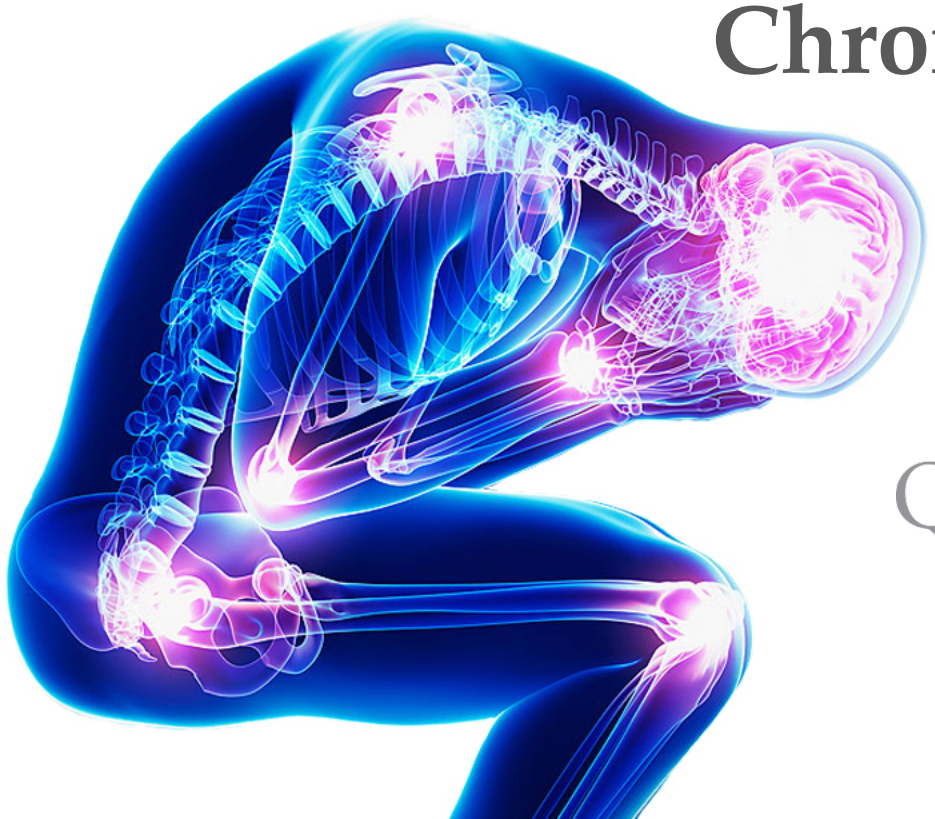
Non-Pharmaceutical Management of Chronic Pain After Spinal Cord Injury



QLI

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Four Major Advantages
of Post-Hospital Rehab

- Intensity of Services
- Program Complexity
- Real-World Setting
- Effective Transitions

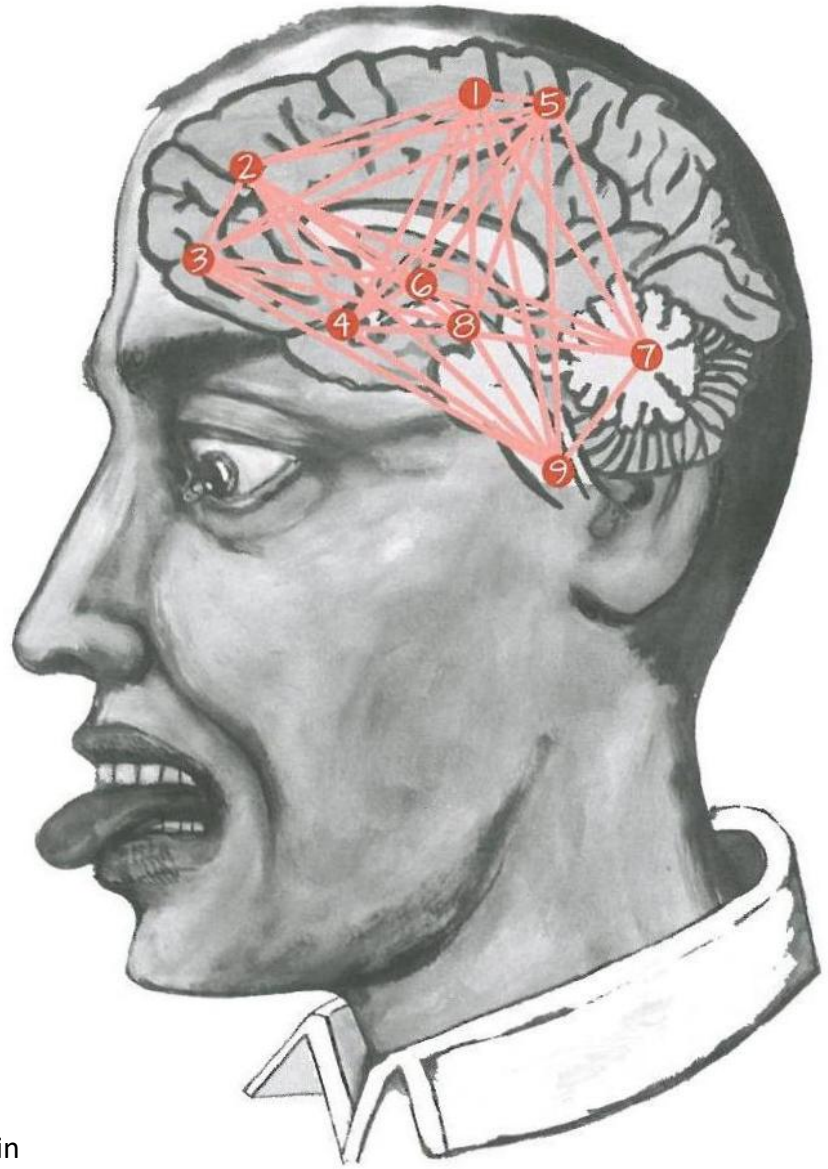
Objectives

1) Upon completion of this lecture, participants will be able to differentiate between the biomedical approach versus the biopsychosocial approach in the management of chronic pain in individuals with SCI.
2) Upon completion of this lecture, participants will be able to identify key aspects of “successful” non-pharmaceutical management of chronic pain in individuals with SCI.
3) Upon completion of this lecture, participants will be able to discuss how to integrate a collaborative and interdisciplinary pain management approach into the treatment of individuals with SCI.

But Really…

- Walk away with a better understanding of chronic pain (with or without SCI)
- Ready to expand your role as a workers compensation professional in helping individuals with SCI manage their pain

What is **Pain**?



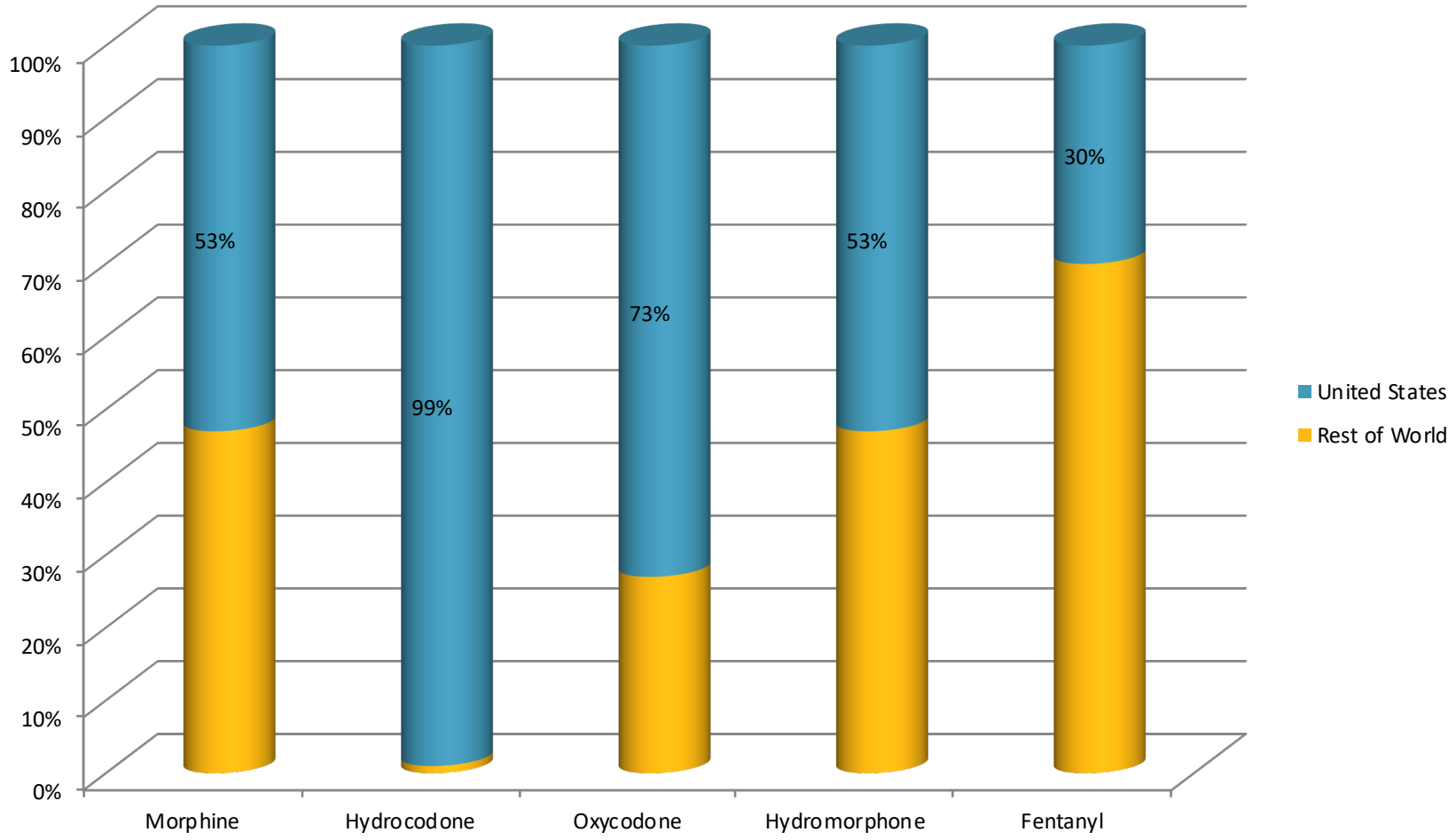
Butler & Moseley (2013), Explain Pain

Chronic Pain in SCI

- It's no secret that chronic pain wages a war on individuals who have acquired a spinal cord injury
- Incidence / Prevalence
  - Bonica (1991)
    - Reviewed data contained in 10 reports that surveyed 2,449 SCI patients
    - Chronic pain was present in 1,695 (69%), and in 30% of these patients it was rated as severe
  - Siddall (2009)
    - Around 65-85% of those with SCI will experience pain & around 1/3 of those will have severe pain
    - Those reporting neuropathic pain in the subacute period (3-6 months) after injury are likely to continue experiencing pain at 3-5 years following their injury
- QoL greatly affected

Opioids

United Nations Report (2016)



Risks Associated with Opioid Use

- CDC Guidelines (2016)
  - Dosages of 50 to <100 Morphine milligram equivalents (MME) increase risks for opioid overdose by factors of 1.9 to 4.6
  - Dosages of 100 MME or more increase risks for opioid overdose by factors of 2.0 to 8.9

- Opioid Poisoning
  - Drug overdose is the leading cause of accidental death in the US
  - In 2014, opioids were involved in 61% of all drug overdose deaths
  - In 2014, overdose rates were highest among people aged 25 to 54 years

Chronic Pain and Opioid Use

in Individuals with SCI

- How can we expand the roles of rehabilitation teams early (within the first year of injury) to build a solid foundation of knowledge for the individual with SCI and change how chronic pain is managed?
- Addressed by whom?
- When?

Biomedical

- “Medical” or interventional, modality-centered
  - Surgical approaches
  - Pharmaceutical management
  - Nerve blocks, injections
  - Neurostimulation
- Heavy reliance on findings from imaging studies
- Passive

Biomedical

Bensmail et al. (2008)

- The low level of proof of the studies found in the literature does not allow for recommending the use of drugs such as clonidine, morphine, lidocaine or baclofen in daily practice to treat the neuropathic pain of SCI patients

- Potential positive impact of IT baclofen for neuropathic pain management in some patients

Table 1
Studies evaluating the effect of IT drug delivery or epidural injections on neuropathic pain in SCI patients.

Author	Drug (s)	Type of study according to the ANAES classification	Number of patients	Delivery method	Results	Dose	Grade
Siddall et al. [7]	Morphine Clonidine	Low power comparative study Level 2	15	IT	No effect with the 2 drugs delivered separately. Efficacy in 3/15 when combined	Single Dose	B
Glynn et al. [3]	Morphine Clonidine Buprenorphine	Comparative study with major biases Level 4	15	E	Effect + clonidine = 10/15 Effect + morphine = 5/15 Effect + buprenorphine = 2/5	Single Dose	C
Glynn et al. [2]	Clonidine	Case series Level 4	6	E	Pain decrease in 4/6 patients	Single Dose	C
Loubser and Donovan [5]	Lidocaine	Low power comparative study Level 2	21	IT	13/21 mean pain improvement of 37.8% for 2 h 4/21 with placebo	Single Dose	B
Loubser and Akman [4]	Baclofen	Case series Level 4	9	IT	No pain-relieving impact	Chronic delivery	C

IT: intrathecal; E: epidural.

Biopsychosocial

- Definition
  - Feinberg et al. (2013): “illness and disability is the result of, and influences, diverse areas of an individual’s life, including the biological, psychological, social, environmental, and cultural components of their existence”
- Multidisciplinary / interdisciplinary
  - Roth et al. (2012): integrated and multidisciplinary programs for chronic pain have been consistently supported by research as superior to less comprehensive modalities and procedure-focused interventional pain medicine (IPM)
  - Feinberg et al. (2013): a comprehensive multidisciplinary approach to pain management that is **individualized**, **functionally oriented** (not pain-oriented), and **goal specific** has been found to be the most effective treatment approach
- Active
  - Collaborative effort
  - Goal is for patients to accept responsibility to manage their pain and acquire effective coping strategies

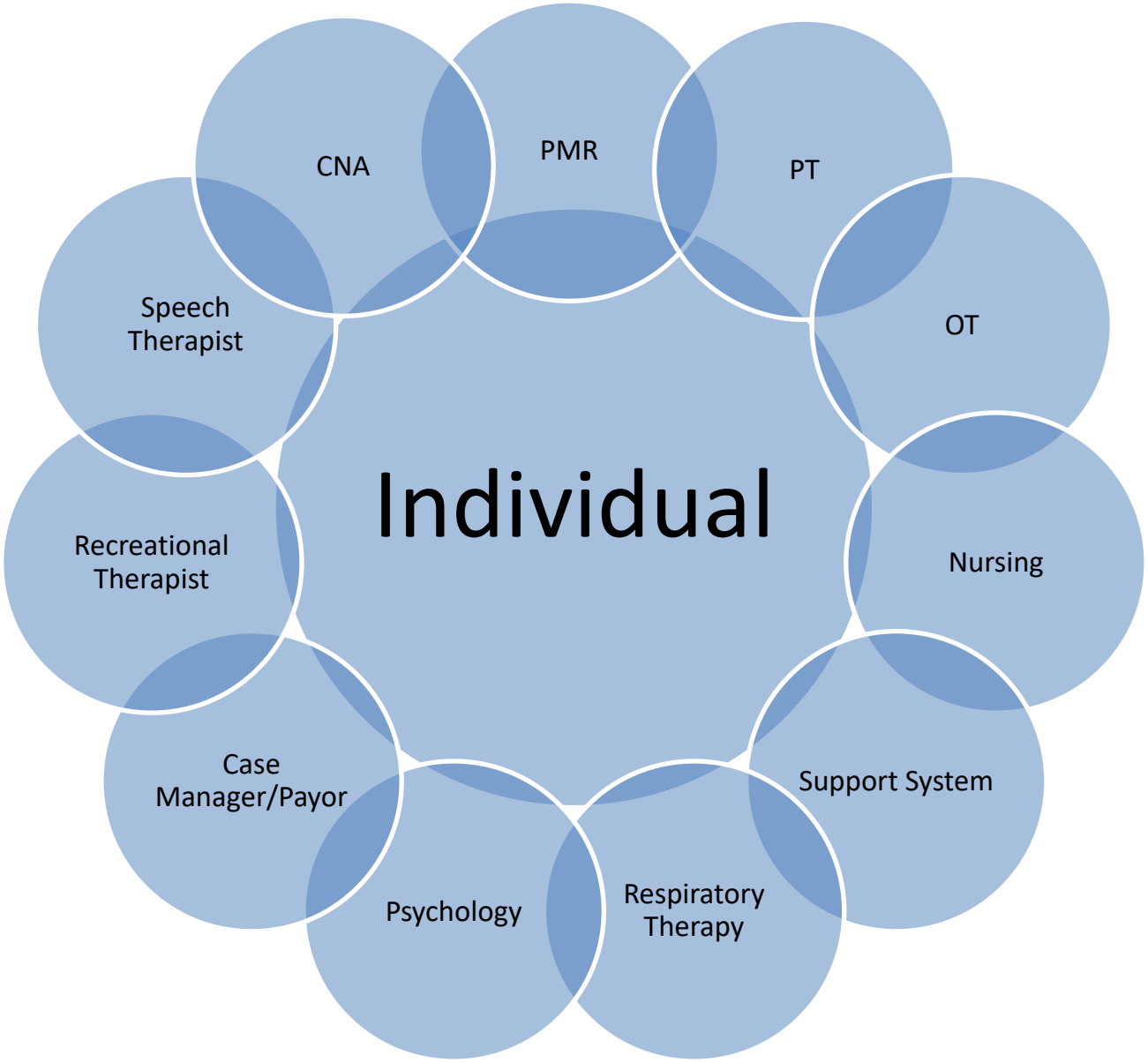
Key Aspects of Managing Chronic Pain

- Identify it's a problem
- Identify source of pain
  - International SCI Pain (ISCIP) Classification (Bryce, 2012)
- Patient/support system education
- Implement plan
  - Identify pain management strategies

Identify It's a Problem

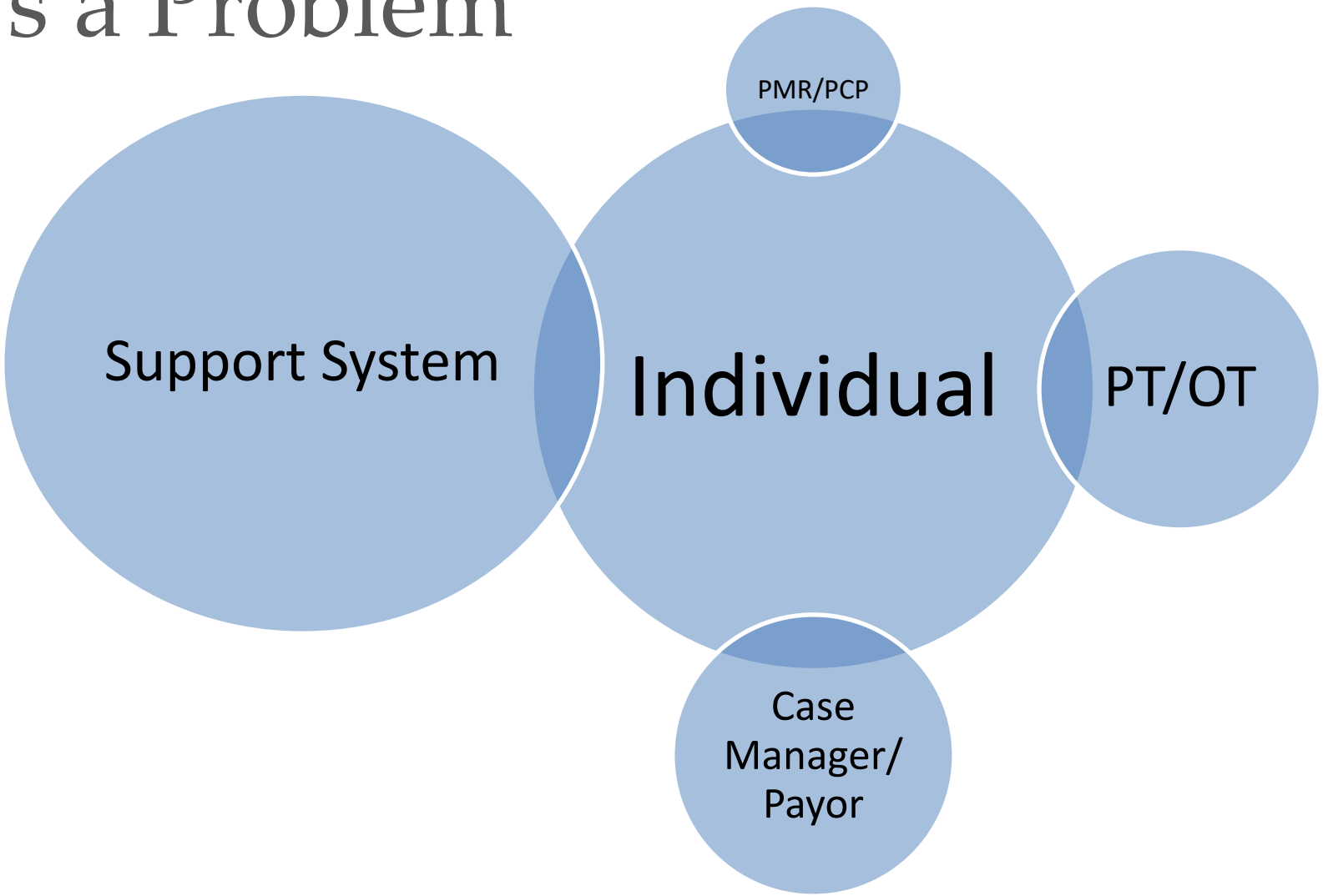
If we look at our healthcare providers, who will be spending the most time with the individual?

Identify It's a Problem



As time progresses…

Identify it's a Problem



Identify Source of Pain

Bryce, 2012

Tier 1: Pain type	Tier 2: Pain subtype	Tier 3: Primary pain source and/or pathology (write or type in)
☐ Nociceptive pain	☐ Musculoskeletal pain	☐ _____ e.g., glenohumeral arthritis, lateral epicondylitis, comminuted femur fracture, quadratus lumborum muscle spasm
	☐ Visceral pain	☐ _____ e.g., myocardial infarction, abdominal pain due to bowel impaction, cholecystitis
	☐ Other nociceptive pain	☐ _____ e.g., autonomic dysreflexia headache, migraine headache, surgical skin incision
☐ Neuropathic pain	☐ At level SCI pain	☐ _____ e.g., spinal cord compression, nerve root compression, cauda equina compression
	☐ Below level SCI pain	☐ _____ e.g., spinal cord ischemia, spinal cord compression
	☐ Other neuropathic pain	☐ _____ e.g., carpal tunnel syndrome, trigeminal neuralgia, diabetic polyneuropathy
☐ Other pain		☐ _____ e.g., fibromyalgia, Complex Regional Pain Syndrome type I, interstitial cystitis, irritable bowel syndrome
☐ Unknown pain		☐ _____

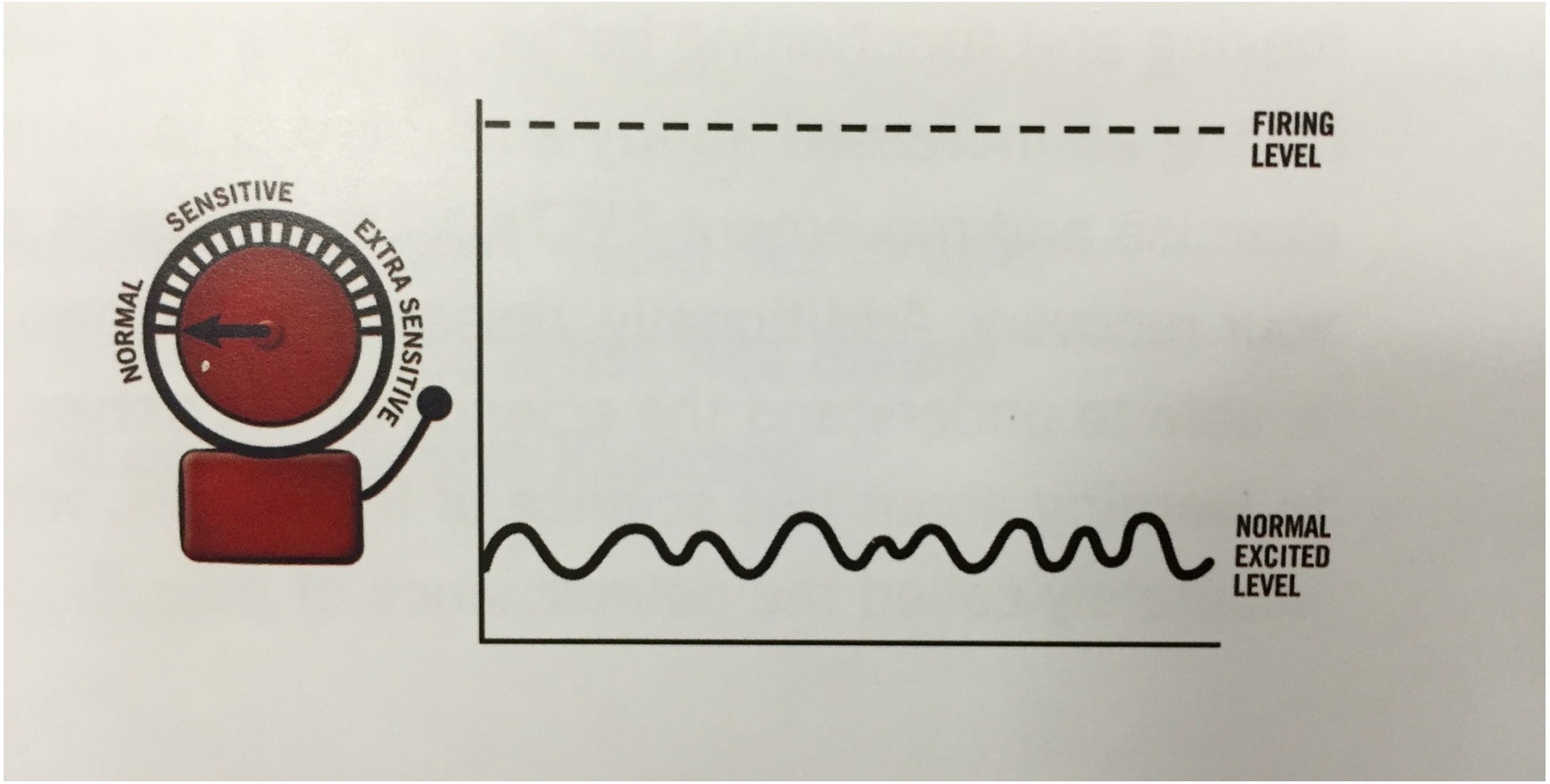
Patient/Support Education

- We develop the framework for understanding
- Effects of stress on learning (Schwabe, 2010)
- Who is the “Who”?
  - From the rehab team?
  - Who is influential in the support system?

Patient/Support Education

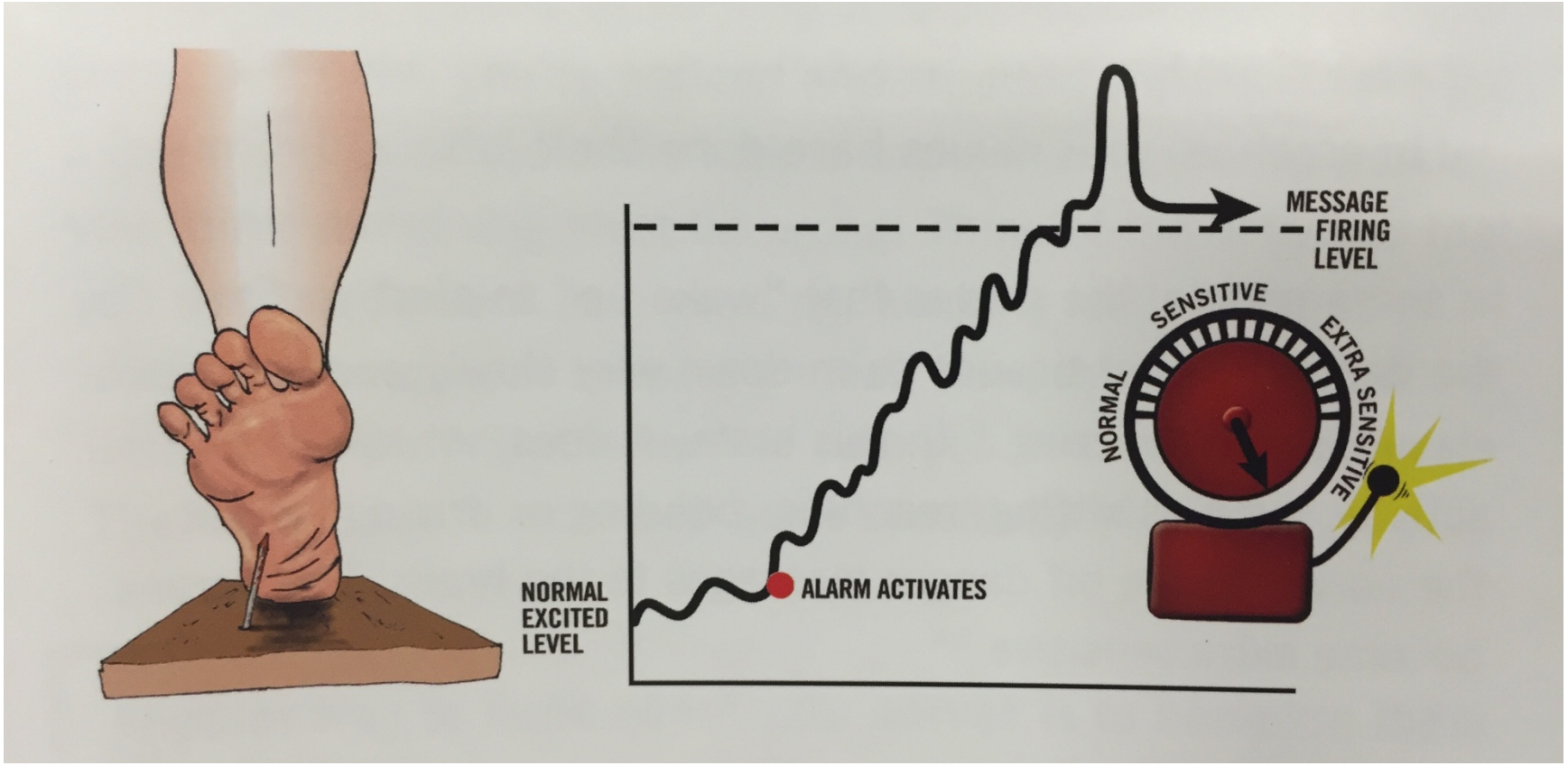
- Pain Neuroscience Education
  - Pain is a normal, human experience. Without the ability to experience pain, humans would not survive. Living in pain, however, is not normal.
  - A big reason why pain rates are increasing is the fact that too much focus has been placed on tissues, such as muscles, ligaments and joints, which generally are healed between three and six months.
  - Persistent pain is more due to the sensitive nervous system and how the brain processes information from the body and the environment.

Patient/Support Education



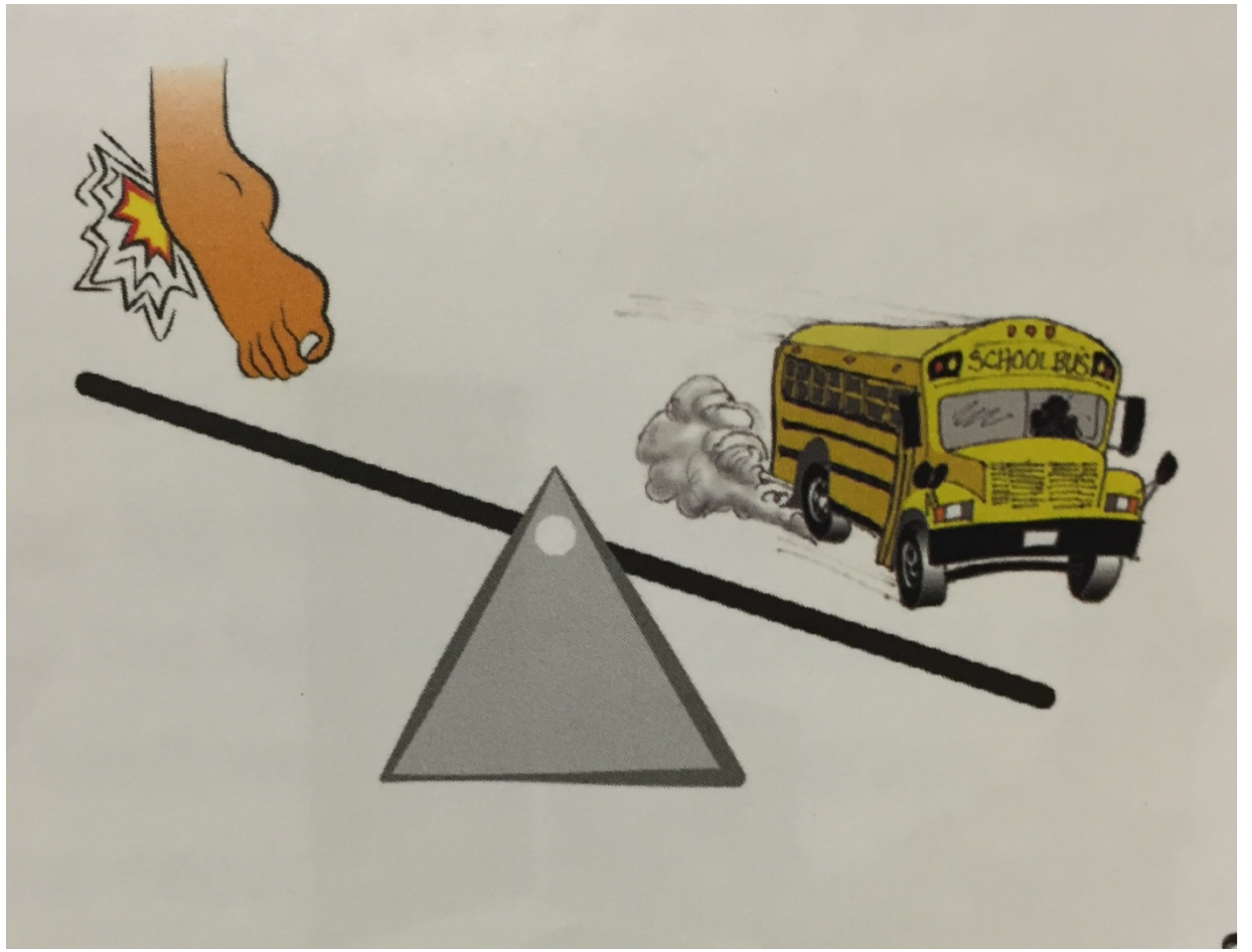
Louw (2013)

Patient/Support Education



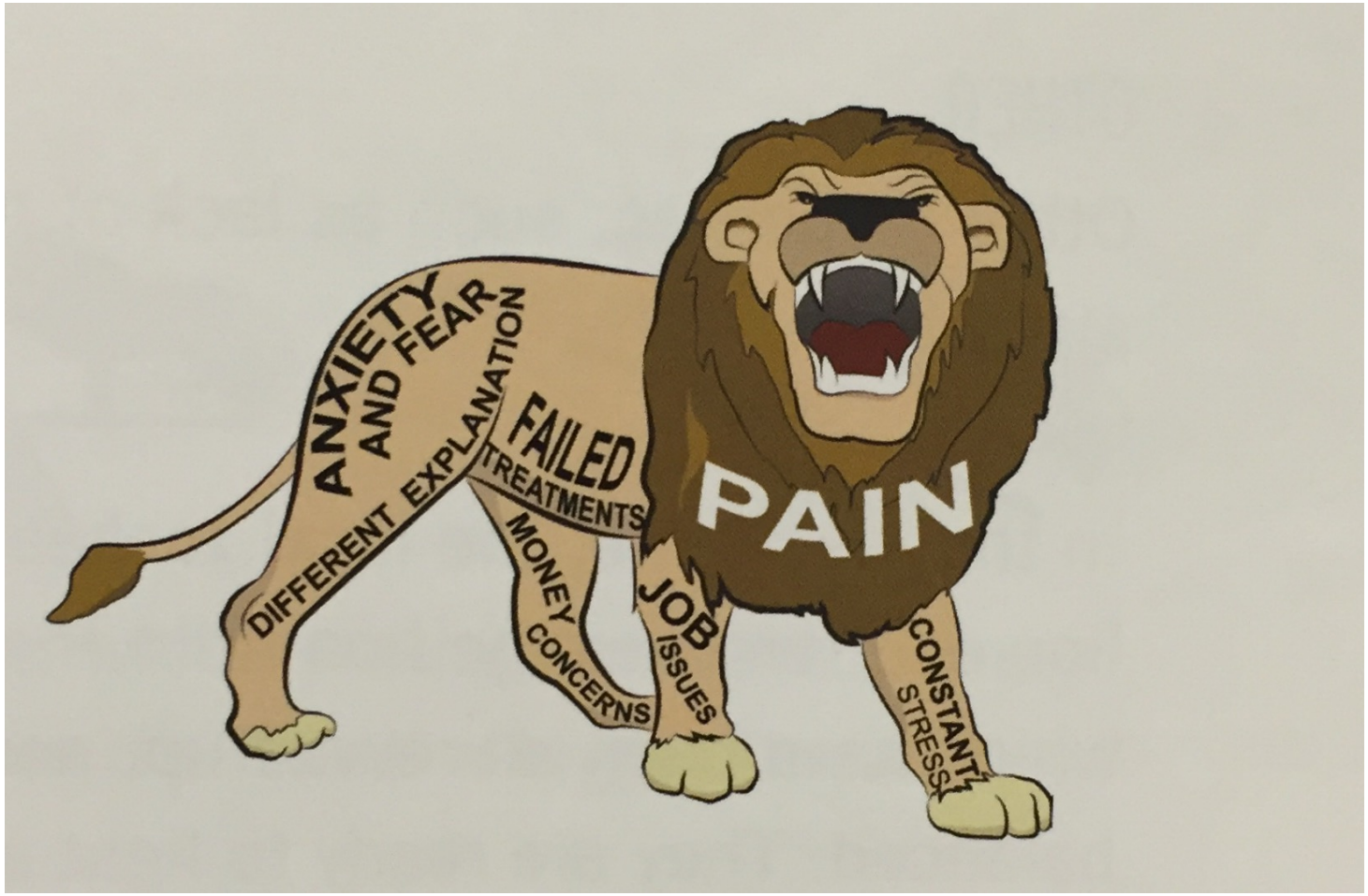
Louw (2013)

Patient/Support Education



Louw (2013)

Patient/Support Education



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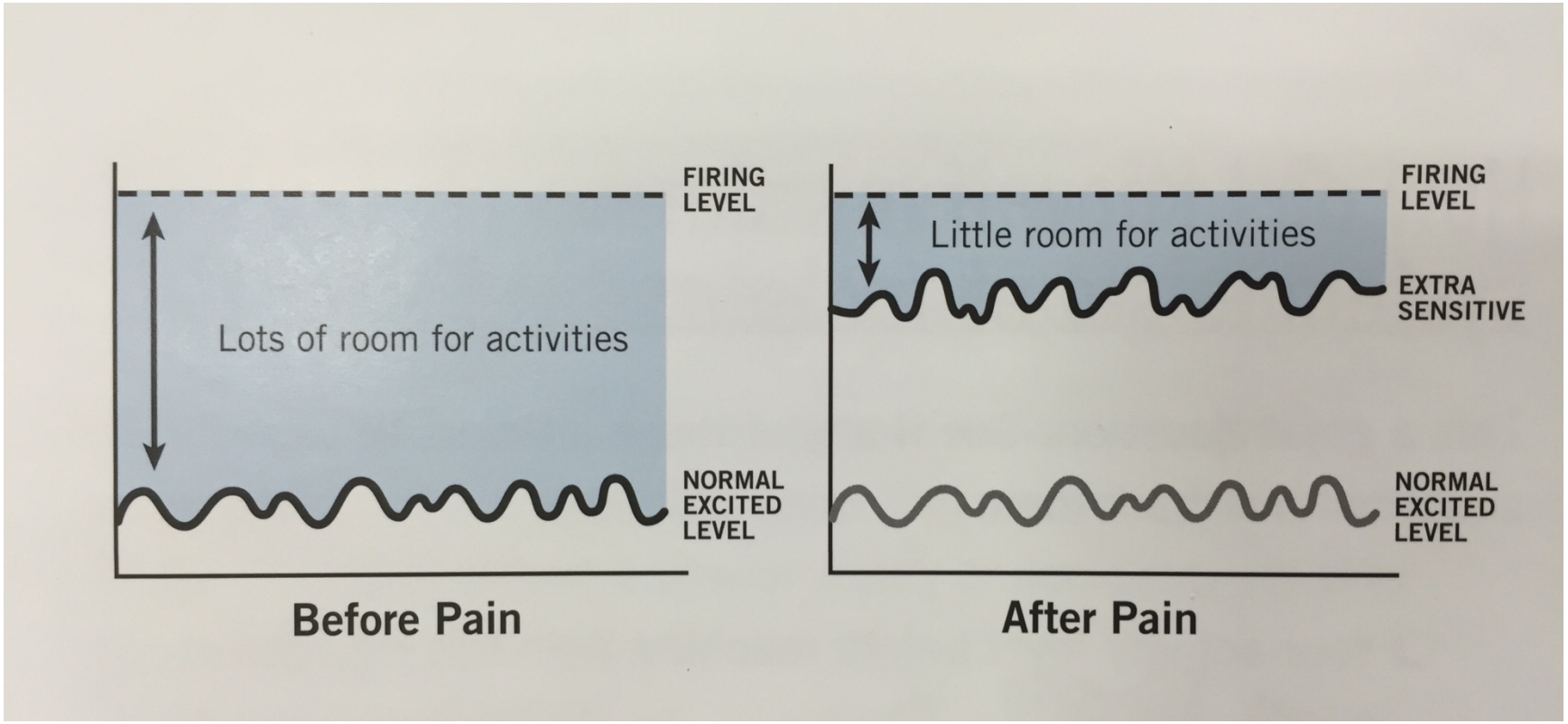
Patient/Support Education



Louw (2013)

Implement Plan

Passive

- Massage, Ice, and Heat
- Osteopathy
- Dry Needling, Acupuncture
- Transcranial Electrical Stimulation Post SCI Pain
- Static Magnetic Field Therapy Post SCI Pain
- Transcutaneous Electrical Nerve Stimulation Post SCI Pain
- Transcranial Magnetic Stimulation

Active

- Knowledge
- Exercise
  - Aerobic
  - Exercises for Post SCI Pain
  - Exercises for Shoulder Pain
  - Behavioral Management of Pain Post SCI
- Diet
- Sleep Hygiene
- Goal Mapping

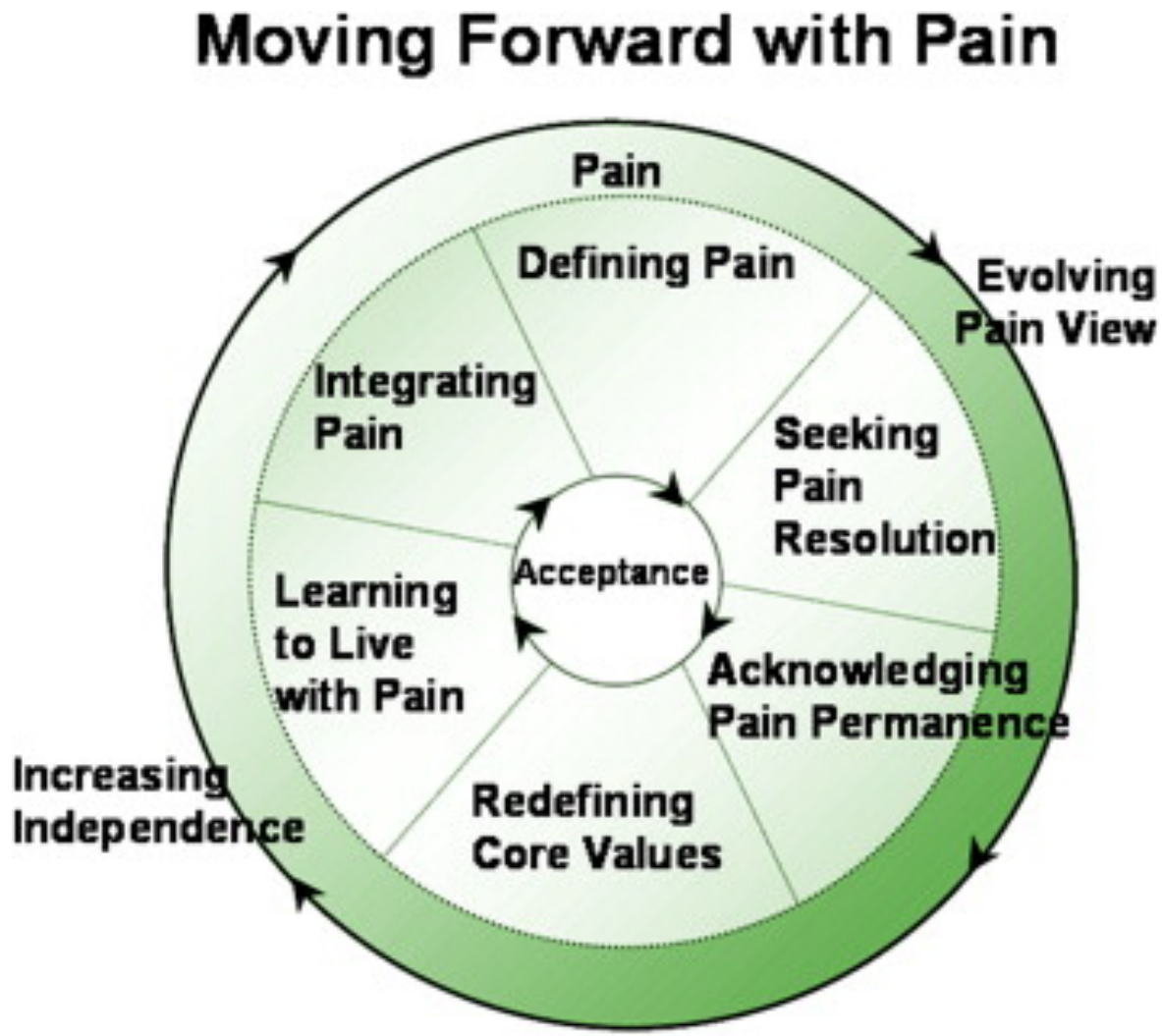


Figure 1. The process of moving forward with chronic neuropathic pain in spinal cord–injured individuals.

Penelope Henwood, Jacqueline Ellis, Jo Logan, Claire-Jehanne Dubouloz, Joyce D'Eon
Acceptance of Chronic Neuropathic Pain in Spinal Cord Injured Persons: A Qualitative Approach
Pain Management Nursing, Volume 13, Issue 4, 2012, 215–222
http://dx.doi.org/10.1016/j.pmn.2010.05.005

Integration

- Interdisciplinary/Multidisciplinary approach
- Positive & supportive environment
- Cognitive Behavioral Therapy (CBT), Acceptance & Commitment Therapy (ACT), The Progressive Goal Attainment Program (PGAP)
- Pain Management Strategies

Interdisciplinary/Multidisciplinary

- Heutink et al. (2012) – a multidisciplinary cognitive behavioral program might have beneficial effects on people with chronic neuropathic SCI pain
  - Significant decrease in pain intensity & pain related disability
  - Significant treatment effects for anxiety & participation in activities

Interdisciplinary/Multidisciplinary

- Roth et al. (2012): integrated and multidisciplinary programs for chronic pain have been consistently supported by research as superior to less comprehensive modalities and procedure-focused interventional pain medicine (IPM)

- Feinberg et al. (2013): a **comprehensive** multidisciplinary approach to pain management that is **individualized**, **functionally oriented** (not pain-oriented), and **goal specific** has been found to be the most effective treatment approach

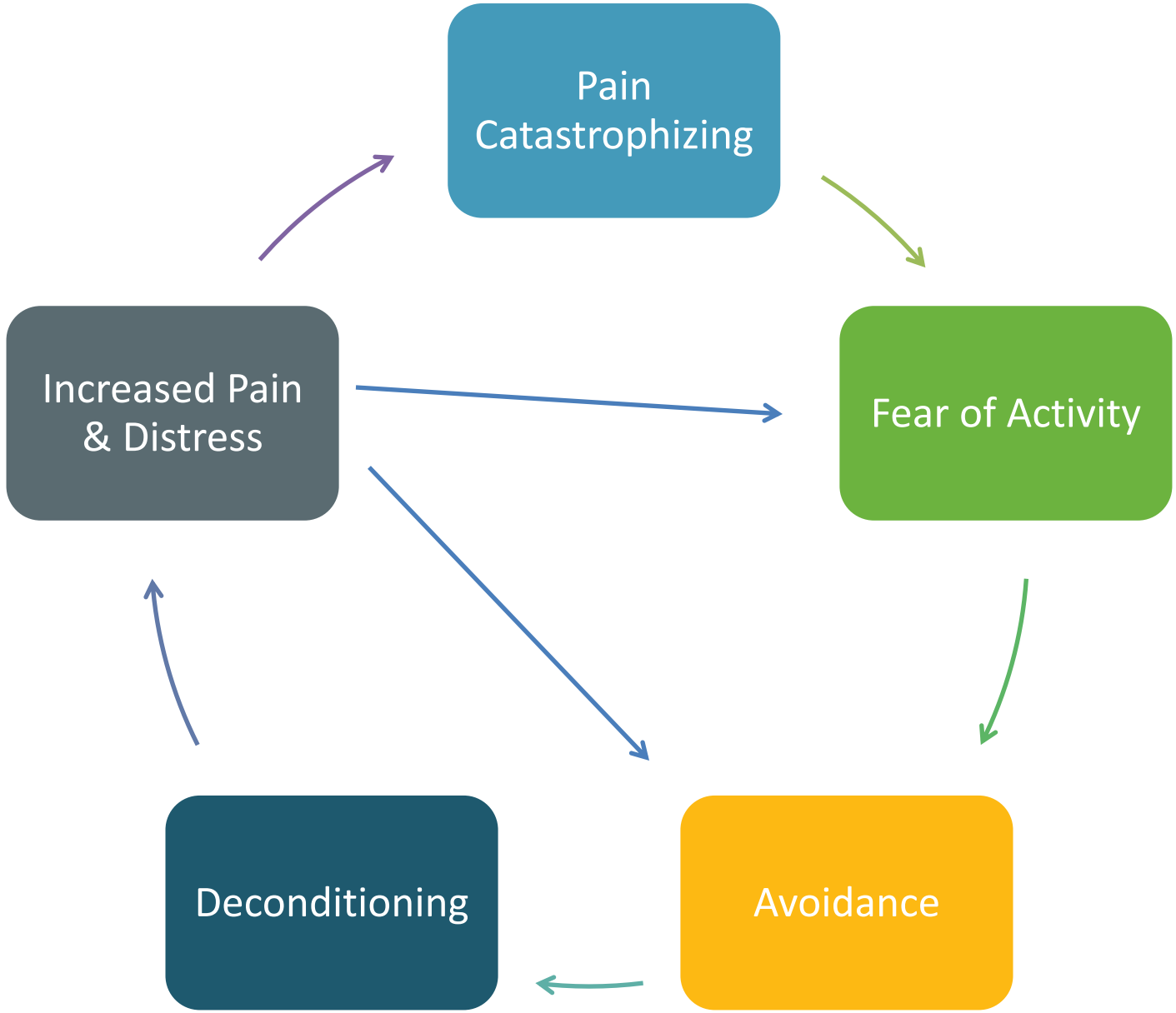
Positive, Supportive Environment

Inpatient setting indicated for individuals who:

1) Do not have the minimal functional capacity to participate effectively in an outpatient program,
2) Have medical conditions that require more intensive oversight,
3) Are receiving large amounts of medications necessitating medication weaning or detoxification
4) Have complex medical or psychosocial diagnoses that benefit from more intensive observation and/or additional consultation during the rehabilitation process.

- Building trust & rapport

Cognitive Behavioral Therapy



Cognitive Behavioral Therapy

Craner et al. (2016)

- Significant relationship between **pain catastrophizing** and other factors adversely related to functioning with chronic pain, including greater depressed mood, decreased mental and physical health-related quality of life, and **higher pain severity** and life interference
- Participation in a comprehensive rehabilitation program resulted in significant decreases in pain catastrophizing, and that this decrease was a significant partial mediator of the corresponding improvement in treatment outcomes (i.e., pain interference and depressed mood) upon program completion

Cognitive Behavioral Therapy

- Monticone et al. (2014): a 2-month comprehensive pain rehabilitation program with several weekly visits was superior to an exercise program alone in reducing fear of movement and catastrophic thinking, as well as improving quality of life
- Smeets et al (2006): participation in an interdisciplinary pain rehabilitation program is associated with improvements in catastrophic thinking compared with wait-list controls
- Townsend et al. (2008): treatment gains in pain catastrophizing remain significant over time (e.g., at 6 months post treatment)
- Burns et al. (2003): early reductions in pain helplessness, catastrophizing, and pain-related anxiety predicted later treatment improvement in pain

ACT & PGAP

- ACT (Dahl, Wilson, & Nilsson 2004)
  - Must accept the aspects of your pain you cannot change
  - Acceptance allows for the commitment to start living the life you want to live

- PGAP

https://www.pgapworks.com/en/index.php

- Take Courage Coaching
  - Becky Curtis (founder)
  - Pain Management Service
  - Telephonic coaching

~~Alternative~~ Pain Management Strategies

- Yoga, Tai Chi, Pool Therapy
- Modalities, Massage Therapy
- Positioning, ROM, Stretching
- Stress Management, Coping Strategies, Mindfulness/Meditation, Graded Motor Imagery (GMI)
- Nutrition Education
- Sleep Hygiene
- Functional Activities

Case Example

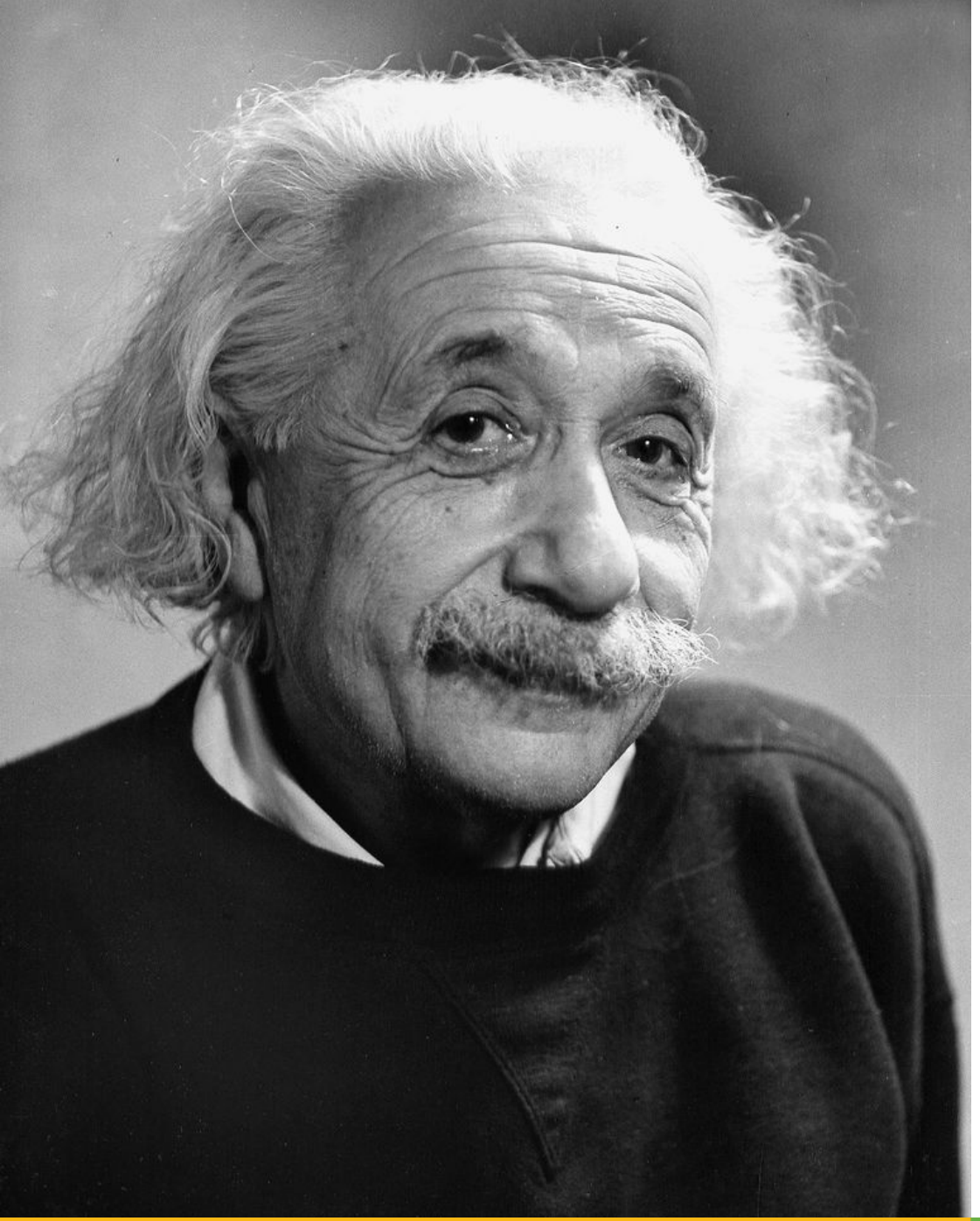
- DB, injured 3/14/15
- C5, Incomplete AIS C
- QLI 7th location on his rehab journey; 6 months post injury. 3 month stay

Case Example

- Focus on:
  - Staying healthy, refining basic health needs
  - Functional and applied movement
  - Getting back to life
- Other considerations:
  - Hx of drug/alcohol abuse
  - Hx of requesting and getting more opioids
  - Admitted on 360 MME (Oxycontin/Oxycodone)
  - Raised a red flag…

Case Example

- Responsible as a team to identify the problem
- Source of pain?
- Education
- Implement plan



Insanity:

Doing the same thing over and over again and expecting different results.

-Albert Einstein

In Conclusion…

- Need to shift our mindset away from tertiary model and defaulting to medication/ injections
- Some medications can be helpful for certain individuals/situations
- We all need to take greater responsibility in educating individuals with SCI, support systems, and one another

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Brad Dexter, PT, DPT

P: (402) 573-3759

bdexter@QLIomaha.com