  - Habituation
- Even for people already on narcotics, Mind Body treatments can help reduce or even eliminate pain



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## Pain Reduction Begins with Education

1. Go to [bch.org/mindbody](http://bch.org/mindbody)  
Click on the link titled **Intro to Neural Pain Pathways**  
<https://www.bch.org/documents/Intro-to-Neural-Pain-Pathways.pdf>
2. Only YOU can change your nervous system, so you need to really understand how it works.
3. The subconscious brain learns by experience and repetition, so you need to continue educating it and giving it new information and new experiences.



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## Case History: Tim M.

65 yo Ball Aerospace engineer, previous half-marathoner, with knee pain for over one year after a fall. Had to stop running because knee was too painful. Had seen orthopedist, tried Physical Therapy, but in the end just decided that he was getting too old to run anymore. Still exercised regularly, but hadn't been able to run for the past year. Knee only hurt when running or doing activities.



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## Center for Mind Body Medicine

- Empower patients by giving them tools to eliminate or significantly reduce the severity of chronic pain, and other hard-to-treat health problems that have not responded to traditional medical therapies.
- Help to change the understanding of pain in our community by educating patients, medical providers and insurers about new theories in neuroscience regarding how the brain and body interact.

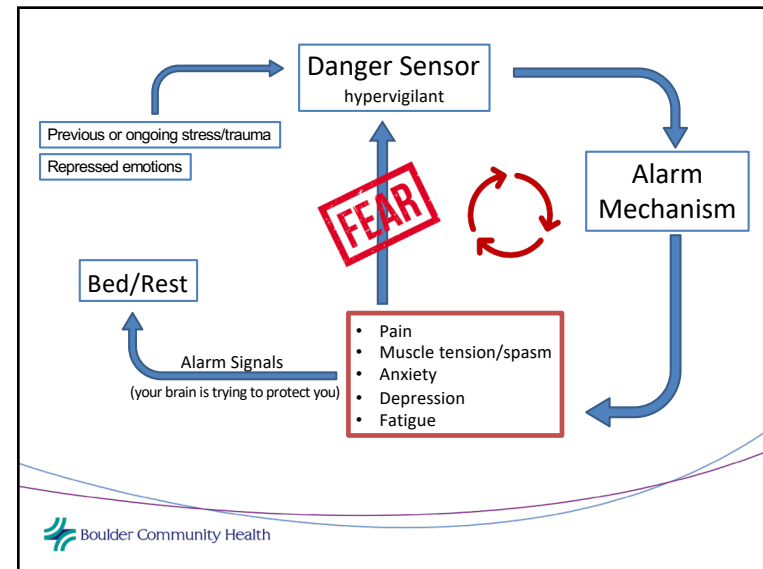


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Thank You!



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