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Probility Physical Therapy
Objectives

By the end of this presentation, the audience members will be able to:

1. Define manual physical therapy
2. Explain how it can be beneficial as a component of effective pain management
3. Identify clinical presentations in which manual physical therapy may be appropriate
What Do Physical Therapists Do?
Physical Therapists

Experts in movement

www.movementsystemspt.com
Clinical Specializations

- Cardiovascular/Pulmonary
- Women’s Health
- Neurology
- Pediatrics
- Geriatrics
- Sports
- Orthopedics
  - Manual Therapy
Why do people go to outpatient PT?
Physical Therapy & Pain

- How does pain limit people functionally and contributing to disability?

- Pain can be complicated.

www.fibromyalgiaassistance.com
What is Pain?

...an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage

-International Association for the Study of Pain (IASP)
Biopsychosocial Model

Bio

Patient

Psycho

Social
Pain does not match injury

clearlakechiro.com

I DON'T FEEL PAIN

www.startupswami.com

www.caringmedical.com
Pain Sources

- Skin
- Internal organs
- Referred pain
- Myofascial (muscles & fascia)
- Joints
- Spine (radicular pain)
- Psychosomatic

PTs generally screen and refer out if found.

Within PT scope of practice

PTs monitor for and address as appropriate.

Goodman CC, Snyder TK, 2000
Where does pain come from?

- **Peripheral Processes** *(tissue injury)*
  - Inflammation
  - Nerve Injury

- **Central Processes** *(CNS)*
  - Plasticity
  - Receptor Changes
Let’s Talk About Central Sensitivity

http://www.mirror.co.uk
What about patients who have no peripheral injury and have pain?
What we see in these patients…

- Often not in anatomical/dermatomal patterns
- Original pain spreads or moves
- Perception of pain is ongoing
- Response to treatment unpredictable
- All movements hurt
- May have clinical diagnosis of fibromyalgia, myofascial syndrome, reflex sympathetic dystrophy, chronic LBP, post-whiplash pain syndrome

Butler, 2000
How Do We Explain It?

Phantom Limb Pain

http://hscweb3.hsc.usf.edu
Clinical Example

- Patient has discogenic back pain and undergoes a laminectomy. Continues to have same disabling back and leg pain after procedure.

- How do we approach this patient?

http://www.microscope.co.uk
Chronic Pain
How Do We Best Approach It?

www.wheelchairs-guide.com

Goodman, CC and Snyder, 2000
DISABLEMENT

Pathology → Impairment → Functional Limitations → Disability

Physical Therapy Intervention
PT & Patients with Chronic Pain

Bio
Mechanical Problem

Patient

Psycho
Beliefs About Pain/ Coping

Social
Pain affecting role(s)
Is patient at risk for chronic pain?

- Screening for risk factors of chronicity:
  - What is patient’s level of anxiety? Catastrophizing?
  - Level of fear and what is patient fearful of?
  - Coping strategies? Active or passive? Self-efficacy?
  - Attitude toward pain? Hypervigilant?
  - Level of anger and who it is directed toward?
  - Influences of others on patient’s thoughts/beliefs?
  - Beliefs about pain and healing status?

-Butler, 2000
How do Manual Therapists Address Central Sensitivity?

- Skilled subjective & physical evaluation
- Knowledge of exercise therapy
- Time with patients for education
- Judicious application of manual techniques
- More active control-giving approach to treatment

-Butler, 2000

www.therapeuticaassociates.com
Manual Therapy

- A clinical approach based on skilled, specific, hands-on techniques to address pain, range of motion limitations, posture, and ability to perform activities of daily living.
Manual Therapy – Broad Categories

- Joint mobilization/manipulation

- Soft tissue mobilization
Joint Manipulation/Mobilization

Promotes:

- Pain management
- Joint nutrition/circulation
- Range of motion
How does mobilization affect pain?

**Gate theory**

- The spinal cord transmits pain signals to the brain (pain, touch, temperature, proprioception).

- Stimulation of the joint mechanoreceptors causes increased proprioceptive input to the spinal cord, which blocks the central transmission of pain.
The "Gate Theory" of Pain

Noxious (Pain) Stimulus (Hot Flame, Puncture, Cut, etc.)

Aδ C
Small (Peripheral) Nerve Fibers
Nociception

Inhibitor Neuron

Attenuated Pain Signal

Distractive Stimulus (Rubbing, Massaging, Application of Heat, etc.)

Aα Aβ
Large (Peripheral) Nerve Fibers

Transmission Cell

Patrick Wahl and Ronald Melzack, 1965
Pain Mechanisms & Manual Treatments

- Pain from tissues
- Pain from inflammation & sympathetic nervous system
- Ischemic pain

- Gate theory- distract pain fibers with other sensations (gliding, oscillations, soft tissue massage)
- Decrease mechanical factors that may be contributing to sustained inflammatory response
- Ischemic release techniques (MFR)
Grades of joint mobilization

- Small, gentle, oscillations of the joints help to
  - Stimulate large mechanoreceptors (decrease pain)
  - Decrease muscle guarding
  - Improve joint nutrition by increasing circulation

http://www.yelp.com/biz_photos/physiotherapy-associates-san-diego?select=-w2e4QgTHvTKlebuU7JtFg#YY7BD-bqLH_8wSEWgzdSFw
How does joint mobilization affect circulation/nutrition?
Hypomobility and Chronic Pain

- Illness behaviors
  - Kinesiophobia
  - Fear/Avoidance
  - Decreased Physical Activity

HOW CAN PT HELP?
How does joint mobilization improve mobility?

- More aggressive joint mobilizations
  - Improves movement patterns & mobility
  - Decreases joint pain
  - Relieves muscle spasms and muscle guarding
  - Improved ability to participate in exercise
GET ACTIVE!

http://www.royalvoluntaryservice.org.uk
Clinical Example

- Joe is a 56 y.o. male with chronic low back pain and bilateral 10/10 pain radiating down both legs. He is no longer working as a mail carrier due to his disability, has a long history of narcotic use, and uses a TENS machine on his back about 16 hours/day. He sits in a recliner most days, uses a motorized scooter for long distances.

- How manual therapy can help?
Joint Manipulation

- Defined as a high-velocity, low amplitude thrust
- Sometimes will produce a cavitation or “pop”
- Safe and effective when applied appropriately
Manual Therapy – Broad Categories

- Joint mobilization/manipulation
- Soft tissue mobilization
Soft Tissue Mobilization

Applying manual pressure to the superficial structures: skin, fascia, fat, and muscle in a therapeutic manner so as to provide pain relief and improved mobility.
Soft Tissue Mobilization

Variety of pressures and methods employed:

- Trigger point massage
- Swedish massage techniques
- Active release technique
What are trigger points?

- Pain related to an irritable point/band in muscle or fascia
- Pushing on it reproduces pain
- Pain not explained by normal medical causes
How does PT address trigger points?

- Address joint alignment/mechanics which may be contributing to chronic trigger points
  - Myofascial Release
  - Muscle Energy Techniques
  - Specific exercise/stretching
Myofascial Release

- Specific technique requiring specific training
- Based on concept that fascia can restrict motion, causing dysfunctional movement patterns/pain.
- Releasing fascial restrictions can promote improved mobility, decreased pain and ability to exercise.
Myofascial Release

- Can be very gentle, addressing restrictions in the superficial fascia or more aggressive, working deeper into the fascial restrictions in the muscle.
Clinical Example

- 70 y.o. female 5 years s/p radiation therapy and bilateral mastectomy. Has chronic upper back, neck and shoulder pain. She also has osteoporosis with a history of 2 vertebral fractures.
Manual Therapy & Exercise

- Manual Therapy
  - Best evidence when done in combination with exercise and functional training

http://www.peaksport.co.uk
http://grantpierce.wordpress.com
Chronic Low Back Pain

- A study comparing manual therapy to exercise therapy
- Subjects randomly assigned to groups and treated for 8 weeks
- Pain intensity, functional disability, general health and return to work were measured at 4 weeks, 6 months, and 12 months.
- Results show improvements in both groups but significantly greater improvement in the group that received manual therapy in all outcome measures at short and long-term follow-up.

*Spine J. 2003 March;28(6):525-531*
Lumbar spine manipulation

- 131 patients- randomly assigned to receive
  - Manipulation and exercise
  - Exercise alone
- Patients who received exercise alone were 8 times more likely to experience worsening disability than patients who received a combined intervention.

-Man Ther. 2006;Nov11(4)316-20.
Manipulation for neck & low back pain

- Systematic review
- Moderate evidence that spinal manipulation/mobilization provides better short term results than general practitioner care in patients with chronic LBP and chronic neck pain.
- Limited conclusions can be made about long term benefits due to short follow-up data.

-Bronfort et al 2004
Hip Osteoarthritis

- Systematic review showed that manual therapy seemed to reduce pain and decrease disability at short term.

- Encouraging results for manual therapy in combination with functional training.

Myofascial Release

- Systematic review of the literature shows generally positive outcomes with myofascial release, but published literature tends to be mainly case studies.

- Promising foundation for future clinical trials

*J Athl Train. 2013 Jul-Aug;48(4):522-7*
Cervicogenic Headaches

- Effects of manual therapy on sternocleidomastoid active trigger points in patients with cervicogenic headaches

- Find patients who received manual therapy showed greater decrease in headache, neck pain, and improved neck range of motion and motor performance of deep cervical flexors.

*J Manipulative Physiol Ther. 2013 Sep;36(7):403-11*
Neck Pain

- Study looking at the effects of ischemic compression (a myofascial release technique) on trigger points in the trapezius muscle
- Found a decrease in basal electrical activity (EMG), improved pressure tolerance, and improved neck range of motion compared to controls.

*J Manipulative Physiol Ther. 2009 Sep;32(7):515-20*
What about pain modalities?
Physical Modalities

- Can be helpful in reducing pain, but effects are largely short-term.

- Should not be the cornerstone of physical therapy treatment.

—APTA 1995
Modalities in the Literature

- Study in 2003 showed that there is limited but positive evidence that select modalities are effective in specific chronic conditions
- Therapeutic exercise has the most support in the literature; all other modalities have similar effects
- Patient characteristics that decrease effectiveness:
  - Depression
  - High anxiety
  - Powerful ‘others’ locus of control
  - Obesity
  - Narcotic use
  - Neuroticism

-Nurs Clin North AM 2003
Cautionary note for modalities

- Controversial to administer modalities for patients with chronic pain

Primary and Secondary Hyperalgesia

- **Primary Hyperalgesia**
  - Increased sensitivity at site of injury
  - Due to damaged tissues

- **Secondary Hyperalgesia**
  - Sensitivity in uninjured tissues around original injury
  - Due to central mechanisms

Butler, 2000
Does it end at manual therapy?

- Physical therapy that is **only** manual therapy is not complete!
Our Brains on PT

- Our brains can process manual therapy and exercise as a threat if we haven’t been moving
- Causes new pain in patients
- CNS can perceive movement as positive or negative, which will affect clinical outcomes.

Littlewood, 2013
Clinical Example

http://physioworks.com.au
How could patient have better outcome?

- Listening- How did he perceive his pain?
- Speaking- Did he understand why the physical therapist was doing what he did?
- Conversation- ‘good pain vs bad pain’
Sally is a 67 y.o. female with a 15 year history of chronic lower back pain. She has had limited success with pain management with prescription narcotics, wearing a back brace, and physical therapy. She recently started CBT for issues relating to depression and chronic pain.

Would she be appropriate for referral to a manual physical therapist?
Answer

- Yes, but prognosis is affected by duration of symptoms
- Despite having limited success with PT before, multiple factors may allow her greater success this time.
Patient Case 2

Jason is a 25 y.o. male who sustained a TBI after a MVA 3 weeks ago. Since his accident, he has had chronic headaches, confusion, and mood disturbance. Is he appropriate to refer for manual physical therapy?
Yes, but…

- …PT needs to ensure patient is appropriate and safe to be treated
- PT needs to differentiate if his headaches are indeed musculoskeletal in nature, due to his concussion, or both.
Patient case 3

- Eddie is a 38 y.o. construction worker who injured his neck on the job 3 years ago. Two years ago he had a ACDF (Anterior Cervical Discectomy and Fusion) but continues to have debilitating pain and weakness down his right arm, limiting him from being able to return to work. Is he appropriate for manual physical therapy?
Yes

- Despite failed surgical treatment; pain and disability can still be addressed with a manual approach
Summary

- Physical therapy can help to restore function and improve quality of life for patients with pain.
- Manual therapy has been shown to decrease pain and restore mobility in a variety of conditions.
- Manual therapy is most effective when done in conjunction with exercise and functional training.
- Many patients with pain stand to benefit from manual physical therapy, regardless of conservative or surgical treatment.
Working with patients in pain

- We all have the chance to make a real difference
- We aren’t just treating the pain, we’re treating the person
References


Childs JD, Flynn TW, Fritz JM. A perspective for considering the risks and benefits of spinal manipulation in patients with low back pain. Man Ther. 2006;Nov11(4)316-20

Jette A. Toward a Common Language for Function, Disability, and Health. Physical Therapy May 2006 vol. 86 no. 5 726-734.


Questions???