“To Hurt and Protect”: How trauma can turn a good thing bad

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Objectives

• Appreciate the evolving understanding of “pain as a protector”
• Review the biopsychosocial model of pain and central sensitization
• Discuss how trauma can influence pain as a protector
• Review evolving multidisciplinary approaches to treat these complex co-occurring problems
What is pain?
What about in kids?
Pain

“An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”

Your brain’s best guess as to threat and danger that can result in bodily damage.

“A protecto-meter”
"Well, I guess that explains the abdominal pains."
Pain

Medical/Surgical Investigation

Porcupine

Medical Treatment

No porcupine

Assume Psychological Origin

Refer to Mental Health Provider
Pain is an alarm bell
Pain is an alarm bell
Pain is an alarm bell

On a Scale of 1 to stepping on a Lego...

How much pain are you in?

What it looks like:

What it feels like:
• Pain is your body’s best guess about threat and danger that may damage your body.
Pain in the face of immediate danger
Pain is...

An unpleasant sensory and emotional experience associated with possible injury

Influenced by:
Inflammation, injury, biomechanics, disease

Triggering a sensation, fear, and emotional response

Activating primal survival instincts and protective behaviors

Transmitted by the nervous system

Influenced by past experiences of danger or damage, and leads to threat assessment

If advantageous to survival, alarm bell creates a need to assess, do something about it, forms memories, and try to avoid it in the future.

PAIN!! is about Protection
Biological

Pediatric diseases, inflammation and infections, injuries and accidents, dynamic nervous systems, sleep disruptions, neurotransmitters, cortisol and catecholamines, sex hormones, etc

Psychological

Anxiety sensitivities, temperaments, evolving understanding of the world and self, learning and cognition, anticipatory thinking, catastrophizing, resilience and coping, fighting for independence with underdeveloped frontal lobe, traumatic experiences, co-morbid mental health problems, etc.

Social

Learning and modeling, school stresses, bullying, food insecurity, adverse childhood experiences, parent driven to peer driven problem solving, parent catastrophizing, parental PTSD, parental mental health problems, etc.

All pain is **Bi**o**Psycho**So**Social**
Chronic pain

- Pain > 3 months, or longer than expected for tissue injury
  - Chronic pain is NOT a mental health problem
  - Chronic pain is related to:
    - Sensitization of the central nervous system
    - Pain-avoidance and catastrophizing
    - Increased risk of co-occurring mental health disorders
    - A disorder of a hyper-protection, regardless of cause

- 1.7 million (2.5%) children/adolescents estimated to have chronic pain
- As of 2012, estimated health care impact of $19.5 billion per year
  - Pediatric ADHD estimated to cost $24.5-37.5 billion
  - Pediatric Asthma estimated to cost $3 billion

A Dynamic Nervous System

• Childhood nervous system’s are not static
  – More *neuroplastic* than adults, and with psychosocial factors that more readily mold the CNS

• Early exposure to pain and injury associated with:
  – changing sensation set-points (ie thresholds)
    • Shown in extremely premature infants 10 years after early life surgery with sensory abnormalities to both heat and cold
    • Adult patients with early childhood accidental burns demonstrate changed thresholds to heat
  – Rats with early life injury demonstrate more pain to repeat injury in affected limb, but not opposite
    • Possibly associated with neuro-inflammatory cells
    • Holds true in young rats, but not adult rats
    • Can be prevented by nerve blocks but not opioids
The consequences of pain in early life: injury-induced plasticity in developing pain pathways

Fred Schwallier and Maria Fitzgerald
Department of Neuroscience, Physiology & Pharmacology, University College London, London, UK

A. Generalised hyposensitivity
- PAG
- Increased opioid tone
- Altered supraspinal control
- Neonatal injury site
- Hypersensitivity

B. Postnatal CNS development
- Normal ramified mature microglia
- Microglial activation and proliferation
- Amoeboid microglia during development
- Later-life challenge
- Primed microglia
- Enhanced microglial activation and increased proliferation
- Postnatal challenge
- Later-life challenge
- Altered basal nociception
- Increased pain hypersensitivity

C. Central sensitization
- Glycinergic interneuron
- Decreased glycinergic inhibition
- Re-injury induced microglial reactivity
- Microglia

D. Peripheral sensitization
- Hyperinnervation of injured skin

Postnatal
Adult
Neuropathic pain drives anxiety behavior in mice, results consistent with anxiety levels in diabetic neuropathy patients

Christine B. Sieberg\textsuperscript{a,b,c}, Caitlin Taras\textsuperscript{d}, Aya Gomaa\textsuperscript{d}, Chelsea Nickerson\textsuperscript{d}, Cindy Wong\textsuperscript{b,c}, Catherine Ward\textsuperscript{d}, Georgios Baskozos\textsuperscript{d}, David L.H. Bennett\textsuperscript{d}, Juan D. Ramirez\textsuperscript{d}, Andreas C. Themistocleous\textsuperscript{d}, Andrew S.C. Rice\textsuperscript{d}, Pallai R. Shillo\textsuperscript{d}, Solomon Tesfaye\textsuperscript{d}, Robert R. Edwards\textsuperscript{d}, Nick A. Andrews\textsuperscript{d}, Charles Berde\textsuperscript{d}, Michael Costigan\textsuperscript{a,d}.x

- Recent rat model, neuropathic pain fully explained anxiety behaviors
  - Chronic environmental stress may have promoted some resilience, particularly in female rats

\textbf{Pre-SNI} | 4-6wks post-SNI

\begin{tabular}{l|c|c|c|c|c}
 & Stress Naive M & Control Naive F & Stress Naive F & Control SNI M & Stress SNI F \\
\hline
Stress v SNI (p<0.005) & \textbullet & \textbullet & \textbullet & \textbullet & \textbullet \\
\hline
p<0.001) & \textbullet & \textbullet & \textbullet & \textbullet & \textbullet \\
\end{tabular}
Pain and fear

Hyper-connectivity of left amygdala and
cognitive/emotional centers (prefrontal cortex, cingulate cortex, basal ganglia)
sensorimotor (thalamus, sensory cortex)
and
integrative processing (cerebellum, parietal lobe, thalamus)
Fear-Avoidance-Disability

- Pain Duration
  - Pain Severity
    - Functional Disability
      - Avoidance of Activities
        - Fear of Pain
      - Pain Catastrophizing
        - Depressive Symptoms
          - Avoidance of Activities
            - Fear of Pain
  - Pain Catastrophizing
    - Fear of Pain

Correlation Coefficients:
- Children: -0.32
  Adolescents: 0.06
- Children: 0.35
  Adolescents: 0.26
- Children: 0.09
  Adolescents: 0.17
- Children: 0.62
  Adolescents: 0.47
- Children: 0.55
  Adolescents: 0.74
- Children: 0.73
  Adolescents: 0.74
- Children: 0.31
  Adolescents: 0.20
- Children: -0.31
  Adolescents: 0.06
- Children: 0.30
  Adolescents: 0.23
- Children: -0.15
  Adolescents: 0.15
- Children: 0.37
  Adolescents: 0.38
Post-traumatic stress disorder

• Exposure to actual or threatened death, serious injury, or sexual violence by:
  – Direct experience, witnessing in person, learning that it happened to a caregiver
• Intrusive thoughts or symptoms
  – Unwanted upsetting memories, nightmares, flashbacks, emotional distress after
    reminders, physical reactivity after re-exposures
• Persistent avoidance of reminders
• Negative alterations in mood or cognition related to event
  – Inability to recall key features of trauma, overly negative thoughts, exaggerated
    blame of self or others, negative affect, decreased interested in activities, feeling
    isolated
• Alterations in arousal and reactivity
  – Irritability, risky or destructive behaviors, hypervigilance, heightened startle
    reaction, difficulty concentrating, difficulty sleeping
Post traumatic stress disorder

• 30% of youth experience major trauma by age 16
  – 13% endorse post-traumatic stress symptoms

• Risk factors:
  Pre-trauma: age, psychological functioning, anxiety sensitivity

  During trauma: Perceived threat, level of exposure

  Post-trauma: Parental responses, support, stressors
Pediatric chronic pain and PTSD

- PTSD symptom rates:
  - 20-32% of children with chronic pain
  - 9-20% of parents of children with chronic pain
  - 8% of pain-free peers
  - 1% of parents of pain-free peers

- Higher PTSD symptoms are associated with higher pain intensity and functional limitations

- Two major models:
  - Shared vulnerability
    - Negative predispositional factors underlie this association.
  - Mutual maintenance
    - Neurophysiologic, shared symptoms, and beliefs maintain and enhance each other
# Posttraumatic stress disorder symptoms in youth with vs without chronic pain

Melanie Noel\textsuperscript{a,}, Anna C. Wilson\textsuperscript{b}, Amy Lewandowski Holley\textsuperscript{b}, Lindsay Durkin\textsuperscript{c}, Michaela Patton\textsuperscript{d}, Tonya M. Palermo\textsuperscript{c,e}

## Table 2

ANCOVA results and mean differences between youth with and without chronic pain and their parents on PTSD symptoms, stressful life events, and quality of life.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Chronic pain group ((N = 95))</th>
<th>No chronic pain group ((N = 100))</th>
<th>ANCOVA results (covariates: child age, child sex, parental education, income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child PTSD symptoms total scores\textsuperscript{a}</td>
<td>23.79 (19.12)</td>
<td>10.02 (11.72)</td>
<td>(F(1,188) = 25.13, p &lt; .001)</td>
</tr>
<tr>
<td>Child PTSD impairment subscale scores\textsuperscript{a}</td>
<td>2.60 (2.34)</td>
<td>0.75 (1.49)</td>
<td>(F(1,188) = 32.15, p &lt; .001)</td>
</tr>
<tr>
<td>Parent PTSD symptoms total scores\textsuperscript{a}</td>
<td>18.04 (16.97)</td>
<td>6.91 (8.01)</td>
<td>(F(1,191) = 12.83, p &lt; .001)</td>
</tr>
<tr>
<td>Child total number of stressful life events\textsuperscript{a}</td>
<td>7.20 (4.54)</td>
<td>5.80 (3.20)</td>
<td>(F(1,191) = 0.15, p &gt; .05)</td>
</tr>
<tr>
<td>Parent total number of stressful life events</td>
<td>8.10 (4.26)</td>
<td>6.92 (4.20)</td>
<td>(F(1,191) = 1.75, p &gt; .05)</td>
</tr>
<tr>
<td>Child quality of life\textsuperscript{a}</td>
<td>57.43 (20.96)</td>
<td>82.59 (11.88)</td>
<td>(F(1,188) = 73.46, p &lt; .001)</td>
</tr>
</tbody>
</table>
# Table 3

Descriptive statistics (estimated mean values and SEs) and results of ANCOVA analyses.

<table>
<thead>
<tr>
<th>Outcome variable</th>
<th>Parents with chronic pain</th>
<th>Parents without chronic pain</th>
<th>ANCOVA results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent report, mean (SE)</td>
<td>Parent report, mean (SE)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child report, mean (SE)</td>
<td>Child report, mean (SE)</td>
<td></td>
</tr>
<tr>
<td>1. Parent PTSD symptoms</td>
<td>13.40 (1.44)</td>
<td>8.01 (1.34)</td>
<td>7.44 (143) 0.007</td>
</tr>
<tr>
<td>2. Child PTSD symptoms</td>
<td>18.88 (2.00)</td>
<td>12.84 (2.03)</td>
<td>4.47 (123) 0.037</td>
</tr>
<tr>
<td>3. Child pain interference</td>
<td>58.09 (1.07)</td>
<td>54.48 (1.11)</td>
<td>5.47 (156) 0.021</td>
</tr>
<tr>
<td>4. Child HRQoL</td>
<td>67.71 (2.49)</td>
<td>74.87 (2.43)</td>
<td>4.20 (113) 0.043</td>
</tr>
</tbody>
</table>

Covariates included in each ANCOVA are as follows: 1. household income; 2. child age; 3. child age and gender; and 4. child age and household income. ANCOVA, analyses of covariance; HRQoL, health-related quality of life; PTSD, posttraumatic stress disorder.
Pain and medical trauma

- Lifetime PTSD 20-35% in childhood cancer survivors and 27-54% in their parents
  - Predictors: female, prior stressful events, family functioning, social supports
- Height of child reported pain after injury associated with future PTSS 12 weeks later
- PTSS in youth may be less about single events, and may emerge after several major stressors/trauma in context of other psychosocial difficulties

### Table 2

<table>
<thead>
<tr>
<th>Traumatic event</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>13</td>
</tr>
<tr>
<td>Physical illness or hospitalization</td>
<td>12</td>
</tr>
<tr>
<td>Chronic pain problem</td>
<td>8</td>
</tr>
<tr>
<td>Fear/anxiety</td>
<td>7</td>
</tr>
<tr>
<td>Social difficulties</td>
<td>6</td>
</tr>
<tr>
<td>Accident</td>
<td>5</td>
</tr>
<tr>
<td>Death</td>
<td>5</td>
</tr>
<tr>
<td>Family-related conflict</td>
<td>3</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>3</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>3</td>
</tr>
<tr>
<td>Verbal conflict or abuse</td>
<td>2</td>
</tr>
<tr>
<td>Academic difficulties</td>
<td>1</td>
</tr>
<tr>
<td>Divorce</td>
<td>1</td>
</tr>
<tr>
<td>Firo</td>
<td>1</td>
</tr>
<tr>
<td>Pet or animal</td>
<td>1</td>
</tr>
<tr>
<td>Relocation</td>
<td>1</td>
</tr>
<tr>
<td>Robbery</td>
<td>1</td>
</tr>
</tbody>
</table>

Percentages are based on the number of events (n = 157) reported by youth. Overall, 23% of youth did not report an event (i.e., they left the question asking to identify the event blank). Among youth that reported an event, 32% could not identify a traumatic event (i.e., they wrote "nothing," "not applicable"), 55% identified one event, and 13% identified more than 1 event.
Sensation

Threat assessment

Central Sensitization

Parent trauma

Child trauma

Hyperarousal

Pain experience

Pain behavior

Pain/trauma avoidance

Decreased activity

Deconditioning

Tight muscles

PTSS

Poor sleep

Parent catastrophizing

Child catastrophizing

Depression

Central Sensitization

Parent trauma

Child trauma

Hyperarousal
Sleep Fragmentation Hypersensitizes Healthy Young Women to Deep and Superficial Experimental Pain

Stella Iacovides,* Kezia George,* Peter Kamerman,*† and Fiona C. Baker*†

*Brain Function Research Group, School of Physiology, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa.
†School of Biomedical Sciences, Faculty of Health Sciences, Curtin University, Perth, Australia.
†Human Sleep Research Program, SRI International, Menlo Park, California.
Sleep quality partially mediated relationships between PTSS, pain intensity, and pain interference

Pain intensity was not related to sleep quality

Neurotransmitters:
- Dopamine may underlie comorbidity of sleep disruption, pain, and PTSD
- Poor sleep quality reduces natural opioid levels and downregulates opioid receptors
Sensation

Threat assessment

Central Sensitization

Hyperarousal

Pain experience

Child trauma

Parent trauma

PTSS

Poor sleep

Parent catastrophizing

Child catastrophizing

Depression

Central Sensitization

Deconditioning

Tight muscles

Pain/trauma avoidance

Decreased activity
Catastrophizing

- Linked in psychological literature to anxiety disorders and depression for many years.
- **Pain Catastrophizing** identified in 1990s
  - Maladaptive cognitive and emotional thought patterns about pain or anticipated pain
    - Magnification
    - Rumination
    - Helplessness
- Strongly predictive of pain intensity, pain-related disability, pain behaviors, and medication use in both adults and children
  - Thought to be related to excessive threat appraisals and avoidance
  - Studies have linked certain metaphors and clinical terms to exacerbating magnification and helplessness ("slipped disc", "degenerative disc disease", "fibromyalgia")
PCS-C

Thoughts and feelings during pain

We are interested in what you think and how strong the feelings are when you are in pain. Below are 13 sentences of different thoughts and feelings you can have when you are in pain. Try to show us as clearly as possible what you think and feel by putting a circle around the word under each sentence that best reflects how strongly you have each thought.

1. When I am in pain, I worry all the time about whether the pain will end. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
2. When I am in pain, I feel I can't go on like this much longer. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
3. When I am in pain, it's terrible and I think it's never going to get better. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
4. When I am in pain, it's awful and I feel that it takes over me. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
5. When I am in pain, I can't stand it anymore. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
6. When I am in pain, I become afraid that the pain will get worse. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
7. When I am in pain, I keep thinking of other painful events. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
8. When I am in pain, I want the pain to go away. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
9. When I am in pain, I can't keep in out of my mind. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
10. When I am in pain, I keep thinking about how much it hurts. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
11. When I am in pain, I keep thinking about how much I want the pain to stop. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
12. When I am in pain, there is nothing I can do to stop the pain. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
13. When I am in pain, I wonder whether something serious may happen. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY

PCS-P

Thoughts and feelings when your child is in pain

We are interested in the thoughts and feelings you have when your child is in pain. Below are 13 sentences of different thoughts and feelings. Please put a circle around the word or phrase under each sentence that best reflects how strongly you have each thought when your child is in pain.

1. When my child is in pain, I worry all the time about whether the pain will end. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
2. When my child is in pain, I feel I can't go on like this much longer. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
3. When my child is in pain, it's terrible and I think it's never going to get better. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
4. When my child is in pain, it's awful and I feel that it takes over me. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
5. When my child is in pain, I can't stand it anymore. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
6. When my child is in pain, I become afraid that the pain will get worse. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
7. When my child is in pain, I keep thinking of other painful events. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
8. When my child is in pain, I want the pain to go away. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
9. When my child is in pain, I can't keep it out of my mind. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
10. When my child is in pain, I keep thinking about how much he/she is suffering. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
11. When my child is in pain, I keep thinking about how much I want the pain to stop. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
12. When my child is in pain, there is nothing I can do to stop the pain. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
13. When my child is in pain, I wonder whether something serious may happen. NOT AT ALL MILDLY MODERATELY SEVERELY EXTREMELY
Child’s pre-surgery catastrophizing did not directly affect pain memories
  - But child helplessness led to higher emotional responses to pain, which affected parent recall of how intense it was

Parent rumination about pain influenced child pain intensity in the acute recovery period
  - Possibly through increased verbal communication and attention towards pain

Parent rumination associated with parent memories of higher pain levels

Parent magnification directly affected children’s recall of emotional distress 2-4 months later
Post-traumatic stress disorder (reprise)

• Exposure to actual or threatened death, serious injury, or sexual violence by:
  – Direct experience, witnessing in person, learning that it happened to a caregiver
• Intrusive thoughts or symptoms
  – Unwanted upsetting memories, nightmares, flashbacks, emotional distress after reminders, physical reactivity after re-exposures
• **Persistent avoidance** of reminders
• Negative alterations in mood or cognition related to event
  – Inability to recall key features of trauma, overly negative thoughts, exaggerated blame of self or others, negative affect, decreased interested in activities, feeling isolated
• Alterations in arousal and reactivity
  – Irritability, risky or destructive behaviors, hypervigilance, heightened startle reaction, difficulty concentrating, difficulty sleeping
Unravelling the Relationship Between Parent and Child PTSD and Pediatric Chronic Pain: the Mediating Role of Pain Catastrophizing

Alexandra Neville, Sabine Soltani, Maria Pavlova, and Melanie Noel
Department of Psychology, University of Calgary and Alberta Children’s Hospital Research Institute, Calgary, Alberta, Canada.

- Parent pain catastrophizing traits create anxiety about ability to manage pain in the child
  - Leads to frequent assessments, surveillance, and attention to pain
    - Parent attending to child pain in lab induced settings creates lower pain tolerance (ie less time before stopping activity) and increased child pain intensity

- Parent pain catastrophizing enhances threat assessment leading to increased avoidance/protection
  - Hyper-protective parenting behaviors (ie avoidance) lead to more impairment and disability
  - Increased protective behaviors increases child interpretation of threat
Parental catastrophizing *not* directly associated with child pain intensity

- But parental catastrophizing likely leads to teaching child catastrophizing

- Strongly associated with functional impairment, including number of missed school days

- Child catastrophizing was the biggest predictor of pain and functional impairment

- Parental catastrophizing and chronic pain also likely to lead to reduced family physical activities
- Parental PTSD and chronic pain associated with cognitive dysfunction, particularly executive dysfunction and working memory
  - May contribute to poor self-management and modeling behaviors, challenges balancing priorities between parent pain/PTSD and child pain and activities
- Parental PTSD and chronic pain can interfere with child’s pain treatment and recovery
• **Suggests mutual maintenance model**
  
  – Parent PTSD causes increased attention to pain related threats and heightened threat appraisal
  
  – Heightened parent responses to child pain (i.e., protectiveness)
  
  – Leads to increased pain-related communication and increased avoidance of activities that might be painful
  
  – Teaches child pain catastrophizing that worsens their pain intensity and furthers the avoidance of painful activities
What can be done?
BioPsychoSocial

• Evaluate for injury/damage, and educate about pain
  – Understandable, danger-neutral language metaphors and descriptors
• Evaluate and treat for co-occurring disorders
  – Increased rates of undiagnosed autism (10%) and ADHD (20%) in patients with refractory chronic pain
  – Increase prevalence of co-occurring mental health disorders
• Encourage helpful non-prescription interventions (acupuncture, massage, evidence based herbs and supplements, etc)
• Use targeted medications or procedures (if needed)
  – reduce inflammation, decrease nerve sensitivity, relax muscles, modulate neurotransmitters, reduce hyper-arousal, improve sleep (particularly strategies to reduce hyper-arousal and restless legs)
• Rehabilitate with skilled physical and occupational therapists
• Treat acute injury and pain adeptly
  – Particularly for infants and young children (NICU, surgeries, vaccines, etc) sensitizing nervous system
  – Particularly for adolescents due to risk of developing PTSS and PTSD
BioPsychoSocial

• Teach self-regulatory autonomic strategies  
  – Deep breathing, guided imagery, progressive muscle relaxation, biofeedback

• Identify unhelpful, negative thought patterns  
  – CBT and ACT particularly helpful for chronic pain

• Evidence-based co-treatment of PTSD  
  – Particularly challenging with medical or complex trauma  
  – Requires integration into the medical context if there is ongoing medical disease (sickle cell, cancer, etc)

• Identify and treat co-occurring mental health disorders

• Develop concrete plans and self-management strategies  
  – Reduces helplessness  
  – Helps reinforce home exercise programs and rehabilitation, remembering to take medicines as recommended, trouble shooting how to treat pain at school vs home

• Reduce other causes of autonomic hyperarousal (eg dehydration, poor sleep, not eating)

• Encourage self-reliance and independence

• Stress and time management
BioPsychoSocial

• Reintegrate into schools and sports
  – Never Homebound!
  – 504 and IEP plans

• Work with teachers and school to reduce stigma and reprisal

• Identify and address unrecognized sources of school stress
  – Learning disorders, bullies, negative peer interactions, etc

• Encourage community engagement
  – YMCA, yoga, hobbies, sports and recreation, faith participation

• Address parent catastrophizing
  – Thorough evaluation and explanation of child’s pain
  – Taking time to understand the roots of the heightened concern (i.e., understanding parent’s history and trauma)
For more information

• Tame the Beast – tamethebeast.org

• Pediatric Pain Program of Prisma Health
  – Hospital-based: post-surgical, medical, and cancer pain treatment
  – Clinic-based: Pediatric concussion, Headache, and Chronic Pain of any type
    • Pain physician and NP, Child Psychiatry, Sports Medicine, Pain Psychology, Pediatric Neuropsychology, Pediatric chronic pain-specialty Physical and Occupational Therapists, Medical Acupuncture

https://www.ghschildrens.org/specialists/pediatric-pain-medicine/