

Chronic Pain, Reconsidered

The role of neural circuits in the brain

Howard Schubiner, MD

**Director, Mind Body Medicine Program, Department of Internal Medicine,
Ascension Providence Hospital, Southfield, MI**

Clinical Professor, Michigan State University College of Human Medicine

hschubiner@gmail.com

unlearnyourpain.com

Disclosures

Book sales

- Unlearn Your Pain
- Unlearn Your Anxiety and Depression
- Hidden From View

Consultant

- Curable app
- Freedom From Chronic Pain program (Australia)
- United Health Group
- Karuna labs

A case management chronic pain patient

55-year old male with neck and back pain for 11 years

- He has a history of headaches beginning in his 20s and he had one episode of depression in his 40s; and was briefly treated with an SRI
- He sustained an accident on the job where he fell and hit his head on a railing; he did not lose consciousness but sustained a bruise
- A CT scan of the brain was normal and he was observed overnight before being discharged
- He had head pain for two days in the area of the bruise
- Six days later, he developed neck pain that persisted
- Six months later, he developed low back pain without a precipitating injury

A case management chronic pain patient--2

- He sought medical treatment for the neck and back pain
- Physical therapy for six weeks of no benefit; 3 other courses of PT
- MRI of the neck and back revealed:
 - DDD at three levels in the neck with a moderately large bulging disc at C5-6; facet arthropathy; mild spinal stenosis and foraminal narrowing at C5-6 and C6-7
 - Spondylolisthesis, grade 1 at L 4-5; DDD at 4 levels; two small bulging discs at L 4-5 and L 5-S1, without significant foraminal narrowing
- He had 3 series of back and neck injections without sustained benefit
- He had surgery on his neck but the pain got worse afterwards
- Pain is now 6-7/10 on most days, despite rx with gabapentin, norco, and Cymbalta
- He is considering an implanted spinal cord stimulator

A case management chronic pain patient-3

- He has been unable to work since the accident and is involved in the workmen's compensation program
- He initiated a lawsuit against his company after he was fired, which is ongoing
- He lives with his wife of 28 years
- They have 3 children, one of whom has a substance use disorder
- The patient used to have a drinking problem, but that is under control for the most part
- His father was abusive to him as a child
- His father passed away 8 years ago and his mother is now elderly and needs help

A case management chronic pain patient-4

- The neck pain is intermittent, comes and goes, over the course of each day
- It is increased by head movements and is worse when it is cold or rainy
- The lower back pain is constant, but the pain shifts from the right side to the left side on certain days
- This pain also radiates up to the mid-back at times
- This pain is worse with bending over, and sitting in certain chairs, but not other chairs

What is the cause of this patient's pain?

- Purely structural?
- Mainly structural/only partly mind-body pain?
- Mainly mind-body pain/only partly structural?
- Purely mind-body pain?

Chronic pain is assumed to be both biological and psychological.

Treatment is multidisciplinary.

Yet, we have not been effective in reducing pain.

Degenerative spine imaging findings in asymptomatic patients

	Age, n=3300						
Imaging Finding	20	30	40	50	60	70	80
Disk Degeneration	37%	52%	68%	80%	88%	93%	96%
Disk Bulge	30%	40%	50%	60%	69%	77%	84%
Disk Protrusion	29%	31%	33%	36%	38%	40%	43%
Annular Fissure	19%	20%	22%	23%	25%	27%	29%
Facet Degeneration	4%	9%	18%	32%	50%	69%	83%
Spondylolisthesis	3%	5%	8%	14%	23%	35%	50%

Limitations of current approaches

1. Lack of specific diagnosis of cause of pain
2. Methods geared towards coping or living with pain, not reducing it
3. Emotional processing is not actively encouraged

Proportion of
chronic conditions
that are brain
induced:

Anxiety/Depression	99%
Fibromyalgia	99%
IBS	99%
Headaches	95%
Pelvic pain syndromes	90%
Chronic neck/back pain	> 85%

The Nature of Pain

Pain and
predictive coding

An example of predictive
coding...

An apple a day

Canadian construction worker



UK construction worker



Fisher, et. al. British Medical Journal, January 7, 1995

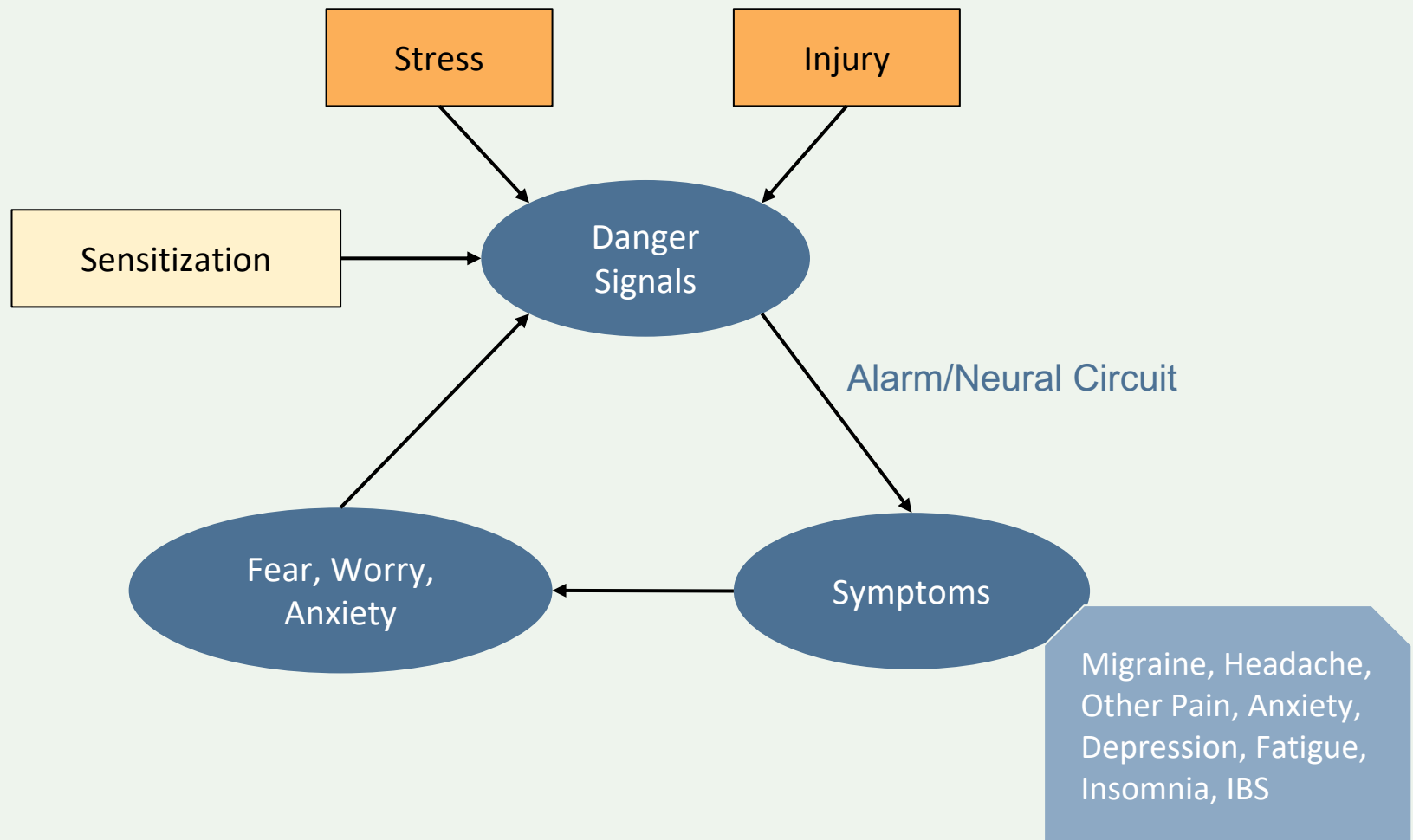
Vietnam War Injury



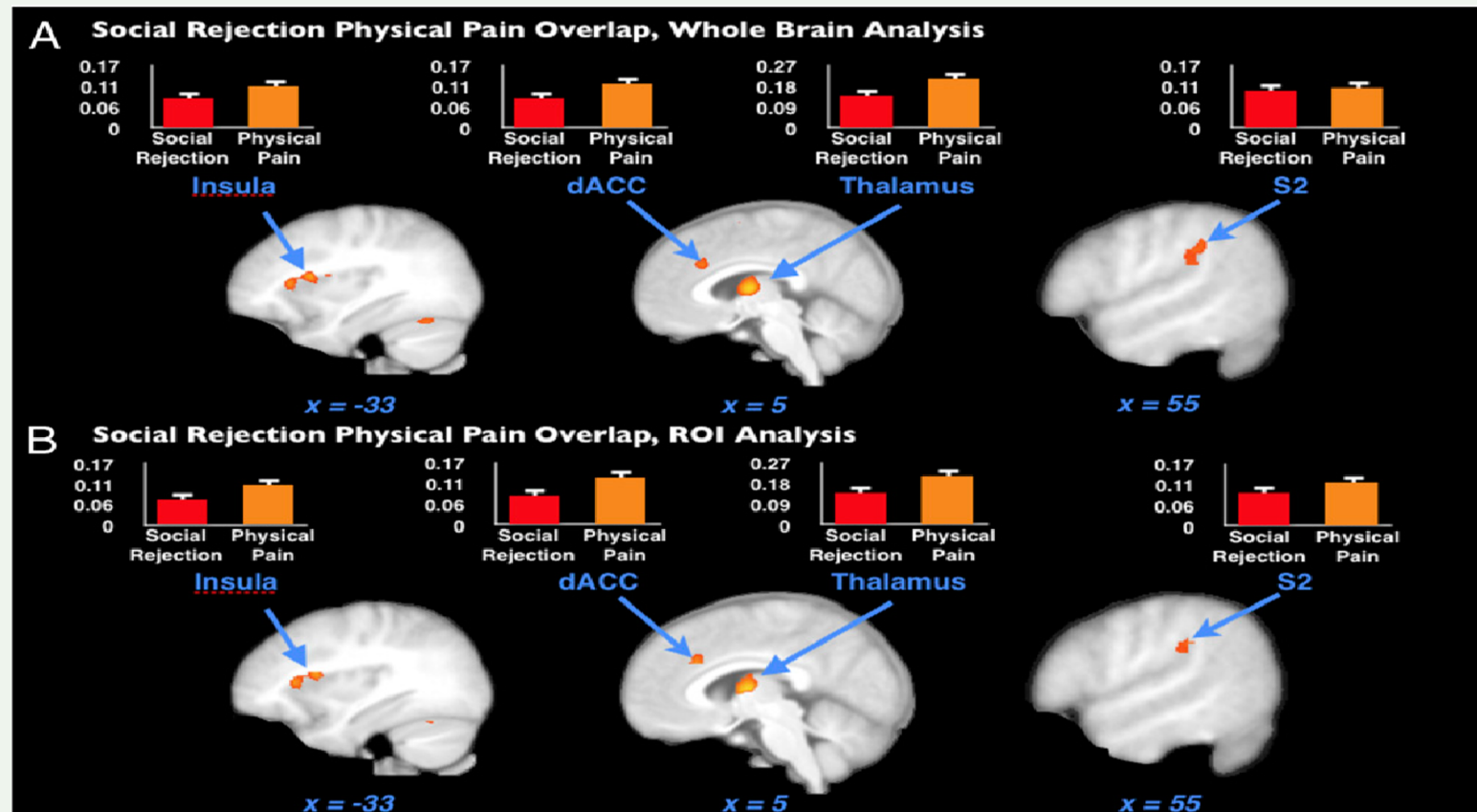
Pain as a dynamic process

- All pain is real. There is not real pain and imaginary pain
- All pain is activated by the brain
- Pain can be triggered by either tissue damage or neural circuits (in the absence of tissue damage)

Pain Circuitry



Emotional pain equals physical pain



Diagnostic Process

1. Rule **out** a structural disorder—i.e., rule out secondary cause
2. Rule **in** a neural circuit disorder—i.e., rule in primary cause
3. Add evidence to link learned neural circuits to personalize the diagnosis

Evidence for neural circuit induced disorder

- Pain map
- Review of systems, lifetime—IBS, IC, back pain, fatigue, anxiety, depression
- Adverse childhood events
- Linkage of stressful events with onset/exacerbation of symptoms

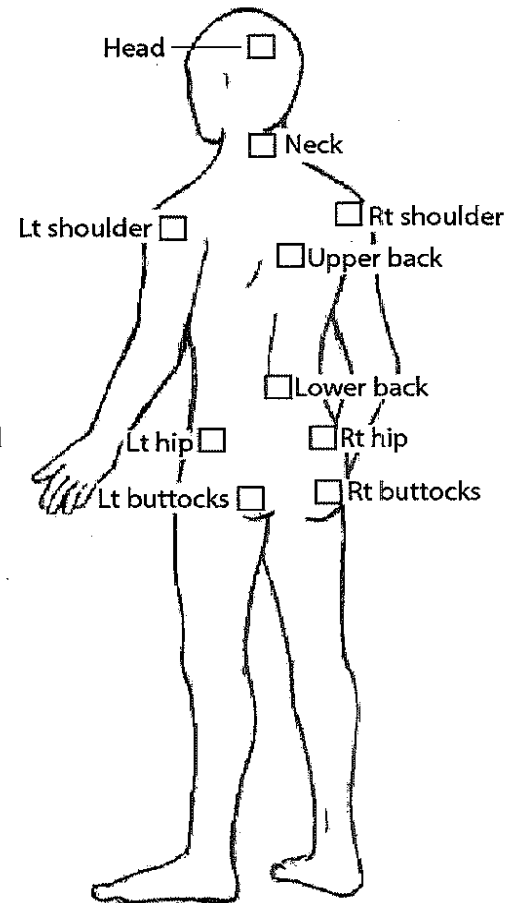
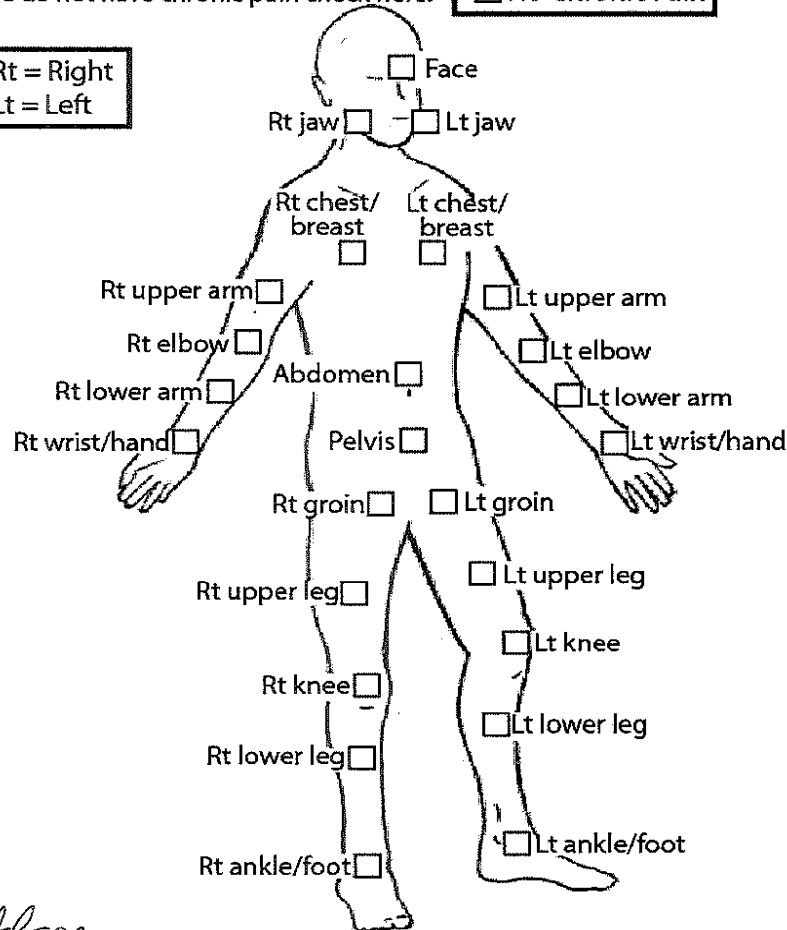
Michigan Body Map

On the image below, **CHECK ALL** areas of your body where you have felt **persistent or recurrent pain** present for the last **3 months or longer (chronic pain)**.

If you do not have chronic pain check here:

☐ No Chronic Pain

Rt = Right
Lt = Left



Also:

Use cross-hatch ### to show
where the pain is located
on these drawings

Review of systems

For each of the following, check yes if you have had this symptom or condition and indicate the year it began; check again if it is still present.

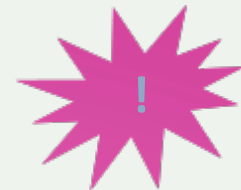
	Yes?	Began when	Still present?
1. Heartburn, acid reflux	X	Childhood	yes
2. Ulcer symptoms or stomach pains	X		
3. Hiatal hernia	X		
4. Irritable bowel syndrome	X		
5. Colitis, spastic colon		n	n
6. Tension headache	X	child	
7. Migraine headache			
8. Eczema			
9. Anxiety symptoms and/or panic attacks	X	n child	n
10. Depression	X	child	
11. Obsessive-compulsive thought patterns			
12. Eating disorders			
13. Insomnia or trouble sleeping	X		yes
14. Fibromyalgia	X	30's	yes
15. Bell's palsy, facial paralysis			
16. Back pain	X	1987	
17. Neck pain	X	1987	
18. Shoulder pain	X	1987	
19. Repetitive stress injury			
20. Reflex sympathetic dystrophy (RSD)			
21. Temporo-mandibular joint syndrome (TMJ)	X	teen	
22. Chronic tendonitis			
23. Carpal tunnel syndrome			
24. Trigeminal neuralgia, facial pain			
25. Numbness, paresthesias			
26. Fatigue or Chronic fatigue syndrome			
27. Palpitations	X	teen	
28. Chest pain			
29. Hyperventilation	X	teen	
30. Spastic bladder			
31. Interstitial cystitis			
32. Prostate problems			
33. Pelvic pain			
34. Muscle tenderness	X	30's	
35. Tachycardia or low blood pressure	X		
36. Tinnitus			
37. Dizziness			
38. Other symptoms (please list)			

AGE

LIFE EVENT

PATHWAY

SYMPTOMS



History of stressors

Please **make a check** which of the following occurred around the time your symptoms (Sx) began **or** has occurred recently or is currently present:

	<u>Occurred when Sx began</u>	<u>Recent or Current</u>
1. Illness or death in your family or friends		X
2. Divorce or marital problems	X	
3. Legal problems		
4. Accident or injury		
5. New relationship or marriage	X	
6. Difficulties at work or change in job or business	X	
7. Gain of a new family member or change in the family structure		
8. Change in financial situation	X	
9. Change in living situation	X	
10. Violent experiences		
11. Changes in sexual functioning or other issues regarding sex		

Have you had any traumatic or violent experiences in childhood? Yes/No

Please explain

What words would you use to describe your father?

Cruel - hard working - Generous - Confident - intelligent -
Stubborn - appreciative - Sad - Lonely - Determined

What words would you use to describe your mother?

passive - loving - hard worker - Depressed - tired
ALZHEIMERS

Evidence for neural circuit induced disorder

Pain Localization

- Pain is in an unusual pattern, such as one whole side of the body, or the whole arm or leg
- Pain is in mirror image locations on both sides of the body
- Pain from an injury has lasted after normal healing would have occurred
- Pain shifts from one location in the body to others
- Pain has spread from one area to other areas of your body

Evidence for neural circuit induced disorder

Situational Variations and Triggers

- Pain varies during the day or depending on whether you are at work, home, in the car, on vacation
- Pain is absent with a certain activity or exercise, but then occurs later in the day or the next day
- Pain is triggered by sounds, light, computer screens, foods, heat, cold, smells, or changes in the weather
- Pain is worse with stressful situations or the anticipation of stressful situations, such as family visits or work stress

A chronic pain patient

55-year old male with neck and back pain for 11 years

- He has a history of **headaches** beginning in his 20s and he had one episode of **depression** in his 40s; and was briefly treated with an SRI
- He sustained an **accident** on the job where he fell and hit his head on a railing; he did not lose consciousness but sustained a bruise
- A CT scan of the brain was **normal** and he was observed overnight before being discharged
- He had head pain for **two days** in the area of the bruise
- **Six days later**, he developed neck pain that persisted
- **Six months later**, he developed low back pain without a precipitating injury

A chronic pain patient--2

- He sought medical treatment for the neck and back pain
- **Physical therapy** for six weeks of no benefit; 3 other courses of PT
- **MRI** of the neck and back revealed:
 - DDD at three levels in the neck with a moderately large bulging disc at C5-6; facet arthropathy; mild spinal stenosis and foraminal narrowing at C5-6 and C6-7
 - Spondylolisthesis, grade 1 at L 4-5; DDD at 4 levels; two small bulging discs at L 4-5 and L 5-S1, without significant foraminal narrowing
- He had 3 series of back and neck **injections** without sustained benefit
- He had **surgery** on his neck but the pain got worse afterwards
- Pain is now 6-7/10 on most days, despite rx with **gabapentin, norco, and Cymbalta**
- He is considering an implanted spinal cord stimulator

A chronic pain patient-3

- He has been unable to work since the accident and is involved in the **workmen's compensation** program
- He initiated a **lawsuit** against his company after he was fired, which is ongoing
- He lives with his wife of 28 years
- They have 3 children, one of whom has a **substance use disorder**
- The patient used to have a drinking problem, but that is under control for the most part
- His father was **abusive** to him as a child
- His father passed away 8 years ago and his mother is now elderly and needs help

A chronic pain patient-4

- The neck pain is **intermittent**, comes and goes, over the course of each day
- It is increased by head movements and is worse when it is **cold or rainy**
- The lower back pain is constant, but the pain **shifts** from the right side to the left side on certain days
- This pain also **radiates** up to the mid-back at times
- This pain is worse with bending over, and sitting in **certain chairs**, but not other chairs

What is the cause of this patient's pain?

- Purely structural?
- Mainly structural/only partly mind-body pain?
- Mainly mind-body pain/only partly structural?
- Purely mind-body pain?

Treatment Overview

1. Make an accurate diagnosis
2. Educate on the nature of pain
3. Reduce fear of pain to rewire neural circuits—Pain Reprocessing Therapy
4. Graded exposure
5. Emotional interventions to process stressful life events—Emotional Awareness and Expression Therapy
6. Make changes in one's life

Psychophysiological Disorders

- Stress and unresolved emotions create **real, physical pain** via neural pathways
- No disease process in the body
 - *i.e.* physiological, but not pathological changes
- **Symptoms are a message** created by subconscious processes
- Pain and other symptoms **can persist for years** due to learned neural pathways
- Reversal of mind-body symptoms can occur by cognitive, behavioral and affective interventions

Web Resources:

- TMSwiki.org—peer run website
- Curablehealth.org—mobile app
- TheDocJourney.com--mobile app
- Freedomfromchronicpain.org—online program, based in Australia
- PPDAssociation.org—professional organization
- UnlearnYourPain.com--Dr. Schubiner's website
- Pain Psychology Center—Alan Gordon's center in LA
- BackIncontrol.com—Dr. Hanscom's website
- SirpaUK.com—British website

Books for patients and for professionals

- John Sarno: The Mindbody Connection, Healing Back Pain, The Divided Mind
- Howard Schubiner: Unlearn Your Pain; Unlearn Your Anxiety and Depression
- Allan Abbass and Howard Schubiner: Hidden From View (for professionals)
- David Hanscom: Back in Control, Do you need back surgery?
- David Clarke: They can't find anything wrong
- David Schechter: Think away your pain
- Georgie Oldfield: Chronic Pain: Your key to recovery
- Clarke, Abbass, Schubiner, Smith-Clark: Psychophysiologic Disorders textbook (for professionals)

Documentary Films

- All The Rage: Michael Galinsky
 - see rumur.com
- This Might Hurt: Kent Bassett, Marion Cunningham
 - see thismighthurtfilm.com
- Pain Brain: Mitch Dickman in process

There is nothing more powerful than an idea whose time has come.

--Victor Hugo, 1877

For each illness that doctors cure with medicine, they provoke ten in healthy people by inoculating them with the virus that is a thousand times more powerful than any microbe: the idea that one is ill.

-- Marcel Proust, ~1900

Thank you!

- Reach me at hschubiner@gmail.com