
NON-PHARMACOLOGIC METHODS OF TREATING CHRONIC PAIN

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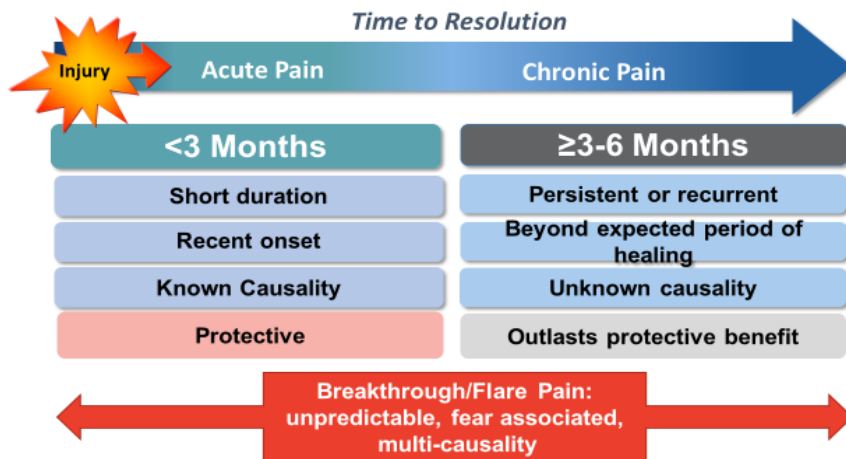
OBJECTIVES

Define	and differentiate chronic from acute pain.
Explore	the impact of poorly managed chronic pain.
Discuss	the various non-pharmacological modalities available to manage chronic pain.

DISCLOSURES

- Speakers Bureau: Allergan, Lilly Pharmaceuticals.
- Any unlabeled/unapproved uses of drugs or products referenced will be disclosed.

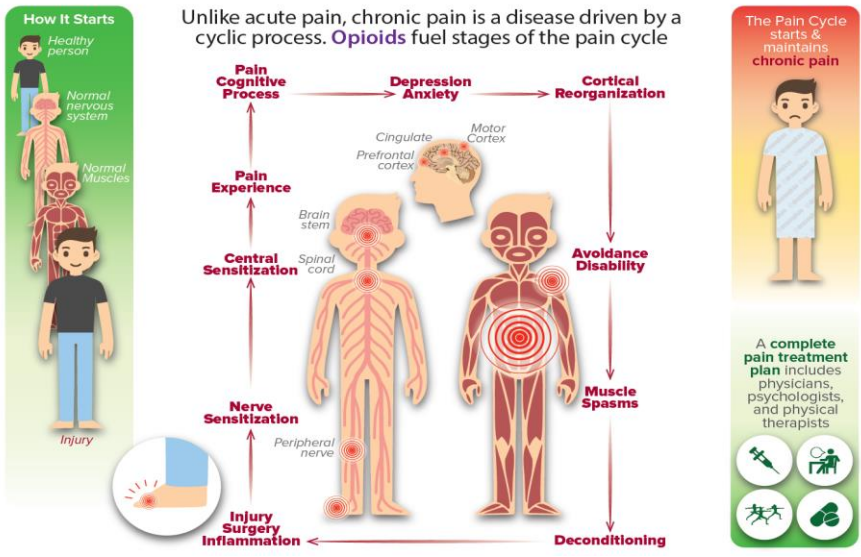
CHRONIC PAIN: NOT SIMPLY ACUTE PAIN LASTING LONGER



Chronic pain cycle

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Unlike acute pain, chronic pain is a disease driven by a cyclic process. **Opioids** fuel stages of the pain cycle



NONPHARMACOLOGICAL THERAPIES TARGETING PAIN-RELATED BRAIN PLASTICITY

- Attentional and cognitive factors are key modulators in the experience of pain
 - Distraction
 - Mindfulness and Meditation
 - Cognitive Behavioral Therapy

- Environmental Influences
 - Low socioeconomic status being associated with ↑ prevalence of chronic pain both in childhood & adolescence
 - Disparities in pain management

- Exercise & Physical Rehabilitation

NONPHARMACOLOGICAL THERAPIES TARGETING PAIN-RELATED BRAIN PLASTICITY

Potential Mechanisms of Action

- Exercise could limit blood-brain barrier permeability after peripheral injury, preventing maladaptive neuroplasticity observed in chronic pain.
- Exercise can restore some of the endogenous neuro-restoration → anti-inflammatory mechanisms → altering the processing of nociceptive signals.
- Mindfulness therapy can interfere with the ascending nociceptive signaling.
- Modulation of descending pain signals.
- Exercise is associated with increased endogenous opioids in healthy subjects.
- Modulation of endocannabinoid mechanisms.

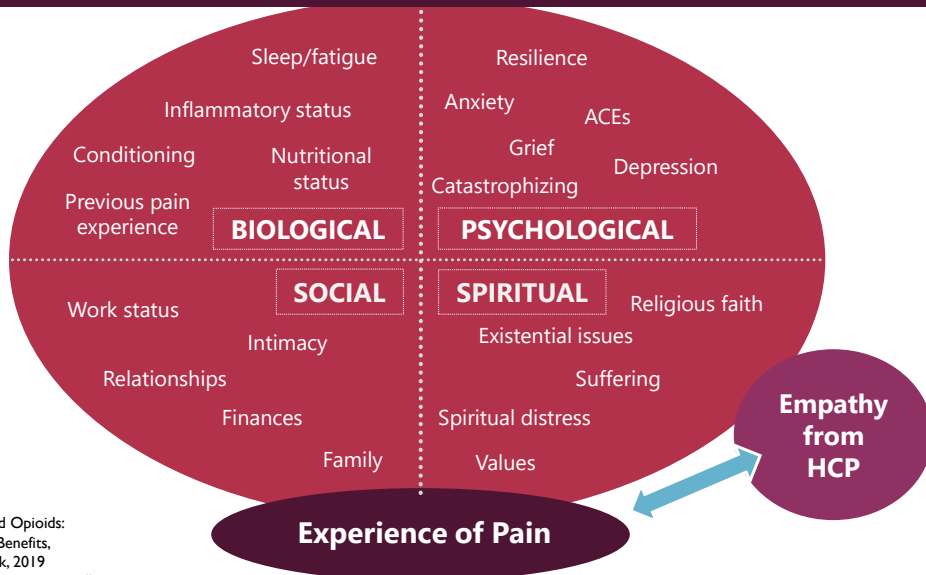
(Tajerian & Clark, 2017)

MULTIDISCIPLINARY PAIN MANAGEMENT

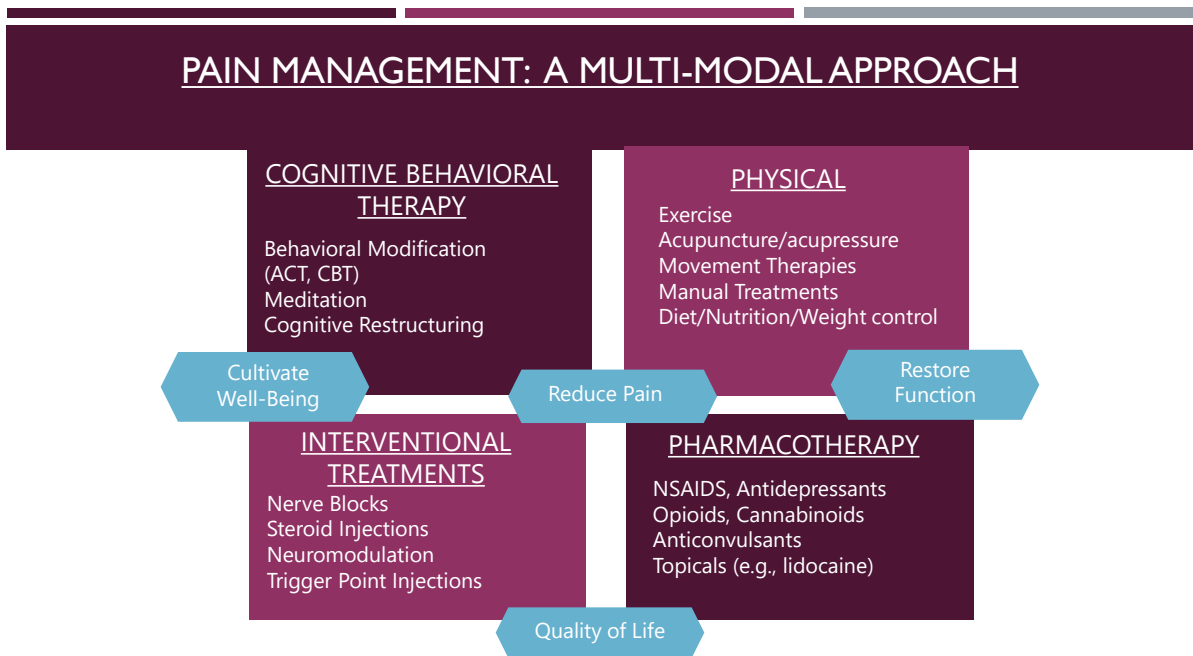
Why is it important?

- Coordinated care
- Chronic pain multiple co-morbidities:
sleep, anxiety, depression, fatigue
- Engages self care strategies
- Enhances self efficacy
- Improved outcomes
- Managing pain holistically
(co-managing symptoms)
- Reduce healthcare costs

THE BIOPSYCHOSOCIAL SPIRITUAL CONTEXT



Pain Management and Opioids:
Balancing Risks & Benefits,
CO*OR slide deck, 2019
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COMPREHENSIVE/INTEGRATIVE PAIN CARE

CLINICAL MANAGEMENT

- pharmacotherapeutics
- interventional therapies

BEHAVIORAL MANAGEMENT

- psychology/psychiatry
- social re-engagement
- stress reduction

NUTRITION

- weight control
- microbiome

COMPLEMENTARY

- acupuncture
- aroma therapy

BODY THERAPIES

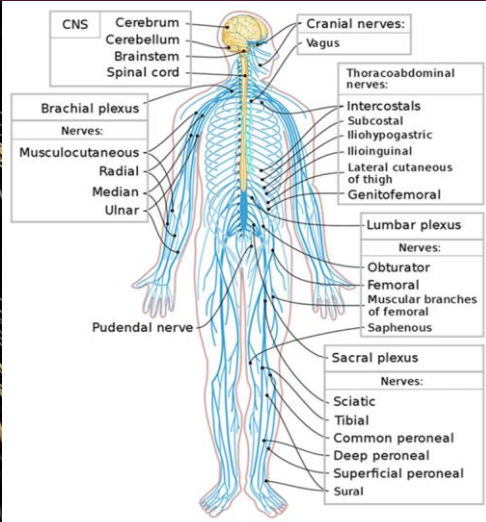
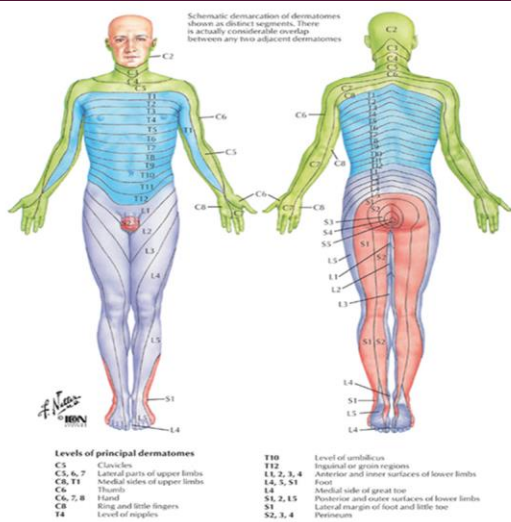
- physical therapy
- functional rehabilitation
- sleep regulation

Comprehensive Pain Medicine

Pain Medicine treats more than **800** chronic pain conditions using a multi-modal approach

- Non-opioid medications**
 - There are **200+ 20** medications in opioids
 - Non-opioid medications for non-cancer pain management
- Psychology**
 - Pain is a product of the brain. It has sensory and emotional components. Psychological skills help individuals modulate pain and engage in life. Psychological treatments reduce depression, anxiety, and helplessness.
 - Pain coping skills
 - Self-talk & meditation
 - Free support group for individuals, family & friends
 - Acceptance and commitment therapy
- Physical therapy**
 - Pain therapists prescribe regimens of exercise, tissue manipulation, and other treatments focused on teaching patients to help relieve pain
 - Therapy for fear of movement
 - Home exercise program
 - Behavioral movement group
- Interventional procedures**
 - Pain Medicine specialists master more than **250** types of interventional procedures
 - Spinal steroid injections for nerve impingement
 - Radiofrequency nerve ablation for painful nerves for foot, joint neck & back pain and for painful scars after surgery & trauma
 - Cryoneurolysis for painful nerves for occipital headache and headache
 - Spinal cord stimulation for failed back surgery syndrome and peripheral neuropathy
 - Intra-spinal medication delivery systems
- Complementary & alternative**
 - Pain acupuncture & evidence-based supplements
- Pre-habilitation**
 - Pre-operative conditioning to optimize surgical outcomes with pre-operative nerve and psychology treatments
- Precision health care**
 - Outcomes-based care using our pain science platform for learning health system, CHOIR (Collaborative Health Outcomes Information Registry)
- Coordinated care**
 - Collaborative Care Case Managers (CCCMs) to connect community resources and reduce barriers to care
- Self-management**
 - Empowering patients to manage their pain for patient-centered care

IF THERE'S A NERVE, THERE'S A WAY: AKA "I CAN INJECT THAT"



CLINICAL MANAGEMENT: PROCEDURAL

Spinal:

facet, epidural, selective
sacroiliac joint

Joint injections:

Hyaluronic acid, corticosteroid,
platelet rich plasma

Headache/face pain:

Occipital, greater auricular, gasserian ganglion
block , V2/3 selective, supra-orbital,
PREEMPT

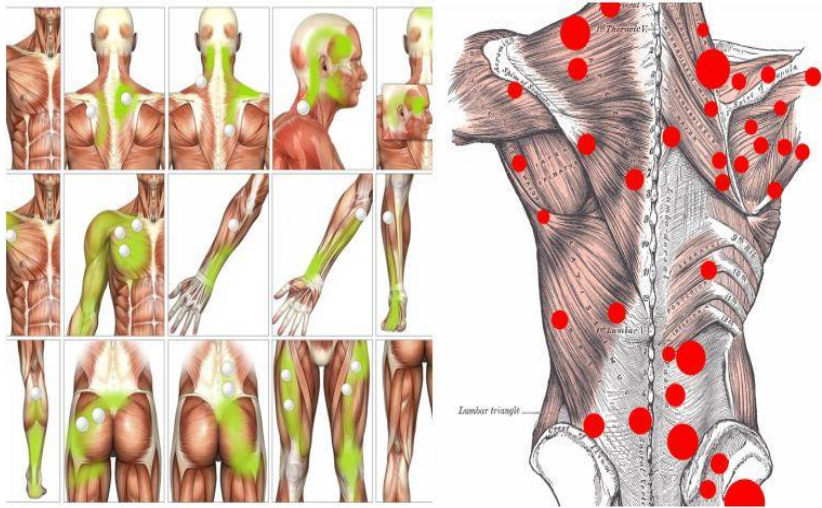
Upper extremity:

Shoulder (suprascapular) ,
elbow/wrist/forearm (median, ulnar & radial),
digital/trigger finger

Lower extremity:

Hip (bursa, articular branches of the
obturator & femoral nerves), knee (genicular),
ankle/foot (sural/popliteal)

MYOFASCIAL TRIGGER POINTS



CLINICAL MANAGEMENT: PROCEDURAL

Simple to learn in-office procedures (with or w/o ultrasound)

- Patient satisfying

- Reimbursable
 - Work with your billing office to identify coding & create templates for documentation
 - Work with industry – practitioner support for training and reimbursement

- Save the need for more invasive procedure or ED visit

CLINICAL MANAGEMENT: PROCEDURAL

- Make contacts with local interventionalists interventional pain/anesthesia practitioners, PM&R, etc.
- Save time getting patient treatment
- Patient compliance, trust
- Create partnerships with community practitioners
- Save time w/diagnostics {MRI, CT, X-ray, EMG, etc.}

COGNITIVE/BEHAVIORAL MANAGEMENT

Truths'' – mostly

- Insurance rarely covers behavioral management
- Behavioral management is instrumental to effectively managing chronic pain
- Requires an individualized treatment plan
- Most effective when the patient is fully vested/compliant
- Could require life-long investment
- Goals
- Change behavior
- Develop self-control/self-reliance/self-efficacy (internal locus of control)
- Stress reduction

COGNITIVE/BEHAVIORAL THERAPIES

Examples	Relaxation Technique Utilized	Homework Assigned
Cognitive Behavioral (CBT,ACT)	yes	yes
Biofeedback	yes	yes
Hypnosis	yes	no
Self Hypnosis	yes	yes
Meditation	yes	yes

Pros – Result in actual changes in brain neural pathways, long-lasting results. Strong evidence to support.

Cons – Takes practice and clinician support, costly.

HYPNOSIS (TECHNIQUES) INCLUDE:

- **Imagery:** Guiding you through imaginary mental images of sights, sounds, tastes, smells, and feelings can help shift attention away from the pain.
- **Relaxation/guided imagery:** Guiding you through relaxation exercises such as deep breathing and stretching can often reduce discomfort
- **Distraction:** Technique most useful in children, cognitive challenges (advanced elderly, TBI) – music, creative/non-regimented artwork, pet therapy). Utilizes sensory/emotional memory to create healing.
- **Meditation**
- **Virtual Reality:** Most research in burn patients, pediatrics [AppliedVR - <https://appliedvr.io/research/>]

BEHAVIORAL MANAGEMENT:TIPS (THERAPY)

- Sub-specialization
- Psychiatrist – medication management & significant co-morbid mental health needs
- Psychologist/Psycho-pharmacologist
- Social Workers (therapists)
- Community classes/groups/I:I therapy
- Plethora of online resources

If insurance covers – optimal refer to psychologist (experience/graduate training in pain management)

Northern California Association of Pain Psychologists (NCAPP) www.ncapp.net

<https://www.psychologytoday.com/us/therapists/chronic-pain>

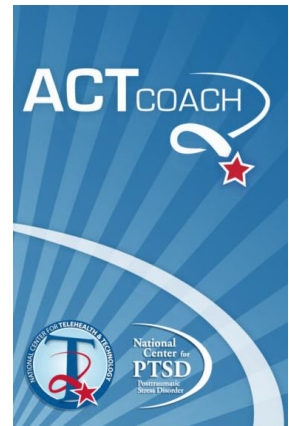
RESOURCES: PAIN COPING SKILLS TRAINING (PCST)

<https://www.webmd.com/webmdpaincoachapp>

<http://www.mobihealthnews.com/tag/pain-coach>

Acceptance and Commitment Therapy (ACT): aims to help you live with unpleasant thoughts, feelings, and impulses without avoiding them or being controlled by them.

<https://mobile.va.gov/app/act-coach>



INTRODUCTORY CHRONIC PAIN EDUCATIONAL RESOURCES

BRAINMAN Series: Understanding pain & what to do about it in less than five minutes?

Brainman, the “brainchild” of the team at Hunter Integrated Pain Service at John Hunter Hospital & Hunter Medicare Local

<https://www.youtube.com/watch?v=5KrUL8tOaQs>



INTRODUCTORY CHRONIC PAIN EDUCATIONAL RESOURCES

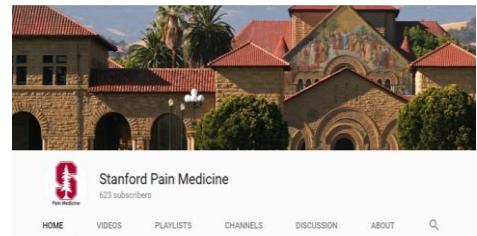
Retrain Pain Foundation:

<https://www.retrainpain.org>



Stanford Pain Management Educational videos:

<https://www.youtube.com/user/stanfordpainmedicine>



RESOURCES: STRESS REDUCTION

Online Mindfulness-Based Stress Reduction (MBSR)

<https://palousemindfulness.com/index.html>

University of Massachusetts Center for Mindfulness

<https://www.umassmed.edu/cfm/>

University of California San Diego's Center for Mindfulness

<https://health.ucsd.edu/specialties/mindfulness/Pages/default.aspx>

Macquarie University, Australia: Free cognitive behavioral therapy (CBT) pain course:

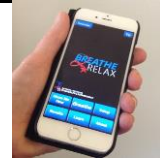
<https://ecentreclinic.org/?q=PainCourse>

RESOURCES: STRESS REDUCTION: APPS

HEADSPACE – Teaches the basics of meditation & mindfulness in just 10 minutes a day



MINDFULNESS – Has a large variety of meditations for both relaxation & mindfulness exercises



KARDIA – Hands-on paced breathing exercise



Breathe2Relax – Personalized stress management tool

INTERNET-DELIVERED COGNITIVE BEHAVIOURAL PAIN MANAGEMENT: “THE PAIN COURSE”

Explore the efficacy & acceptability of a previously developed Internet-delivered cognitive behavioral pain management course, *The Pain Course*, for adults with FM.

60 participants randomized to either to the Pain Course (n = 30) or to a waiting-list control group (n = 30).

METHODS:

- Five-lesson course was delivered over eight weeks
- Brief weekly contact, via telephone and secure email, with a guide throughout the course.
- Symptoms were assessed at pre-treatment, post-treatment & 4-week follow-up.

INTERNET-DELIVERED COGNITIVE BEHAVIOURAL PAIN MANAGEMENT: “THE PAIN COURSE”

RESULTS:

- 18% reduction in global symptoms
- 20-28% reduction in depression
- 11% reduction in pain
- 12% reduction in “fear” of pain

Smaller effects were also observed on measures of generalized anxiety & physical health.

The changes were maintained at four-week follow-up.

(Friesen, et al., 2017)

Sleep & pain

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Sleep is a key contributor to chronic pain. Impaired sleep worsens pain, which in turn prevents patients from getting restful sleep. When pursuing treatment for chronic pain, it is important to not overlook simple, non-drug strategies that can markedly improve sleep.

During the day

- 1 Develop a **regular energizing morning routine**. Start the day with 3 minutes of stretches at the same time each day
- 2 Limit **daytime naps** to less than 30 minutes
- 3 Perform **aerobic exercises** for at least 10 minutes during the day, at least 2 hours before bedtime
- 4 Ensure **exposure to natural light** during the day. Light hitting the retina triggers signal to the brain to reduce **melatonin**, the sleep hormone



Before bed time

- 1 Avoid **stimulants** such as coffee, tea, soda, chocolate & nicotine for at least 4 hours
- 2 Avoid **fatty, spicy, or sugary foods** which can cause gastrointestinal upset
- 3 Avoid **emotionally upsetting** activities
- 4 Use the **bed only for sleep**
- 5 Develop a **regular relaxing bedtime routine**. Consider mindfulness meditation
- 6 **Melatonin**, the sleep hormone, is available as an over-the-counter supplement for sleep aid. Some patients do report drowsiness the next day, so beware of driving or operating heavy machinery



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Bed time

- 1 Use **supportive mattress & pillows**
- 2 **Reduce sensory stimulation** with blackout curtains, eye shades, & ear plugs. **White noise machines** may help drown background noise
- 3 Maintain comfortable **room temperature**
- 4 Some people find **humidifiers & aromatherapy** helpful. Humidifiers with filters must be cleaned & maintained regularly
- 5 Those with allergies will benefit from having an **air purifier** in the bedroom
- 6 Some people find **weighted blankets** helpful for more restful sleep
- 7 Make sure you have a functioning **carbon monoxide detector**



Medical devices

- 1 Those with sleep apnea who have been prescribed **CPAP or BIPAP** should make an effort to try them. This can have dramatic benefits for some patients.
- 2 Those diagnosed with bruxism (teeth grinding at night) should wear **mouth guards** fitted by their dentists.
- 3 Some musculoskeletal pain conditions that worsen at night benefit from orthotics: **wrist brace** for carpal tunnel syndrome, **foot splint** for plantar fasciitis.



RESOURCES: SLEEP IMPROVEMENT

Journal Sleep Review (2014): 6 Online Options for Insomnia Therapy

<http://www.sleepreviewmag.com/2014/12/online-options-insomnia-therapy/>

SHUTi is a Cognitive Behavioral Therapy for Insomnia

<http://www.myshuti.com/>

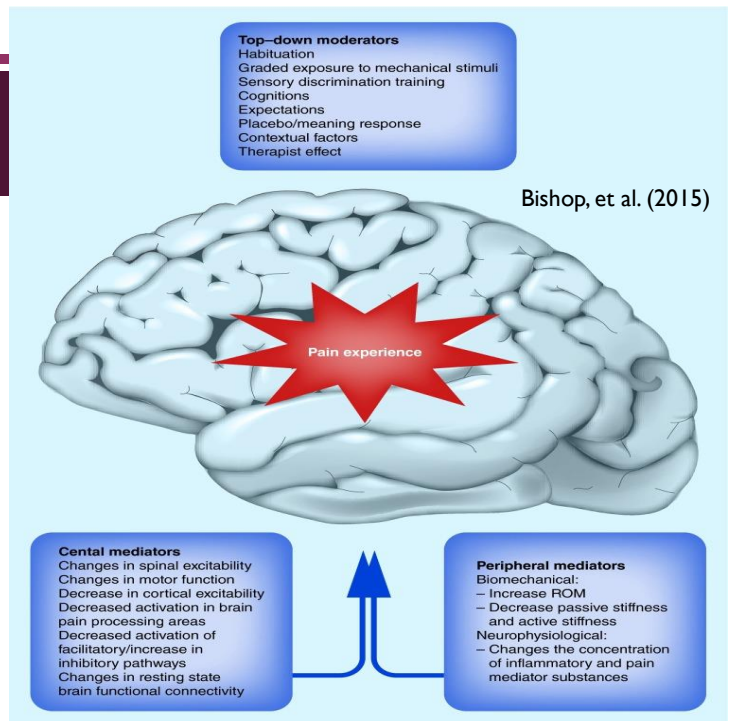
PHYSICAL/BODY THERAPIES

Barriers:

fear, disbelief, worsening pain, cost, travel.

Overcoming Barriers:

education, pacing, access (community, comprehensive cancer center, schools, friends, television, apps).



COMPREHENSIVE REVIEW OF ALTERNATIVE THERAPIES FOR THE MANAGEMENT OF CHRONIC PAIN

- Acupuncture (CLBP, pregnancy, migraine, CRPS)
- Acupressure
- Tai Chi (CLBP, elderly, PTSD, MS)
- Osteopathic Manipulative Medicine (CLBP, migraine)
- Chiropractic Care (CLBP, migraine, cervicalgia)
- There has been a tremendous amount of research dictating the effectiveness of alternative therapies for chronic pain management.
- 59 - 90% of patients utilizing alternative therapies for chronic pain claimed they were helpful and can serve as an effective adjunctive for the treatment of chronic pain.
- Alternative therapies may serve as an effective adjunctive treatment modality for the management of chronic pain conditions

(Urits, et al., 2020)

BODY THERAPIES

PHYSICAL THERAPY/FUNCTIONAL
IMPROVEMENT

PAIN PSYCHOLOGY WITH PT
(fear avoidance)

Why is it important?

Human body was made to move

- Circulation
- Sleep
- Metabolism
- Digestion
- Endorphin release
- Joint mobility/flexibility/bone health/strength
- Improves coordination, reduces risk of injury

FEAR-AVOIDANCE MODEL

Numerous cross-sectional studies have consistently demonstrated:

- Pain-related fear has consistently been associated with more severe disability.
- Treatments designed to reduce pain-related fear may improve disability outcomes.

- The fear-avoidance model - graded exposure treatments:
 - ✓ Development of an individualized hierarchy of feared and avoided activities
 - ✓ Graded confrontation of activities across the hierarchy (beginning with least feared)
 - ✓ Promotion of functional gains

(Zale & Ditre, 2015)

BODY THERAPIES: TIPS

- Not all therapists are created equal
- Get to know the therapists in your area
- Get to know therapist subspecialties
 - Online searches: <http://www.womenshealthapta.org/pt-locator/>
- Tailor the referral to the patient's needs
- Community classes: pools (warm), yoga, Tai-Chi
- Have a list of simple exercise & on-line resources available



Self-Study for Chronic Pain Management



For individuals interested in learning about chronic pain and chronic pain self-management, there are a number of quality resources available, both online and in your local bookstore:

ONLINE (FREE) RESOURCES:

- **Retrain Pain** (www.retrainpain.org): Includes several free modules to complete at your own pace. Some topics include: the science of pain, sleep & pain, and pain medications.
- **American Chronic Pain Association** (theacpa.org): This comprehensive website has information about specific pain conditions, clinical trials, pain management tools, resource lists, and more. Also, check out vetsinpain.org, which is their site for veteran-specific pain needs.
- **Pain Management Network** (<http://www.aci.health.nsw.gov.au/chronic-pain/chronic-pain/>): Watch videos about chronic pain and pain management. Also includes plenty of handouts for self-management and for use with medical providers.
- **PainACTION** (<http://www.painaction.com/>): Contains tools for pain self-management that can be customized to you and your specific pain needs.
- **Veteran's Health Library** (<http://www.veteranshealthlibrary.org/>) and type "Pain" in the Search box at the top right corner): Contains informational handouts on a variety of pain topics.
- **Neuroplasticity and Pain Management** (<http://painhealth.csse.uwa.edu.au/neuroplasticity.html>): Information about neuroplasticity, an important concept for understanding chronic pain and its management. Also watch a brief video on youtube.com by searching for "Sentis Neuroplasticity."
- **Arthritis Foundation** (<http://www.arthritis.org/>): Education about various types of arthritis and its treatment, including information on the arthritis diet.
- **Fibromyalgia Network** (<http://fmnetnews.com>): Information about fibromyalgia, recent research in the field, and local resources / support services.
- **Give Back Yoga** (<http://givebackyoga.org/resources-for-veterans>): Free yoga resources for Veterans and service members.

ONLINE (FREE) INFORMATIONAL VIDEOS

- **Brainman Youtube Videos** (<http://tinyurl.com/j378s3j>) or search "Brainman Chronic Pain" on youtube.com): Learn about chronic pain, treatment options, and pain medications in a series of short but captivating videos.
- **TEDxAdelaide - Lorimer Moseley - Why Things Hurt** (<http://tinyurl.com/z8gjkks> or search "Lorimer Moseley Pain" on youtube.com): Entertaining video explanation of chronic pain from one of the world's leading pain researchers.
- **VA Naloxone Kit Education** (<https://www.youtube.com/watch?v=-DQBcNrAPBY>): Video explaining how to use a Naloxone kit during accidental overdose of opioid medication.

BOOKS (Available on Amazon.com):

- **Why Do I Hurt?** by Adrian Louw, PT, PhD, CSMT
- **How to Live Well with Chronic Pain and Illness** by Toni Bernhard
- **You Are Not Your Pain: Using Mindfulness to Relieve Pain, Reduce Stress and Restore Well-Being** by Vidyamala Burch & Danny Penman
- **Chronic Pain: Finding Hope in the Midst of Suffering** by Rob Prince
- **The Chronic Pain Solution** by James Dillard MD, DC, CAC
- **Heal Your Pain Now: The Revolutionary Program to Reset Your Brain and Body for a Pain-Free Life** by Joe Tatta, DFT, CNS
- **Living Beyond Your Pain** by JoAnne Dahl, PhD
- **Managing Pain Before It Manages You** by Margaret A. Caudill, MD, PhD, MPH
- **Explain Pain** by David Butler, MappSc, EdD and G. Lorimer Moseley, PhD, FACP



Low-impact exercises for pain

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Patients struggling with chronic pain find it difficult to engage in exercises. Yet research shows that physical activities is one of the most effective treatments for many pain conditions. It is important for patients to be strategic about exercise, & invest the limited time & energy on sustainable, beneficial forms of exercises.

Walking & Nordic walking

Walking is itself a good aerobic exercise with cardiovascular benefits. It does provide a degree of stress to the joints & bones which is beneficial to some.

For those with trouble with balance, and those who seek a faster pace, it is reasonable to consider "**Nordic walking**," which uses walking poles.



Pilates & Yoga

The recommendation for **yoga** comes with it a caveat. Over the years I have seen some yoga instructors excessively focus on extreme, sustained poses that require severe twisting & bending of the body. For patients with chronic pain, this may very well be counter productive, and is a set up for new exercise-induced injuries.

There are some yoga instructors with additional training & experience, and provide "**medical yoga**".

Pilates is similar to yoga, but has a stronger emphasis on strengthening the cores. It may be a better fit for many patients with chronic pain.



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Qi Gong & Tai Chi

Qi Gong is a Chinese art of "moving meditation," which is gentle on the body and a good exercise. While Qi Gong is a fundamental component of Chinese martial art, it does not involve the high-intensity impacts of hand-to-hand fighting, but instead is more focused on building an awareness of Qi, the "internal energy."

Tai Chi is built on top of Qi Gong and can be more vigorous since it is a form of martial art.



Pool exercises

Aquatherapy in warm pool can allow for vigorous stretches and aerobic exercises while reducing weight-bearing on the spine & joints.

The underwater equipment for full, formal aquatherapy are often available at large physical therapy facilities. For chronic pain, patients should focus on developing a **self-guided exercise routine** that can be followed at pools closer to home.



BODY THERAPIES: RESOURCES

Therapeutic - Mindful Movement – YouTube

Videos & audiofiles of yoga, Tai Chi, and therapeutic exercise recommendations:

<https://www.youtube.com/playlist?list=PLRMR9d2AGUQcbReG-NQSPiF8EoSOUxQ6X>

Awareness Through Movement (Feldenkrais)

<http://www.unfetteredmovement.org/awarenessthroughmovement/>

<https://www.feldenkraisresources.com/Awareness-Through-Movement-Basic-Series-p/2103-mp3.htm>

<https://www.youtube.com/watch?v=v8LV9jOun3c>

<https://www.youtube.com/watch?v=IKUSZsM3Tp8>

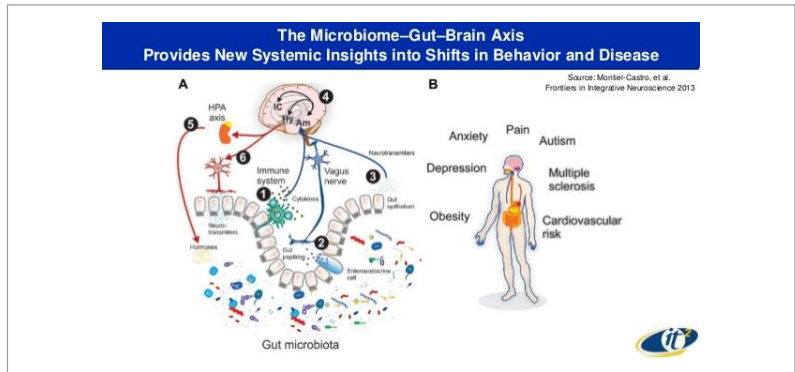
NUTRITION & PAIN

Fundamentals:

- Health weight
- Low-inflammatory
- Low-allergenic
- Plant based

What's New?

Microbiome



OTHER THERAPIES/CONSIDERATIONS/RESOURCES

COMPLEMENTARY THERAPY

- Biofeedback Provider Search: www.bcia.org
- Pain Education - Self Care Strategies – YouTube
- Guided Imagery and Meditation <http://www.healthjourneys.com>

Videos & audio files of guided body scanning, awareness of breathing meditations

<https://www.youtube.com/playlist?list=PLRMR9d2AGUQeaJdJCLaAKBZE8ImmeUI52>

OTHER THERAPIES/CONSIDERATIONS/RESOURCES

PAIN RESEARCH & Clinical Trials

- National Pain Institute: <https://www.natpain.com/research/>
- NIH Pain Consortium: <https://painconsortium.nih.gov/>
- U.S. Department of Veterans Affairs: <https://www.research.va.gov/topics/pain.cfm>
- Stanford Systems Neuroscience and Pain Lab: <http://med.stanford.edu/pain/snapl.html>
- U.C. San Diego Department Anesthesiology – Pain Research:
<https://medschool.ucsd.edu/som/anesthesia/research/clinical-science/pain-research/Pages/default.aspx>
- Mayo Clinic – Pain Research
<https://www.mayoclinic.org/departments-centers/pain-medicine/minnesota/research>

RESOURCES

Pain support groups:

- American Fibromyalgia Association: <http://www.afsafund.org/>
- Complex Regional Pain Syndrome foundation: <https://rsds.org/>
- American Chronic Pain Association: www.theacpa.org
- American Pain Society: www.americanpainsociety.org
- Arthritis Foundation: www.arthritis.org
- Arthritis Society: www.arthritis.ca
- Biofeedback Provider Search: www.bcia.org
- Mount Sinai Beth Israel Hospital: www.stoppain.org
- National Center for Complementary and Alternative Medicine: <https://nccih.nih.gov/health>
- National Pain Foundation: <http://www.thenationalpainfoundation.org>
- Veterans Administration: <https://www.va.gov/painmanagement/>

SUMMARY

- Importance & challenges of incorporating multidisciplinary/multimodal care in community pain management.
- Evidenced based rational for recommended therapies.
- Tips for improving treatment outcomes.
- Resources for free, low-cost treatments.

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