



The Pain of Trauma and The Trauma of Pain:
The Opioid Crisis is Not What You Think.
Bennet Davis, M.D.





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IASP updated definition of pain



Many people report pain in the absence of tissue damage or any likely pathophysiological cause; usually this happens for psychological reasons. There is usually no way to distinguish their experience from that due to tissue damage. If they regard their experience as pain, and if they report it in the same ways as pain caused by tissue damage, it should be accepted as pain. This definition avoids tying pain to the stimulus. Activity induced in the nociceptor and nociceptive pathways, the wiring of the nervous system, by a painful stimulus is not pain (*sorry Descartes*), which is always a psychological state, even though we may well appreciate that pain most often has a physical cause. IASP 2011




René Descartes conceived of the pain sensing nervous system this way in the 17th Century

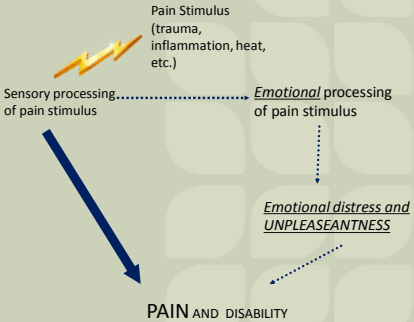
Nociceptive Pain


Transduction (Nociceptors)
↓
Transmission (Peripheral nerve)
↓
Modulation (Spinal cord & Thalamus)
↓
Perception (Somatosensory cortex)



Nociceptive pain




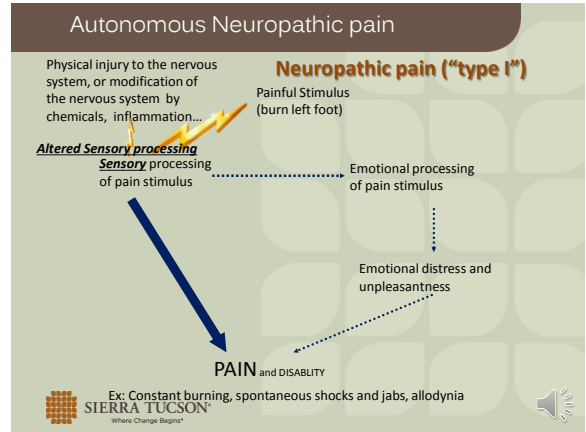
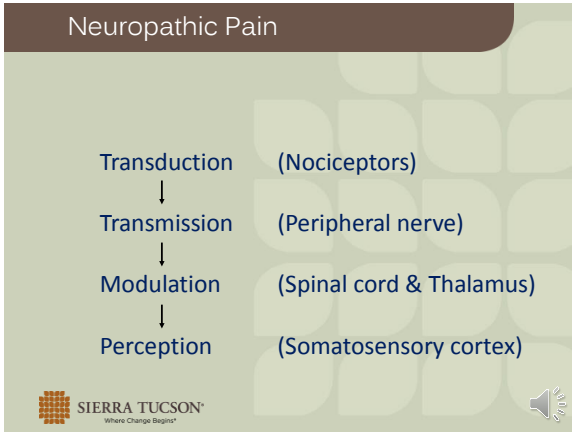
Pain Stimulus (trauma, inflammation, heat, etc.)
Sensory processing of pain stimulus → Emotional processing of pain stimulus
Emotional processing of pain stimulus → Emotional distress and UNPLEASEANTNESS
Sensory processing of pain stimulus → PAIN AND DISABILITY
Emotional distress and UNPLEASEANTNESS → PAIN AND DISABILITY



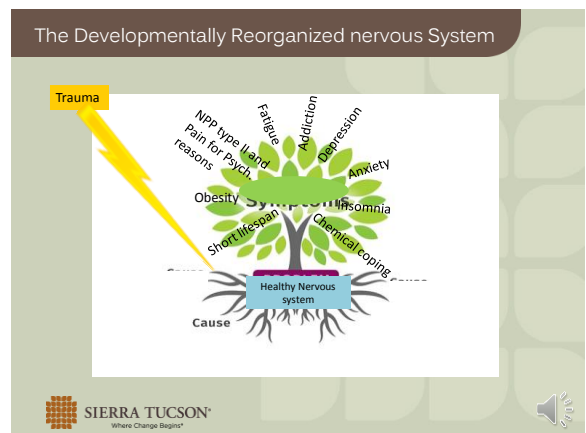
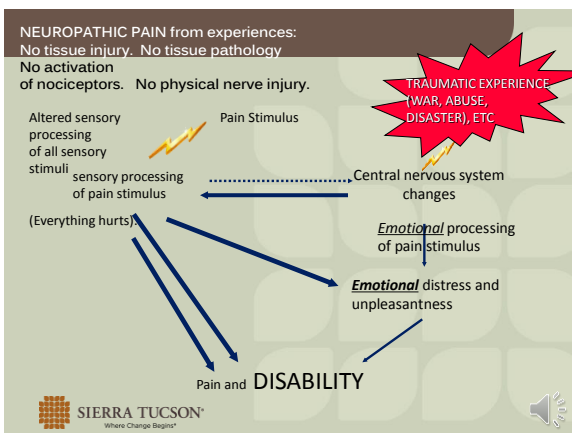
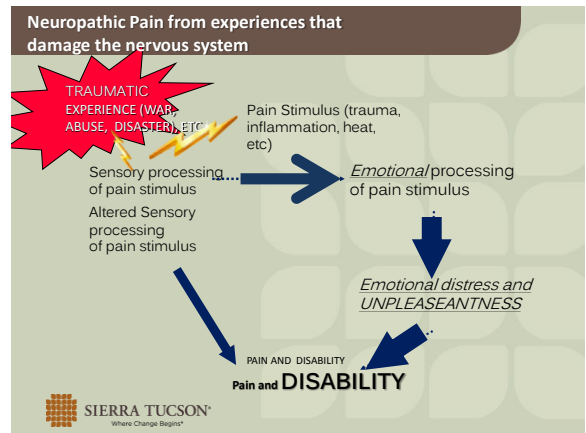
Examples of NOCICEPTIVE PAIN

- Arthritis (degenerative or inflammatory)
- Radiation fibrosis from cancer
- Burns
- Back pain
- Fractures
- Described as: "sharp, dull, aching"





- ### NEUROPATHIC PAIN from physical nerve injury
- Diabetic and other neuropathies
 - Post herpetic neuralgia
 - CRPS
 - Phantom limb pain
 - Spinal cord injury and post stroke pain
 - Brachial plexus injury
 - Opioid induced hyperalgesia
- Described as: "burning, shooting, electrical" with heightened sensitivity to stimuli
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Examples of NEUROPATHIC PAIN that results from experiential nervous system injury

- Fibromyalgia
- Some chronic abdominal pain syndromes
- Some headache syndromes

Described as: "cruel, punishing, fearful, horrible" with heightened sensitivity to stimuli

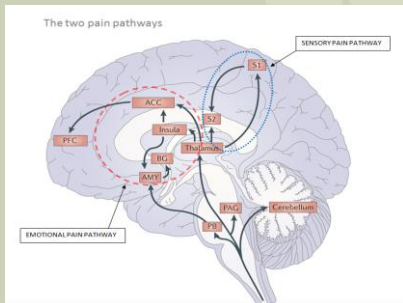


Clues to presence of "Experiential Neuropathic Pain" include:

- "Nothing works for my pain" besides medications with psychotropic action (includes opioids, benzodiazepines, etc.)
- Diffuse pain with no clinical cause evident
- Multiple somatic complaints
- Disability is out of proportion to objective clinical pathology
- Pain behaviors seem out of proportion to the severity of the painful stimuli
- Emotionally charged behaviors in the office – crying, etc
- Patient describes pain using emotionally charged words: "I cry in pain"



Why do emotional responses/behaviors predominate in Experiential Neuropathic Pain?



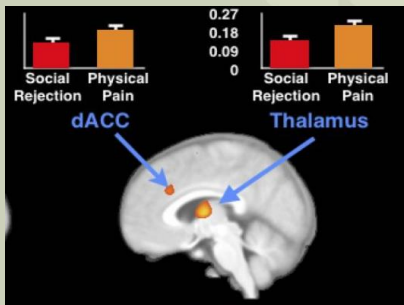
Emotional pain

- Social rejection
- Grief
- Borderline PD
- Depression



Overlap between brain activity in response to heat pain vs social rejection:

SAME!



Kross, Ethan <http://www.pnas.org/content/108/15/6270.full>

What is Pain?

An experience produced by any combination of these processes:

- *Nociceptive pain* Noxious stimulus
Nociception →
- *Neuropathic pain*
 - Neuropathic "type I" from physical nerve damage
 - Neuropathic "type II" from experiential nerve damage
- Emotions

Which is interpreted in the context of one's emotional state, past experience, assumptions, and beliefs;

And is assigned Meaning;

Leading to Behaviors



Can "real" pain occur ONLY for psychological reasons?



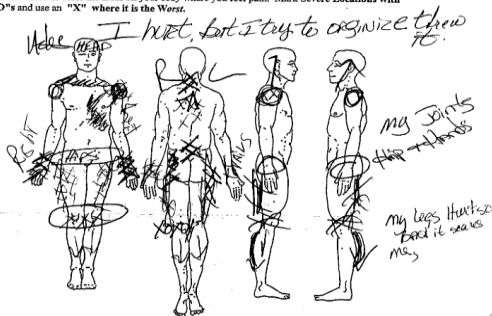
The next two slides describe a patient who was caught up in a hostage situation 3 years ago. She was unharmed – physically.

She presented to IPCA in referral from her PCP with complaints of 3 years of diffuse pain that was not responding to opioid at high doses.

Referring diagnosis was "fibromyalgia"



Please fill in the "Pain Diagram" below to let us know where your pain is and where it hurts the worst. Shade or color the areas on your body where you feel pain. Mark Severe Locations with "O's" and use an "X" where it is the Worst.



If this new paradigm of pain is correct, then we should be able to show that treatments based on these concepts work.

We have!



Example: Cognitive-Behavioral Therapy (CBT) is an effective way to treat back pain

1. Randomized trial of Cognitive Behavioral Therapy (CBT) vs. patient education: 243 patients with *acute or subacute back pain*¹
 - Both reduced sick days compared to controls, but 9 fold less sick days in the CBT group at 1 year.
2. Randomized trial of spinal fusion vs. CBT plus exercise for chronic low back pain²
 - Equal improvement, no difference in outcome at 1 year.

¹Linton SJ Spine 2000 Nov 1;25(21):2825-31
²Brox JJ Spine 2003 Sep 1;28(17):1913-21



Where is the evidence?

There are not good animal models as yet for studying "Neuropathic Pain type II: or "Pain for psychological reasons" and it has no validated diagnostic criteria nor does it have an ICD-10 code or agreed upon nomenclature. So incidence, prevalence, disease burden, and research on effective treatments is difficult.



Framing up the pain treatment discussion with our patients:

Base it on a complete understanding of what pain is and use that understanding to communicate the role of each member of the care team

<ul style="list-style-type: none"> Opioids Antidepressants Anxiolytics Anitpsychotics Psychodynamic therapy Cognitive/behavioral therapies 	<ul style="list-style-type: none"> Opioids SNRI, gabapentin, pregabalin Neurocognitive therapies (SE,EMDR) Acupuncture Nerve blocks Neurostimulation Cognitive/behavioral therapies 	<ul style="list-style-type: none"> Opioids NSAID Corticosteroid Exercise and diet Pain procedures Surgery to treat pain
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This is how pain is most often conceptualized

And this falls short

The MIND ↔ **The Nervous System** ↔ **The BODY**

Perceiving & Adding meaning Modulating and transmitting Sensing

1. Nociceptive pain

2. Neuropathic pain due to physical nerve injury

3. Neuropathic pain due to experiential nerve injury

- Psychiatrist
- Therapist
- Neuropsychologist
- PCP adapting treatment to the appropriate cultural context, doing mental health screening, etc.

- Health psychology
- Neurology/Pain Medicine
- PCP screening for nervous system sensitization/dysregulation (signs of classical neuropathic pain or ramped up emotional processing of pain)

- Physical Therapy
- Orthopedics
- Neurosurgeons
- Rheumatologists
- Pain Medicine Spec.
- PCP coordinating treatment

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4 pain diagnoses based on this discussion

- Pain^P Chronic painful physical illness or injury (nociceptive and/or neuropathic pain from nerve injury, unresponsive to outpatient tx)
- Pain^T Experiential NPP, patient contemplating trauma treatment
- Pain^{T+PC} Experiential NPP, patient pre-contemplative reagrding treating trauma (blames pain)
- Pain^{T+SG} Experiential NPP, Patient pre-contemplative. Often there is Secondary Gain (Family System, Work)

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