

Clinical Application of Tai Chi for PAIN MANAGEMENT

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Presentation Objective

This lecture will explore the evidence-based practice (EBP) of Tai Chi as a ***Meditative Movement Therapy for the Management of Persons with Persistent Musculoskeletal Pain Conditions.*** Participants will learn about a physical therapy clinical application of Tricia Yu's simplified Yang-style Tai Chi Fundamentals[®] (TCF[®]) program for the rehabilitation of persons with persistent pain conditions.



Pain Prevalence

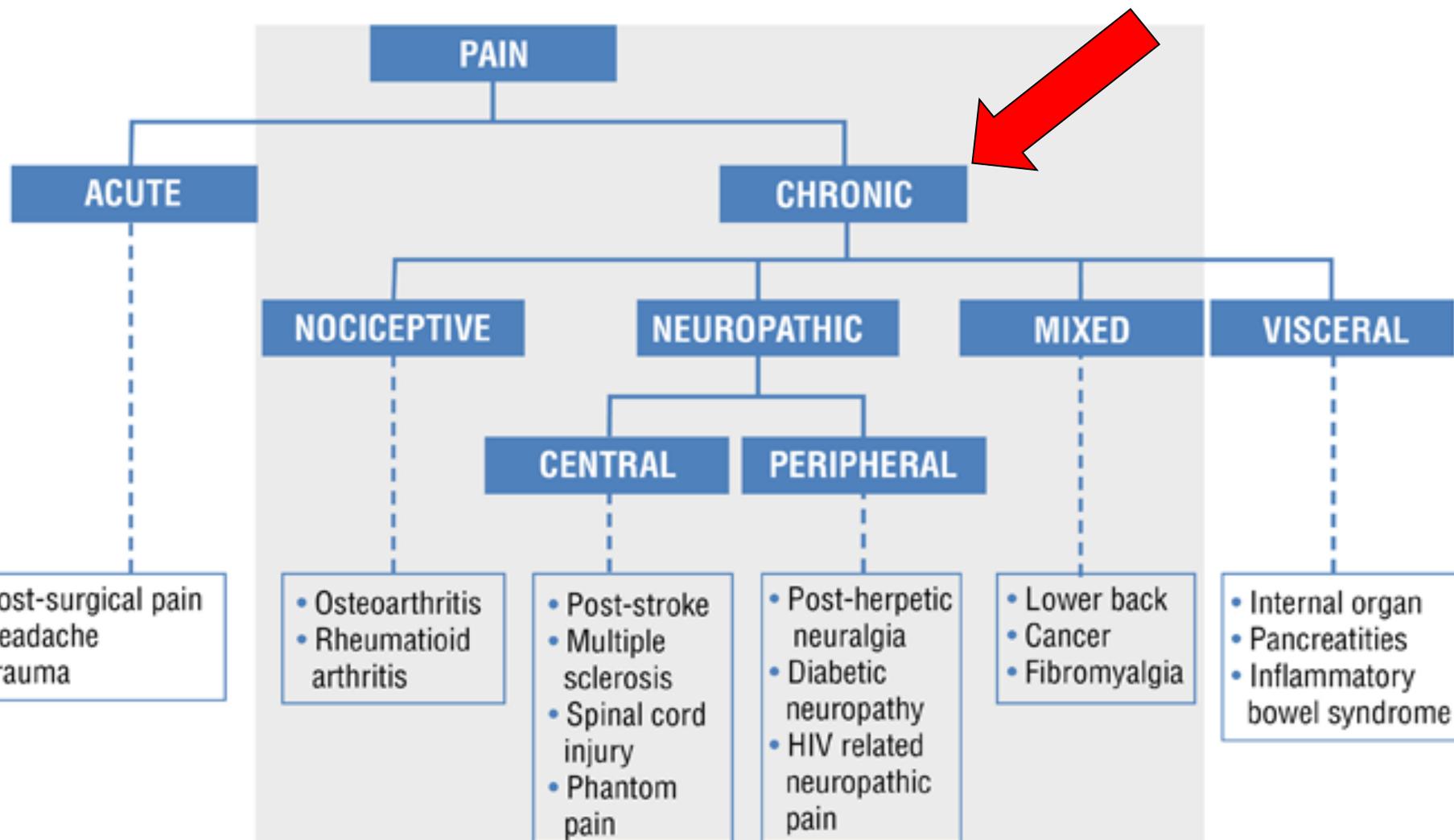
Chronic Pain affects
1.5 billion people worldwide

Chronic pain affects more people than diabetes, cancer and heart disease combined.



Classifying pain

TYPES OF PAIN



Musculoskeletal Pain: At-a-Glance

International Association for the Study of Pain (IASP) says, “Persistent musculoskeletal pain is fueled by worldwide trends, including:

- Aging populations
- Sedentary lifestyles
- Increasing incidence of obesity

Kinesophobia

Do you have a fear of movement or motion?

When
Moving
Hurts



Assess
Understand
Take Action

Fear-Avoidance Model of Chronic Pain

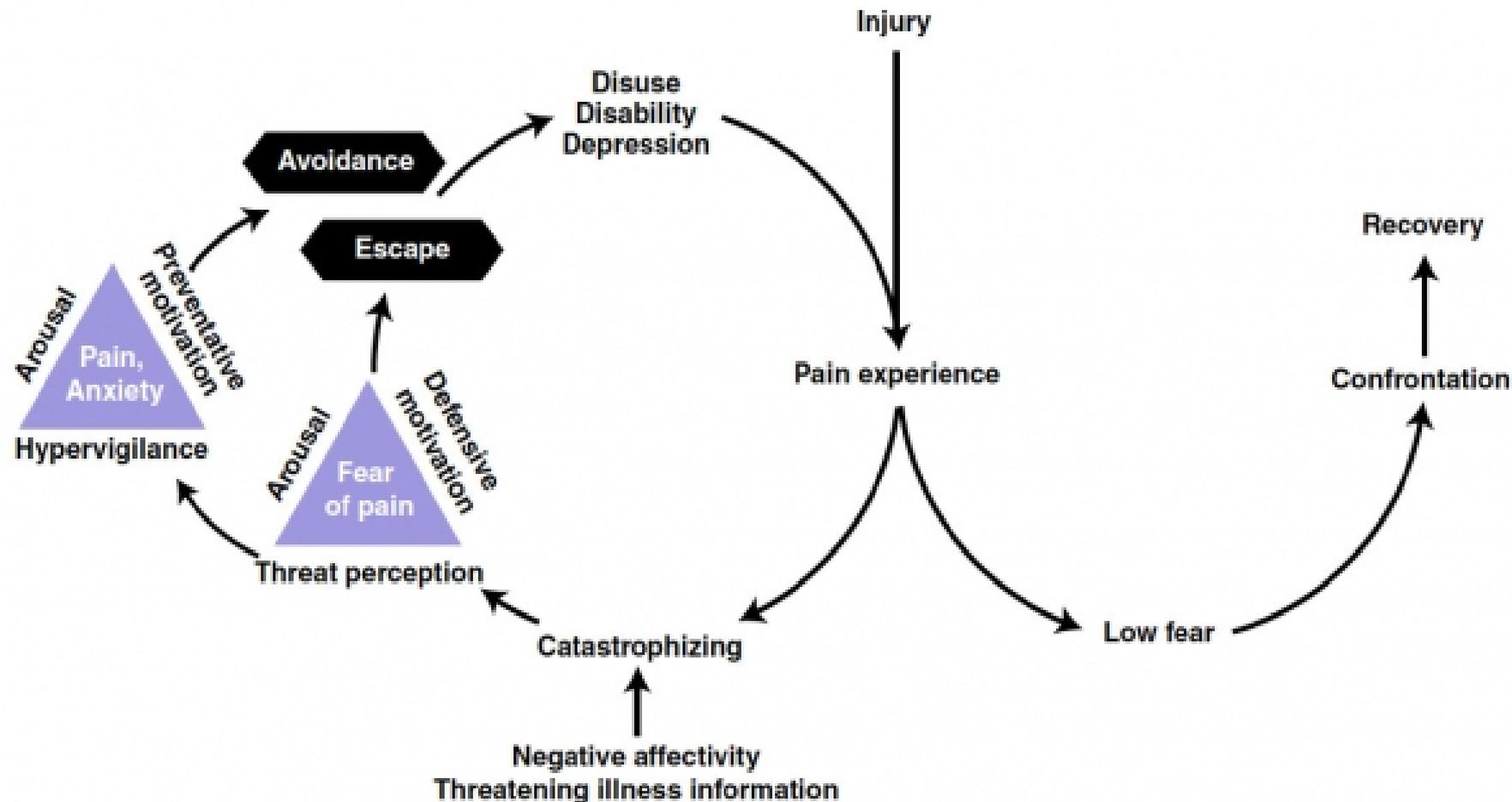


Figure 1. Graphical representation of the Fear-Avoidance Model of Chronic Pain.

Adapted with permission from Vlaeyen JWS, Linton T. Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. *Pain*. 2000;85(3):317-332.¹⁷ This figure has been reproduced with permission of the International Association for the Study of Pain (IASP). The figure may not be reproduced for any other purpose without permission.

Reprinted from Leeuw M, et al. The fear-avoidance model of musculoskeletal pain: current state of scientific evidence. *J Behav Med*. 2007;30(1):77-94.¹⁸

Managing Pain – The 5-step Approach

1. Medications (medical management)
 - Passive interventions are not the answer
 - Active interventions are better option
 - Surgery is not the best option for chronic pain
2. ***Explore how thoughts and emotions are affecting the nervous system (mind-body principles)***
3. Role of diet and lifestyle (e.g. smoking, alcohol, sleep hygiene, activity levels) sensitize the nervous system
4. Explore the deeper meaning of pain and personal stories; did a worrying period of life contribute to the overall pain picture?
5. ***Physical activity and function (exercise is medicine)***

Continuum of Pain Management

Physical Therapy & Exercise is the first-line of defense for management of pain

COMPLETE EVALUATION DIAGNOSIS

Physical Therapy
OTC Pain Medications
Exercise

FIRST TIER PAIN THERAPIES

NSAIDS
TENS
Cognitive &
Behavioral Therapies
Mobilization

SECOND TIER PAIN THERAPIES

Opioids
Neurolysis
Thermal Procedures
Injections

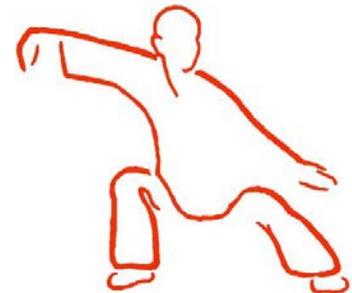
THIRD TIER PAIN THERAPIES

Spinal Cord Stimulation
Neuroablation
Surgical Intervention

THE PAIN TREATMENT CONTINUUM

Categories of Exercise for Pain

AEROBIC	STRENGTHENING	MEDITATIVE MOVEMENT
Walking	Weight machines, free weights and dumbbells	<i>Tai Chi Chuan</i>
Running	Body weight resistance	Qigong
Swimming	Isokinetic devices	Yoga

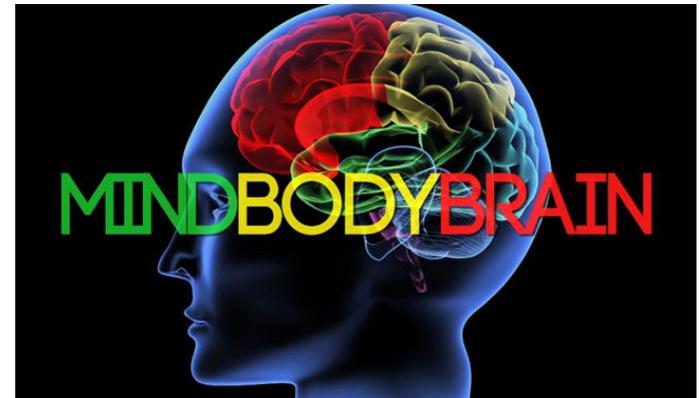


TC as Meditative Movement Therapy

Is a new category of exercise defined by:

- 1) some form of movement or body positioning
- 2) a focus on breathing
- 3) a calm state of mind

with the GOAL of ***deep states of relaxation***



Larkey et al. Meditative movement as a category of exercise:
Implications for research. *J Phys Activity & Health*, 2009;6:230-238.
Introduced at International Tai Chi Chuan Symposium, Nashville, TN (July 2009)

What does Tai Chi do?

Trains efficient, effective use of mental & physical energy

- Fosters a relaxed, alert state of mind
- Optimizes efficiency of movement
- Promotes appropriate decision making
- Reduces potential for physical injury



“Tai Chi and Pain”

ARTICLE TYPE	TOTAL N = 126	LAST 5 YRS N = 85
Randomized Control Trials	17	7
Reviews	48	33
Systematic Review	33	23

CONFLICTING DATA

- Meditative movement therapies (qigong, tai chi, yoga) are strongly recommended
- The quantity and the quality of CAM pain research studies are inconsistent

Lee & Ernst. Systematic Review of Tai Chi.
Br J Sports Med. 2012 Aug;46(10):713-8

Convincingly positive evidence for:

- Fall prevention
- Improvement of psychological health
- General health benefits for older people
 - Chronic health conditions
 - MSK and neurologic conditions
 - Function, **PAIN**, Strength
 - CV health



Peng PW. Tai chi and Chronic Pain.

Reg Anesth Pain Med. 2012 Jul-Aug;37(4):372-82.

- Tai Chi contributes to pain management in 3 major areas: 1) adaptive exercise, 2) mind-body interaction, and 3) meditation
- 5 Areas (138 articles)
 - Osteoarthritis
 - Low back pain
 - Fibromyalgia
 - Rheumatoid arthritis
 - Headache

Tai Chi seems to be an effective intervention for these 3 items

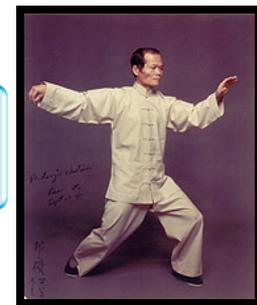
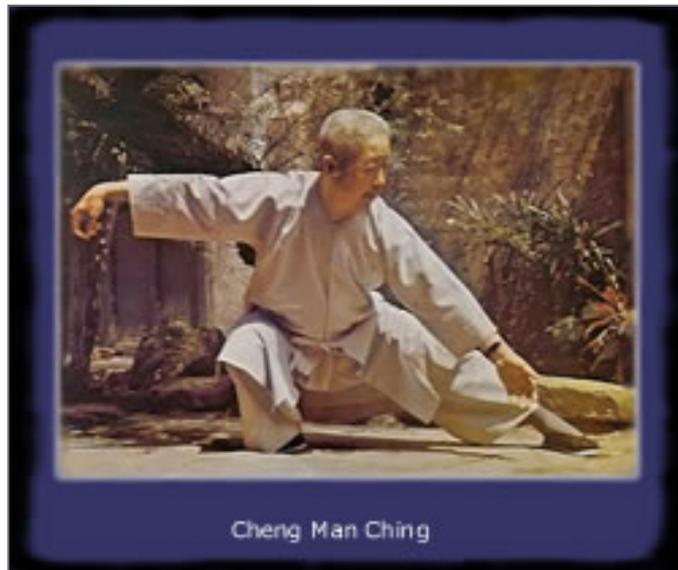
Tai Chi for Chronic Pain Conditions

Group Exercise Physical Therapy Class

- *Movement Awareness & Exercise Class for Patients with Chronic Conditions*
- Part of the multi-disciplinary pain management clinic (MD, Psychology, PT)
- 6-week class based on Tricia Yu's

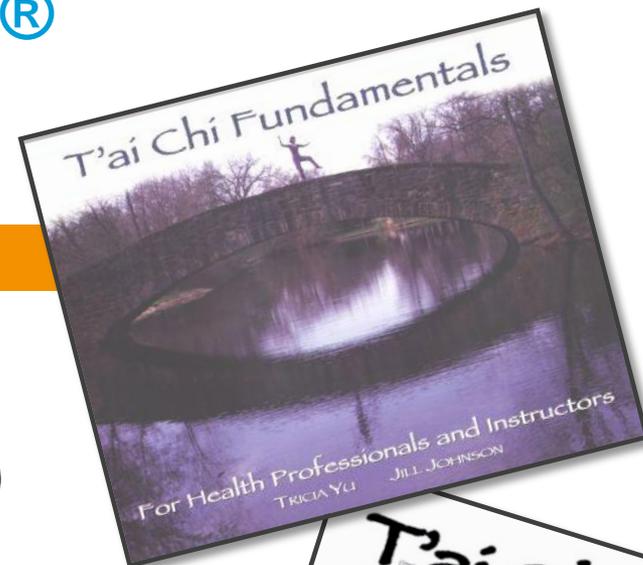


Modified YANG STYLE FORM Cheng Man Ch'ing Tai Chi Lineage



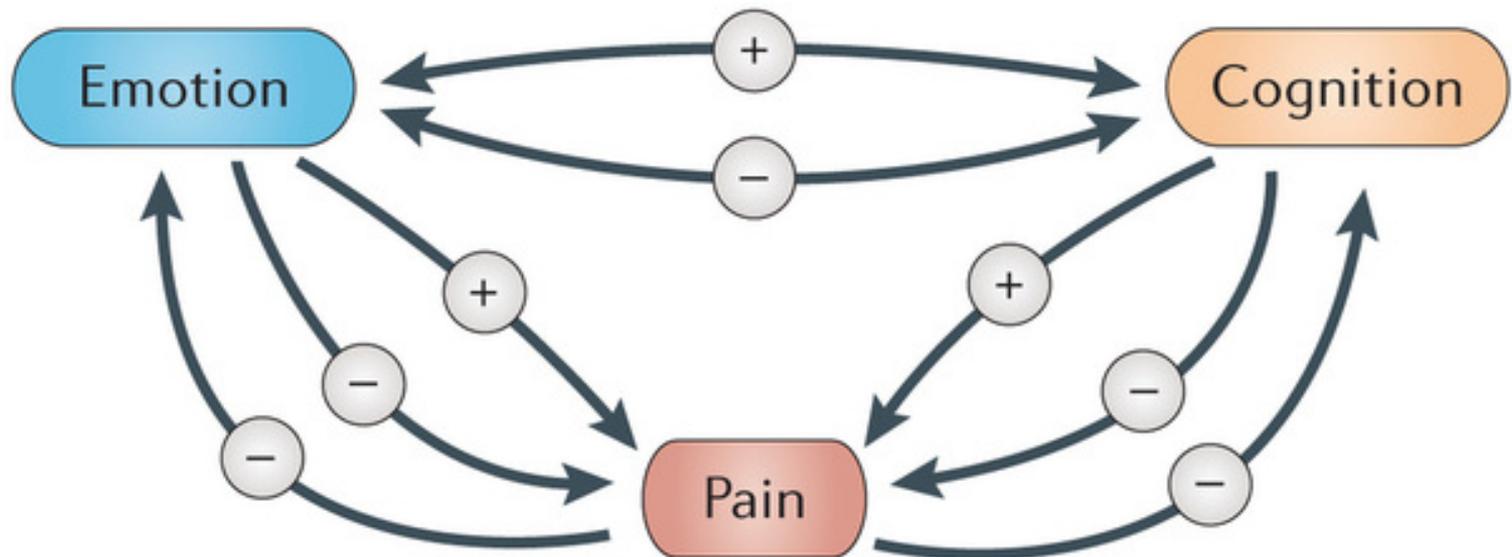
Tai Chi Fundamentals® Program Elements

- ***Mind-Body Skills (3)***
- ***Movement Patterns (16)***
- ***Modified TCF® Form***
- Guidelines for Practice (7)
- Biomechanical Analysis
- Therapeutic Applications
- Functional Applications
- Professional Certification
- Instructional Materials



Mind-Body Principles

Feedback loops between pain, emotions and cognition





HORSE STANCE (POSTURE)

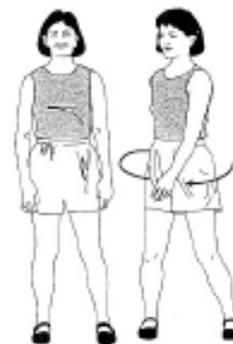
DIAPHRAGMATIC BREATHING

-ARM SWINGING-

CRANE TAKES FLIGHT

BEAR ROOTING

STABLE AND OPEN WITH GATHERING THE STARS



TAI CHI STANCE (70/30 STANCE)

BEAR WALK

TAI CHI FOLD

BASIC BEAR

MOVING THE MOON



SKI MOVE

FLYING CRANE

DANCING CRANE

TAI CHI STANCE WITH FOLD

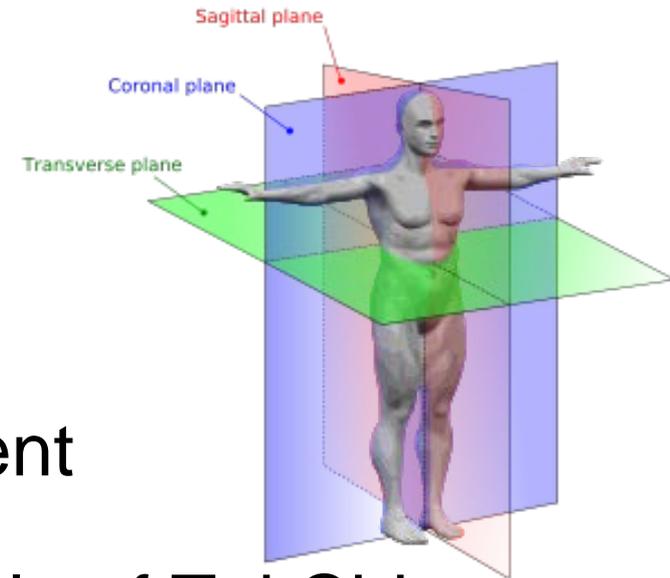
POWER STANCE (SOFTBALL PITCH)
-(SIMILAR TO BRUSH KNEE MOVE)-

TCF® Movement Patterns

DEVELOPMENTAL SEQUENCE

Sagittal ⇨ *Frontal* ⇨ *Transverse Planes*

- ❑ Trains postural alignment
- ❑ Fosters motor control
- ❑ Safe progression of movement
- ❑ Precursor to learning any style of Tai Chi



Movement Awareness & Exercise Class for Patients with Chronic Conditions

- **Wide Range of Participants (N \approx 150)**
 - Gender: Female > Male
 - Age: 11 – 90 years
- **Sample Diagnoses (including but not limited to...)**
 - Chronic musculoskeletal pain (LBP, OA, FMS, etc.)
 - Neurologic Diagnoses: PD, MS, Stroke
 - Pelvic floor dysfunction
 - Juvenile Rheumatoid Arthritis and Adult RA
 - Lower limb amputation

Movement Awareness & Exercise Class for Patients with Chronic Conditions

- **Referrals from many sources...**

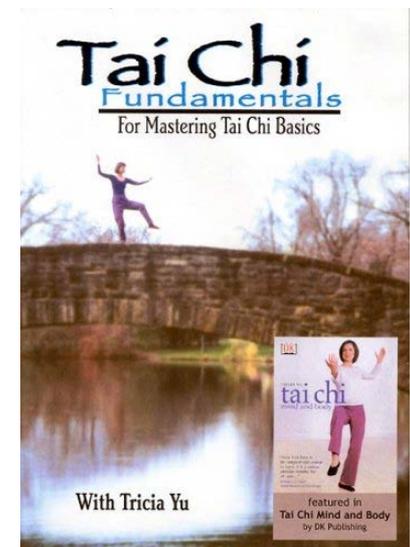
- Primary Care Physicians
- Orthopedic MDs/DOs
- Veteran's Administration MDs
- Pain Clinic
- Integrative Medicine Clinic
- Primary Care PTs & OTs
- Past clients



Movement Awareness & Exercise Class for Patients with Chronic Conditions

CLASS FORMAT

- **Participants** = 6 participants per class
- **Visits** = 5-, 6-, 8- or 10-session formats
- **60 minutes of exercise**
 - Warm-up, Training, Cool-down
 - Mind/body skills practice
 - TCF[®] movement patterns
 - TCF[®] form practice
- **Home Training (DVD optional) and community resources**



Movement Awareness & Exercise Class for Patients with Chronic Conditions

OUTCOMES

- **Improved weight-bearing tolerance** (monitored by number of seated rest breaks per exercise session)
- **Improved single-leg standing balance** (seconds)
- **Improved leg strength & transfers** (sit-to-stand via Chair test)
- **Decreased pain ratings** over single treatment and over the course of the training sequence
- **Outcome tools** (e.g. TUG, DGI, ABCs, FMS impact scale, Oswestry, etc.)

Movement Awareness & Exercise Class for Patients with Chronic Conditions

BILLING

- **ICD-10-CM Codes** **V 57.1** Physical therapy
- **CPT Codes for Physical Therapy Procedures**
 - **97150** Therapeutic procedures (2), **group** (2 or more individuals)
- **CPT Codes for Physical Therapy Procedures**
 - **97110** Therapeutic procedure, 1 or more areas, therapeutic exercises to develop strength, endurance, range of motion and flexibility
 - **97112** Neuromuscular reeducation of movement, **balance**, coordination, kinesthetic sense, posture, and/or proprioception for sitting and/or standing activities

Movement Awareness & Exercise Class for Patients with Chronic Conditions

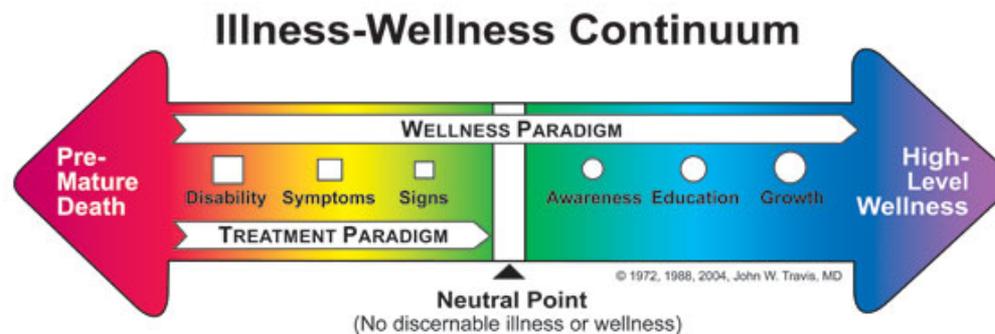
DOCUMENTATION linked to Billing Codes

- **Therapeutic Exercise (#1)**
 - ROM, Strength Training, Aerobic capacity
- **Neuromuscular Re-education (#2)**
 - **Balance**, coordination, kinesthetic sense, posture, and/or proprioception
- **Postural & Balance Training**

Each class session utilizes Templated Electronic Medical Record Notes

Tai Chi Integrates Mind & Body

Because Tai Chi practice encompasses exercises that promotes posture, flexibility, mental concentration, and is done in slow, and controlled fashion, it is **SAFE** for patients with chronic health conditions to perform.



Meditative Movement Therapies & Chronic Conditions

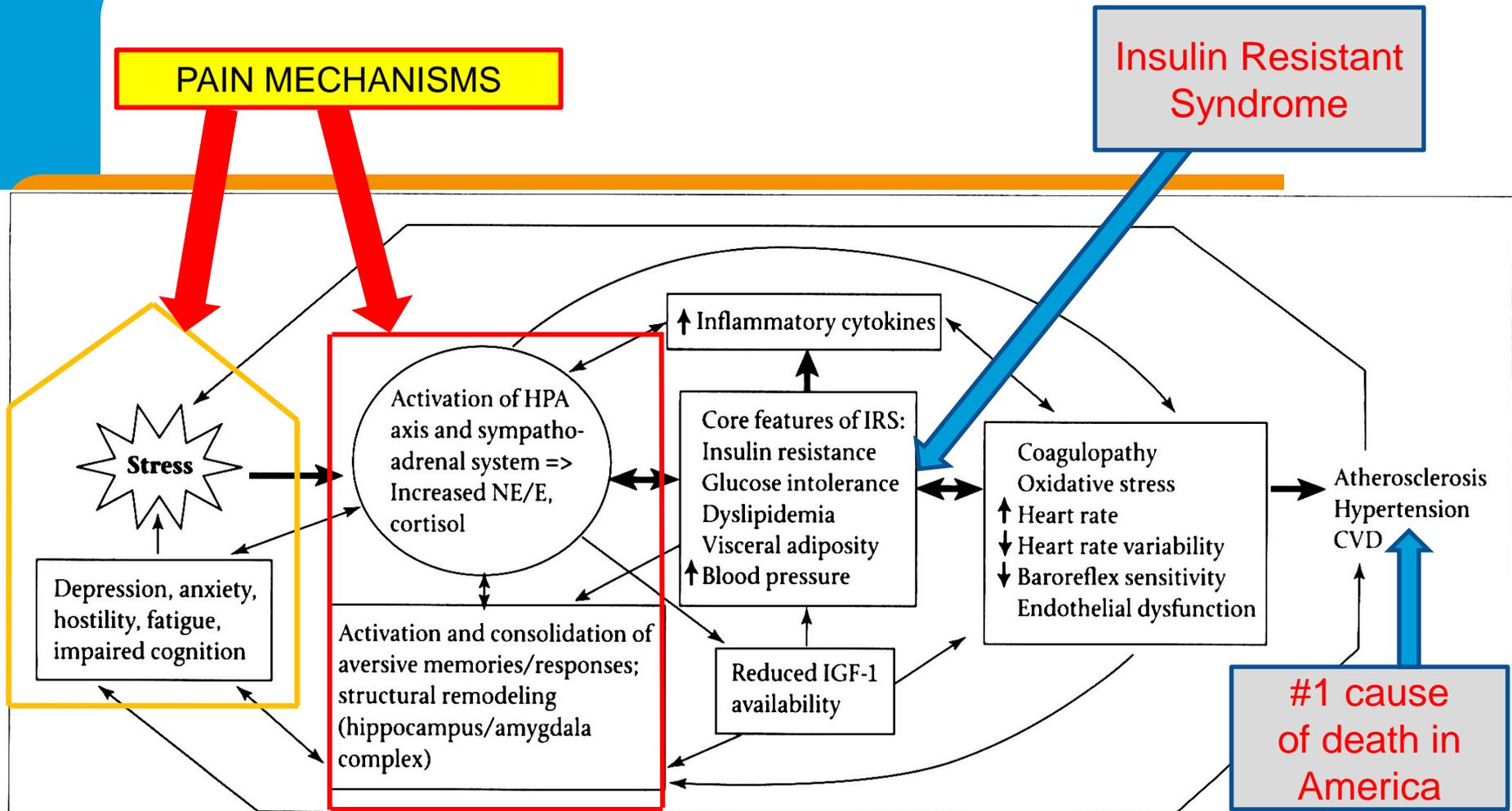


FIGURE 1 Pathological Sequellae of Chronic Stress: Possible Pathways*

*CVD indicates cardiovascular disease; E indicates epinephrine; HPA indicates hypothalamic pituitary axis; IGF indicates insulin-like growth factor; IRS indicates insulin resistance syndrome; NE indicates norepinephrine.

The Role of Mindfulness in Healthcare Reform: A Policy Paper

Mindfulness practices can be an important tool in addressing our public health problems.

"Awareness and meditation are, for me, fundamental to the deep change that is necessary for healing."

~James S Groden, MD





CONTACT INFORMATION

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BIO: Kristi Hallisy PT, DSc, OCS, CMPT, CTI

- Dr. Kristi Hallisy received a Bachelor of Science degree in Physical Therapy from the University of Wisconsin – Madison (1984), a Master of Science in Kinesiology from the University of Michigan – Ann Arbor (1992) and a Doctorate of Science in Physical Therapy from Andrews University in Berrien Springs, Michigan (2011). She is American Board of Physical Therapy Specialties certified specialist in orthopaedics (OCS), certified manual physical therapist (CMPT) and certified Tai Chi Fundamentals® Instructor (CTI).
- Dr. Hallisy is an assistant professor at the UW-Madison and her teaching responsibilities include musculoskeletal coursework, health promotion and wellness, orthotics and prosthetics. Her clinical appointment includes patient care at University Health Services (student health) and professional staff development at UW-Health Princeton Club East Outpatient PT Clinic. As part of the multi-disciplinary pain management clinic, Dr. Hallisy developed UW-Health's *Movement Awareness and Exercise Class for Patients with Chronic Conditions* based on tai chi mind-body principles.
- Dr. Hallisy also serves as a faculty member, instructor and mentor for the Post-Professional Orthopaedic Clinical Residency Program offered at the UW-Health and Meriter hospitals. Professionally, Dr. Hallisy provides service to the Wisconsin Physical Therapy Association (WPTA) as a member of the WPTA Board of Directors, Co-Chair of the Health Promotion and Wellness Committee and special liaison to the WPTA Continuing Education Committee.

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PubMed – 51 total articles
“tai chi and osteoarthritis”
A select few cited below

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