TherapeuticAssociates
PHYSICAL THERAPY

MOVEMENT IS MEDICINE
PAIN NEUROSCIENCE EDUCATION
PUTTING IT ALL TOGETHER

DISCLOSURES/ACKNOWLEDGEMENT

DISCLOSURES:
None

ACKNOWLEDGEMENT:
Thirty plus years of treating chronic pain patients

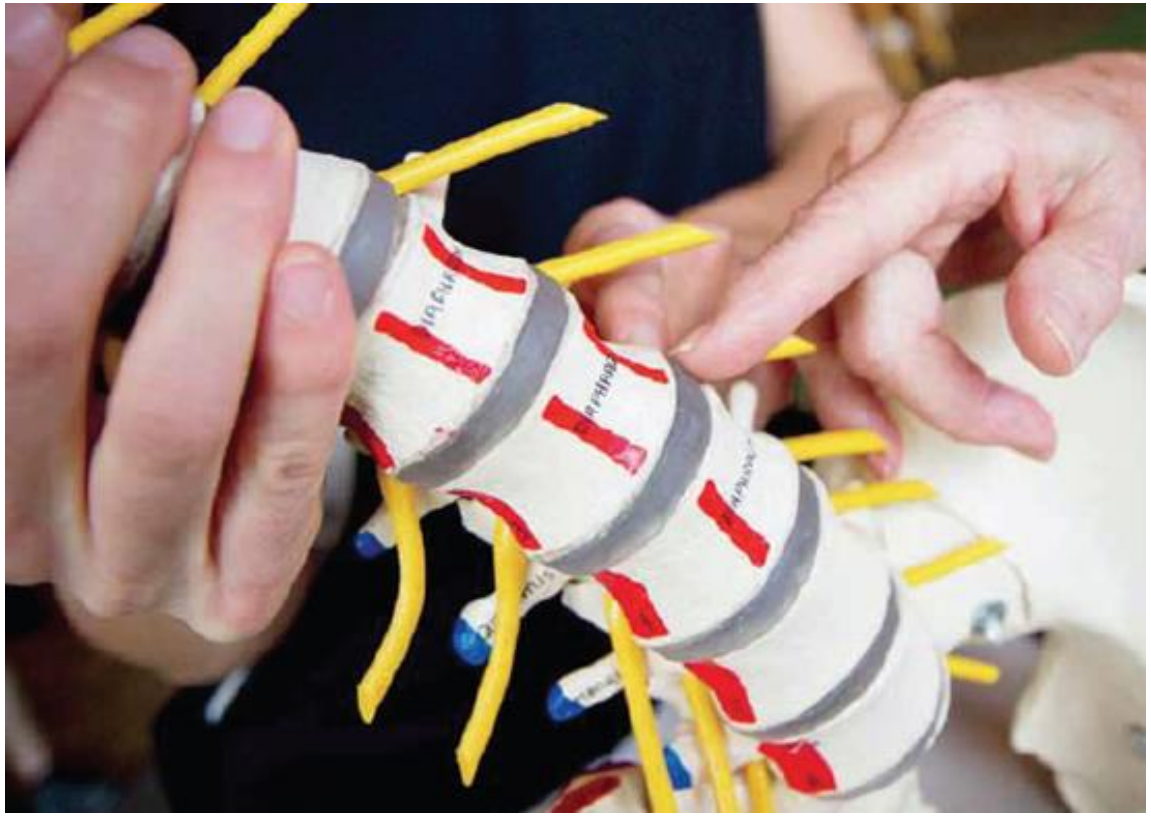
OBJECTIVES

- Be able to identify best evidence for Pain Neuroscience Education (PNE)
- Understand how “movement is medicine” applies to chronic pain
- A clear understanding of how to include pain science and a biopsychosocial approach into current treatment patterns.
- Understanding sleep hygiene and breathing in treating chronic pain.

WELCOME TO KENNEWICK

June 1994- Graduated from PT school
July 1994- Week one in practice.

MEETING DR. LEWIS ZIRKLE, MD



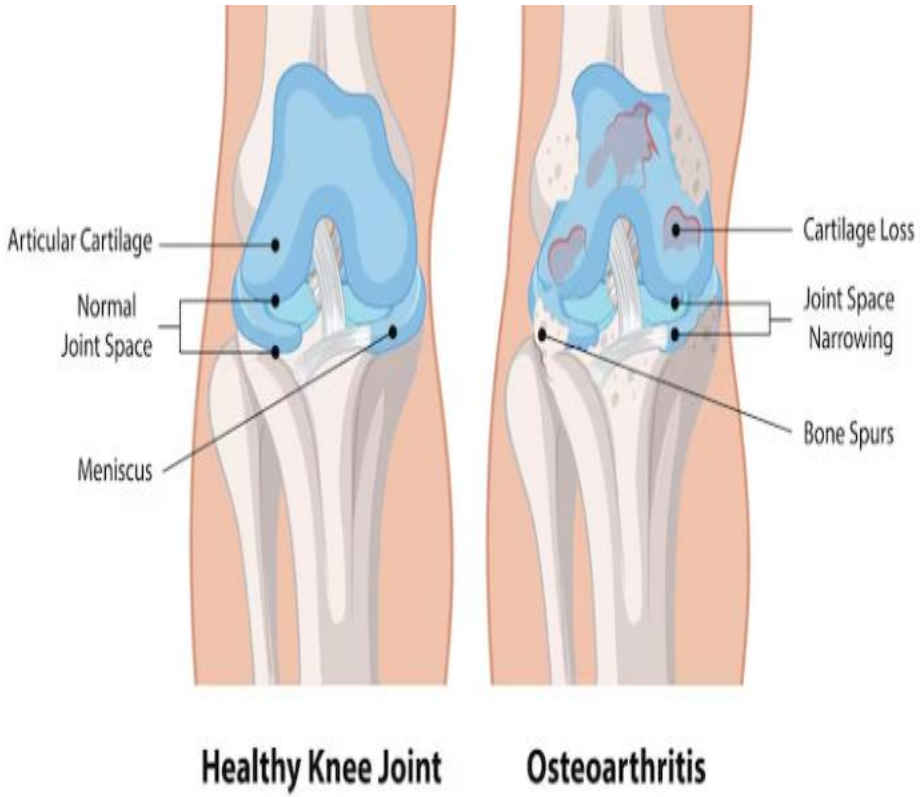
An Evidence Based Approach to improved standardized care of back pain

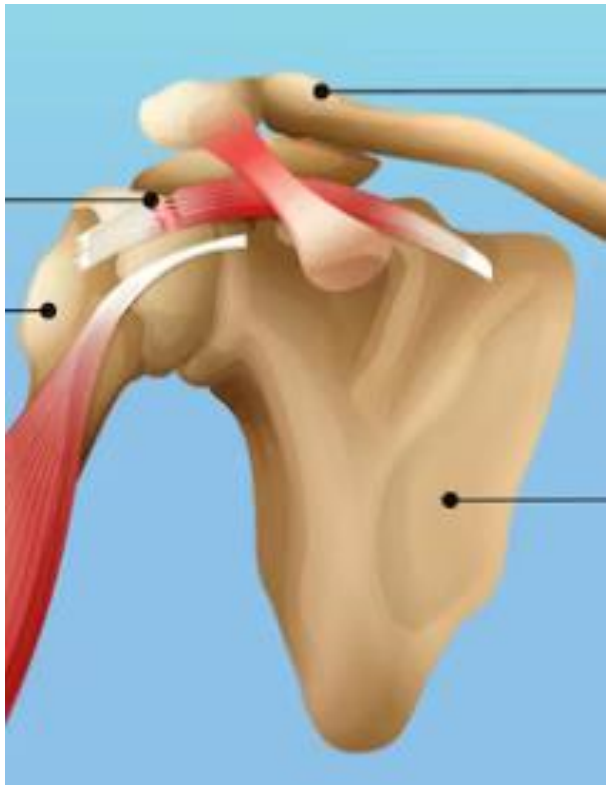
His perception and thoughts about PT: "PT is for lazy people or stupid people"

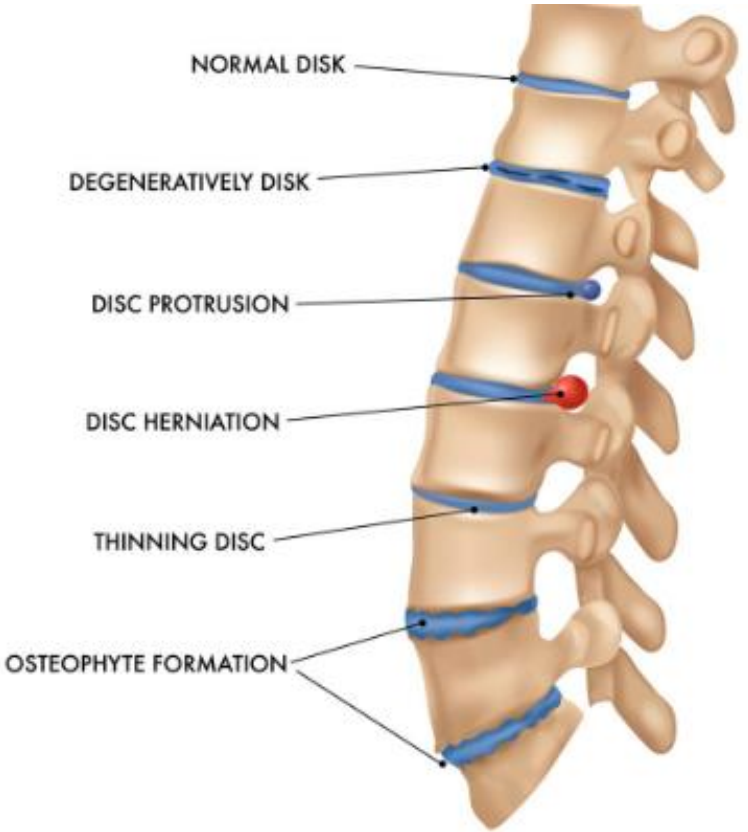
Evidence 3x/week for 3 weeks with a classification system and **ACTIVE TREATMENT PLAN**

"Follow me" **"here is your first patient, Fix him!"**

BIOMEDICAL MODEL: PATIENT EDUCATION

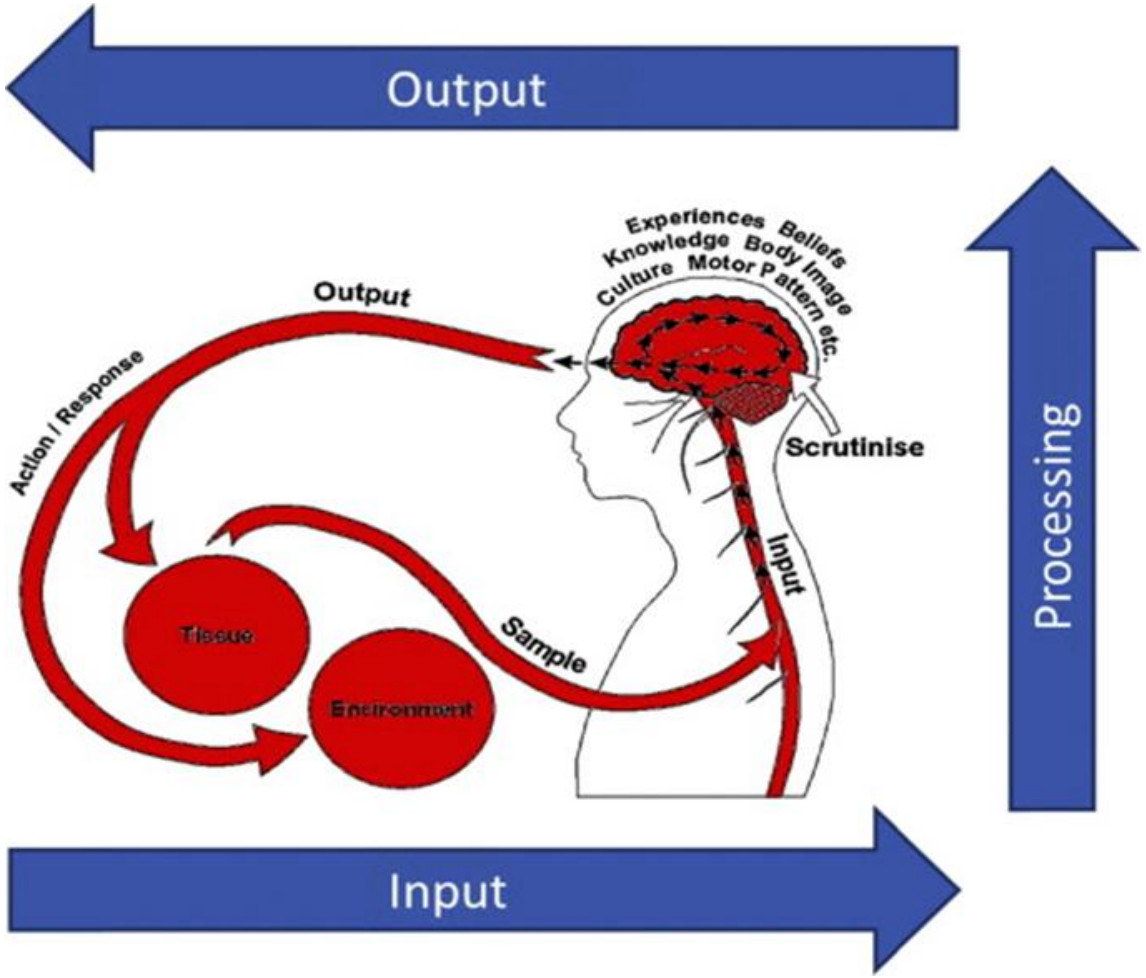






Sorce: freepik.com

NOCICEPTION VS. PAIN

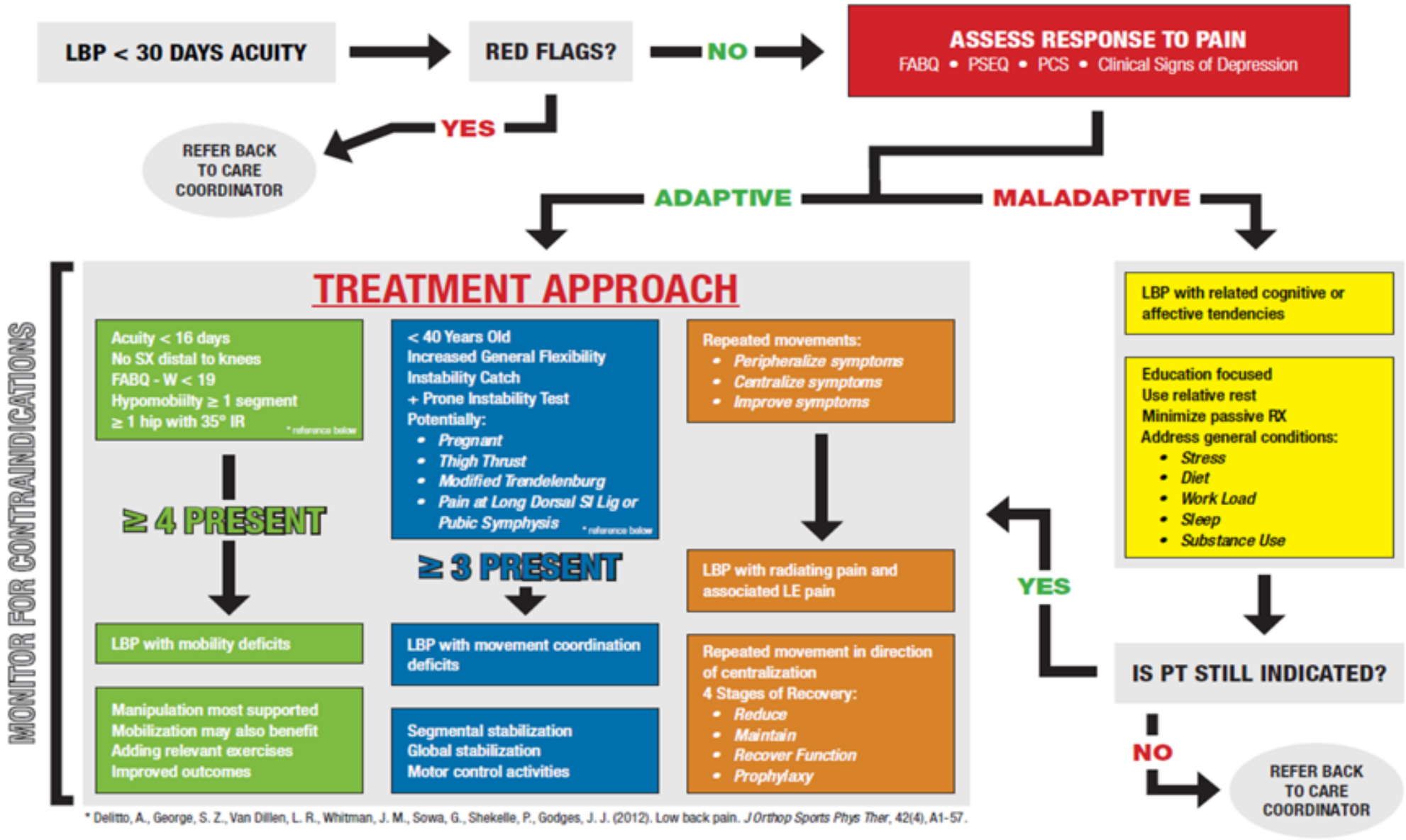


TREATING PAIN

15 "best evidence" supported ways to help patients with persistent pain:

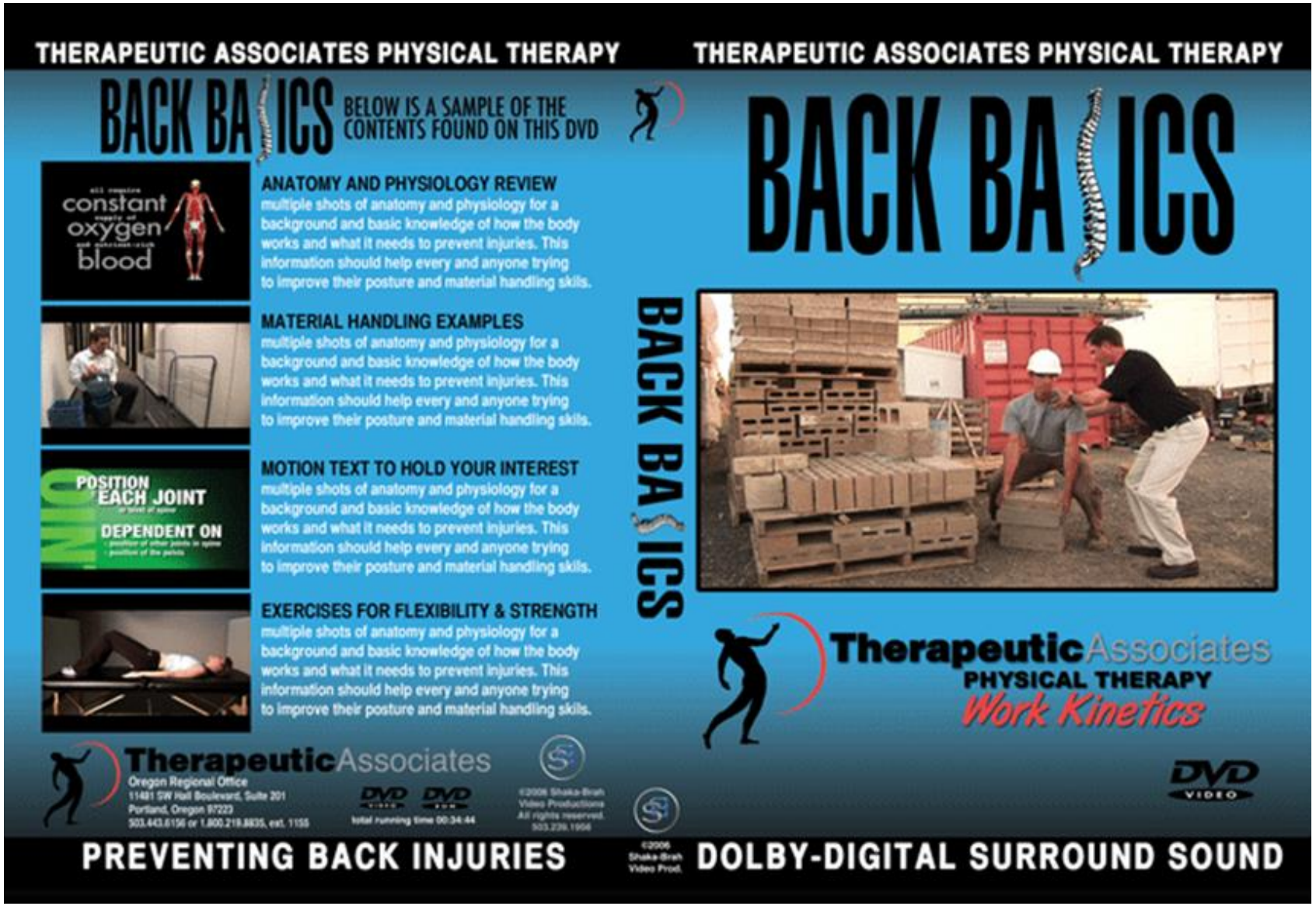
1. **PERFORM A SKILLED PHYSICAL EXAMINATION**. The relationship a PT builds between patient and provider is key.
2. Identify patients with **"red flags"**
3. **Educate the patient about the nature of the problem**
4. Provide prognostication
5. **Promote self-care**
6. **Get patients active and moving as early as possible** and appropriately after injury
7. **Decrease unnecessary fear** related to movement, leisure and work activities.
8. Help the patient experience success
9. Make any treatment strategy as closely linked to evidence of the biological nature of their problem rather than syndrome or geography
10. Use any measures possible to reduce pain (**most any**)
11. Minimize number of treatments and contacts with medical personnel
12. Reinforce **multidisciplinary management**
13. Manage identified and relevant physical dysfunctions
14. **Assess and assist recovery of general physical fitness BREATH, SLEEP, MOVEMENT, HYDRATION, NUTRITION**
15. Assess the effects on the patient's creative outlets

HISTORY AND EVALUATION



* Delitto, A., George, S. Z., Van Dillen, L. R., Whitman, J. M., Sowa, G., Shekelle, P., Godges, J. J. (2012). Low back pain. *J Orthop Sports Phys Ther*, 42(4), A1-57.

"FAILED" PAIN PROGRAMS



L&I RESEARCH BACK PAIN

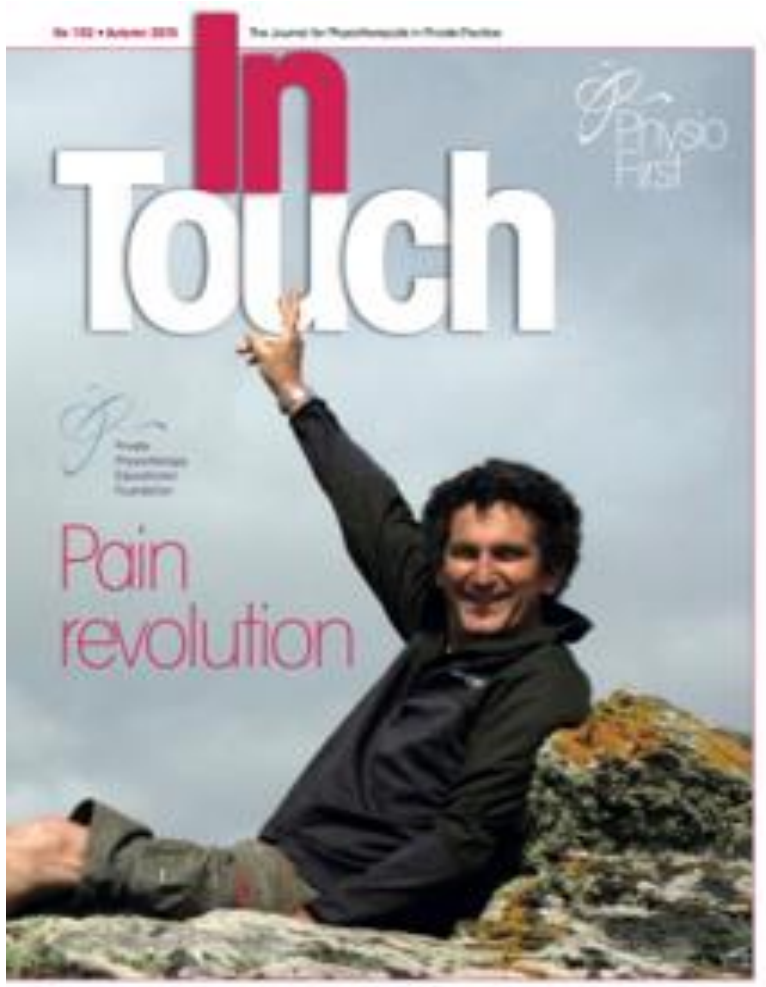
FRI- Functional Recovery Questionnaire and Interventions Pilot (Eastern Washington)

Active Self-Care + Exercise + Earliest Possible Safe Return to Work = **Best Outcome**

http://www.lni.wa.gov/ClaimsIns/Files/OMD/ProvNetwork/20141023EmergingBestPractUpdate.docx

TREATING PAIN IN THE 90'S

- Highlighting ***Pain Neuroscience Education (PNE)***
- PNE as a skilled tool found within the ***Biopsychosocial model***



PNE (PAIN NEUROSCIENCE EDUCATION)

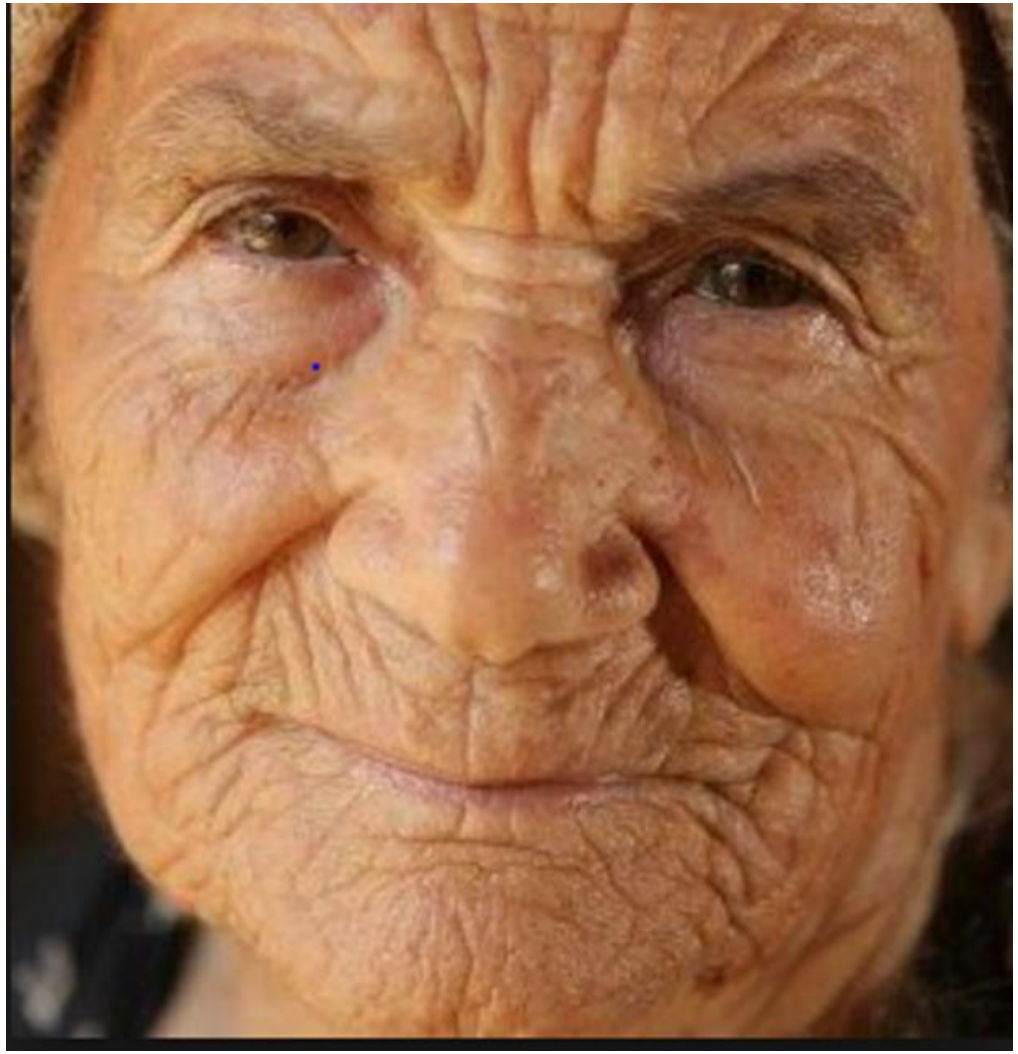
"Shifting therapist and patient thinking, from a largely unidimensional biomedical model based approach, to incorporating a multifaceted and multidimensional model, is the great philosophical and practical challenge confronting clinicians." **Louis Gifford** (http://www.smertespecialisterne.dk/?p=1040)

- **Pain is a normal human experience and the inability to experience pain provides a significant risk to survival for any human being** (Gifford, 2014; Moseley, 2003a; Moseley, 2007).

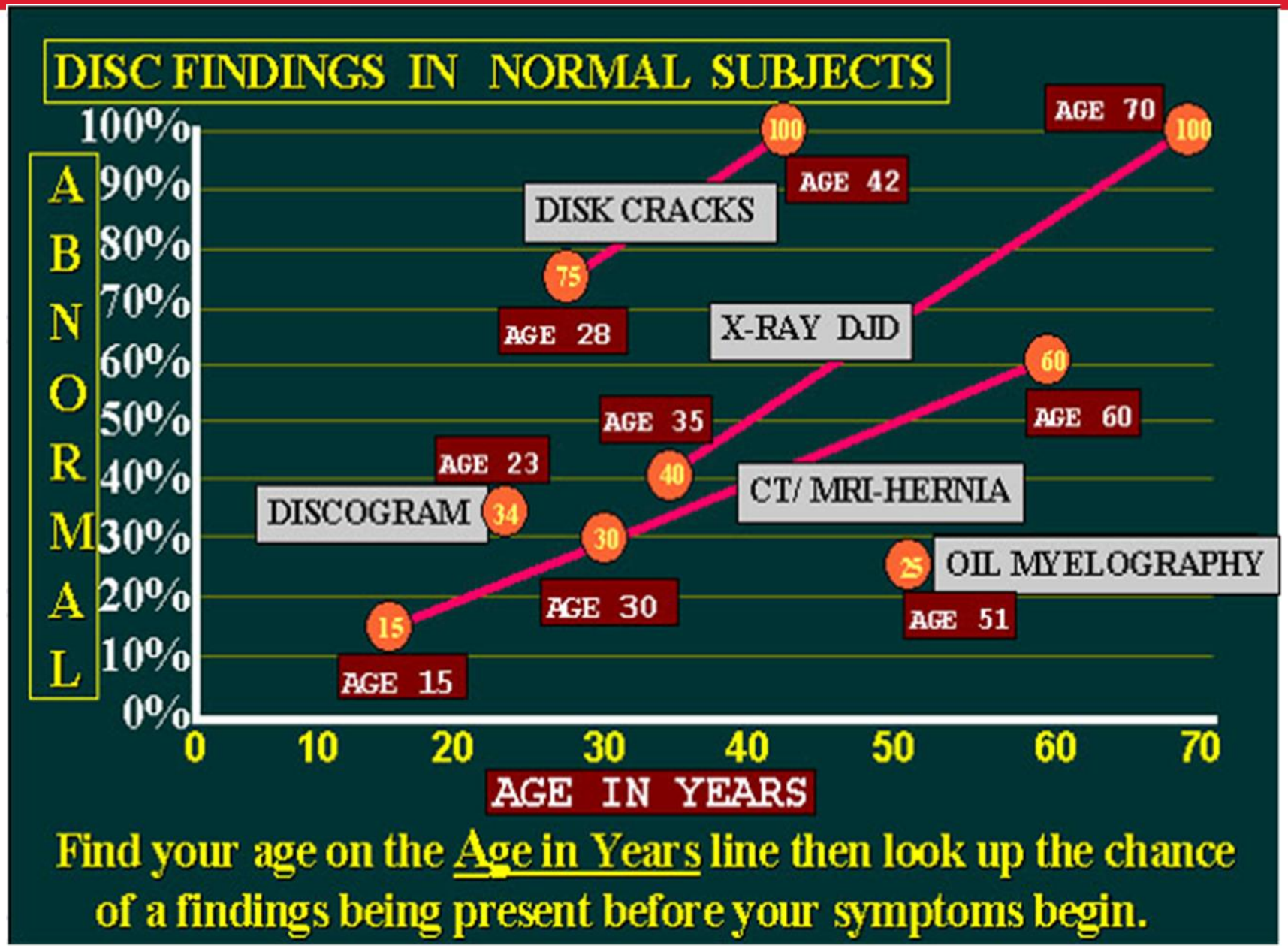
“NORMAL” AGING

Wrinkles- as we age our bodies change.
Some of us “wrinkle” more than others.
We “wrinkle” on the inside as well as the outside.

You are the sum total of your life experiences.



"NORMAL" AGING



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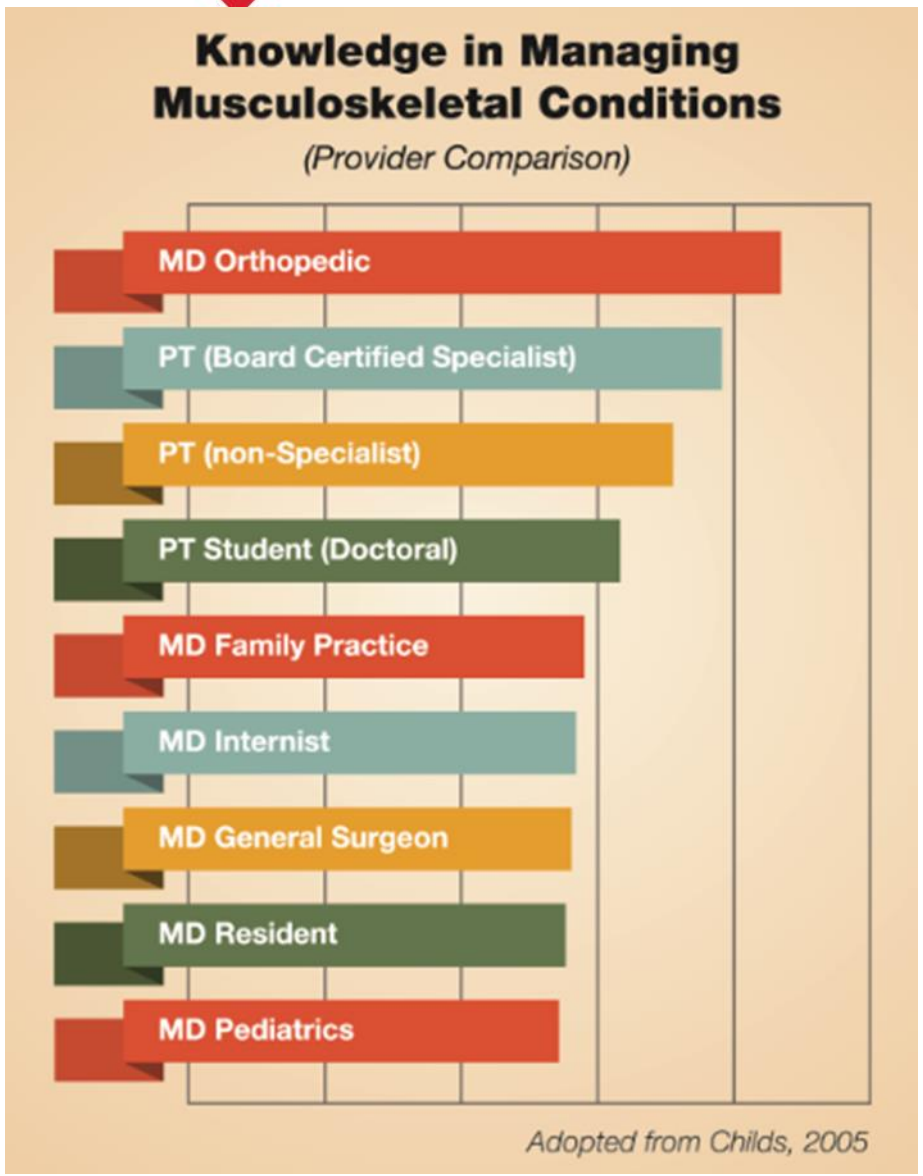
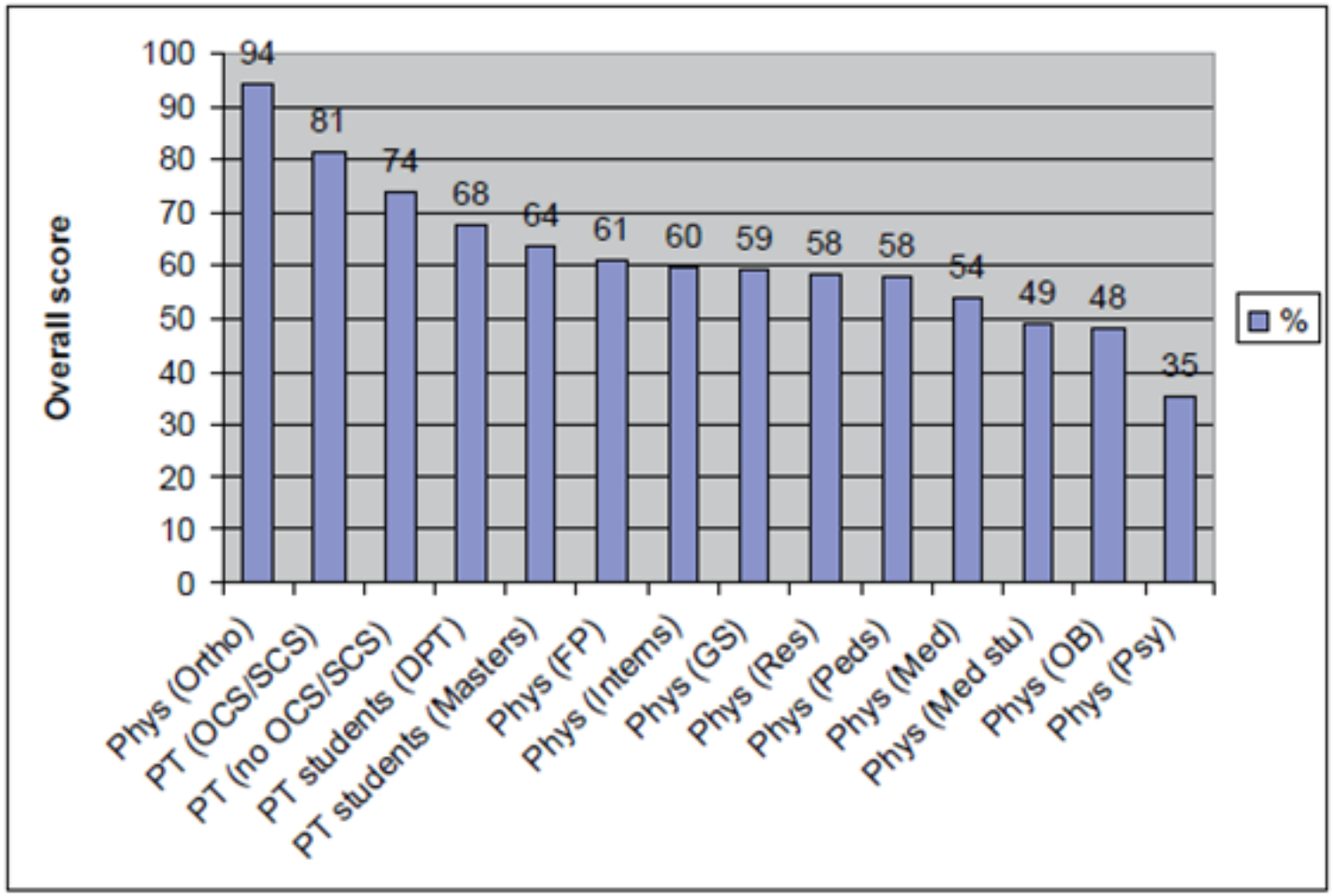
MANAGING MUSCULOSKELETAL CONDITIONS





1 Childs JD, et. al. A description of physical therapists' knowledge in managing musculoskeletal conditions. BMC musculoskeletal disorders. 2005;6:32.

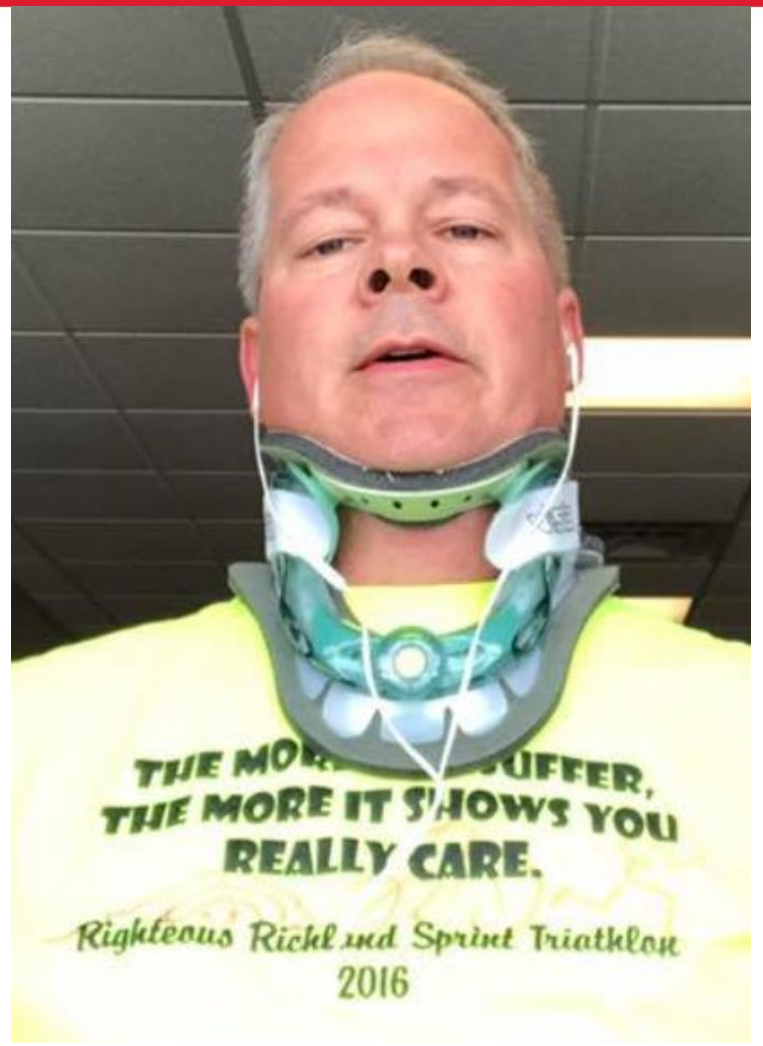
INJURIES HAPPEN

WHICH HURT WORST

Ski Accident

20+ mph ski pole to the head/face

Papercut



Triathlon Bike Crash

MODALITIES AND MEDS TO REDUCE PAIN

PAIN TREATMENT CONCEPTS

- Shift in reasoning of the treatment of pain based on neuroscience
  - Tissue change vs. Altered pain processing
  - Placebo and nocebo
  - **Knee surgery**: (Moseley and O'Malley 2002)

  looking at arthroscopic debridement and lavage
  - **Heart surgery**:

  (Cobb et al 1959 and Dimond et al 1958).

  Cardiologists carried out sham operations

SKILLED PHYSICAL EXAMINATION

We are considering amputating my foot/ankle due to intractable back, leg and foot pain. I can't go on like this.

PERFORM A SKILLED PHYSICAL EXAMINATION

Educate

MOVEMENT IS MEDICINE

5. Promote self-care

6. **Get patients active and moving as early as possible** and appropriately after injury

7. **Decrease unnecessary fear** related to movement, leisure and work activities.

“If pain did not limit you in resuming your favorite activity, what would it be?”

MOVEMENT IS MEDICINE

World Health Organization 2020 guidelines on physical activity and sedentary behaviour, Nov 23, 2020 Br. J Sports Med

Impact of Physical Activity on All-Cause Mortality According to Specific Cardiovascular Disease. Feb 2022

150–300 minutes of moderate-intensity or 75–150 minutes of vigorous-intensity aerobic activity weekly

DOSING:

30min/week x 5 days

Can you _____for _____ 3x a day?

MOVEMENT IS MEDICINE

1-10 Borg Scale of Perceived Exertion

		What you may be thinking...	What your body may be doing...
0	Rest		
1	Really Easy		I don't feel different yet
2	Easy		I am getting a little hot. I can still talk normally.
3	Moderate		My body is warming up.
4	Sort of Hard		I can almost talk in a regular voice, but it is getting harder!
5	Hard		My cheeks are getting pink. I am getting a little sweaty.
6			
7	Really Hard		I am getting really sweaty. My body is hot!
8			I can talk a little, but not too much.
9	Really, Really Hard		My face looks red. I feel like I need to stop.
10	Maximal		My heart is beating very fast and strong. I can't talk.

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DOSING

- time
- Reps
- perceived pain

https://www.carolinatherapy.net/wp-content/uploads/BORG-scaleOfPerceivedExertion.pdf

Physical activity and exercise for chronic pain in adults: an overview of Cochrane Reviews 2017

CONCLUSION:

…physical activity and exercise can help manage chronic pain in adults, often improving pain severity and physical function

However: due to small sample sizes quality of evidence was rated low. We need more high-quality research.

EVIDENCE FOR SUCCESS IN TREATING PAIN: AEROBIC CONDITIONING

- Nervous system **very oxygen** dependent
- **Pacing** allows for patient to get moving early and often after pain
- Keep it as **closely connected to patient goals** as possible
- **Educate about the WHY** behind treatment
- Goal is consistent, moderate level activity (60-70% of aerobic max) for 20-30 min a day
- **Rate of Perceived Exertion (RPE) 0-10 scale**
  - **Rate of 3-4 light to somewhat hard you can hold a conversation**

ESSENTIAL HUMAN PHYSIOLOGICAL NEEDS

How long can you go without:

FOOD

WATER

SLEEP

AIR

COMMUNITY/Human interaction

ESSENTIAL HUMAN PHYSIOLOGICAL NEEDS

How long can you go without:

FOOD – weeks

WATER- days

SLEEP- 16-19 hours

AIR – seconds

COVID

COMMUNITY/Human interaction

EVIDENCE FOR SUCCESS IN TREATING PAIN: SLEEP HYGIENE

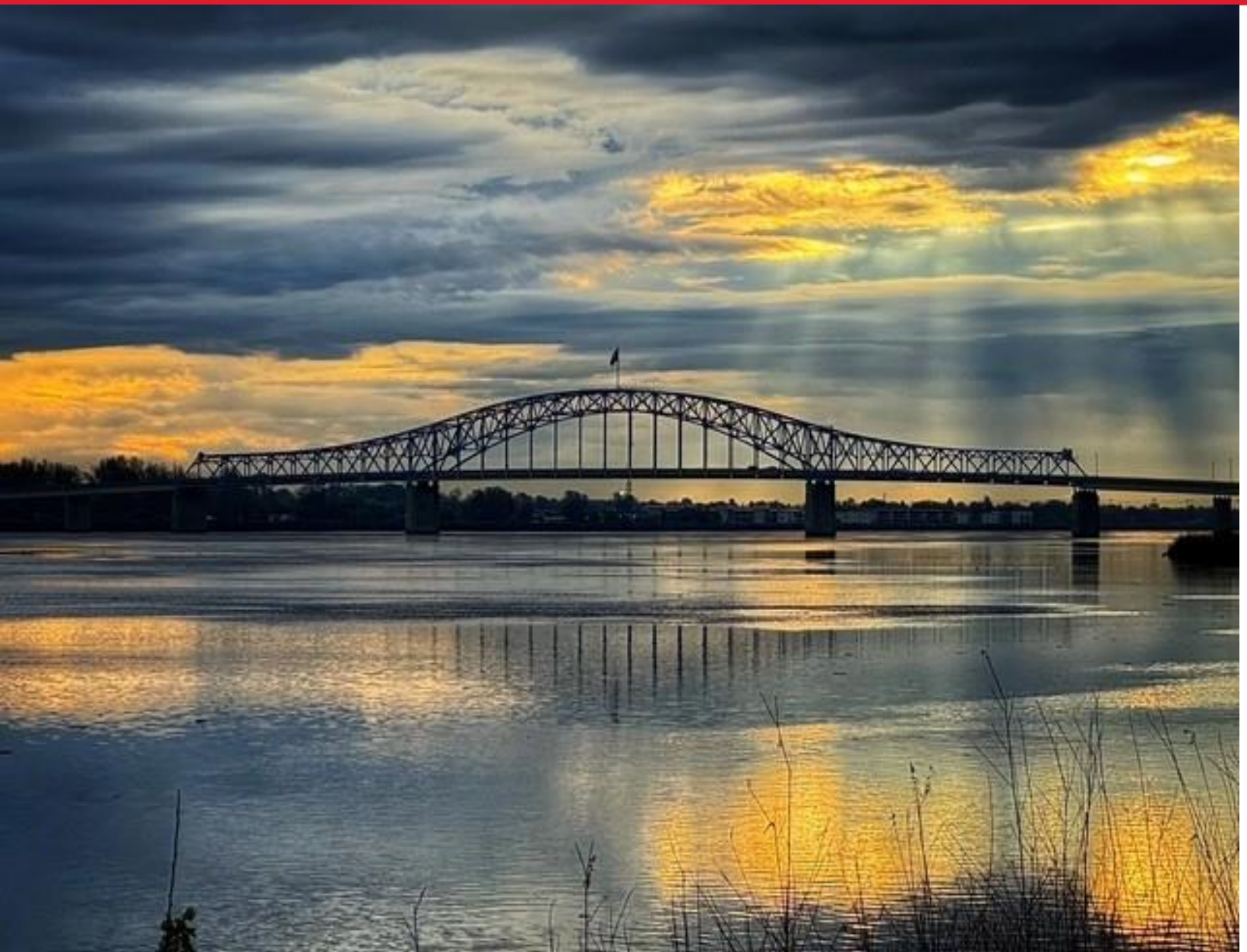
SLEEP

- Boosts immune system function, emotional health
- Sleep deprivation linked to increased rates of pain, obesity, depression, etc
- **Pain patients have difficulty sleeping**
- Give patients **sleep hygiene check list** to help identify potential areas to address/change at home
- Continue to encourage pattern and consistency and appropriately educate on short vs. long term expectations

SLEEP HYGIENE TALKING POINTS

Set time for bed
Evening routine **reduced light exposure**
Room is **cool** (60-68, elderly 60-77)
Room is **dark** (motion lights on floor)
Pets/Kids get them out of your bed
Bed is for **sleeping and intimacy**
Reduce fluid intake to minimize nocturia
No caffeine in the afternoons/evenings
Optimally no food consumed 2-3 hours prior to bed
Limited/no alcohol 2-3 hours prior to bed

SLEEP HYGIENE MORNING ROUTINE



- Set time to get up
- Morning sunshine
- Movement
- Caffeine after 60-90 min

BREATH

Something most of us do more than 20,000 times a day

Diaphragmatic Breathing

Square box
4-7-8

Cleveland Clinic 2022
Deep breathing enhances parasympathetic nervous system.

SUMMARY: PAIN NEUROSCIENCE EDUCATION

- **"Top-Down**" therapy and **"Bottom Up**" therapy

- Main and Spanswick: “Pain Management, an Interdisciplinary Approach”

SUMMARY: PAIN NEUROSCIENCE EDUCATION

Current best-evidence research indicates that when a therapist **utilizes the BPS** approach and **explains the neuroscience of the pain experience** to a patient

AND the **patient understands it**

The patients:

- Have less pain
- Have less disability
- Move better
- Perform better with rehabilitation
- Have better thoughts and beliefs regarding their pain
- Have decreased sensitization of their nervous system

(Louw, Diener, et al 2011)

EVIDENCE FOR SUCCESS IN TREATING PERSISTENT PAIN

Evidence for treating persistent pain:

- Pain Neuroscience Education (PNE)
- Aerobic Conditioning
- Patient centered goal setting and follow up
- Sleep hygiene
- Breathing
- Nutrition

Other potentially effective treatment strategies (might include if appropriate for patient):

- Manual therapy
- Graded functional exercise/movement progression
- Aquatic therapy
- Neurodynamics
- Relaxation
- Mindfulness/meditation
- Modalities
- Graded motor imagery
- Mirror therapy
- Sensory retraining
- Encouraging socialization

EVIDENCE FOR SUCCESS IN TREATING PAIN: PNE

Key points for educating about pain

- **Always make sure the patient knows that you believe them and that you are on their side**
  - "Your pain is real. We have never scanned fake pain before. I am here to help you understand all of these things that have happened to you."
- **Limit use of inflammatory language** (ie: ripped, torn, bulging, etc)
- Education without empathy is cruelty
- **Dose it** appropriately! – too much at any one point may be overload for patient
- Utilize appropriate visuals, handouts, verbal education, etc but make it specific to the patient and their learning style/needs
- Don't "tell" the patient everything, they have to be an active participant in order to change behavior
  - Call on their past experiences to help enhance their connection to information

EVIDENCE FOR SUCCESS IN TREATING PAIN: PATIENT CENTERED GOAL SETTING

Help patients experience and direct their own success through guided, specific, measurable and functional goal setting

- Patient generated, but could be “honed” by PT
- Helps patients understand appropriate pacing and graded exposure to activity

WHERE CAN YOU FIND HELP AT TAI?

Contact information:

Ken Call, PT, DPT
Therapeutic Associates Inc.
West Kennewick Physical Therapy
1408 N Louisana Street Suite 104-A

Phone: 509-783-1962
kcall@taipt.com

Locate Us and
Meet Our Team!

SELF TEST

The following questions are taken from International Spine and Pain Institue, Why You HURT Therapeutic Neuroscience Education System, Adriaan Louw, PT PhD, CSMT

1. When part of your body is injured, special pain receptors convey the pain message to your brain. True False
2. The brain decides when you will experience pain. True False
3. Pain only occurs when you are injured. True False
4. The body tells the brain when it is in pain. True False
5. Chronic pain means that an injury hasn't healed properly. True False
6. Worse injuries always result in worse pain. True False
7. Nerves have to connect a body part to your brain in order for that body part to be in pain. True False

SELF TEST ANSWERS

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