Understanding Pain

(45 Years of Pain Science in < 45 Minutes)

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The speaker, Dr. Kevin Cuccaro, has declared they have no relevant financial disclosures.
Learning Objectives

• Assess outcomes with common pain management treatments

• Define modern pain science using a new conceptual model.

• Describe how to assess and ‘deconstruct’ pain in order to direct treatment.
Today’s Goals

▲ Pain Awareness

Challenge Beliefs

Think *Differently*
Dr. Cuccaro’s Background

- Anesthesiologist
- Fellowship trained Pain Physician
- Group practice Navy
- Solo Pain Specialist

Why aren’t people getting better?
An Opioid Problem...Or A Pain Problem?

- Common presenting symptom
- Most common disability
- $600+ Billion annually
- 100 Million Americans*

Cost & Benefit

What We Did...

- ↑ MRI’s 300%
- ↑ Procedures 130-700+%  
- ↑ Surgeries 300+%  
- ↑ Opioids 690+%  

What We Got...

- ↑ Disability Rates
- ↑ Complication Rates
- ↑ Healthcare Costs
  
No Improvement in Self Reports

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Overall Results...

2000
US Pop. 282 Million
45 Million Chronic Pain

2010
US Pop. 309 Million
100 Million Chronic Pain

↑ 9.6%
↑ 122%
Why

↑122%!?!?

Despite More ‘Treatment’?
What Is Pain?
Pain or No Pain?
Pain or No Pain?
Who Has Pain?
How can someone...

Severe pain in their foot... but no spike?

Have a nail in their thumb... but little pain?

‘Spinal deformity’... but no pain?

‘Normal’ X-Rays... but tremendous pain?
What Is Pain?

“Pain is an unpleasant sensory & emotional experience associated with actual or potential tissue damage or described in terms of such damage.”

Unpleasant Sensory AND Emotional Experience

In Response To Perceived Danger

IASP 1994
Key Points

1. Pain Is About Protection Not Punishment

Aka “Hurt ≠ Harm”

2. Pain Does NOT “Come From…” The Body

Pain Is “Constructed” In The Brain
1. Protection Not Punishment

("Hurt" ≠ "Harm")

‘Harm WITHOUT Hurt’

- Distraction
- Life or Death Events
- General Anesthesia
- Belief of Harmlessness

‘Hurt WITHOUT Harm’

- High (But Not Too High) Threat
- Expectation of Harm or ‘Vulnerable’ Expectation
- Belief of Harm

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IF Pain “Came From…”

...Then cutting, poking, adjusting, drugging, ‘Pain Pus Pathways’ would **consistently** & **predictably** work with **sustained** results.

But is this true?

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How Is Pain Constructed?

Unpleasant Sensory AND Emotional Experience

In Response To

Perceived Danger

Sensation (Feeling)
‘Where is it?’ ‘What is it like?’

+ Emotion (Meaning)
‘What does this mean?’

+ Cognition (Thinking)
‘Does it matter right now?’
& What should I do?’
Confusing? Not Really

Firefighters Understand This

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Fuel, Heat, & Oxygen of Pain

**Cognition/Attention (“Heat”)**
- Threat
- Accidental vs. Intentional
- Uncertainty & Anxiety

**Sensation/Transmission (“Fuel”)**
- A-Beta vs. A-Delta vs. C-fibers
- Interoceptive, Proprioceptive...
- ‘Top-Down’ Influences

**Emotion/Meaning (“Oxygen”)**
- Fear & Loss Meaning
  - Ex. Abd Pain
- Anger & Injustice
- Loss & Depression
Important: What Is This?
What Is This (vs. Pain)?

Sensation
(Or structures like...
Bulging discs, ‘weak muscles,’
‘bone-on-bone’,...)

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Structure OR Sensation Alone ≠ Pain

Nociception IS NOT Pain!

'Pain Pus'

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‘Pain Fire’
Examples
Spike In Boot

**Sensation/Transmission ("Fuel")**
- ‘Tissue Issues’ or No?

**Cognition/Attention ("Heat")**
- Threat, Uncertainty, Anxiety?

**Emotion/meaning ("Oxygen")**
- Fear, Loss/Harm Meaning?
Nail In Thumb

Sensation/Transmission ("Fuel")
- ‘Tissue Issues’ or No?

Cognition/Attention ("Heat")
- Threat, Uncertainty, Anxiety?

Emotion/meaning ("Oxygen")
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Nail In Thumb
‘Normal Spine’

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‘Normal Spine’
Scoliosis

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**Emotion/meaning ("Oxygen")**
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Scoliosis

No Pain
Why This Matters

What We Assume About Pain

What Pain Actually Is

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Key Point: All Pain IS Pain

‘Acute’?

‘Chronic’?
& Should These ‘Fires’ Be Treated The Same?
& Is There Only 1 Way To Treat These ‘Fires’?

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& Key Inputs...For Any ‘Fire’

- Genetic/Epigenetic
- Developmental
  - Childhood Illness, Abuse, Neglect
- Adult Victimization/PTSD
- High Stress
  - Early Life
  - Chronic Stress
  - Acute Stressors
- Anxiety
- Depression
- Pain Beliefs & Expectations
- Maladaptive Coping
  - Pain Intensity
  - Nonorganic Signs
  - High Baseline Impairment
Where Are These Key Inputs?

- Sensory Information
- Affective-Motivational Information
- Cognitive Evaluation

NOT HERE!!!

Here...

And Here...
Crucial To Outcomes!

Improvement associated with changes in:

- Pain Beliefs
- Coping Strategies
  - Passive ➔ Active
- Pain Self-Efficacy
- Psychological Distress

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Crucial To Outcomes!

Improvement associated with changes in:

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• Coping Strategies
  – Passive ➔ Active
• Pain Self-Efficacy
• Psychological Distress

Even With ‘Physical’ Modalities!

i.e. NOT Changes with Imaging
‘Satisfactory Fusion’

↑Passive Coping
(or muscular change)
The Challenges

• Pain Created from Three Elements
  – But Focus Is on 1.

• Medical Tx Limited
  – Rx. Are ‘Fast’
  – Surgery & Injections are Profitable

• Misinformation, Fear & False Beliefs

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The ‘Keys’

1. Question Beliefs

2. Understand Pain

3. Think Differently
   ...Like A Firefighter

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Questions?

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References

doi: 10.17226/13172


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