PainWeek®

In Pain AND Not Broken: Saving the Careers of Active Duty Service Members with Chronic Pain through a Functional Restoration Pain Program

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Disclosure

We, or immediate family members, including spouses or partners, have no financial relationships or any other relationship which could reasonably be considered a conflict of interest relevant to the content of this CE activity.

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Learning Objectives

- Describe how the Functional Restoration Pain Program (FRPP) is able to evaluate and treat chronic pain in the military setting.
- Discuss the role of each advanced practice provider who contributes to the approach of the FRPP, including the medical director, the psychologist(s) and the physical therapist(s).
- Explain how the progressive rehabilitative approach is implemented in an 8 week course, with emphasis on physical reconditioning, mental resilience, and self-efficacy.
- Identify the tools and metrics which have been most useful for the NMCSD FRPP in monitoring patient progress, to best guide care through the 8 week course.

Problem Statement

- Chronic pain conditions are common among active duty service members (ADSM), costing billions of dollars annually to the Department of Defense in healthcare expenses and lost productivity.

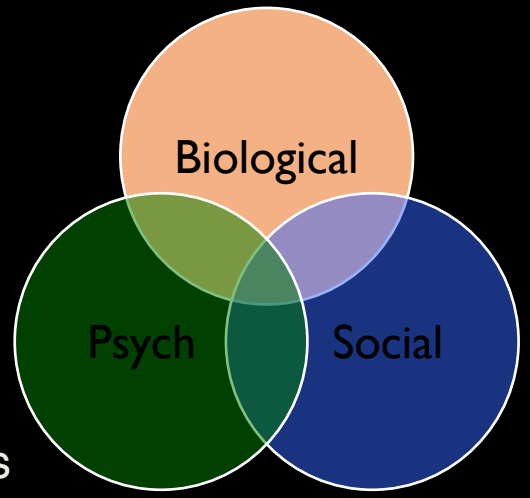
➢ Impaired readiness of American Forces
  - Loss of talented, trained personnel
  - Loss of financial investment

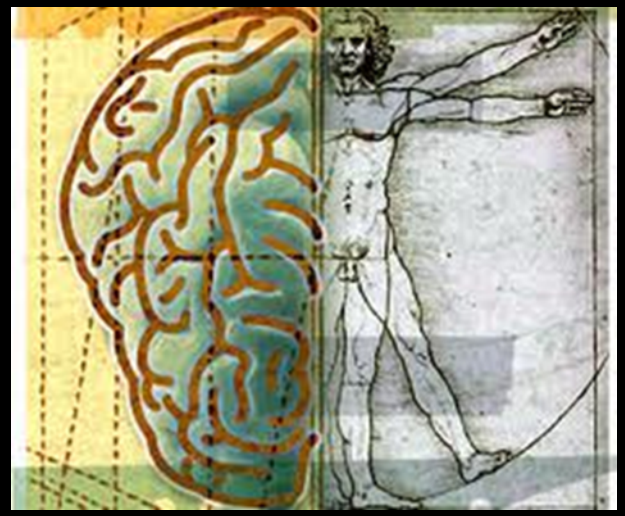
➢ Loss of physical and/or mental function leading to
  - Absenteeism/“Presenteeism”
  - Loss of Job Satisfaction
  - Frustration toward, and from Command leadership
  - Frequent Sick Call/Requests for LLD
  - Higher utilization of medical resources
  - Impaired quality of life at home
  - Early career termination

Functional Restoration

- Based on a biopsychosocial approach
  - Pain and disability result from a complex and dynamic interaction of physiologic, psychologic, and social factors
  - Focus is on rehabilitation

- Components
  - Progressive exercise rehabilitation
  - Cognitive behavioral therapy
  - Patient education emphasizing self-care strategies
  - Optimization of medication management
  - Interdisciplinary team approach with close coordination of care





US Navy's 1st Functional Restoration Pain Program

- Goal: **Improving Readiness and Restoring Function**
  - Encourage independence of medical treatment resources
  - Promote service member return to full, world-wide, deployable duty status
  - Again, emphasis on self-efficacy, resiliency, less reliance on "The System"
- Established at Naval Medical Center San Diego in 2014
  - 20 hrs/week over 4 days(160 hrs over 8 weeks)

FRPP Personnel

1. **Pain Medicine Provider:** Pain Team clinical leader responsible for development and delivery of integrative holistic patient care.
2. **Physical Therapist:** Responsible for physical reconditioning program and proscription of goal oriented exercise therapy.
3. **Behavioral Health Psychologist:** Deliver pain care treatments that address the cognitive, behavioral, affective, and social aspects of the comprehensive biopsychosocial pain experience.
4. **Clinical Support Staff:** Supports clinic administration, supports coordination of care with command elements.

Patient Eligibility Criteria

- Active duty service members referred by Pain Medicine sub-specialty physicians after exhausting standard medical interventions:

- Chronic pain condition (Pain lasting for > 90 days)
- Active Duty with > 12 months remaining obligated military service
- No pending disability settlement (i.e. PEB)
- Participant and Military Command agreement for member to meet program requirements of up to 20 hours of care per week over 8 weeks
- No unstable or disqualifying mental health disorders
- No disorders that interfere with cognitive processing (i.e. severe traumatic brain injury)
- No surgical contraindications for participation
- Identified Primary Care provider to support maintenance phase

Components

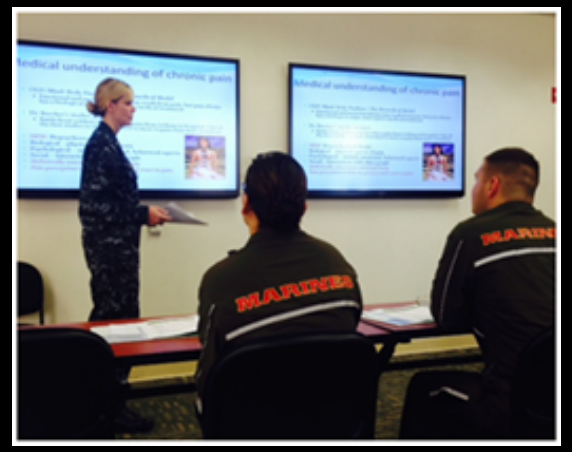
- Group
  - Pain Education
  - Nutrition
  - Movement Therapy
  - Aqua Therapy
  - Circuit Training
  - Friday Activity

  - Mind Body Medicine
  - Cognitive Behavioral Therapy of Insomnia
  - Acceptance and Commitment Therapy

- Individual
  - Physical Therapist (2x/week)
  - Psychologist (1x/week)
  - Pain Physician (1x/2weeks)
- Care Planning (1x/week)
- Assessment
  - Initial Evaluation
  - Treatment Evaluation
    - Pre, mid, post, 6-month follow-up
    - PROMIS
    - Functional Assessment
- Participant Selection
  - Cohort members chosen by team

Pain Education

- Objective
  - To reduce conflict and alter beliefs, attitudes, perceptions in regard to pain, to improve functional outcomes
- Frequency: 1x/week for 4 weeks, 1 hour each session
- Interventions
  - Nervous system physiology and pain system; Risk factors/Predictors of chronic pain
  - Neuroplasticity and pacing; physical, mental, emotional changes with chronic pain/stress
  - Interventions to address chronic pain/stress
- Military Considerations
  - Military Culture (“Pain is weakness”/Negative stigma around help-seeking)
  - Military Medical Treatment



Nutrition

- Objective
  - Educate in the nutritional value of food in order to make informed, healthy choices in the food we eat
- Frequency: 1x/week for 4 weeks, 1 hour per session
- Interventions
  - Education on the relationship between inflammation and pain/Anti-inflammatory diet
  - Education on nutrition labels and ingredient lists; Nutritional supplements
  - Weight loss and portion control
- Military Considerations
  - Limited food options while deployed/on board a ship

Movement Therapy

- Objective
  - Utilizes Eastern and Western movement approaches to promote physical, mental, emotional, and spiritual well-being
- Frequency: 1x/week, 2 hours each session
- Interventions
  - Dynamic and Static Stretching, Yoga, Diaphragmatic Breathing
  - Ladder Drills, Foam Rolling, Fundamental Movement Patterns
- Military Considerations
  - Provide workouts/exercises that can be performed while on board a ship
  - Access to space and equipment is sometimes limited

Aquatic Therapy

- Objective
  - To promote range of motion, core stability, strength in the extremities, and cardiovascular endurance via using the water properties of buoyancy, hydrodynamic drag forces, and hydrostatic pressure

- Frequency: 1x/week, 2 hours each session

- Interventions
  - Static Stretching and Cool-Down
  - Dynamic stretching and warm-up; Strengthening exercises using aquatic dumbbells
  - Cardio exercises with and without floatation device (noodles, jogbelt)

- Military Considerations
  - Implement exercises that will enhance bi-annual military fitness test performance
  - Swimming is an option for the cardio portion of the bi-annual Navy fitness test

Circuit Training

- Objective
  - To improve physical function, promote cardiovascular endurance, reduce kinesiophobia, and improve confidence in tolerating the physical demands of work duties and ADL's
- Frequency: 1x/week, 1.5 hours per session

- Interventions
  - Reinforce pacing and modification of exercise/movement
  - Sufficient warm-up and cool-downs; Bodyweight and resistance training exercises
  - Upper and lower body exercises; Group, partner and individual workouts
- Military Considerations
  - Implement exercises that will enhance bi-annual military fitness test performance

Friday Activities

- Objective
  - Utilizing recreational physical activities to promote physical and psychological health
  - Implementing the skills accrued over the course of the program, while also building relationships with fellow participants

- Frequency: 3 hours 1x/week

- Interventions
  - Low to moderate intensity, physical activity, pacing
  - Mindfulness; Socialization (interacting in a fun, relaxed atmosphere)
  - Positivity Practice: working on an optimistic outlook

- Military Considerations
  - Prior socialization to military structure, over emphasis on strength

Mind Body Medicine

- Objective
  - Educate on the mind-body connection and the relationship between stress and illness, dysfunction and disease
  - Increase the patient's capacity to manage stress & increase resilience

- Frequency: 1x/week for 2 hours

- Interventions
  - Psycho-education; meditation/relaxation training
  - Cognitive restructuring; Social skills training

- Military Considerations
  - Pressure to perform; Changing pace of military life
  - Frequently changing circumstances

Cognitive Behavioral Therapy of Insomnia

- Objective
  - Improve quality of sleep and daytime energy which may enhance ability to cope with pain and improve overall functioning

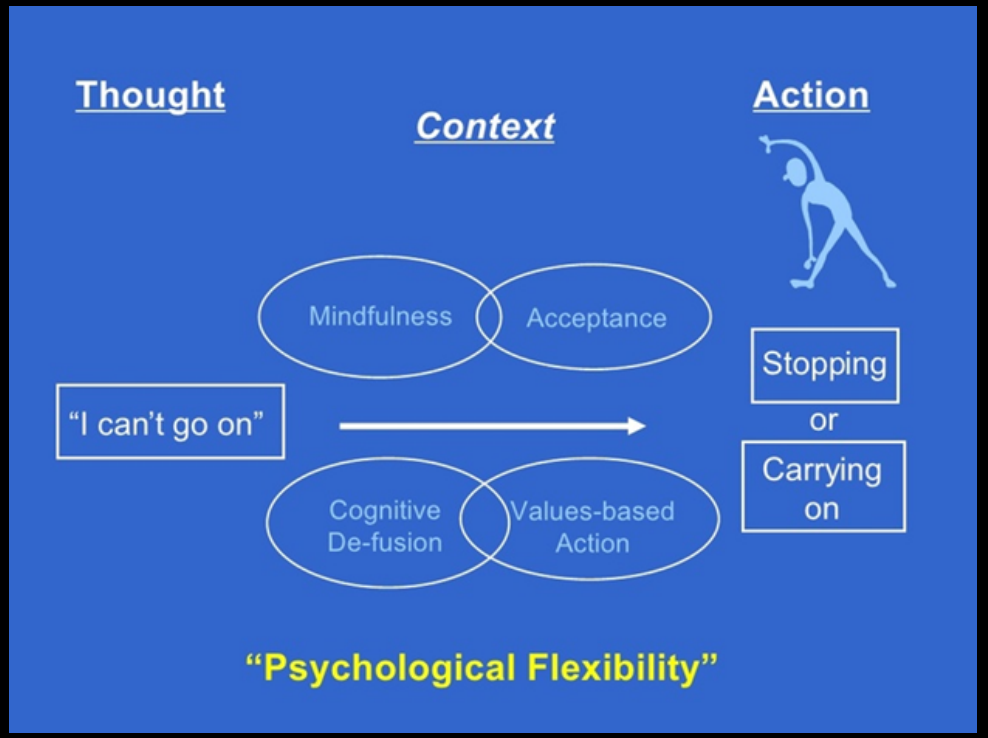
- Frequency: 1x/week for 2 hours

- Interventions
  - Daily Sleep Tracking
  - Sleep Restriction; Stimulus Control
  - Relaxation Strategies; Fatigue Management

- Military Considerations
  - Overnight Duty, Rotating Work Schedules, Deployments, etc.

Acceptance and Commitment Therapy

- Objective
  - Change the patients expectations from the elimination of pain to living as well as possible with pain
- Frequency: 1x/week for 2 hours
- Interventions
  - Acceptance and mindfulness
  - Values-based behavioral activation
- Military Considerations
  - Personal values vs. military values;
  - Acceptance vs. “pushing through pain”
  - Process vs. outcome



Physical Therapy – Individual Sessions

- Objective
  - Implement interventions and provide an individualized home exercise program
- Frequency: 2x/week, 1 hour each session
- Interventions
  - Patient Education; Manual Therapy; Therapeutic Exercise
  - Neuromuscular re-education and motor control
  - L/R Discrimination and Sensory Discrimination
  - Mock fitness test (based on military branch)

- Military Considerations
  - Interventions must also target patient's ability to pass bi-annual fitness test
  - Home exercise program must be able to be performed in barracks or on a ship
  - Unique physical demand of their assigned rate/MOS

Psychology – Individual Session

- Objective
  - To determine individualized patient-driven treatment plans complementing content and philosophy of the Functional Restoration Program

- Frequency: 1x/week, 1 hour each session

- Interventions
  - Suicide risk assessment and safety plan
  - Values clarification; Goal setting; Cognitive restructuring
  - Making connections between historical events and current pain experience
  - Facilitate problem solving regarding psychosocial stressors/boundary setting

- Military considerations:
  - Confidentiality; Stigma of seeking mental health treatment
  - Determining psychological fitness for duty

Pain Physician – Individual Meetings

- Objective
  - Responsible for all medical issues associated with pain complaint, including diagnoses and management of physiologic, anatomic and pathologic processes
- Frequency: 1x/week, 1 hour each session
- Interventions
  - Optimization of analgesic medications in collaboration with primary care provider
  - Provision of pain disease and neurophysiology education to patients
  - Minor therapeutic procedures. Collaborative care with affiliated primary care providers and Command
- Military considerations:
  - Determination of duty disposition of active duty service members

Demographics

- 4 Cohorts of 8 patients in 2019
- Age = 33.0 (22 – 46)
- Gender
  - 26 males (81.3%)
  - 6 females (18.7%)
- Branch
  - Navy – 26 (81.3%)
  - Marines – 5 (15.6%)
  - Coast Guard – 1 (3.1%)
- Years of Service = 11.1 (3 to 28)
- Rank
  - E1 – E3: 3 (9.4%)
  - E4 – E6: 21 (65.6%)
  - E7 – E9: 6 (18.8%)
  - O1 - O10: 2 (6.3%)

Program Completion and Fitness for Duty

- Completed the program
  - 94%: 30 of 32 participants
- Fit for Full Duty at Completion of FRPP
  - 90%: 27 of 30 participants who completed FRPP
- Fit for Full Duty 6 months following Completion of FRPP
  - 85%: 23 of 27 participants who were Fit for Full Duty after Completion of FRPP

	Week 1	Week 8	6 month Follow-up
Average Pain	4.58	3.39***	4.12

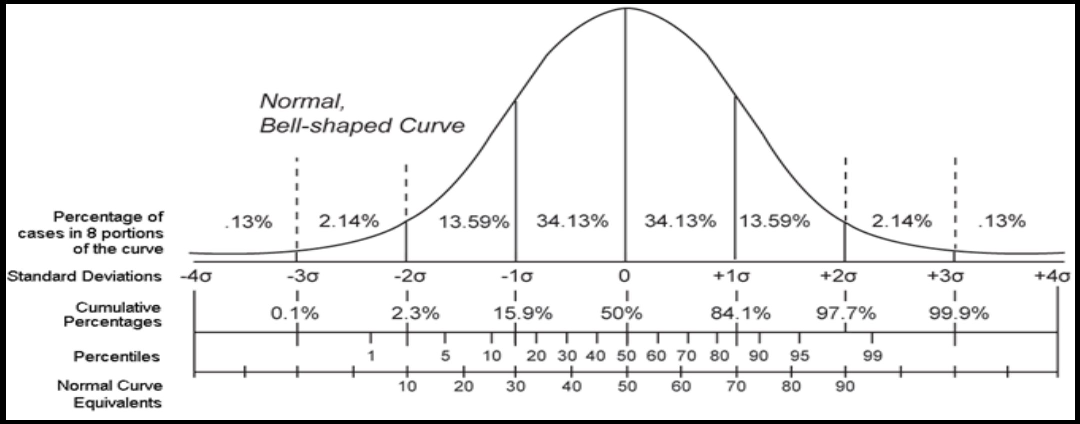
***$p < .001$, **$p < .01$, *$p < .05$

Outcomes: Psychosocial Measures

- NIH Patient-Reported Outcomes Measurement Information System (**PROMIS**) measures of:
  - * Pain Interference
  - * Physical Function
  - * Fatigue
  - * Sleep-Related Impairment
  - * Depression
  - * Anxiety
  - * Anger
  - * Social Satisfaction

PROMIS®

Dynamic Tools to Measure Health Outcomes from the Patient Perspective



Outcomes: Psychosocial Measures

PROMIS Scale	Week 1	Week 8	6 month Follow-up
Pain Interference	63.9	56.6***	57.8*
Physical Functioning+	40.3	48.9***	46.2***
Social Satisfaction+	40.4	50.3***	44.5*
Fatigue	63.1	54.3***	55.7***
Sleep Impairment	65.2	53.4***	57.8***
Depression	58.3	51.3***	55.7
Anxiety	61.6	53.9***	58.8
Anger	57.3	50.9***	54.2

+ Higher scores indicate better functioning/greater satisfaction
5 point change represents clinically significant difference
***$p < .001$, **$p < .01$, *$p < .05$

Outcomes: Pain Cognitions

- Pain Catastrophizing - The tendency to magnify the threat value of a pain stimulus, to feel helpless in the presence of pain, and a relative inability to prevent or inhibit pain-related thoughts in anticipation of, during, or following a painful event

- Kinesiophobia - An excessive, irrational and debilitating fear of physical movement and activity resulting from a feeling of vulnerability to painful injury or reinjury

- Pain Acceptance - The degree to which the person feels little need to avoid or control painful experiences and engages in life activities regardless of pain

- Pain Self-Efficacy -The expectation of success in performing behaviors required to meet a specific goal or outcome while in pain

Outcomes: Pain Cognitions

Scale	Week 1	Week 8*	6 month Follow-up
Pain Catastrophizing	23.7	9.9***	13.3***
Kinesiophobia	28.1	21.6***	21.2***
Pain Acceptance+	21.5	28.3***	26.6***
Pain Self-Efficacy+	32.2	47.3***	41.6**

+ Higher scores indicate better functioning/greater satisfaction
***$p < .001$, **$p < .01$, *$p < .05$

Outcomes: Physical Function Measures

Physical Function Measures:

- Functional Movement Screen (FMS)
- Five Time Sit-to-Stand Test (FTSST)
- Harvard Step Test (HST)
- Progressive Isoinertial Lifting Evaluation (PILE)

- Selected based on their use in prior studies, low cost, minimal time requirements, and functional application to the patient population's diverse work requirements
- All tests were performed by a licensed physical therapist

Outcomes: Functional Movement Screen

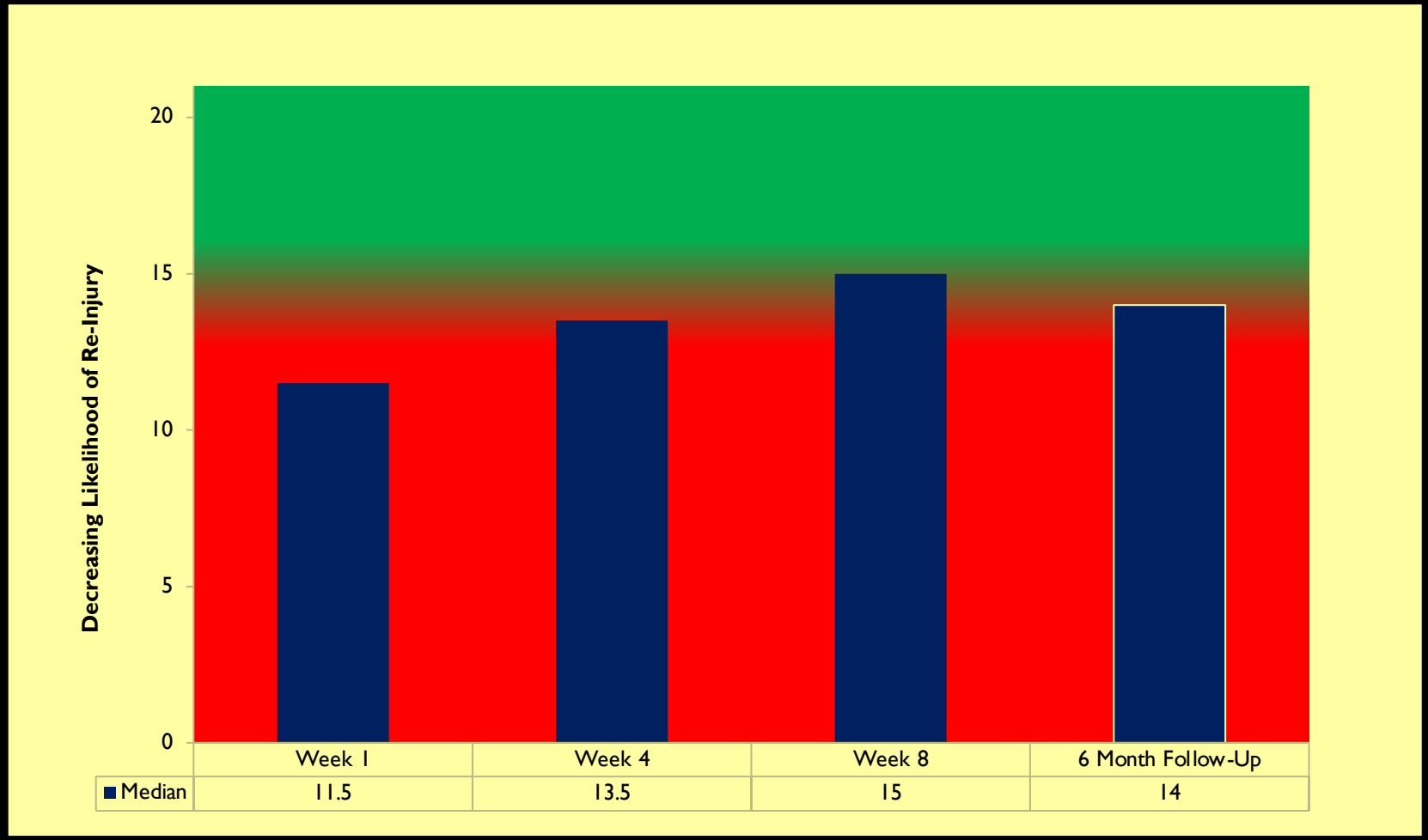
- **Purpose: Assess fundamental movement patterns of an individual**

- Description: Seven tests scored on a scale of 0-3, based on the quality of movement and common compensations
  - Overhead Squat
  - Hurdle Step
  - In-Line Lunge
  - Shoulder Mobility
  - Active SLR
  - Trunk Stability Push-Up
  - Quadruped Rotatory Stability

- Score: Total score of the 7 tests

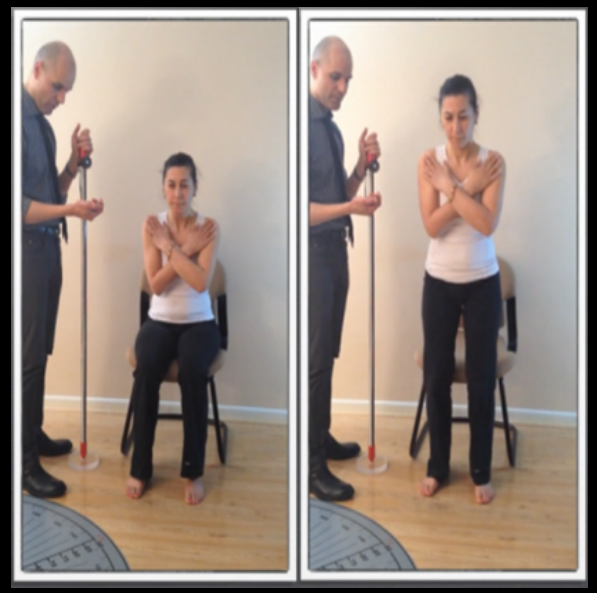
- Index Sample: 874 marine officer candidates in training
  - Scores ≤ 14 = 1.7 - 1.9 more likely to be injured than those with scores >14

Functional Movement Screen

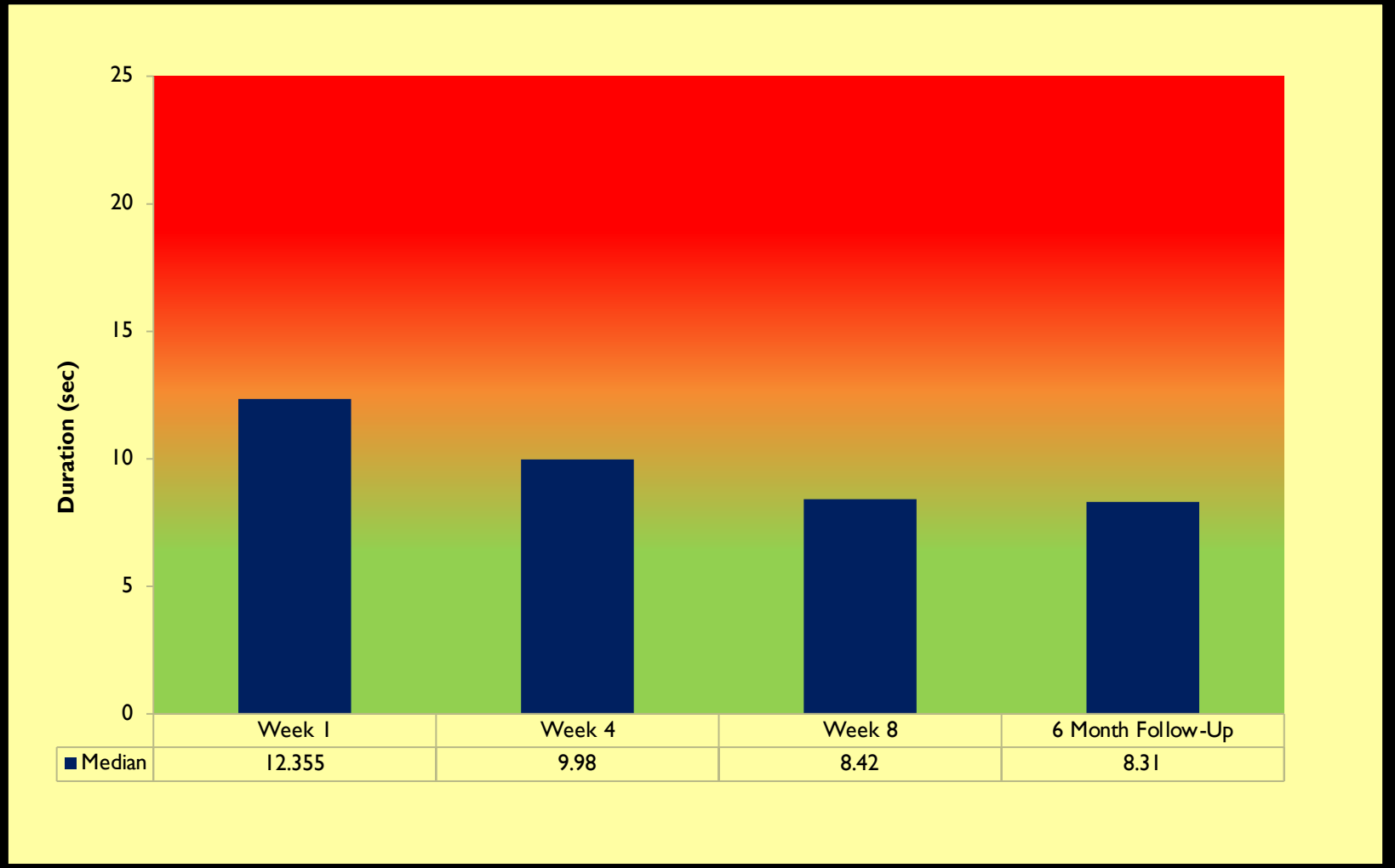


Outcomes: Five Time Sit-to-Stand Test

- **Purpose: Assess functional mobility and strength**
- Description: Stand up and sit down from a chair five times while being timed. Time ends when the subject stands for the 5th time
- Score: Total Time to complete 5 reps
- Index Sample: 2,735 ≥ 65 years old, in good health
  - Time >12 seconds = need assessment for a fall risk

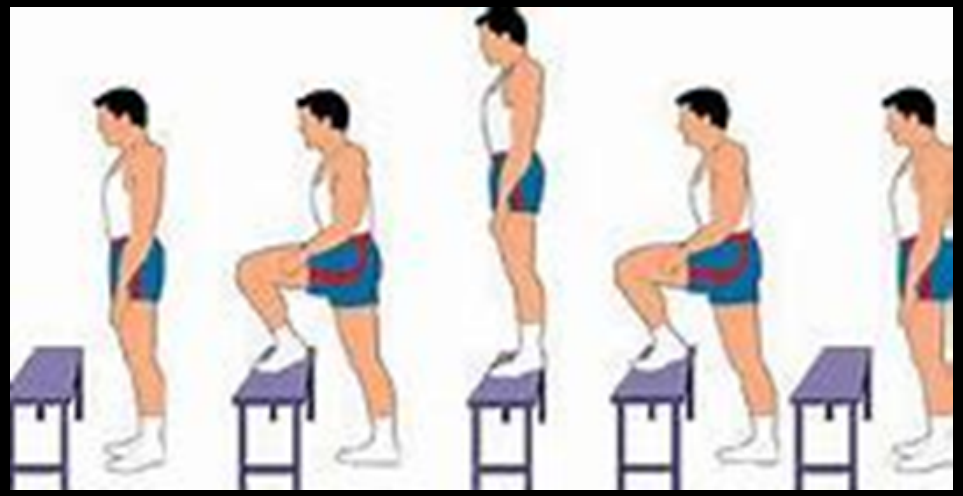


Five Time Sit to Stand

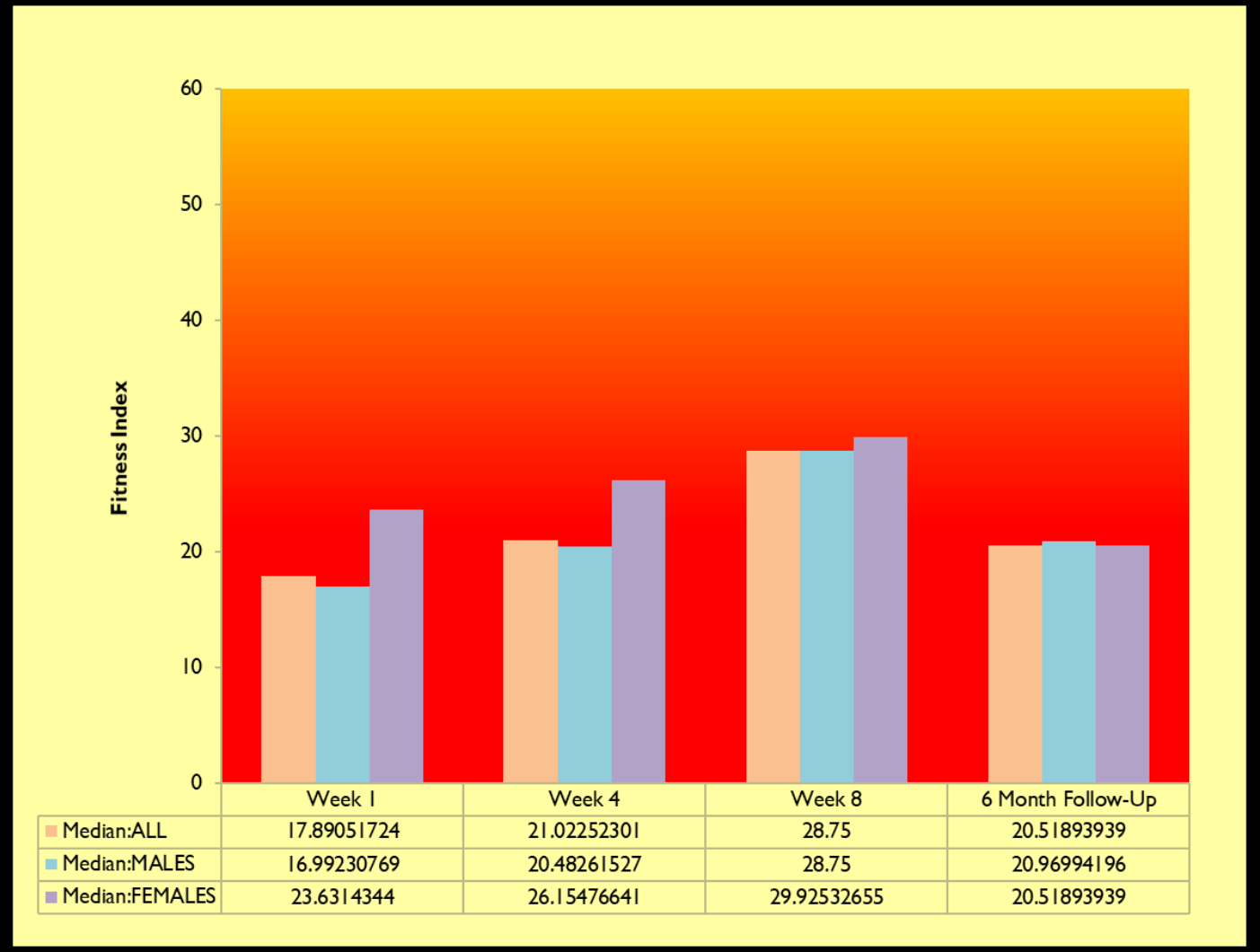


Outcomes: Harvard Step Test

- **Purpose: Assess the physical fitness of an individual**
- Description: Perform step-ups onto a box at a rate of 30x/minute. If unable to maintain step rate for 15 seconds, the test is stopped
- Score: Index based on time performing test and heart rate measured 3 times at 30 sec intervals beginning 1 minute post-test
  - Duration of Test(sec) x100/ 2x (sum of heart beats)
- Index Sample: 2,200 male Harvard students
  - Average score/index = 75
  - Range: 15-120
  - Poor: <55



Harvard Step Test



	Week 1	Week 4	Week 8	6 Month Follow-Up
Median:ALL	17.89051724	21.02252301	28.75	20.51893939
Median:MALES	16.99230769	20.48261527	28.75	20.96994196
Median:FEMALES	23.6314344	26.15476641	29.92532655	20.51893939

Progressive Isoinertial Lifting Evaluation

- **Purpose: Assess dynamic trunk strength and lifting capacity**
- Description: Lift box from ground to waist performing 4 reps within 20 seconds. If successfully completed, weight is added and another 4 reps are performed

- Score:
  - Final Force/weight lifted
  - Total Work = Sum of Forces Lifted x 10 ft
  - Based on gender and height, patient numbers are compared to original normative sample coefficients to determine % normal
- Index Sample: Mixed Blue and White Collar Industrial Sample
  - 62 Males: Age: 29.0 (+/- 9 yrs)
  - 31 Females: Age: 27.3 (+/- 7 yrs)

Progressive Isoinertial Lifting Evaluation

Scale	Week 1	Week 8	6 month Follow-up
Lumbar: Final Force	.514	.888***	.832***
Lumbar: Total Work	.361	.901***	.821***
Lumbar: Power	20.5	42.1***	41.8***
Cervical: Final Force	.524	.736***	.704***
Cervical: Total Work	.343	.623***	.573***
Cervical: Power	18.2	28.8***	29.6***
***$p < .001$, **$p < .01$, *$p < .05$			

Discussion

- High rates of successful return to full military status
- Significant improvements across multiple outcome measures post-treatment
  - Physical functioning (subjective and objective measures)
  - Emotional well-being
  - Pain Beliefs (Catastrophizing, Kinesiophobia, Acceptance, and Self-Efficacy)
- Significant improvements from pre-treatment to 6 months post-treatment
  - All objective measures of physical function
  - Pain Interference, Physical Functioning, & Social Satisfaction
  - Sleep & Fatigue
  - Pain Beliefs

Cost Savings

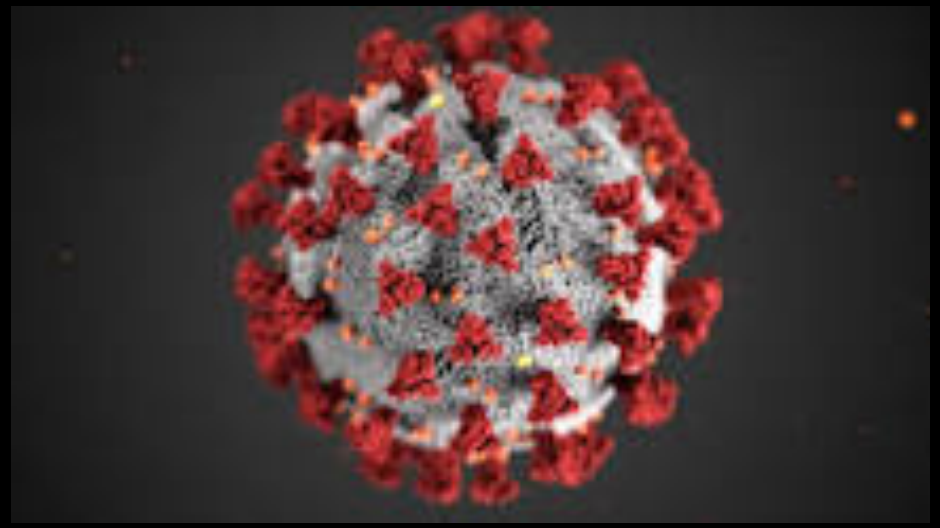
Study Conducted by Navy and Marine Corps Public Health Center (2017)

- Analysis of Healthcare costs:
  - 50 FRPP participants
  - 327 non-participants with chronic pain

  - FRPP participants $1,738 reduction from prior year
  - Non-participants $2,148 increase over comparable period

COVID-19 Modifications

- Provided through Virtual Platform
  - 12 hours per week
- Group
  - Pain Education/Nutrition
  - Movement Therapy/Circuit Training
  - Mind Body Medicine
  - Cognitive Behavioral Therapy of Insomnia
- Individual
  - Physical Therapist (1x/week) – In person
  - Psychologist (1x/week) - Acceptance and Commitment Therapy
  - Pain Physician (1x/ 2weeks)



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Thank you for your attention.

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