

Yoga in Healthcare

The History

The Science

The Practice

October 6, 2016

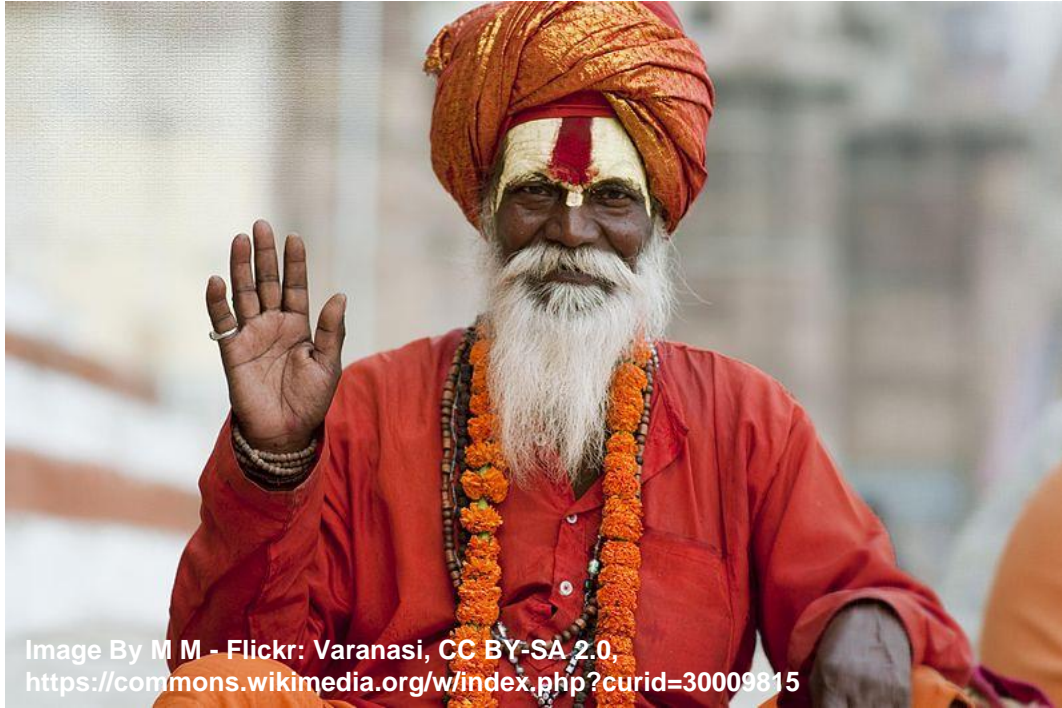
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evolution

PHYSICAL THERAPY + YOGA

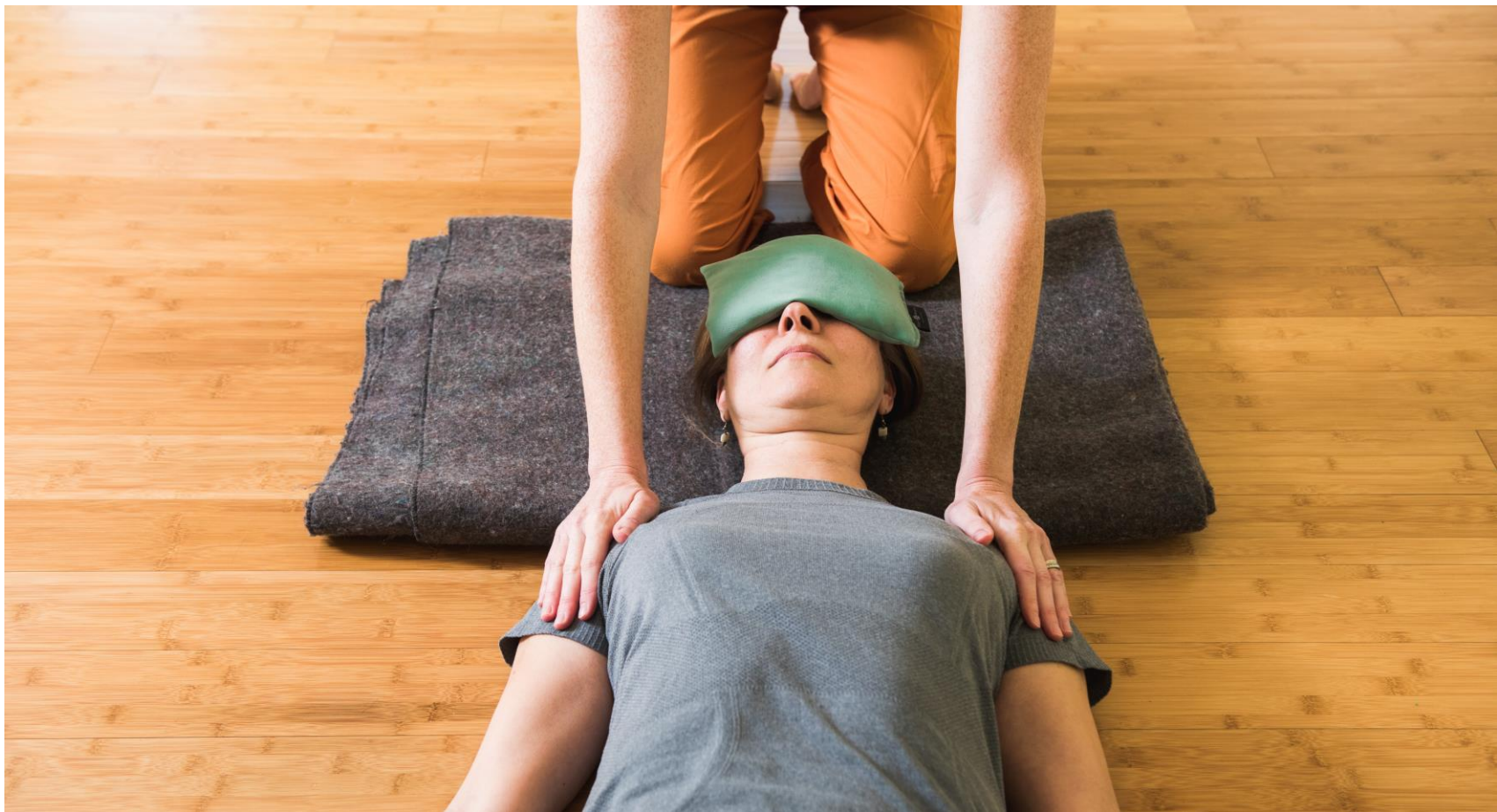
Transformation of Yoga



How did we go from Here – the mostly male sadhus or renunciants who began the practice of yoga



to Here – modern yoga as a popular athletic form of exercise with it's own line of clothing, jewelry and mats, practiced by mostly women.



To here: - where yoga is integrated into healthcare. All three of these groups are practice components of yoga and exist at the same time. But demonstrate different evolutions of yoga.

What is Yoga?

*Sutra 1.2: Yogas citta vritti nirodah;
yoga is the cessation of the fluctuations of the mind*

Yoga: derived from the Sanskrit root word yuj, which means “to join”, “to direct and concentrate one’s attention on”

Yoga is the science of the Self.



Origins



Mythology of Shiva

- First Yogi to achieve enlightenment
- Sent his 7 students to spread out and teach the practices of yoga

Historical Record

- First mentioned in vedic literature in 1500 BCE
- Practiced by ascetic monks who lived in the forests and caves of North western India and Pakistan
- Focus was on austere practices used transcend this world

One of six philosophy systems that originated India.

- **Samkhya**
- **Yoga**
- **Nyaya**
- **Vaisheshika**
- **Purva Mimamsa**
- **Vedanta**

Astanga Yoga

Origins

- Oral tradition kept secret and passed down by teacher to student

Text

- Yoga Sutra written by the Sage Patanjali in 2nd or 3rd Century CE
- Systematized components of practices from the 6 main philosophical systems as well as Buddhism and Jainism

Dualism– The world that we live in and the world of the divine are two separate things. With Yogic practices one can learn to transcend this world.



By User:Alokprasad - http://en.wikipedia.org/wiki/File:Patanjali_Statue.jpg, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=18095910>

Yoga Sutras – 8 Limbed Path of Yoga



Yama – ethical standards

Niyama – observances or qualities that nourish

Asana – physical postures

Pranayama – breath work

Pratyahara – restraint of the senses

Dharana - concentration

Dhyana - meditation

Samadhi – pure consciousness

Yoga Sutra 1.3 – [Through the practice of yoga] The seer rests in its true nature.

Tantric Yoga

Origins - Indus Valley (Pakistan and northwestern India) in the 5th century

Texts

- Shiva Sutras – 8th Century in a Text written down by the Sage Vasugupta.
- Vijnana Bhairava Tantra – Radiance Sutras

Non Dualism

- your true self exists in every particle in the universe
- everything that you do is a manifestation of the universe and will bring you closer to pure consciousness



Hatha Yoga – Forceful or Strong



Mayurasana - Peacock Pose

Hatha Yoga – has become the dominant style of yoga today. The style that is in most of the research studies and delivered in hospital or therapeutic based programs.

Origins – 13th century focus on physical practices including mudras, bandhas, asana, kriyas

Hatha Yoga Pradipika - 15th century text, outlines postures, breathing techniques, purification techniques and descriptions of the energy centers of the body.

Gheranda Samhita 17th century text that focuses on the Shat Kriyas – cleansing exercises for the internal organs

Siva Samhita - Most comprehensive text on yoga postures, includes philosophy, asanas, meditation, gurus, overcoming obstacles

Modern Hatha Yoga – A Blend of East and West

19th and 20th Centuries

- push internationally towards physical exercise. The Indian practice of yoga gained popularity as the pro independence movement grew.
- Tiruka (a.k.a. K. Raghavendra Rao) a member of the pro-independence movement traveled India disguised as a yogi to get past British authorities
- Trained revolutionaries in physical postures that were blended with Indian practices
- Later teachers Manick Rao and his students added physical postures that were rooted Scandinavian gymnastics and interpreted through the lens of hatha yoga



Singleton, M **The Roots of Yoga: Ancient and Modern**,
Yoga Journal Online Feb 2, 2011



Yoga as Medicine

Ayurveda: science of yoga, “life knowledge” based on elemental concepts

3 doshas – Vata, Pitta and Kapha that need to be in balance for good health.

Developed parallel to yoga 1500 – 500 BCE and uses yoga practices such as cleansing rituals, breath work, postures and meditation as treatment for disease.

Yoga and Ayurveda began to blend in the 19th and 20th Centuries as Yoga Therapy Clinics were developed

Modern Yoga Therapy

Tirumalai Krishnamacharya
1888-1998



- Ayurveda and Yoga Practitioner
- Popularized modern hatha yoga
- Developed a famous yoga therapy clinic in India
- Philosophy was to teach what was appropriate for the individual

Teacher of:

BKS Iyengar – Founder of Iyengar Yoga

Pattabhi Jois – Founder of Astanga Vinyasa Yoga

Indra Devi – Brought yoga to China, Hollywood and Mexico

T.K.V. Desikashar – Founder of Viniyoga

Hatha Yoga Styles - active

Astanga Vinyasa: (predetermined sequence) type of Hatha yoga consisting of 6 series and a specific sequence of postures, founded by K Pattabhi Jois in 20th century; 1948 Ashtanga Research Institute established in Mysore, India. Sometimes referred to as power yoga.

Bikram: (predetermined sequence) system of yoga popularized in the 1970's, founded by Bikram Choudhury; derived from hatha yoga; beginner classes are 90 min. and follow the same sequence of 26 postures, in a heated room (104 deg F]; and taught by Bikram-certified teachers who complete a 9 week training

Hot Yoga: a heated room (temperature varies from 90-110); postures can be held OR can be more of a vinyasa flow sequence; conditions and classes vary greatly from teacher to teacher

Vinyasa: also known as flow; type of Hatha yoga that uses connecting asanas without use of specific series;

Power Yoga: a more vigorous, fitness based approach to vinyasa style yoga; modeled from the Ashtanga system (Baptiste, Powers, Bender-Birch)

Iyengar: a form of Hatha yoga established by & named after BKS Iyengar; emphasis on structure, alignment and strength; heavy use of props to reduce student risk of injury and strain.

Hatha Yoga Styles - slower paced

Restorative: emphasizes breathing techniques, poses are held for longer periods of time & promote support & relaxation through the use of props, uses mindfulness techniques

Yin: slow-paced style that focuses on placing moderate stress to connective tissues to increase circulation and improve flexibility; postures are held up to 5 minutes at a time. Founded in 1970's by Paulie Zink, a martial artist.

Viniyoga: refers to the therapeutic and more individualized style of hatha yoga that was taught by TKV Desikachar (son of T Krishnamacharya), with an emphasis on adapting the practice to the particular situation/ individual; he later distanced himself from the term; Gary Kraftsow is founder and director of the American Viniyoga Institute & offers trainings and classes in this tradition

Kripalu: gentle to moderate paced flowing style which incorporates breath work and observing the activity of the mind during the practice.

Chair: Any style of yoga, modified to be done while sitting in a chair, or poses can be done in standing, but the chair is available to assist with balance

Therapeutic Styles of Yoga

Iyengar Yoga

Kripalu

Viniyoga

Restorative

Chair



Experience Yoga – Finding Your Seat



Yoga Class or Yoga Therapy?

Yoga Class - often has a therapeutic benefit, but has a wide target audience

Yoga Styles with a Therapeutic Element - some styles are alignment focused or may have a therapeutic theme designed towards a narrow target audience

Yoga Therapy - one on one session with evaluation and development of a yoga sequence as a prescription to address a specific need



Essential Components of a Yoga Class



Centering - usually done sitting on the floor, but can be done in a chair, body/ self scan

Pranayama - breath work, improve the function of the muscles that control the breath, increase lung capacity and lung function

Asana - postures designed to prepare the body for meditation. Should include, forward/back bends, standing, twisting, seated, inversions and neutralizing poses.

Savasana - final relaxation for minimum of 5 minutes to integrate new information, preparation for sitting

Meditation - focusing the mind on breath or mantra

Yoga Therapy



International Association of Yoga Therapists (IAYT)

“Yoga therapy is the process of empowering individuals to progress toward improved health and wellbeing through the application of the teachings and practices of yoga”.

East Meets West



Biopsychosocial Approach to Healthcare

Whole person approach

- Biological
- Psychological
- Social



Yoga and the Biopsychosocial Approach



There is an Indian proverb that says that everyone is a house with four rooms, a physical, a mental, an emotional and a spiritual. Most of us tend to live in one room most of the time but, unless we go into every room every day, even if only to keep it aired, we are not a complete person. - Rumer Godden, A House with Four Rooms

Experience Yoga – Pranayama



The Science of Yoga - Standardizing the Study of Yoga

Ward, L., Stebbings, S., Sherman, K. J., Cherkin, D., & Baxter, G. D. (2014). **Establishing key components of yoga interventions for musculoskeletal conditions: a Delphi survey.** *BMC Complementary And Alternative Medicine*, 14(196). doi:10.1186/1472-6882-14-196

Purpose: To address issues of heterogeneity, by developing a list of recommendations of key components for the design and reporting of yoga interventions for musculoskeletal conditions.

Methods: a Delphi survey of 41 yoga experts underwent 3 rounds of questionnaires to make recommendations for the content and reporting of clinical yoga interventions for musculoskeletal conditions.

Results: 36 (88%) of panelists completed the three rounds. Agreed upon 5 themes and 33 parameters that should be included when studying yoga interventions.

1. Defining the Yoga Intervention (dosage)
2. Types of Practices to Include
3. Delivery of the Protocol
4. Domains of Outcome Measures to Include
5. Reporting of Yoga for Musculoskeletal Interventions

The Safety of Yoga

Cramer, H., Ward, L., Saper, R., Fishbein, D., Dobos, G., & Lauche, R. (2015). **The Safety of Yoga: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.** *American Journal Of Epidemiology*, 182(4), 281-293.

Purpose: To systematically assess and meta-analyze the frequency of adverse events in RCT of yoga

Methods: All RCT through Feb. 2014 were searched, 301 RCT were identified; 94 reported on adverse events. Included studies compared yoga to no treatment, usual care or active treatment .

Results: No differences in the frequency of intervention-related, non-serious, or serious adverse events and of dropouts due to adverse events were found when comparing yoga with usual care or exercise. Compared with psychological or educational interventions, more intervention-related adverse events (odds ratio = 4.21, 95% confidence interval: 1.01, 17.67; P = 0.05) occurred in the yoga group; serious adverse events and dropouts due to adverse events were comparable between groups.

Authors conclusion: “Findings from this review indicate that yoga appears as safe as usual care and exercise. ***The adequate reporting of safety data in future randomized trials of yoga is crucial to conclusively judge its safety.***”



Yoga as Medicine

Yoga Therapy the next great yoga wave.

The NIH is now funding studies to learn more about the effectiveness of yoga. NCCIH - National Center for Complementary and Integrative Health

Science of Yoga – Yoga for Asthma

Yang ZY¹, Zhong HB, Mao C, Yuan JQ, Huang YF, Wu XY, Gao YM, Tang JL. **Yoga for Asthma.** Cochrane Database Systematic Review. 2016 Apr 27;4

Purpose: To assess the effects of yoga in people with asthma.

Methods: Searched all databases from their inception to 22 July 2015, and used no restriction on language of publication. Included randomized controlled trials (RCTs) that compared yoga with usual care (or no intervention) or sham intervention in people with asthma and reported at least one of the following outcomes: quality of life, asthma symptom score, asthma control, lung function measures, asthma medication usage, and adverse events.

Results: included 15 RCTs with a total of 1048 participants mild to moderate asthma for six months to more than 23 years. There was some evidence that yoga may improve quality of life (MD in Asthma Quality of Life Questionnaire (AQLQ) score per item 0.57 units on a 7-point scale, 95% CI 0.37 to 0.77; 5 studies; 375 participants), improve symptoms (SMD 0.37, 95% CI 0.09 to 0.65; 3 studies; 243 participants), and reduce medication usage (RR 5.35, 95% CI 1.29 to 22.11; 2 studies) in people with asthma.

Conclusions: We found moderate-quality evidence that yoga probably leads to small improvements in quality of life and symptoms in people with asthma.

The Science of Yoga - Stress

Lin SL, Huang CY, Shiu SP, Yeh SH **Effects of Yoga on Stress, Stress Adaption, and Heart Rate Variability Among Mental Health Professionals--A Randomized Controlled Trial**

Worldviews Evid Based Nurs. 2015 Aug;12(4):236-45.

PURPOSE: to examine the effects of yoga classes on work-related stress, stress adaptation, and autonomic nerve activity among mental health professionals.

METHODS: A single blind, parallel arm, randomized controlled trial, compared the outcomes between the experimental (e.g., yoga program) N=30 and the control groups (e.g., no yoga exercise) N=30 for 12 weeks. Work-related stress and stress adaptation were assessed before and after the program. Heart rate variability (HRV) was measured at baseline, midpoint through the weekly yoga classes (6 weeks), and post-intervention (after 12 weeks of yoga classes).

RESULTS: the yoga group experienced a significant reduction in work-related stress ($t = -6.225, p < .001$), and a significant enhancement of stress adaptation ($t = 2.128, p = .042$). Participants in the control group revealed no significant changes. Comparing the mean differences in pre- and posttest scores between yoga and control groups, the yoga group significantly decreased work-related stress ($t = -3.216, p = .002$), but there was no significant change in stress adaptation ($p = .084$). While controlling for the pretest scores of work-related stress, participants in yoga, but not the control group, revealed a significant increase in autonomic nerve activity at midpoint (6 weeks) test ($t = -2.799, p = .007$), and at posttest (12 weeks; $t = -2.099, p = .040$).

CONCLUSIONS: yoga classes can be an effective strategy to help health professionals reduce their work-related stress and balance autonomic nerve activities.

Experience Yoga - Meditation



Five Steps to Meditation

1. Establish a steady posture that leads to a feeling of stillness
2. Develop relaxed diaphragmatic breathing
3. Relax systematically; finish by breathing as if the whole body is breathing
4. Establish breath awareness in the nostrils
5. Use a mantra to refine your inner focus

Desired Effect

- Calm the nervous system
- Reduce pain
- Focus the mind

Adapted from the book: Moving Inward: The Journey to Meditation

by Rolf Sovik 2005· Himalayan Institute Press ·

The Science of Therapeutic Yoga - Meditative Mind

Boccia, M., Piccardi, L., & Guariglia, P. (2015). **The Meditative Mind: A Comprehensive Meta-Analysis of MRI Studies.** *Biomed Research International*, 2015419808.

Purpose: To draw conclusions about the neural network activated during meditation tasks and to explore functional (fMRI) and structural (sMRI) changes in expert meditators.

Study Design: Meta-analysis

Methods: Included studies: 37 individual fMRI experimental studies on functional activations during meditation tasks (642 participants), 63 fMRI experimental studies on functional changes ascribable to meditation (1,652 participants including meditators & controls), and 10 experimental sMRI studies on structural changes ascribable to meditation (581 participants).

Results: Meditation leads to activation in brain areas involved in processing self-relevant information, self-regulation, focused problem-solving, adaptive behavior & induces functional and structural brain modifications in expert meditators, especially in areas of the brain connected with self-awareness and self-regulation, as well as in areas involved in attention, executive functions and memory formations.

Clinical Applications: Meditation techniques could be adopted in clinical populations and to prevent disease, especially in at-risk populations such as the elderly.

The Science of Therapeutic Yoga – Brain Grey Matter

Villemure, C., Čeko, M., Cotton, V. A., & Bushnell, M. C. (2015). **Neuroprotective effects of yoga practice: age-, experience-, and frequency-dependent plasticity.** *Frontiers In Human Neuroscience*, 9281.

Purpose: To evaluate whether the number of years of yoga experience, the amount of weekly yoga practice, and the different aspects of yoga practice impact specific brain regions (gray matter (GM) volume).

Methods: 14 experienced yogis and 14 matched controls in Montreal. MRI assessment to compare age-related gray matter (GM) decline in yogis and controls.

Results: Long-Term Yoga Practice May Have Prevented the Typically Observed Age-Related Decline of GM In controls, whole brain GM negatively correlated with age [GM volume $p = 0.004$]. In yogis there was no such correlation [GM volume $p = 0.539$]. However, the differences in slopes did not reach statistical significance (group x age interaction: $p = 0.123$). Subcomponents of Weekly Yoga Practice Differentially Predict GM Volumes in the Brain Areas Found to Correlate with Total Weekly Yoga Practice. The prediction models for all four regions using all three predictors were statistically significant.

Conclusions: Regular practice of yoga may have neuroprotective effects against whole brain age-related GM decline; regular (weekly) yoga practice is associated with larger brain volume in areas involved in bodily representation, attention, self-relevant processing, visualization and stress regulation.

Science of Yoga – Grey Matter Density in the Brain

Britta K. Hölzel, James Carmody, Mark Vangel, Christina Congleton, Sita M. Yerramsetti, Tim Gard, and Sara W. Lazar (2011) **Mindfulness practice leads to increases in regional brain gray matter density.** Psychiatry Res. Jan 30; 191(1): 36–43.

Purpose: to investigate pre-post changes in brain gray matter concentration attributable to participation in an MBSR program.

Methods: Anatomical MRI images from sixteen healthy participants, and 17 matched controls that were meditation-naïve were obtained before and after they underwent the eight-week program that met for 2.5 hours each week and had one 6.5 hour session at week six. Sessions consisted of body scan, mindful yoga and mindfulness meditation. Participants received audio recordings containing 45-minute guided mindfulness exercises (body scan, yoga, and sitting meditation) that they were instructed to practice daily at home. Changes in gray matter concentration were investigated using voxel-based morphometry.

Results: Increases in gray matter concentration within the left hippocampus. Whole brain analyses identified increases in the posterior cingulate cortex, the temporo-parietal junction, and the cerebellum in the MBSR group compared to the controls.

Conclusions: The results suggest that participation in MBSR is associated with changes in gray matter concentration in brain regions involved in learning and memory processes, emotion regulation, self-referential processing, and perspective taking.

The Science of Yoga - Osteoporosis

Zainab S Motorwala, Sona Kolke, Priyanka Y Panchal, Nilima S Bedekar, Parag K Sancheti, and Ashok Shyam (2016) **Effects of Yogasanas on osteoporosis in postmenopausal women.** Int J Yoga. Jan-Jun; 9(1): 44–48.

Purpose: To study the effects of integrated yoga on bone mineral density (BMD) in postmenopausal women with osteoporosis.

Settings and Designs: Experimental pre-post study conducted in a community setting.

Methods: 30 females in the age group of 45–62 years suffering from postmenopausal osteoporosis with a dual-energy X-ray absorptiometry (DEXA) score of ≤ -2.5 underwent a 6 months fully supervised yoga session. (1 hour per day, 4 days per week) All the participants completed the study. Pre-training and post-training BMD was calculated. Outcome measure: DEXA score at the lumbar spine.

Results: Improvement in T-score of DEXA scan of -2.55 ± 0.25 at post-training as compared to a pre-training score of -2.69 ± 0.17 . $P < 0.05$.

Conclusions: Integrated yoga is a safe mode of physical activity which includes weight bearing as well as not weight bearing asanas, Pranayama, and suryanamaskar, all of which helps induce improvement in BMD in postmenopausal osteoporotic females.

The Science of Therapeutic Yoga - Menopause

Jorge MP, Santaella DF, Pontes IM, Shiramizu VK, Nascimento EB, Cabral A, Lemos TM, Silva RH, Ribeiro AM.(2016) **Hatha Yoga practice decreases menopause symptoms and improves quality of life: A randomized controlled trial.** Complement Ther Med. 2016 Jun;26:128-35.

PURPOSE: to investigate the psychophysiological effects of Hatha Yoga regular practice in post-menopausal women.

METHODS: 88 post-menopausal women for 12-week trial. They were randomly assigned to one of three groups: control (no intervention), exercise, and yoga. Questionnaires were applied in order to evaluate climacteric syndrome (Menopause Rating Scale), stress (Lipp Stress Symptom Inventory), quality of life (Brief World Health Organization Quality of Life), depression (Beck Depression Inventory) and anxiety (State/Trait Anxiety Inventories). Physiological changes were evaluated through hormone levels (cortisol, FSH, LH, progesterone and estradiol).

RESULTS: At 12 weeks, yoga practitioners showed statistically lower scores for menopausal symptoms, stress levels and depression symptoms, as well as significantly higher scores in quality of life when compared to control and exercise groups. Only control group presented a significant increase in cortisol levels.

CONCLUSIONS: These results suggest that yoga promotes positive psychophysiological changes in post-menopausal women and may be applied as a complementary therapy towards this population.

Experience Yoga – Point to Point Breathing



The Science of Therapeutic Yoga - LBP

Cramer, H., Lauche, R., Haller, H., & Dobos, G. (2013). **A systematic review and meta-analysis of yoga for low back pain.** *The Clinical Journal Of Pain*, 29(5), 450-460.

Methods: Searched for all RCT studies up until January, 2012. All languages, adults over 18, yoga intervention compared to usual care, no care, or any active treatment and had one patient centered outcome measure. 2 reviewers. Assessed short and long term follow-ups. 108 articles identified, 10 articles included. 8 studies had low risk of bias.

Outcome measures: Pain assessed in 7 studies (Aberdeen Back Pain Scale, McGill Pain Questionnaire, VAS). Back specific disability assessed in 8 studies with Roland Morris, Oswestry, Pain Disability Index.

Results: Meta-analysis (on 8 studies) revealed strong evidence for short-term effects of yoga on pain ($P < 0.01$), and back specific disability ($P < 0.01$). At long term follow-up, moderate evidence for reduction in pain ($P = 0.01$), and disability. No evidence of improved quality of life at long term follow-up.

The Science of Therapeutic Yoga - Migraine

John, P. J., Sharma, N., Sharma, C. M., & Kankane, A. (2007). **Effectiveness of yoga therapy in the treatment of migraine without aura: a randomized controlled trial.** *Headache*, 47(5), 654-661.

Purpose: Investigate the effectiveness of holistic approach of yoga therapy for migraine treatment compared to self-care.

Study Design: Randomized controlled trial

Methods: 72 patients with migraine without aura were randomly assigned to yoga therapy or self-care group for 3 months. Primary outcomes were headache frequency, severity of migraine (0–10 scale) and pain component (McGill pain questionnaire). Secondary outcomes were anxiety and depression, medication score.

Findings: Complaints related to headache intensity ($P < .001$), frequency ($P < .001$), pain rating index ($P < .001$), affective pain rating index ($P < .001$), total pain rating index ($P < .001$), anxiety and depression scores ($P < .001$), symptomatic medication use ($P < .001$) were significantly lower in the yoga group compared to the self-care group at 3 months.

The Science of Therapeutic Yoga - Cancer

Lin, K., Hu, Y., Chang, K., Lin, H., & Tsauo, J. (2011). **Effects of yoga on psychological health, quality of life, and physical health of patients with cancer: a meta-analysis.** *Evidence-Based Complementary And Alternative Medicine: Ecam*, 2011659876.

Purpose: To determine the effects of yoga on psychological health (i.e., anxiety, depression, distress, and stress), quality of life, and physical health of people with cancer.

Study Design: Meta-analysis of 10 RCT from 100 initially identified

Methods: Lit. Search 1970-2010, English/Chinese languages

Findings: Ten articles were selected with PEDro scores ranged from 4 to 7. The yoga groups showed significantly greater improvements in psychological health: anxiety- measured in 8 studies ($P = .009$), depression- measured in 8 studies ($P = .002$), distress - measured in 2 studies ($P = .003$), and stress- measured in 5 studies ($P < .006$).

Authors note: Due to the low to fair quality, and small number of studies conducted, the findings are preliminary, limited and should be confirmed through higher-quality, randomized controlled trials.

Science of Yoga – Healthcare Utilization

James E. Stahl, Michelle L. Dossett, A. Scott LaJoie, John W. Denninger, Darshan H. Mehta, Roberta Goldman, Gregory L. Fricchione, and Herbert Benson (2015) **Relaxation Response and Resiliency Training and Its Effect on Healthcare Resource Utilization** PLoS One. 10(10):

Purpose: Estimate the effect of mind body training, specifically, the Relaxation Response Resiliency Program (3RP) on healthcare utilization.

Methods: Retrospective controlled cohort observational study. Setting: Major US Academic Health Network. Sample: All patients receiving 3RP at the MGH Benson-Henry Institute from 1/12/2006 to 7/1/2014 (n = 4452), controls (n = 13149) followed for a median of 4.2 years (.85–8.4 yrs).

Results: At one year, total utilization for the intervention group decreased by 43% ($p < 0.0001$). Clinical encounters decreased by 41.9%, imaging by 50.3%, lab encounters by 43.5% and procedures by 21.4% all $p < 0.01$. The intervention group's Emergency department (ED) visits decreased from 3.6 to 1.7/year ($p < 0.0001$)

Conclusion Mind body interventions such as 3RP have the potential to substantially reduce healthcare utilization at relatively low cost and thus can serve as key components in any population health and health care delivery system.

Yoga in Healthcare – Who is Integrating Yoga?

Massachusetts General Hospital – Benson-Henry Institute for Mind Body Medicine

- Outpatient program where mindfulness, yoga, biofeedback, Tai Chi and meditation are integrated into an 8 week program to treat a variety of symptoms, chronic illnesses and for prevention in the well population

Cleveland Clinic - Wellness Institute

- Outpatient Integrative Medicine Consultation with prescription of yoga may be integrated into treatment programs.
- Offers a variety of outpatient community yoga classes designed for all levels including chair yoga, therapeutic themed classes

Columbia University Medical Center – Center for Comprehensive Wellness and Integrative Therapies

- Yoga is integrated into inpatient and outpatient programs for adults and children with cancer.

University of Vermont College of Medicine – Program in Integrative Medicine

- Yoga is integrated into inpatient programs at the Vermont Children's Hospital
- Integrative Health undergraduate course that includes yoga therapy
- <http://www.integrativepractitioner.com/whats-new/news-and-commentary/consortium-of-academic-health-centers-for-integrative-medicine/>

Yoga/ Therapy Training Programs & Organizations

Yoga Alliance - Certification of Yoga Instructors

<https://yogaalliance.org>

International Association of Yoga Therapy (IAYT) - Yoga therapy school and therapist registration

<http://www.iayt.org/>

Professional Yoga Therapy - certification program for licensed healthcare providers

<https://proyogatherapy.org>

Maryland University of Integrative Health - Masters degree in Yoga Therapy

<http://www.muih.edu/>

Resources

Books:

How to Meditate: Pema Chodron 2013, Sounds True Inc.

Moving Inward: The Journey to Meditation, Rolf Sovik 2005- Himalayan Institute Press ·

Walking Meditation – Nguyen Anh-Huong, Thich Nhat Hanh 2006 Sounds True

Relax and Renew – Restful Yoga for Stressful Times, Judith Hanson Lasater, PhD, PT 2011 Rodmell Press

Yoga Mastering the Basics Sandra Anderson and Rolf Sovik, PsyD 2000 Himalayan Institute Press

Questions?



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