I. What is Mind-Body Medicine?

• “the field of medicine that uses processes of the mind to influence the health of the body”
  • mind vs. body (perpetuate duality)
  • mind ↔ body (bidirectional reln)
• think of mind/body as a single entity, with the health of one part necessarily influencing the health of the other.

I. What is Mind-Body Medicine?

• NIH
  “Mind-body medicine focuses on the interactions among the brain, the rest of the body, the mind, and behavior and the ways in which emotional, mental, social, spiritual, experiential, and behavioral factors can directly affect health.”
I. What is Mind-Body Medicine?

• meditation
• guided imagery
• biofeedback
• hypnosis
• relaxation techniques
• yoga
• tai chi
• qigong
• more!

II. Yoga

• Description:
  – integrated series of physical postures, breathing exercises and meditation

• History:
  – India, ? 5,000 years old

• Styles: Iyengar, Ashtanga, Bikram, Viniyoga, Sivananda, Yin, Integrative Yoga Therapy, Kripalu, Integral

II. Yoga

Evidence: Cancer

• 25 RCT’s
• mostly breast CA
• heterogeneous, methodological problems, higher quality studies in last 4 years
• psychological outcomes with consistent and large effect sizes
• physical outcomes with inconsistent and small effect sizes
• Fatigue in particular has been studied in 13 RCT’s.

  – "Yoga may be beneficial for reducing cancer-related fatigue in women with breast cancer; however, conclusions should be interpreted with caution as a result of bias and inconsistent methods used across studies."
II. Yoga

**Effects of yoga on psychological health, quality of life, and physical health of patients with cancer: a meta-analysis.**
Lin KY, Hu YT, Chang KJ, Lin HF, Tsauo JY.
Evid Based Complement Alternat Med. 2011

Yoga as an alternative and complementary treatment for cancer: a systematic review.
Sharma M, Haider T, Knowlden AP.

Effects of yoga interventions on fatigue in cancer patients and survivors: a systematic review of randomized controlled trials.
Sadja J, Mills P.

**Evidence: Hypertension**

- 17 RCT's
- systolic blood pressure ↓ −4.17 mmHg
- diastolic blood pressure ↓ −3.62 mmHg
- Subgroup analyses demonstrated
  - ↓ BP for interventions incorporating all 3 basic elements of yoga practice (postures, meditation and breathing)
  - ↓ BP compared to no treatment but not compared to exercise.

Effectiveness of yoga for hypertension: systematic review and meta-analysis.
Hagins M, States R, Selfe T, Innes K.
Evid Based Complement Alternat Med. 2013

**Evidence: CV Risk Factors**

- 44 RCTs, n = 3,168 participants
- high or unclear risk of bias for most
- improved SBP, DBP, heart rate, respiratory rate, waist circumference, waist/hip ratio, total cholesterol, HDL, VLDL, triglycerides, HbA1c, and insulin resistance

Effects of yoga on cardiovascular disease risk factors: a systematic review and meta-analysis.

**Evidence: CAD Prevention**

- Primary Prevention
  - No study reported cardiovascular mortality or non-fatal events
- Secondary Prevention
  - no eligible RCTs

Yoga for the primary prevention of cardiovascular disease.
Hartley L, Dzyakova M, Holmes J, Clarke A, Lee MS, Ernst E, Rees K.

Yoga for secondary prevention of coronary heart disease.
Lae HL, Wacong JS, Yeung F, Chau PH, Woo J.
Cochrane Database Syst Rev. 2012 Dec 12;12:CD009506
II. Yoga

Evidence: Low Back Pain

- 10 RCT’s, n = 967 chronic low back pain patients
- 8 studies had low risk of bias
- strong evidence for short-term effects on pain, long-term effect on pain, back specific disability and global improvement
- moderate evidence for a long-term effect on back-specific disability
- no serious adverse events


II. Yoga

- Evidence: Psychiatry (anxiety and depression)
- Evidence: Pulmonary (COPD and asthma)


II. Yoga


III. Yoga

“When did everybody stop jogging?”
II. Yoga

Evidence: Adverse Events

- N = 76 (from 2 case series and 35 case reports)
- 27 (35.5%) musculoskeletal system; 14 (18.4%) the nervous system; and 9 (11.8%) the eyes.
- 10 with medical preconditions, mainly glaucoma and osteopenia.
- Headstand (10), shoulder stand (3), lotus position (3), forceful breathing (3)
- Majority of cases had full recovery

Adverse events associated with yoga: a systematic review of published case reports and case series.
Cramer H, Krucoff C, Dobos G
PloS One. 2013 Oct 16;8(10)

II. Yoga

Teacher Training/Certification

- Registered Yoga Teacher® (RYT) through Yoga Alliance
- RYT 200
- RYT 500 (plus 100 hours teaching experience)
- E-RYT 200 (plus 1,000 hours teaching experience and has taught for at least 2 years)
- E-RYT 500 (plus 2,000 hours teaching experience and has taught for at least 5 years)
- Look for additional degree e.g. RN, PT

II. Yoga

Styles

- Hatha (general term, focused on postures, basic)
- Viniyoga (personalized)
- Yin (quiet, relaxation of muscles)
- Iyengar (use of props, alignment, restorative)
- Integrative Yoga Therapy (medical, healing focus)
- Kripalu (self-awareness emphasis, gradual, 3 stages)
- Ashtanga (rigorous, “power yoga”)
- Bikram (“hot yoga”, rigorous)
- Sivananda, Integral (cultural elements)
- Key words: “restorative”, “gentle”, “therapeutic”

III. Tai chi

- **Description:** A gentle, meditative exercise that consists of flowing movements, balance and weight shifting, breathing, and body awareness.

- **History:** A martial art, exact origin obscure, centuries-old, monastic

III. Tai chi

**Evidence: Balance/Falls**

- 13 RCT's, n = 2151
- Sometimes active control, sometimes not
- 11 studies on balance (9+, 2-)
  - Tai chi always better than no tx, but not always better than active control
- 5 studies on falls (4+, 1-)
  - Large effect size (.85) then wanes with time (no effect at 52 weeks)

III. Tai chi

**Evidence: Cognitive Function in Elders**

- 20 studies (11 RCT's)
- Large effect size (0.9) when compared with nonintervention controls
- Moderate effect size (0.5) when compared with exercise controls
- RCTs of cognitively impaired adults (MCI and dementia) showed smaller (0.3) but statistically significant effect size when Tai Chi was compared with other active interventions

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III. Tai chi

Evidence: Parkinson’s Disease

- 7 RCT’s and 1 non-randomized controlled trial
- Tai Chi showed beneficial effects in improving motor function, balance and functional mobility, but not gait velocity, step length or gait endurance

Tai Chi for improvement of motor function, balance and gait in Parkinson’s disease: a systematic review and meta-analysis.

Evidence: Heart Failure (EF ≤ 45%)

- 5 RCTs, 4 CCTs, n = 364
- positive effects (RCTs): exercise capacity, global symptoms score, sleep, EF, SBP, DBP, BNP, baroreceptor sensitivity
- no effect (RCTs): walking distance, HRV

Tai chi exercise for patients with heart disease: a systematic review of controlled clinical trials.

Evidence: Adverse Events

- 50 trials included reporting of AE’s
- no serious AE’s
- majority of trials report no AE’s at all
- most common were minor musculoskeletal pains (knees, ankles, LBP)
- 9 falls

What Do We Really Know About the Safety of Tai Chi?: A Systematic Review of Adverse Event Reports in Randomized Trials.

Referral Tips:
- Teacher training/certification: There is no widely recognized, standardized teacher training or certification
- Lineage of master-to-student most important
- What are characteristics of that lineage?
- How many years experience?
- Language fluency optimal, but not critical
III. Tai chi

IV. Mindfulness Meditation

• Description: a way of paying attention to one’s experience that is deliberate, sustained and nonjudgmental. (Goals are to ↑self-awareness, change maladaptive thinking, ↑ capacity for skillful response to challenges, and ↓ suffering.)

  - 8-week class: body scan, mindful movement, sitting meditation

• History: 2,500 years ago, northern India, buddhism

  – 1979 Mindfulness-Based Stress Reduction (MBSR)

Evidence: Cancer

• 28 studies, 17 RCT’s with n > 2000
• all 23 studies that measured psych outcomes showed significant improvement (mood disturbance, anxiety, symptoms of stress, quality of life)
• 4 studies assessed sleep problems and all found improvement
• 3 meta-analyses corroborate the beneficial mental health effect of mindfulness in cancer patients.
• 2 other cancer studies showed that psychological benefits from MBSR were sustained at 6-month and 12-month follow-up
IV. Mindfulness Meditation

Evidence: Chronic Pain

- 18 studies, n > 1,100
- all showed significant improvement in mental health parameters, such as quality of life, acceptance, pain tolerance, and mood.
- 10 of the 16 studies examining pain intensity concluded there was significant pain reduction.
- 1 follow-up study showed that improvements were maintained up to 4 years later.

Do mindfulness-based interventions reduce pain intensity? A critical review of the literature.
Reiner K, Tibi L, Lipsitz JD.

Evidence: Fibromyalgia

- 6 trials of MBSR for fibromyalgia totaling 674 patients
- 2013 systematic review and meta-analysis concluded that there is favorable but low quality evidence supporting its use and that “only a weak recommendation can be made at this point”.

A systematic review and meta-analysis of mindfulness-based stress reduction for the fibromyalgia syndrome.
Lauche R, Cramer H, Dobos G, Langhorst J, Schmidt S.

Evidence: Depression

- 5 RCT’s of MBCT on patients with major depression
  - almost 50% relapse reduction in patients who have a history of more than two relapses.
- a trial of 51 patients with treatment-resistant depression showed ↓ depression and anxiety levels.
- MBCT recommended as tx for recurrent depression in the UK’s National Institute for Clinical Guidelines.
- 3 RCT’s of MBCT for bipolar affective disorder. 2+, 1-

Efficacy of mindfulness-based interventions on depressive symptoms among people with mental disorders: a meta-analysis
Kleinin-Yobas P, Cho MA, Creedy D.
IV. Mindfulness Meditation

Evidence: Depression
- A few dozen studies show benefit for depressive sx in stressed or general popns (fibromyalgia, traumatic brain injury, DM, cancer, healthy, etc.)
- 39 studies show mindfulness interventions are superior to standard care in ↓ depressive symptoms and preventing relapse with effect sizes ranging from 0.11 to 1.65.
- Effect sizes were significantly associated with the length of intervention sessions.


Evidence: Anxiety Disorders
- Diverse study popns (receiving pharmacotherapy, pregnant women, OCD, PTSD, intellectual disabilities, implanted cardiac defibrillators, coronary artery disease).
- 19 studies review and meta-analyzed.
- Overall effect sizes of 1.08 for anxiety symptoms, controlled studies 0.83.
- Conclusions: “MBIs are associated with robust and substantial reductions in symptoms of anxiety.”


Evidence: Adverse Events
- No formal literature review on this question.
- No adverse effects have been reported in >200 published trials.
- Meditation can allow previously subconscious, distressing psychic content to come into consciousness.
- Patients with psychiatric disorders should consult with a mental health care professional before starting a program of meditation.

Evidence: Telomerase Activity
- 5 RCT’s, n = 332
- Meta-analysis of 4 RCT’s (n=190) indicated that mindfulness meditation leads to increased telomerase activity in peripheral blood mononuclear cells (effect size of 0.46).
- 5th RCT (pub after meta-analysis) is large (n = 142) and has large effect size.


**IV. Mindfulness Meditation**

Referral Tips:
- Good candidate is motivated to increase self-awareness and/or has a medical, surgical, or psychiatric condition.
- Motivation important because: 1) 28 hours of classroom time required over 8 weeks (including an all-day silent retreat) and 30+ minutes of formal CD-guided mindfulness practice each day. 2) Asked to directly explore any unpleasant physical or mental experiences as they arise.
- Often MBSR programs offer free informational sessions.

**IV. Mindfulness Meditation**

Teacher training:
- Certification not required to teach.
- Several teacher trainings/certifications exist:
  - The Center for Mindfulness at UMass.
- An MBSR teacher should have a long-standing daily mindfulness meditation practice, experience with a mindful movement practice (e.g., yoga, qigong), experience leading groups, and experience in healthcare settings.

**Summary**

- **Yoga**
  - Cancer
  - HTN
  - LBP
  - Anxiety
  - Depression
  - COPD, Asthma

- **Tai Chi**
  - Balance/fall prevention
  - Cog fx elders
  - Parkinson’s Dz
  - CHF

- **Mindfulness**
  - Cancer
  - Chronic pain
  - Anxiety
  - Depression