Patient Education for Chronic Low Back Pain

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DISCLOSURES
Nothing to disclose
Objectives

1. Understand the use of education to promote self management of chronic pain
2. Review pain education options
3. List resources for pain education
Outline

• Chronic Low Back Overview-
• Why Pain Education?
• Patient education options
  • Back School
  • Pain Neuroscience Education
  • Clinical care
• Pain Education Resources
Low Back Pain Overview

40% with back pain in the last 6 months

Lifetime prevalence as high as 84%

1% in US are permanently disabled by back pain

Another 1% temporarily disabled

Karen Barr, Mark Harrast. Braddoms Physical Medicine & Rehabilitation. Chapter 40
Chronic Low Back Pain

Etiologies

Nociceptive

- Tumors
- Fracture
- Disc
- Facet
- Spondylolisthesis
- Ligaments
- SI joint
- Muscle
Chronic Low Back Pain

Etiologies

Inflammatory:

Neuropathic

Nerve Compression with radiculopathy
Vitamin b12 deficiency
Chronic Low Back Pain

Etiologies

biomechanical

- positional prolonged sitting associated with increased back pain
- prolonged standing associated with back pain

Biomechanics of the Lumbar Spine

Chronic Low Back Pain

Nachemson 1981

<table>
<thead>
<tr>
<th>Position</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supine, awake</td>
<td>250</td>
</tr>
<tr>
<td>Supine, semi-Fowler position</td>
<td>100</td>
</tr>
<tr>
<td>Upright sitting, without support</td>
<td>700</td>
</tr>
<tr>
<td>Sitting with lumbar support, back rest inclination 110°</td>
<td>400</td>
</tr>
<tr>
<td>Standing, at ease</td>
<td>500</td>
</tr>
<tr>
<td>Forward bend 20°</td>
<td>600</td>
</tr>
<tr>
<td>Forward bend 40°</td>
<td>1000</td>
</tr>
<tr>
<td>Lifting 10 kg, back straight, knees bent</td>
<td>1700</td>
</tr>
<tr>
<td>Lifting 10 kg, back bent</td>
<td>1900</td>
</tr>
<tr>
<td>Holding 5 kg, arms extended</td>
<td>1900</td>
</tr>
</tbody>
</table>
Chronic Low Back Pain

-The ligamentous spine (in the absence of “balancing” spinal muscles) is mechanically unstable.

Normal loads on spine while standing are 2-3 times body weight.

Even larger loading occur under dynamic situations.

Chronic Low Back Pain

[Image of anatomical illustration]

http://www.homecitytent.com/images/rope-pole-1.jpg

[Diagram of tent structure with labels]

Center pole = Spine
Guy ropes = Abdominals (Ab)
Tent = Thoracolumbar fascia (TLF)
Chronic Low Back Pain

Central sensitization - “an amplification of neural signaling within the central nervous system that elicits pain hypersensitivity”

Subgroup of patients with chronic low back pain with central sensitization

Chronic Low Back Pain

Tsagareli 2013
Chronic Low Back Pain

Lamina I - direct synaptic input from nociceptive fibers

Lamina II - interneurons - excitatory and inhibitory - both nociceptive and nonnociceptive stimuli

Lamina III&IV - nonnoxious stimuli

Lamina V - nociceptive and nonnociceptve

Lamina VI - “fast pain” withdrawal reflex

Chronic Low Back Pain

- Etiologies
- Psychosocial

Chronic Low Back Pain

- Treatments - addressing nociceptive etiology disappointing.
  - Surgery - limited benefit for back pain when compared to non surgical care
  - Injections - “Few nonsurgical interventional therapies for low back pain have been shown to be effective in randomized, placebo-controlled trials.”
  - Medications - small to modest, short term effects

Chronic Low Back Pain

- Treatments
  - Psychological Approaches: CBT
    - weak effects in improving pain
    - small effects on disability associated with chronic pain
    - effective in altering mood and catastrophizing outcomes
    - “CBT is a useful approach to the management of chronic pain”
- Exercise

Does Exercise Work?

Chronic Low Back Pain

- Treatments
- Education
  - Multiple studies show education, by itself, can improve outcomes

Benefits of Patient Education

- Management of all long-term conditions
  - patient should be an active participant in the management of their own condition
  - “pain management is most effective when it engages the patient in self-management”

Geneen et al. Effects of education to facilitate knowledge about chronic pain for adults: a systematic review with meta-analysis. Systematic Reviews. 2015. 4:132
Benefits of Patient Education

- Psychological
  - move from catastrophizing/hopelessness to
    - Empowerment
  - Sense of control
  - Acceptance of chronic pain

Benefits of Patient Education

• Improve development/retention/adherence to self management strategies
• Increase satisfaction with treatment by providing realistic expectations
Benefits of Patient Education

• Physical

• Patients more likely to improve mechanical contributors to pain when they understand why postural awareness is recommended and why exercise is prescribed

From www.nof.org
TYPES OF Education

• Back School
• Pain Neuroscience Education
• Clinical setting
  • Imaging, diagnoses, etc
Patient Education Options

- Back school
  - Education
    - Functional anatomy
    - Function of the back
    - Optimal use of the low back with daily activities
    - Promote changes in movement patterns to decrease recurrence of low back pain


Back School

• Evidence for Back Schools
  • Low to very low quality evidence
  • No clear evidence

Many variants of back school approaches limits interpretation of the literature

Types of Education

Pain Neuroscience Education

• aka psychoeducation, pain biology education, therapeutic neuroscience education, and Explain Pain (EP)
• shift perspective away from physiological phenomena to the idea that pain is dependent on biological, psychological, and social processes
• how the patient perceives their pain is key to how a patient’s brain processes pain signaling.
• understanding pain can modify pain itself.

Perceived Tissue Damage

Catastrophizing/Irrational Beliefs/Fears

PAIN BEHAVIOR

SUFFERING

PAIN

NOCICEPTION
Types of Education

Pain Neuroscience Education

• Evidence for Pain education limited
  • small studies
  • diverse approaches
• Pain Neuroscience Education
  • Only form of education with positive evidence
  • limited evidence for improved disability
  • reduction in catastrophizing, increased knowledge about pain following PNE.

Genenn et al. Effects of education to facilitate knowledge about chronic pain for adults: A SYSTEMATIC REVIEW WITH META ANALYSIS. Systematic Reviews. 2015. 4:132
Types of Education

Imaging

• Imaging information from health care professionals negatively impacts disability.

Lin et al. Disabling Chronic low back pain as an iatrogenic disorder: a qualitative study in Aboriginal Australians. BMJ Open. 2013. 3
Types of Education

Imaging

- MRI abnormalities seen in asymptomatic patients
  - 52% with disc bulge
  - 27% with disc protrusion
  - Annular defects 8%

Types of Education

Clinical education

- Diagnoses
  - explain anatomical, physical and neurophysiological causes of pain
  - Prognosis (reassurance)
  - Treatment
    - Realistic expectations
Types of Education

COGNITIVE & PSYCHOLOGICAL FACTORS

INFLAMMATION

PAIN

STRUCTURAL FACTORS

NEURO-PHYSIOLOGICAL FACTORS

PHYSICAL FACTORS
Patient education

- Patient education retention
  - Poor retention of medical facts
    - 3/12
    - 40-80% of information is forgotten immediately.
    - Almost half of information remembered is incorrect

Patient education

- Patient education retention
  - Written information is bettered remembered
  - Pictographs particularly beneficial
    - 80% information remembered correctly compared to 14% with spoken information
  - Shorter sentences, less information is better recalled.
  - Specific information rather than general statements

Patient Education

N=70 patients with chronic pain

Randomized to:

1. Metaphor book- 80 pages: 11 sections/short stories each with interpretation of story as the metaphor


Patient Education

Metaphor group: greater improvements in catastrophizing and knowledge.

Metaphor group: read 82% of the booklet

Advice Booklet group: read 47% of the booklet

Pain Education Resources

• In the Clinic
  • For Patients
  • Clinician Training

• Videos

• Books

• Online Websites
Patient Education Resources

Back pain epidemiology

Physical activity recommendations

Back pain treatments

Ergonomic Advice

14 pages

Pain Education Resources


<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It is possible to have pain and not know about it.</td>
</tr>
<tr>
<td>2</td>
<td>When part of your body is injured, special pain receptors convey the pain message to your brain.</td>
</tr>
<tr>
<td>3</td>
<td>Pain only occurs when you are injured or at risk of being injured.</td>
</tr>
<tr>
<td>4</td>
<td>When you are injured, special receptors convey the danger message to your spinal cord.</td>
</tr>
<tr>
<td>5</td>
<td>Special nerves in your spinal cord convey ‘danger’ messages to your brain.</td>
</tr>
<tr>
<td>6</td>
<td>Nerves adapt by increasing their resting level of excitement.</td>
</tr>
<tr>
<td>7</td>
<td>Chronic pain means that an injury hasn’t healed properly.</td>
</tr>
<tr>
<td>8</td>
<td>Worse injuries always result in worse pain.</td>
</tr>
<tr>
<td>9</td>
<td>Descending neurons are always inhibitory.</td>
</tr>
<tr>
<td>10</td>
<td>Pain occurs whenever you are injured.</td>
</tr>
<tr>
<td>11</td>
<td>When you injure yourself, the environment that you are in will not affect the amount of pain you experience, as long as the injury is exactly the same.</td>
</tr>
<tr>
<td>12</td>
<td>The brain decides when you will experience pain.</td>
</tr>
</tbody>
</table>
Patient Education Resources

Why You Hurt: Therapeutic Neuroscience Education System
Pain Education Resources
For Clinicians

Therapeutic Neuroscience Education
Teaching Patients About Pain
A Guide for Clinicians
By Adrian Louw

Explain Pain Supercharged
G. Loudermoser | David R. Butler

By Adrian Louw

Explain Pain Supercharged. Butler
Brainman. Understanding Pain in less than 5 minutes. October 2, 2014. (Video File) Retrieved from https://www.youtube.com/watch?v=5KrUL8tOaQs
Pain Education Resources

Karen Davis- “How Does Your Brain Respond to Pain”

Lorimer Moseley- “Why Things Hurt”
https://ed.ted.com/on/Li50Ci7S
Patient Education Resources

Firelight Media Group

• Central Nervous System Mechanisms of Pain Modulation
  https://www.youtube.com/watch?v=FbJF8gijf8E

• Basic Mechanisms of Musculoskeletal Pain
  • https://www.youtube.com/watch?v=4LEy8B1D3QE

• Phases of Nociceptive Pain
  • https://www.youtube.com/watch?v=PMZdkac4YLk
Pain Education Resources

Explain Pain

The Explain Pain Handbook Protectometer. By Moseley, Butler
Why Do I Hurt? A Patient Book About the Neuroscience of Pain
Neuroscience Education for Patients in Pain
Adrian Loew
PT, PhD (c), M.App.Sc (physio)
Pain Education Resources

• Some information regarding pain physiology
• Many self management strategies based on CBT approaches to pain

By Margaret Caudill

Pain Survival Guide by Dennis Turk

By Margaret Caudill
Pain Education Resources

FibroGuide Menu

- Tell Me How FibroGuide Works
- Steps for Me

- Understanding Fibromyalgia
- Communicating
- Being Active

- Sleep
- Relaxation
- What Is Fibro Fog?

- Setting Goals
- Pacing Yourself
- Thinking Differently

- Time for You

Color Key: Step My Steps Visited Step

Use the FibroGuide menu to navigate the program. Once you make a selection, the menu will minimize to the bottom of your screen. You can always access it by clicking on the arrow in the upper corner of the menu.

Fibroguide.com
Patient Education Resources

www.Paintoolkit.org
Pain Education Resources

www.pain-ed.com

Multiple educational videos regarding chronic pain
Pain Education Resources

- N= 200 patients, no control
- internet blogs, twitter postings, other online educational resources
- Information about safe medication use, dosing, supplement use, eating habits, and managing stress for 15 minutes a day.
- after 6 months.
  - Forty-five percent of patients reported a reduction of moderate to severe pain following treatment using the educational tools (P<0.0001).
  - Fifty percent of patients reported a decrease in depression (P<0.0001) and 30% reported a reduction in anxiety (P<0.0001).
  - Thirty-five percent of patients reported an improvement in their overall quality of life following treatment (P<0.0001).

Dr. Kevin Rod @Drkevinrod · Sep 9

#ZENDOSE Today practice dropping all doubts about your own abilities. Blocking any negative judgement about what you can achieve. Awareness!

Dr. Kevin Rod @Drkevinrod · Aug 18

#ZENDOSE Being grateful is not being gracious, it's being realistic. What we have, including our #Life, could not be here, but is real now!!

Dr. Kevin Rod @Drkevinrod · Oct 15

#ZENDOSE Before we were named our names and were thought our teachings, we were fundamentally the same pure consciousness. Practice Return!!
Pain Education resources

Smartphone Applications

“Overall, most of the pain-related apps included within our review not only lacked evidence of HCP input regarding development but also contained few evidence-based pain management features”

“Currently available pain self-management apps for patients are simplistic, lack the involvement of health care professionals in their development, and have not been rigorously tested for effectiveness on pain-related health outcomes”

Pain Education Resources

Chronic Disease Self-Management Program

Developed by Stanford University Patient Education Research Center

Small group workshop

2 1/2 hours per session

1 session per week for 6 weeks

It is the process in which the program is taught that makes it effective. Classes are highly participative, where mutual support and success build the participants’ confidence in their ability to manage their health and maintain active and fulfilling lives.
Pain Education Resources

Subjects Taught

Techniques to deal with problems such as frustration, fatigue, isolation, and poor sleep

Appropriate exercise for maintaining and improving strength, flexibility, and endurance

Appropriate use of medications

Communicating effectively with family, friends, and health professionals

Nutrition

Pacing activity and rest
Are you ready to make a change and feel great?

Join us in a FREE peer-led, interactive workshop to help you manage your chronic pain!
Increase skills necessary to manage your pain
Each 6 week course meets once weekly for 1 1/2 hours

Program Content
- What is pain?
- Cognitive management of pain and stress
- Fatigue management
- Long-term exercise plans and weight management
- Moving Easy Program
- Communicating about chronic pain
- Using prescribed medications
- Eating healthy
- Depression management
- Evaluating treatments
- Communication with family, friends and physicians

Conditions which may benefit
- Heart Disease
- Mental and behavioral Health
- Arthritis
- Chronic pain and fatigue

Enroll today! Healthyliving@chas.org or call 509-462-7676 or 509-434-0402