Clinical Application of Tai Chi for PAIN MANAGEMENT

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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.
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
Fear-Avoidance Model of Chronic Pain

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
# Categories of Exercise for Pain

<table>
<thead>
<tr>
<th>AEROBIC</th>
<th>STRENGTHENING</th>
<th>MEDITATIVE MOVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>Weight machines, free weights and dumbbells</td>
<td><em>Tai Chi Chuan</em></td>
</tr>
<tr>
<td>Running</td>
<td>Body weight resistance</td>
<td>Qigong</td>
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<tr>
<td>Swimming</td>
<td>Isokinetic devices</td>
<td>Yoga</td>
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</tbody>
</table>

*qi* energy

*gōng* cultivation
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

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”

<table>
<thead>
<tr>
<th>ARTICLE TYPE</th>
<th>TOTAL N = 126</th>
<th>LAST 5 YRS N = 85</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randomized Control Trials</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Reviews</td>
<td>48</td>
<td>33</td>
</tr>
<tr>
<td>Systematic Review</td>
<td>33</td>
<td>23</td>
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</tbody>
</table>

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

Main Lineages of Tai Chi Chuan: **Yang**, Chen, Wu, Sun, Wu Hao
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

Uncharted Country Publishing 2003
Feedback loops between pain, emotions and cognition
TCF® Movement Patterns

Images by Gail Janz, PT, and Betty Driesen PhD
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 ≈ 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

est. 2007 (Hallisy), 2010-present (Houdek)
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.)

Documented in Individual Medical Records
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.

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http://www.thewellspring.com/template_images/Illness-WellnessContinuumW.jpg
Meditative Movement Therapies & Chronic Conditions

PAIN MECHANISMS

Stress

Depression, anxiety, hostility, fatigue, impaired cognition

Activation of HPA axis and sympatho-adrenal system => Increased NE/E, cortisol

Activation and consolidation of aversive memories/responses; structural remodeling (hippocampus/amygdala complex)

Insulin Resistant Syndrome

#1 cause of death in America

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.

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

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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.
REFERENCES (Pain Reviews)

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MSK Pain Management

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FIBROMYALGIA SYNDROME
