“Living Beyond: The Research Proven Benefits of Yoga”

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Goals for Our Time Together

- Overview of yoga as it relates to everyday vibrant living
- Experience the art of the breath to manage various symptoms
- Foster the richness of movement for healing
- Cultivate mindfulness in daily activities

Addressing cancer survivorship through public health: an update from the Centers for Disease Control and Prevention, Fairley TL ; Pollack LA ; Moore AR ; Smith JL, Journal of Women's Health 2009 Oct; 18(10): 1525-31

- Currently, there are nearly 12 million cancer survivors living in the United States. They face a myriad of personal and health issues related to their cancer treatment.
- Increased recognition of cancer survivorship as a distinct and important phase that follows the diagnosis and treatment of cancer has contributed to the development of public health-related strategies and plans to address those strategies.
- CDC's Division of Cancer Prevention and Control (DCPC) uses an interdisciplinary public health approach to address the needs of cancer survivors through applied research, public health surveillance and data collection, education, and health promotion, especially among underserved populations that may be at risk for health disparities.

The Benefits of Yoga

- The effects of yoga have been explored in a number of patient populations, including individuals with:

- asthma
- cardiac conditions
- arthritis
- kyphosis
- multiple sclerosis
- epilepsy
- headache
- depression
- diabetes
- pain disorders
- gastrointestinal disorders
- addictions
- healthy individuals

- In recent years, investigators have begun to examine the effects of yoga among cancer patients and survivors.

(Bower JE, et al, 2005)

Different Schools of Hatha Yoga Commonly Practiced in the United States

School	Focus	Description
Ananda	**Enlightenment**	**Tool for spiritual growth while releasing unwanted tensions. Uses silent affirmations while holding a pose as a technique for aligning body, energy, and mind. Series of gentle poses designed to move energy upward to the brain, preparing the body for meditation.**
Anusara	**The Heart**	**Founded by John Friend in 1997, anusara yoga integrates the celebration of the heart, universal principles of alignment, and balanced energetic action in the performance of asana. Anusara (pronounced ah-new-SAR-ah) means "following your heart." In this school of yoga, each student's abilities and limitations are deeply respected and honored.**
Ashtanga/Power Yoga	**Fitness**	**Athletic; Fast Paced and non-stop; not recommended for beginning students. At the core is linking the breath with each movement throughout the practice. Power Yoga is a derivative, using a more creative sequence of postures.**
Bikram/Hot Yoga	**Healing**	**Athletic; Practiced in a room heated to 100+ degrees, thus "Hot" Yoga. Sauna-like effect helps move the toxins out of your body.**

Hatha Yoga	**Holistic**	**A major branch of yoga, developed by Goraksha and other adepts c. 1000 CE, and emphasizing the physical aspects of the transformative path, notably postures (asana) and cleansing techniques (shodhana), but also breath control (pranayama).**
Integral	**Enlightenment**	**Aimed at helping people integrate yoga's teachings into their everyday work and relationships. Incorporates guided relaxation, breathing practices, sound vibration (repetition of a mantra or chant), and silent meditation.**
Iyengar	**Detail**	**Technical yoga, an intense focus on the subtleties of each posture; great for beginning students. Strong focus on precise muscular and skeletal alignment; emphasizes therapeutic properties of the poses. Poses (especially standing postures) are typically held much longer than in other schools of yoga to focus on alignment. Use of props (belts, chairs, blocks, and blankets) to accommodate special needs such as injuries or structural imbalances.**
Kripalu	**Healing**	**Therapeutic; gentle and spiritually focused; great for beginning students. Incorporates inner focus and meditation within the yoga poses. Focus on alignment, breath, and the presence of consciousness. Holding of the postures to the level of tolerance and beyond. Deepens concentration and focus of internal thoughts and emotions.**
Kundalini	**Enlightenment**	**Dynamic; Esoteric; Energizing; Aimed at invoking dormant spiritual energy at the base of the spine. Incorporates breath-work, movement, postures, chanting, and meditating on mantras.**

Sivananda	**Enlightenment**	**Traditional approach; can become very advanced. Rigid class structure of poses, breath-work, meditation, and relaxation. Emphasizes 12 basic postures to increase strength and flexibility of the spine. Focus on proper pose, breathing, relaxation, and diet (vegetarian), and positive thinking and meditation.**
Tantra	**Sensuality**	**Perhaps the most misunderstood yoga style, tantra is not about sexual indulgence. Rather, it is about discovering and stimulating sensual spirituality. This yoga works with the highly charged kundalini energy and, therefore, should always be guided and taught by a teacher. Tantra teaches practitioners how to use this energy for sexual pleasure, for bringing joy and wholeness to everyday life, and for aiding in spiritual evolution. Tantra yoga includes visualization, chanting, asana, and strong breathing practices.**
Viniyoga	**Healing**	**Therapeutic; repetitious movements in and out of a posture. Individualistic; poses are synchronized with the breath in sequences determined by the needs of the practitioner. Highly adaptable, thus good for students with physical injuries or limitations.**

Yoga Breath Regulation (Pranayama)

- 100 different combinations of breathing patterns
- Used as energy management tools to affect the high energy response to stress or the opposite, low-energy, withdrawn, depressed person

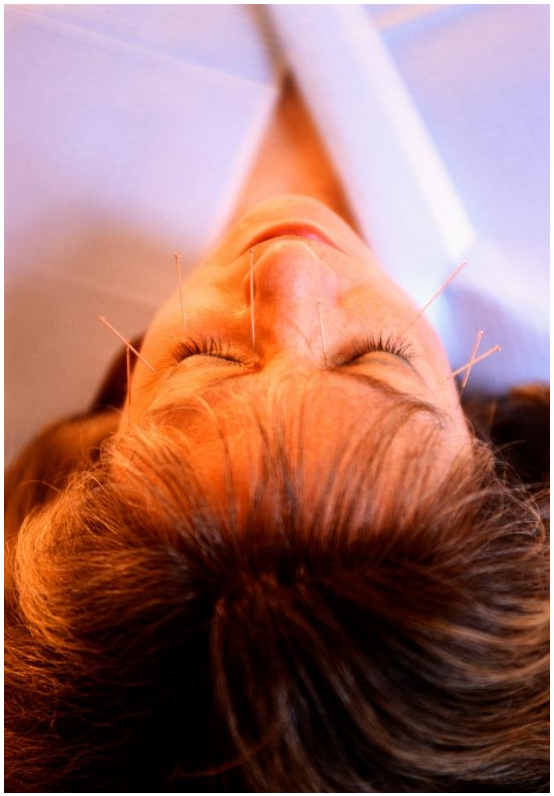
Where's the Evidence?

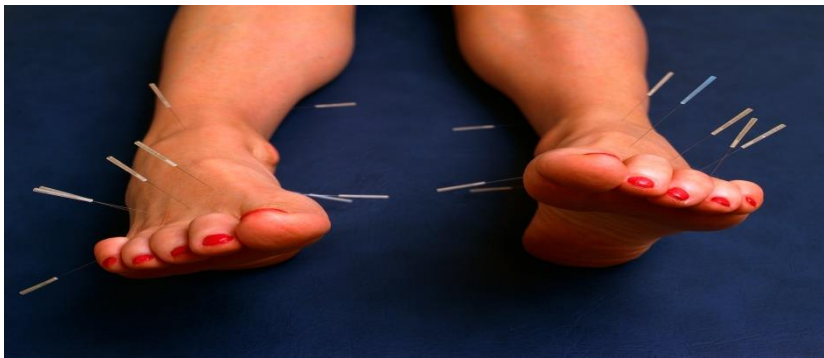
- ***You hear that yoga is good during survivorship. You want to make sure that the intervention is effective and appropriate. You explore information on the internet:***
- ***Which articles should you use?***
- ***Is all this evidence of equal value?***
- ***How do you find a class that fits your needs?***
- ***Will your healthcare professional be able to assist in your decision making?***

Complementary and alternative therapies: Do they improve quality of life for women with breast cancer? Bleakley K, Stinson M, Physical Therapy Reviews 2011 VOL. 16 NO. 2

- The growing incidence of breast cancer in women has inevitably resulted in the expansion of the roles of health care practitioners in breast cancer care.

- Women with a diagnosis of breast cancer are increasingly turning to complementary and alternative medicine (CAM). GOAL: amongst others, to improve their quality of life.
- Health care professionals are beginning to question if there is a place for it in their practice.





- **Major findings: Following a detailed search of nine electronic databases (AMED, EMBASE, Medline, BritishNursing Index, PsychINFO, CINAHL, Cochrane Library, OTD Base and Google Scholar) between the years 2000 and 2010,**
- **8 relevant studies were identified.**
- **Three of these studies focused on CAM as a whole system**
- **3 - yoga,**
- **1 - progressive muscle relaxation training and guided imagery and**
- **1- therapeutic massage.**

- **6 of the 8 studies, concluded that complementary and alternative therapies improved quality of life in women with breast cancer.**

What's the Evidence for Yoga?

- ***Asking the right clinical question for your particular need is key.***
- ***If you have other orthopedic issues in addition to your cancer diagnosis, adaptations are necessary***
- ***Restorative postures are key for cancer-related fatigue***
- ***Specific postures have been shown to address menopausal symptoms***
- ***Yoga can be helpful in managing painful joints for women taking aromatase inhibitors***
- ***Improving mood and quality of life is a key overarching goal of the regular use of yoga***

Can Yoga Make A Difference in Low Back Pain?

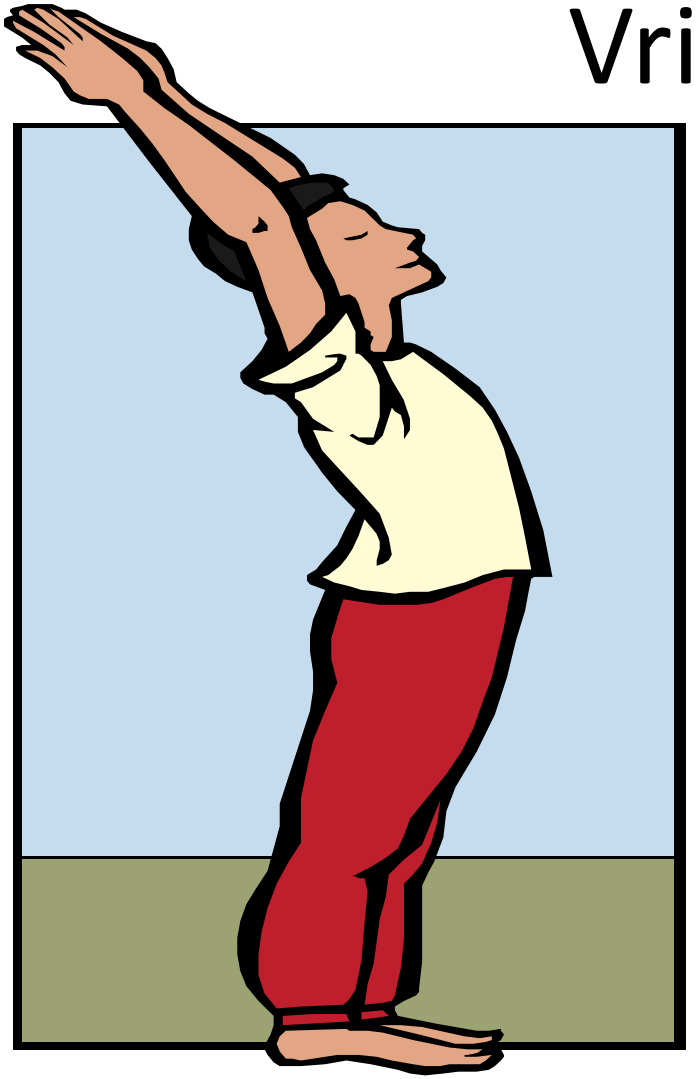
The impact of modified Hatha yoga on chronic low back pain: a pilot study.

Galantino ML, Bzdewka TM, Eissler-Russo JL, Holbrook ML, Mogck EP, Geigle P, Farrar JT.

Altern Ther Health Med. 2004 Mar-Apr;10(2):56-9.

- **Quantitative results:** Mean scores for ODI suggested a trend toward decreased disability in the yoga group. BDI for the experimental demonstrated slight decrease in depression for the yoga group. The FR and SR showed trends in improved balance and flexibility for the yoga group.
- **Qualitative results:** Analysis of the qualitative data revealed the following themes from journal entries:
- (1) group intervention motivated the participants and
- (2) yoga fostered relaxation and new awareness/learning.

Mountain Pose - Tadasana & Tree - Vrikshasana



Pain Management and Yoga

- Effects of chemical dependence on affective disorders in pain management is well documented
- Yoga has been shown to decrease somatic complaints in normal women
- Shavasana or corpse pose (supine) is an effective technique for alleviating depression and increase positive change significantly

Bukowski EL, Conway A, Glentz LA, Kurland K, Galantino ML. The effect of Iyengar yoga and strengthening exercises for people living with OA of the knee: a case series. Int Q Community Health Educ. 2006; 26(3): 287-305.

- A group of 15 women and men performed one of the following: traditional stretching and strengthening exercises, Iyengar yoga, or no structured group exercise.

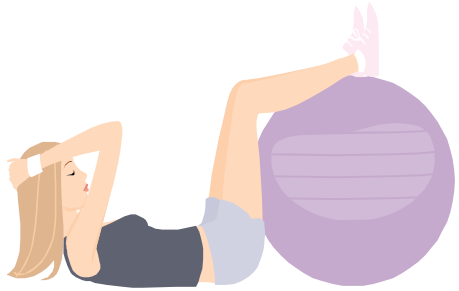
Measures:

- Low back and hamstring flexibility
- Quadriceps strength and function were monitored before and after the program.
- WOMAC Quality of Life Questionnaire

- This study found functional changes and improvement in quality of life in traditional exercise and a yoga based approach that should encourage further comprehensive and carefully designed studies of yoga in OA.

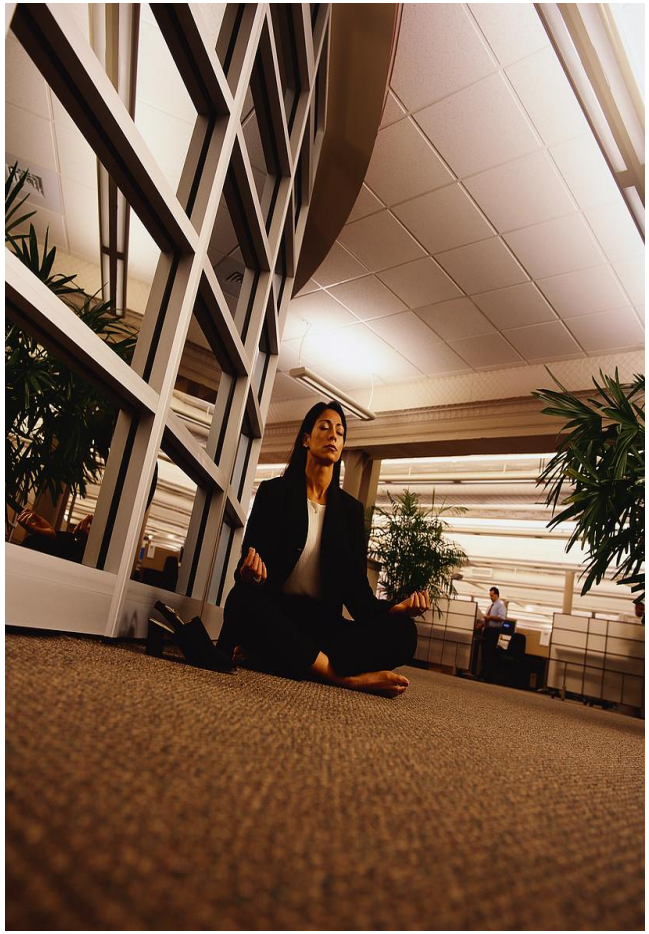
Mastrangelo MA, Galantino ML, House L. Effects of Yoga on Quality of Life and Flexibility in Menopausal Women: A Case Series. Explore Journal 2007

- Measures: SR and FR and Menopausal Specific Quality of Life (MSQOL) survey. The Baecke Questionnaire measured physical activity. All areas improved.
- Functional changes and improvement in quality of life that should encourage further comprehensive and carefully designed studies of yoga in menopause.



Sundar, S., Agrawal, S. K., Singh, V. P., Bhattacharya, S. K., Udupa, K. N., & Vaish, S. K. (1984). Role of yoga in management of essential hypertension. *Acta cardiologica*, *39*(*3*), 203-8.

- Study Participants:
  - 25 hypertensive patients
- Intervention:
  - Group A consisted of 20 patients, receiving only yoga treatment
  - Group B consisted of 5 patients receiving yoga and antihypertensive drug treatment
  - All patients were demonstrated Shavasana and trained to perform it correctly, then continue practicing for 6 months



Sundar, S., Agrawal, S. K., Singh, V. P., Bhattacharya, S. K., Udupa, K. N., & Vaish, S. K. (1984). Role of yoga in management of essential hypertension. *Acta cardiologica*, *39*(*3*), 203-8.

- Results:
  - Statistically significant fall in mean systolic and diastolic pressure of both groups
  - Significant reduction in doses of antihypertensive drugs being given to patients of Group B
  - In 65% patients of group A, blood pressure could be controlled with Shavasana only
  - Blood pressure rose significantly to pre-Shavasana levels in patients who left practicing yoga.

Murugesan, R., Govindarajulu, N., and Bera, T.K. (2000). Effect of selected yogic practices on the management of hypertension. *Indian Journal of Physiology and Pharmacology, 44(2),*207-10.

- Study participants:
  - 33 hypertensive patients, aged 35-65 years
- Intervention:
  - Experimental group-I underwent selected yoga practices
    - 11 weeks of twice-daily, one-hour long sessions
  - Experimental group-II received medical treatment by a physician
    - Consisted of daily drug intake
  - Control group did not participate in any treatment
- Results:
  - Both yoga and drug interventions were effective in controlling the variables of hypertension

Damodaran A, Malathi A, Patil N, Shah N, Suryavansihi , Marathe S. *Therapeutic potential of yoga practices in modifying cardiovascular risk profile in middle aged men and women.* J Assoc Physicians India. '02 May;50(5):631-2.

- AIMS: To study effect of yoga on the physiological, psychological well being, psychomotor parameters and modifying cardiovascular risk factors in mild to moderate hypertensive patients.

- METHODS: Twenty patients (16 males, 4 females) in the age (35-55 years) underwent yogic practices daily for one hour for three months.

Cardiovascular Results

- Decrease in blood pressure and drug score modifying risk factors, i.e. blood glucose, cholesterol and triglycerides decreased overall improvement in subjective well being and quality of life. There was decrease in VMA catecholamine, and decrease MDA level suggestive decrease sympathetic activity and oxidant stress.

- CONCLUSION: Yoga can play an important role in risk modification for cardiovascular diseases in mild to moderate hypertension

Iyengar Yoga vs. Enhanced Usual Care on Blood Pressure in Patients with Prehypertension to Stage I Hypertension: A Randomized Controlled Trial

Cohen D, Bloedon LT, Rothman R, Farrar JT, Galantino ML, Volger S, MayorC, Szapary P, Townsend RR

- **PURPOSE:** Iyengar Yoga (IY) has been purported to reduce blood pressure though evidence from randomized trials is lacking.
- **METHODS:** RCT to assess the effects of 12 weeks of IY vs. Enhanced Usual Care (EUC) on 24 hour ambulatory BP in yoga-naïve adults with untreated prehypertension or stage I HTN.
- **RESULTS:** 26 and 31 subjects in the IY and EUC arms, respectively, completed the study. There were no differences in BP between the groups at 6 or 12 weeks.
- In the EUC group, 24 hr **systolic blood pressure (SBP), diastolic blood pressure (DBP) and mean arterial pressure (MAP)** significantly decreased by 5, 3, and 3 mm Hg, respectively from baseline at 6 weeks ($p<0.05$), but were no longer significant at 12 weeks.
- In the IY group, 24 hr SBP was reduced by 6 mm Hg at 12 weeks compared to baseline ($p=0.05$). 24 h DBP ($p<0.01$) and MAP ($p<0.05$) decreased significantly each by 5 mm Hg. No differences were observed in catecholamine or cortisol metabolism to explain the decrease in blood pressure in the IY group at 12 weeks.

Plow - Halasana

Half Moon – Ardha Chandrasana

IY for HTN – Funded by NCCAM

www.nih.nccam.gov

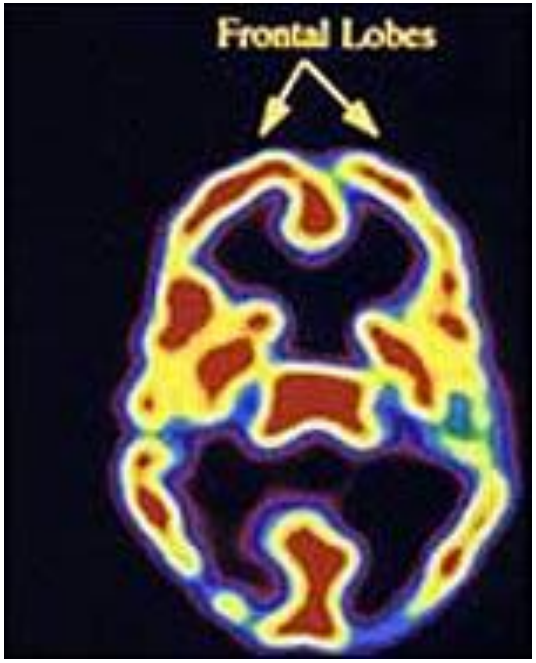
- 12 weeks of IY produces clinically meaningful improvements in 24 hr SBP and DBP. Larger studies are needed to establish the long term efficacy, acceptability, utility, and potential mechanisms of IY to control blood pressure.

CEREBRAL BLOOD FLOW EFFECTS OF YOGA TRAINING:

A PRELIMINARY STUDY

Cohen DL, Wintering N, Morgan V, Raymond BA, Townsend R,Galantino ML, Farrar JT, Newberg A

- **Background and Purpose :** While experienced practitioners of yoga and meditation have been shown to be able to alter brain function, no one has studied if novice individuals alter brain function with meditation training over time. We measured cerebral blood flow (CBF) before and after a 12 week training program in Iyengar Yoga (IY).



Neuroimaging in Yoga

- **Methods:** 4 subjects from our current NIH study of IY in hypertension were studied via SPECT scan (pre-program baseline). Subjects then had their first 1 hour IY training and then were guided through a meditation at which time they were injected with 925MBq Bicisate and scanned a second time (pre-program meditation). Subjects then underwent a 12 week training program in IY. Post program, subjects underwent the same imaging protocol with a post-program baseline and post-program meditation scan. Using a ROI template, baseline and meditation SPECT scans, before and after training, were compared using paired t-tests.

- **Results:** There were significant decreases ($p<0.05$) between the pre- and post-program baseline scans in the right amygdala, right dorsal medial cortex, and right sensorimotor area. There was a significant difference ($p<0.05$) in the pre- and post-program percentage change (i.e. activation) in the right dorsal medial frontal lobe, right prefrontal cortex, right sensorimotor cortex, and right inferior frontal lobe.
- **Conclusions:** These initial findings suggest that the brain experiences a “training effect” after 12 weeks of IY training.

Impact of Yoga as an Integrative Modality in Cancer Care

The Benefits of Yoga on Fatigue

- One or more of yoga's components has been proven to decrease fatigue or improve perceptions of vitality. Studies using yoga resulted in:
  - A significantly greater increase in perceptions of mental and physical energy and feelings of alertness/enthusiasm (Wood, 1993)
  - More energy, less stress, and less pain (Lee SW, Mancuso CA, & Charlson ME, 2003)
  - Symptoms of fatigue improved (Oken BS, et al, 2004)
  - Improvements in energy and fatigue (Oken BS, et al, 2006)

The Benefits of Yoga on Fatigue

- Studies of yoga in the cancer population:
  - Improvements in sleep quality and overall QOL
  - Reduced psychological distress and improved QOL
- Results from the emerging literature on yoga and cancer provide preliminary support for the feasibility and efficacy of yoga interventions for cancer patients.

(Carlson LE, Speca M, Patel KD, & Goodey E, 2004; Gopinath KS, 2003)

Rao, Raghavendra, Shirley Telles, Hongasandra Nagendra, and Raghuram Nagarathna. "Effects of yoga on natural killer cell counts in early breast cancer patients."

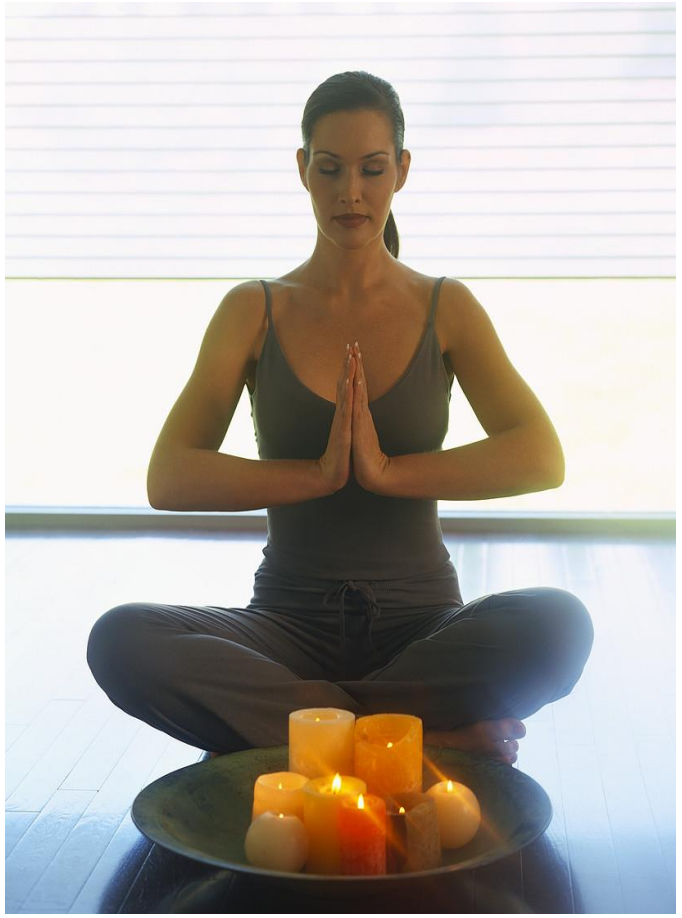
- Purpose of Study:
  - To assess the effectiveness of a yoga program on NK cell counts in breast cancer patients undergoing conventional breast cancer treatment
- Intervention:
  - Participants attended 1 hour yoga sessions 3 times/week.
  - In supportive care sessions, patients were educated about their disease and treatment options in hopes of reducing anxiety
- Participants:
  - 37 women with recently diagnosed with operable stage II and III breast cancer
  - 16 women received yoga and 21 women received supportive therapy
- Results:
  - Significant decreases in NK cell percentage were not seen in the yoga group
  - The NK cell percentage was higher in the yoga group post-chemotherapy as compared to the control group

Banasik J, Williams H, Haberman M, Blank SE, Bendel R. **Effect of Iyengar yoga practice on fatigue and diurnal salivary cortisol concentration in breast cancer survivors.** Journal of the American Academy of Nurse Practitioners *23* (2011) 135–142 2010 Journal compilation C 2010 American Academy of Nurse Practitioners

- ***18 BCS were randomly assigned to attend yoga practice for 90 min twice weekly for 8 weeks or to a wait-listed, control group***
- ***Iyengar yoga routines progressively increased in difficulty as participants gained strength and flexibility***
- ***The yoga group had lower morning and 5 p.m. salivary cortisol and improved emotional well-being and fatigue scores.***

Immune Improvements

- ***BCS are at risk for chronic psychosocial distress that may alter activity of the hypothalamic-pituitary-adrenal axis, resulting in aberrant regulation of cortisol secretion and increased risk of immune dysfunction and cancer progression.***
- ***Regular yoga practice may be a low-risk, cost-effective way to improve psychosocial functioning, fatigue, and regulation of cortisol secretion in BCS.***



Stress, Inflammation, and Yoga Practice Kiecolt-Glaser JK, Christian L, Preston H, Houts CR, Malarkey WB, Emery CF, Glaser R.*Psychosom Med*. 2010 February ; 72(2): 113. doi:10.1097/PSY.0b013e3181cb9377

- **Goal:** To address the mechanisms underlying hatha yoga's potential stress-reduction benefits
- Compared inflammatory and endocrine responses of novice and expert yoga practitioners before, during, and after a restorative hatha yoga session, as well as in two control conditions.
- Stressors before each of the three conditions provided data on the extent to which yoga speeded an individual's physiological recovery.
- **Methods—**50 healthy women (mean age=41.32, range=30–65), 25 novices and 25 experts, were exposed to each of the conditions (yoga, movement control, and passive-video control) during three separate visits.

- **Results—**The yoga session boosted participants' positive affect compared to the control conditions, but no overall differences in inflammatory or endocrine responses were unique to the yoga session.
- Importantly, even though novices and experts did not differ on key dimensions including age, abdominal adiposity, and cardiorespiratory fitness, novices' serum IL-6 levels were 41% higher than those of experts across sessions, and the odds of a novice having detectable CRP were 4.75 times as high as that of an expert.
- Differences in stress responses between experts and novices provided one plausible mechanism for their divergent serum IL-6 data; experts produced less LPS-stimulated IL-6 in response to the stressor than novices, and IL-6 promotes CRP production.
- **Conclusion—**The ability to minimize inflammatory responses to stressful encounters influences the burden that stressors place on an individual. If yoga dampens or limits stress-related changes, then regular practice could have substantial health benefits."

Fearless


"I love the possibility that one day I will be strong enough to lift my legs to the sky in a handstand."

Impact of Yoga on Functional Outcomes in Breast Cancer Survivors With Aromatase Inhibitor-Associated Arthralgias.

Galantino ML, Desai K, Greene L, Demichele A, Stricker CT, Mao JJ.
Integr Cancer Ther. 2011 Jul 6.

- Postmenopausal women with stage I to III breast cancer who reported AIAA were enrolled in a single-arm pilot trial.
- A yoga program was provided twice a week for 8 weeks. The Functional Reach (FR) and Sit and Reach (SR) were evaluated. Pain - Brief Pain Inventory (BPI), self-reported Patient Specific Functional Scale (PSFS), and Functional Assessment of Cancer Therapy-Breast (FACT-B) were secondary outcomes
- Participants experienced significant improvement in balance, as measured by FR, and flexibility, as measured by SR. The PSFS improved from 4.55 to 7.21, and HR-QOL measured by FACT-B also improved; both $P < .05$. The score for the Pain Severity subscale of the BPI reduced.
- In all, 80% of participants adhered to the home program. Preliminary data suggest that yoga may reduce pain and improve balance and flexibility in BCSs with AIAA

Moadel, Alyson, Chirag Shah, Judith Wylie-Rosett, and Melanie Harris. "Randomized control trial of yoga among a multiethnic sample of breast cancer patients: effects on quality of life." Journal of Clinical Oncology. 26(2007): 1-9.

- Purpose of Study:
  - Examine the impact of yoga on QOL, fatigue, distressed mood, and spiritual well-being
- Intervention:
  - Experimental group participated in a 12 week, 1.5 hour weekly yoga class
  - Control group was put on a 12 week waitlist
- Participants:
  - 128 multiethnic breast cancer patients, 18+ y/o with new/recurrent cancer (stages I to III)
  - 84 in the yoga group and 44 in the control group
- Results:
  - Favorable outcomes were seen in the treatment group in emotional well-being, social well-being, spiritual well-being, and distressed mood

Rao, Raghavendra, Nagarathna Raghuram H.R. Nagendra, and K.S. Gopinath. "Effects of an integrated yoga programme on chemotherapy-induced nausea and emesis in breast cancer patients." European Journal of Cancer Care. 16(2007): 462-474.

- Purpose of Study:
  - Examine effect of yoga on chemotherapy related nausea and emesis in early operable breast cancer patients
- Intervention:
  - Experimental group received integrated yoga program 30 min before chemotherapy sessions, in addition to home practice 6 days/week
  - Control group received supportive counseling & coping preparation
- Participants:
  - 98 women recently diagnosed with stage II and III breast cancer
  - 62 subjects in the treatment group and 34 in the control group
- Results:
  - Experimental group experienced a significant decrease in frequency and intensity of post-chemotherapy induced nausea and vomiting

Positive

Duncan, M.D., A. Leis, and J.W. Taylor-Brown. “Impact and outcomes of an Iyengar yoga program in a cancer centre." Current Oncology 15(2008): 72-78.

- Purpose of Study:
  - determine how Iyengar yoga affects the self-identified worst symptom in the group
  - assesses whether QOL, spiritual well-being, and mood disturbances changed over the program
- Interventions:
  - Ten 90 minute weekly Iyengar yoga classes
- Participants:
  - 23 females and 1 male who are undergoing treatment or who had previously been treated for cancer with in the last 6 months
- Results:
  - Participants in the study stated statistically significant improvements in their self-identified worst symptom, QOL, spiritual well-being, and mood disturbances

Danhauer, Suzanne C., Janet A. Tooze, Deborah F. Farmer, and Cassie R. Campbell. "Restorative yoga for women with ovarian or breast cancer: findings from a pilot study." Journal of Society for Integrative Oncology. 6(2008): 47-58.

- Purpose of Study:
  - Examine the effects of restorative yoga (RY) on women with ovarian and breast cancers
- Intervention:
  - All women participated in 10 weekly 75 minute RY classes that included physical postures, breathing, and relaxation
- Participants:
  - 51 women with ovarian or breast cancer
- Results:
  - Significant improvements were seen in depression, negative affect, anxiety, mental health, and overall quality of life.

Rao, Raghavendra, Nagarathna Raghuram, H.R. Nagendra, and K.S. Gopinath. "Anxiolytic effects of a yoga program in early breast cancer patients undergoing conventional treatment: A randomized control trial." Complementary Therapies in Medicine. 17(2009): 1-8.

- Purpose of Study:
  - Compares the anxiolytic effects of yoga in patients with undergoing conventional treatment for breast cancer
- Intervention:
  - 24 weeks of Yoga, consisting of asanas, breathing exercises, pranayama, meditation, and yogic relaxation techniques
  - Control group received supportive therapy sessions
- Participants:
  - 90 stage II and III breast cancer outpatients received yoga prior to treatment
    - Only those who received surgery followed by 6 cycles of chemotherapy were analyzed in this study
    - 18 of these participants received yoga and 20 served as the control
- Results:
  - Decrease in self-reported anxiety state and trait anxiety

Danhauer, Suzanne C., Shannon L. Mihalko, Gregory B. Russell, and Cassie R. Campbell. "Restorative yoga for women with breast cancer: findings from a randomized pilot study." Psycho-Oncology. (2009)

- Purpose of Study:
  - Examine the effectiveness of restorative yoga (RY) for women with breast cancer
- Intervention:
  - Experimental group had 10 weekly, 75 minute RY classes, including postures, breathing, and deep relaxation
  - Control group were wait listed for the RY sessions
- Participants:
  - 44 women 18+ y/o were enrolled in the study
  - Consisted of 24 women in the experimental group and 20 in the control group
- Results:
  - Improvements were seen in mental health, depression, fatigue, positive affect, and spirituality in the yoga group
  - No significant differences were seen in the control group

Carson, James W., Kimberly M. Carson, Laura S. Porter, and Francis J. Keefe. "Yoga awareness program for menopausal symptoms in breast cancer survivors: results from a randomized trial." Support Care Cancer. (2009)

- Purpose of Study:
  - Evaluate the effects of yoga intervention on menopausal symptoms in breast cancer survivors
- Intervention:
  - Experimental group participated in 8 weekly, 120 min. yoga classes consisting of poses, meditation, and breathing exercises
  - Control group were wait listed for yoga sessions
- Participants:
  - 37 cancer free women who were experiencing hot flashes
  - Consisted of 17 women in experimental group and 20 in control group
- Results:
  - Significantly greater improvements were seen in the yoga group in hot flash frequency and severity, levels of joint pain, fatigue, sleep disturbances, symptom related bother, and vigor

Peaceful

The Benefits of Yoga on Cognition

- The various components of yoga (postures, breathing, and meditation) have been isolated in studies to examine its effects in specific populations, with emphasis on cognition.
- One or more of these components has been proven to aid in improved memory scores, attentive state of mind, concentration, decreased confusion, or improvement in overall cognitive performance.

(Falleti, et al, 2004; Falleti, et al, 2004a; Falleti, et al, 2005; Oken, et al, 2006)

The Benefits of Yoga on Cognition

- A pilot study of a 7-week yoga program identify some trends for cognitive disorganization and suggest that yoga has a significant potential and should be explored as a beneficial physical activity option for cancer patients. (Culos-Reed SN, et al, 2006)
- A most up to date randomized, controlled, six-month trial of yoga in healthy seniors concluded there were no relative improvements in cognitive function among healthy seniors but relate their findings to a ceiling effect in this relatively healthy population. (Oken BS, et al, 2006)

The Benefits of Yoga on Cognition

- Many of these studies demonstrate the effective use of yoga for enhancing cognition and treating cognitive deficits in diverse populations, but there still remains the lack of controlled trials examining the effects of yoga on perceived cognition in the cancer population.

2.

Longitudinal impact of yoga on chemotherapy-related cognitive impairment and quality of life in women with early stage breast cancer: a case series.

Galantino ML, Greene L, Daniels L, Dooley B, Muscatello L, O'Donnell L.
Explore (NY). 2012 Mar-Apr;8(2):127-35.

- 4 women with a diagnosis of early-stage breast cancer prior to chemotherapy treatment were administered the following physiologic measures at baseline, 6, and 12 weeks during chemotherapy, and at one and three months after the conclusion of the study: Functional Reach test (balance) and Sit and Reach test (flexibility), and QOL, POMS (Mood) and FACT-B (QOL), at baseline.
- Primary outcomes of cognition were measured with the Perceived Cognition Questionnaire (PCQ) and CogState, a computerized measurement of cognition.

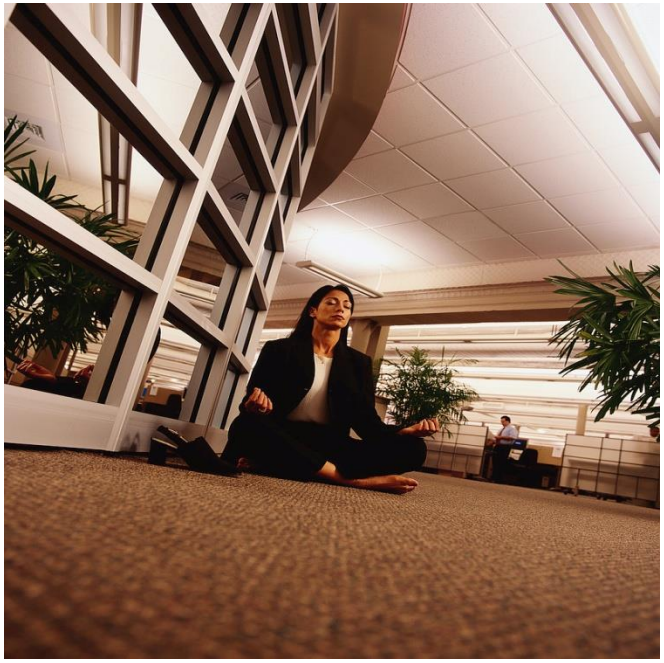
Intervention – Iyengar Yoga

- Total = 71 minutes
- Protocol designed and pilot tested
- Asanas – adapted for physical limitations
- Each pose held between 3-5 minutes
- Certified IY instructor

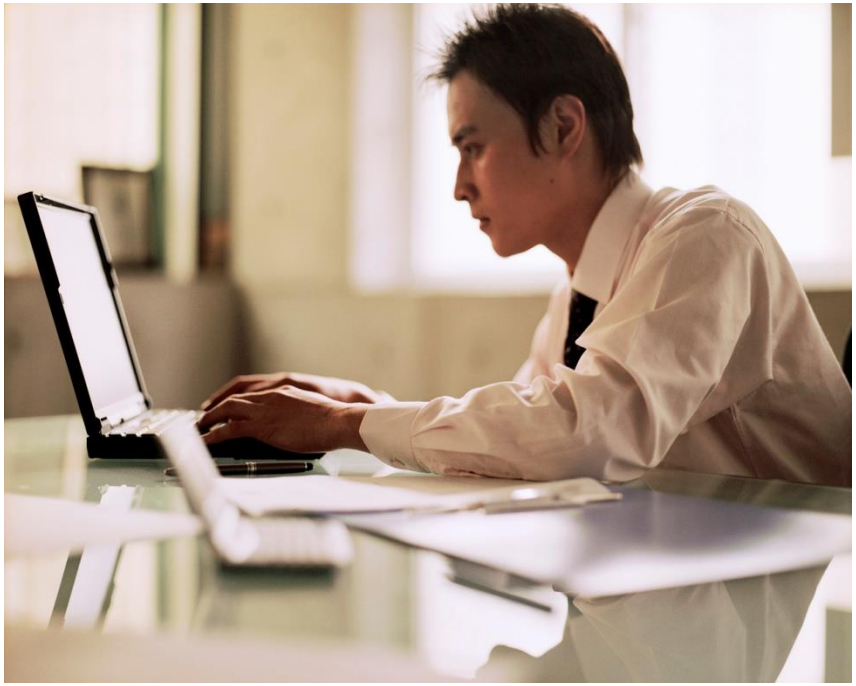
Implications of this Research

- CogState computerized testing showed changes in varying domains of cognition through treatment and follow-up.
- Improved balance, flexibility, and QOL were also noted over time.
- Analysis of qualitative data revealed the yoga classes were helpful and subjects continued the practice elements of yoga including relaxation, breathing, and stretching.
- The most challenging aspect of the study was physical limitations due to various medical complications and included fatigue, decreased range of motion, and pain.

Yoga for Healthcare Professionals

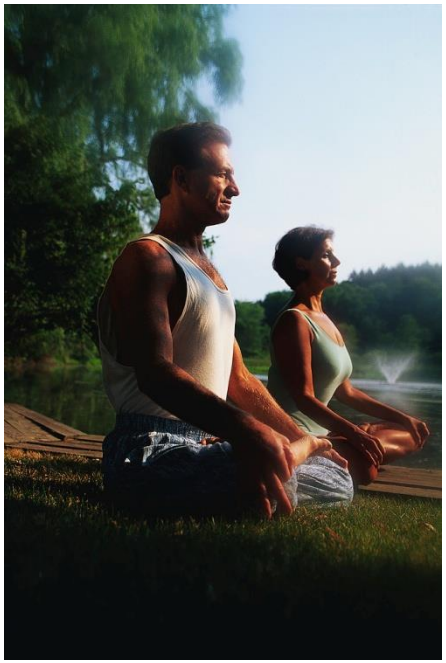


Gura ST. (2002). Yoga for stress reduction and injury prevention at work. IOS Press.



- At work employees face numerous psychological stressors that can undermine their work performance.
- These stressors, stemming from a variety of possible causes, have enormous health and financial impacts on employees as well as employers.
- Stress has been shown to be one of the factors leading to musculoskeletal disorders (MSDs) such as: include back pain, carpal tunnel syndrome, shoulder or neck tension, eye strain, or headaches.

Malathi A, Damodaran A, Shah N, Patil N, Maratha S. Effect of yogic practices on subjective well being. Indian J Physiol Pharmacol. 2000 Apr;44(2):202-6.

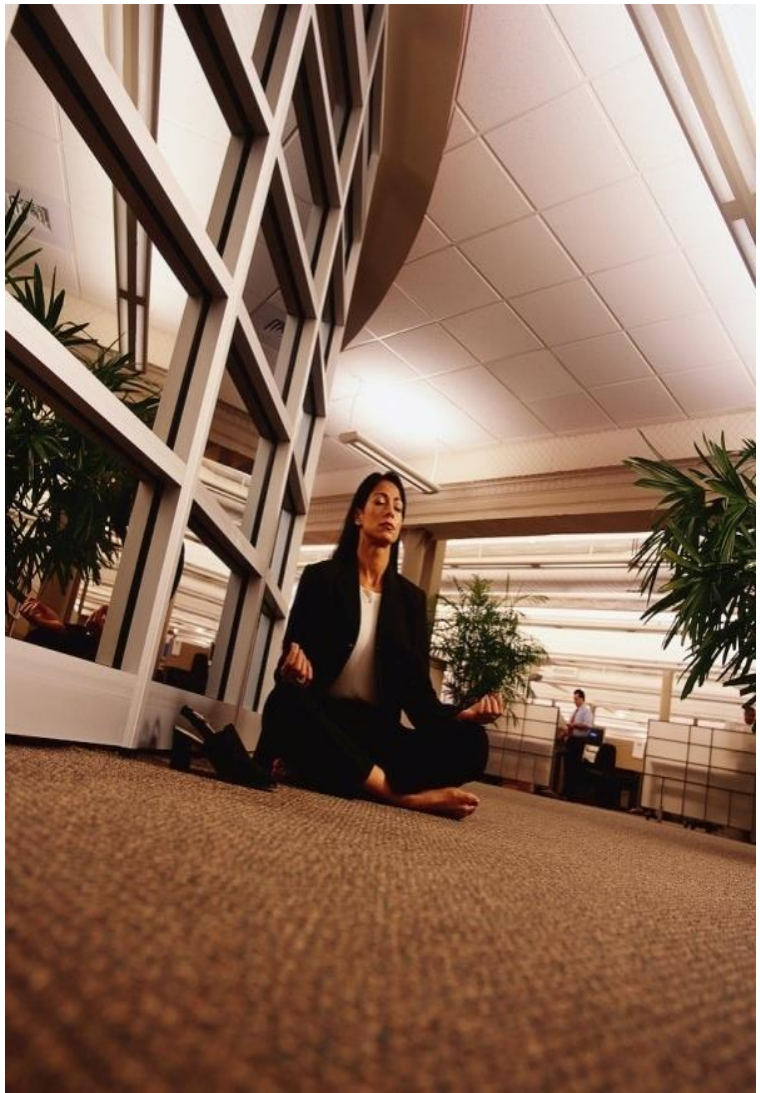


- 48 healthy volunteers who participated in the practice of yoga over a period of 4 months were assessed on Subjective Well Being Inventory (SUBI)
- A significant improvement in 9 of the 11 factors of SUBI was observed at the end of 4 months, in these participants.

Beneficial effects of regular practice of yoga on subjective well being.

Yoga in the Workplace

- Practicing yoga at the workplace teaches employees to use relaxation techniques to reduce stress and risks of injury on the job.
- Yoga at the workplace is a convenient and practical outlet that improves work performance by relieving tension and job stress.



Galantino ML, Baime M, Maquire M, Szapary O, Farrar J. *Association of psychological and physiological measures of stress in health-care professionals during an 8-week mindfulness meditation program: mindfulness in practice*. Stress and Health, 2005. Wiley Interscience.

- Work stress, burnout, and diminished empathy are prevalent issues for health-care professionals.
- Mindfulness meditation (MM) is one commonly used strategy to manage stress. Measuring salivary cortisol allows for the assessment of serum cortisol level, a known stress level indicator.
- Evaluated the association of subject-reported stress symptoms and salivary cortisol in health- care professionals, in an 8-week MM program, with data collected prospectively at baseline and 8 weeks after program completion.
- Questionnaires: Profile of Mood States—Short Form, Maslach Burnout Inventory, and Interpersonal Reactivity Index measured mood, burnout and empathy.

Meditation and Healthcare Professionals - Results

- A paired t-test between groups for pre/post-salivary cortisol yielded no significant change.
- The POMS-SF was most sensitive to change.
- Emotional exhaustion, measured in the MBI, was also affected by MM
- Psychometric results present a strong case for additional clinical trials of MM to reduce stress for health-care professionals.

What is a Healthcare Professional Turned…Patient?

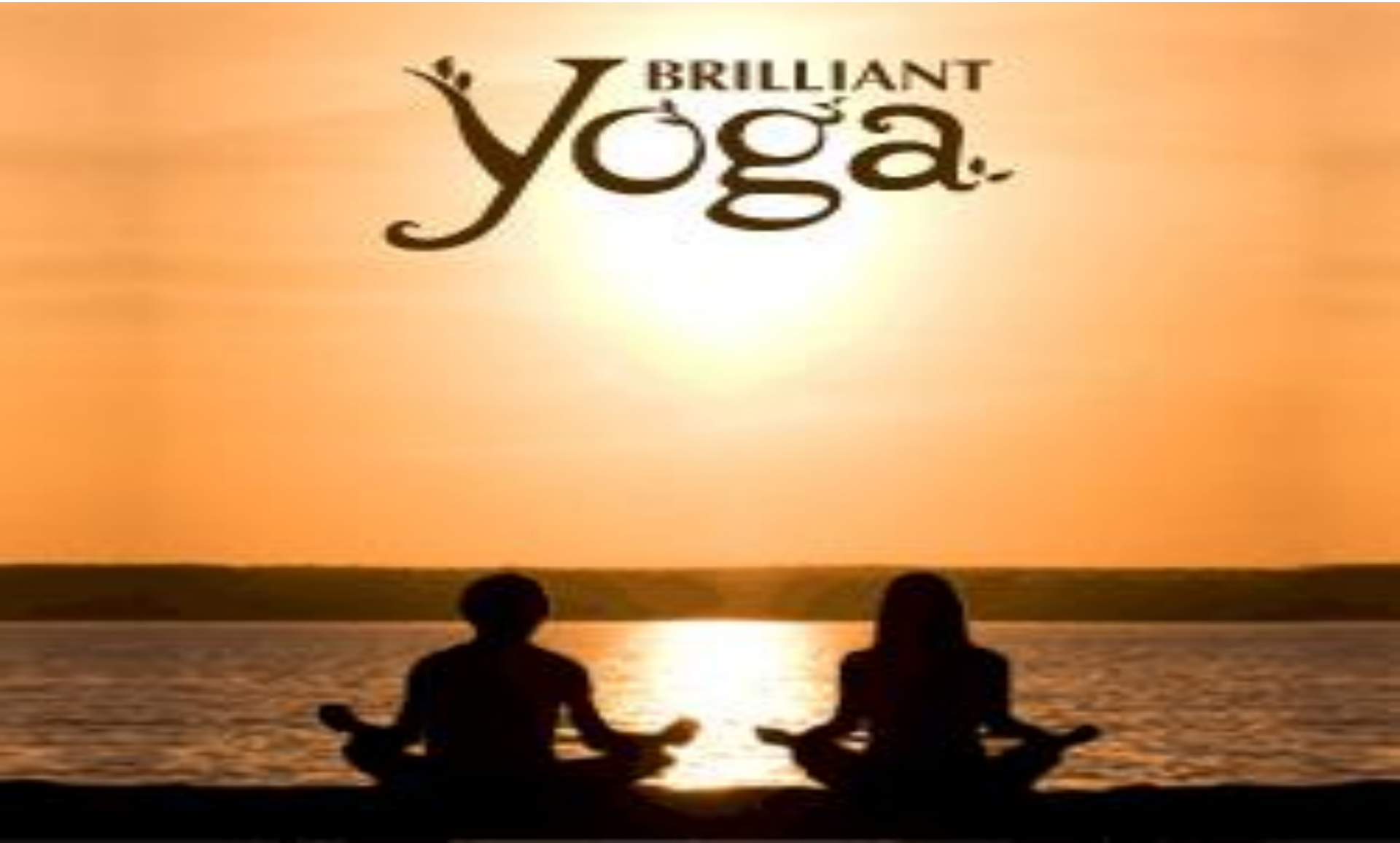
- One receiving medical care
- Enduring pain without complaining
- Calmly tolerating delay. Confusion, etc
- Diligent; persevering

What Components of Yoga Based Therapy Will YOU Incorporate In YOUR Life?

- Take a moment to observe your breath
- Practice mindfulness
- Be willing to explore various dimensions of yoga with your patient or make sure the referral is to an appropriate yoga therapist
- Consider various yoga organizations as a resource (IYAT)
- ENJOY exploring movement

Unique

Grateful



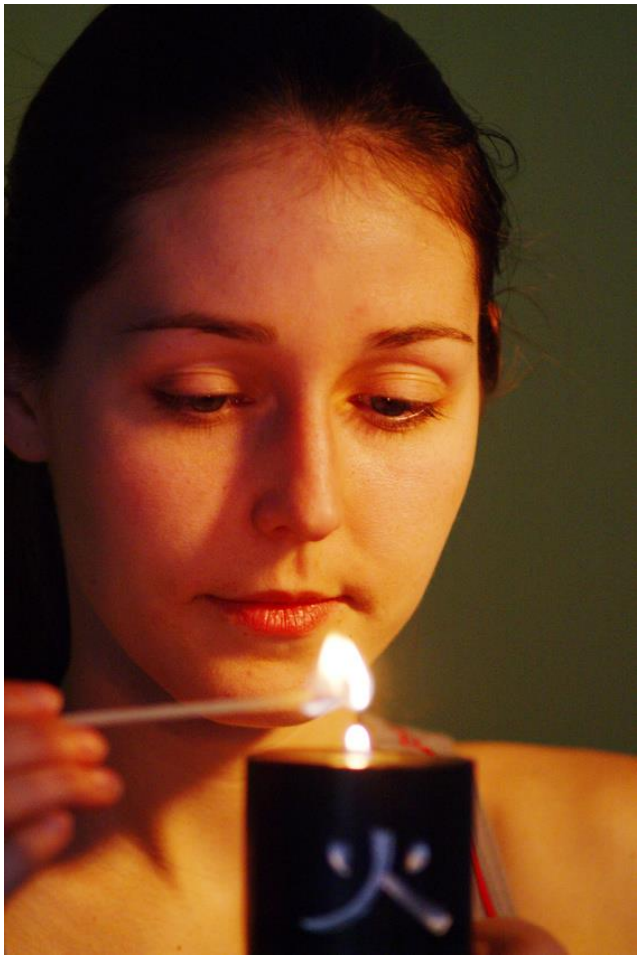
Acknowledgements

- All Cancer Survivors
- Delaware and Philadelphia Community Wellness Centers
- Delaware Cancer Consortium for QOL
- DPT students – Louise DeDea, PT
- Colleagues
- LBBC Team and Support Staff

Replace with: What Yoga CAN DO…

What Cancer Cannot Do

Cancer is so limited....
It cannot cripple love.
It cannot shatter hope.
It cannot corrode faith.
It cannot eat away peace.
It cannot destroy confidence.
It cannot kill friendship.
It cannot shut out memories.
It cannot silence courage.
It cannot reduce eternal life.
It cannot quench the Spirit.



- ***Author Unknown***