



Office of Public Health &
Environmental Hazards



Gulf War Yoga Mat
sold on GAIAM website

Complementary & Alternative Medicine (CAM) Yoga & Research WRIISC CA

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Presented by the **VA War Related Illness and Injury Study Center (WRIISC)**

If you can breathe..... you can do yoga



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The Yoga Experience



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What is CAM?

Ginseng Root



Yoga at EP-II
Conference



- Complementary Medicine
Use of non-western medical treatments *in addition to*
- Alternative Medicine
Use of non-western medical treatments *instead of*

conventional western medicine

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Non-Western Medicine

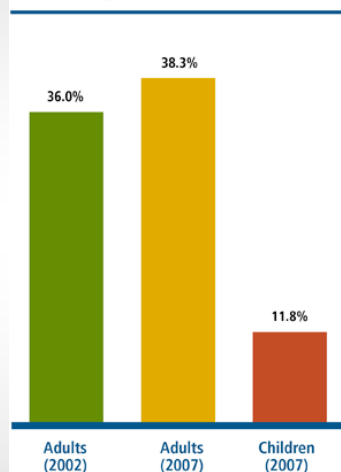
- Natural Products (most commonly use form) – dietary supplements (fish oils, probiotics)
- Mind/Body - Yoga, Meditation, T'ai Chi, Hypnotherapy, Music Therapy
- Manipulative and Body-Based Practice - Chiropractic, Massage Therapy, Rolfing
- Movement Therapies - Feldenkrais method, Alexander technique, Pilates, Dance Therapy
- Energy Therapies – Reiki, QiGong



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National Health Statistics Report on CAM Usage in the United States, 2007

CAM Use by U.S. Adults and Children



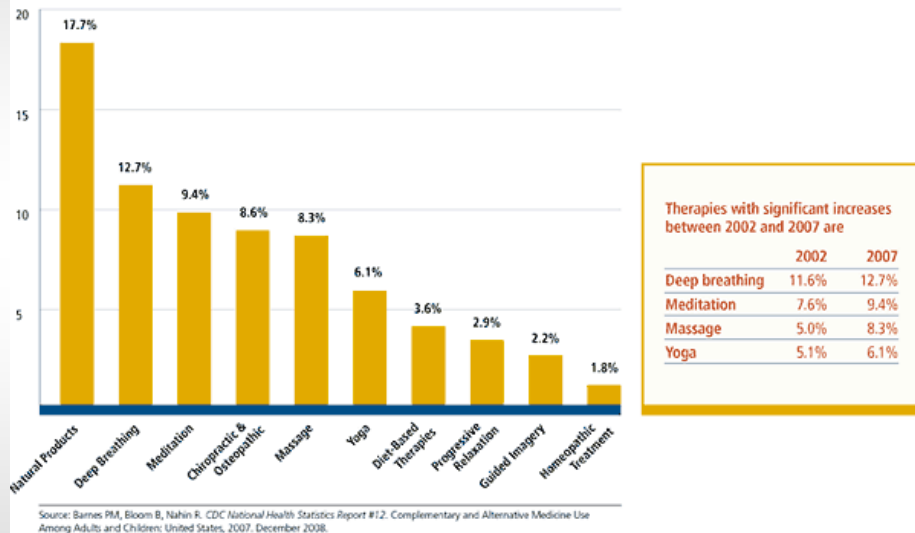
Source: Barnes PM, Bloom B, Nahin R. CDC National Health Statistics Report #12. Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007. December 2008.

- Almost 40% of adults had used CAM in past 12 months
- Majority of those used CAM to treat back pain, neck pain, joint pain or stiffness – similar to 2002 report

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Most Common CAM Therapies

10 Most Common CAM Therapies Among Adults - 2007



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CAM Usage in VA

Healthcare Analysis and Information Group (HAIG) Study
on CAM Utilization in VHA 2002

- 84% of VA facilities provide some form of CAM
- Most common activities include
 - Acupuncture
 - Biofeedback
 - Guided imagery
 - Hypnotherapy
 - Meditation
 - Music therapy
 - Progressive relaxation
 - Stress management

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What is Yoga?



- Developed from ancient Indian religious practice
- Word derived from Sanskrit root “*yuj*” meaning to bind
- Generally conceptualized as union of mind, body, and soul
- Based on the ***Yoga Sutras*** attributed to Patanjali in the 2nd century BCE
- Purpose of yoga is to end suffering of the mind

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8 Limbs of Yoga



1. Yama – moral commandments
2. Niyama – discipline
3. Āsana – postures (what most call “Yoga” in the United States – also termed “Hatha” yoga)
4. Pranayama – control of breath
5. Pratyahara – freedom from domination of the senses and external objects
6. Dharana – concentration
7. Dhyana – meditation
8. Samadhi – super-consciousness

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Physical Practice of Yoga (Asana)

- Most yoga we practiced today in US based on teachings of **Krishnamacharya** (November 18, 1888 – November 3, 1989)
 - Developed active form of yoga (Ashtanga) -
 - Also practitioner of Ayurvedic medicine
 - Father of **T.K.V. Desikachar**
 - Teacher of **Iyengar** (Iyengar - introduced use of props – teach people at any level)
- T.K.V Desikachar
 - Yoga practice is adapted to fit the individual and particular situation of each student – a therapeutic approach – called it Viniyoga initially
 - Mentor of **Richard Miller**, developer of **iRest**



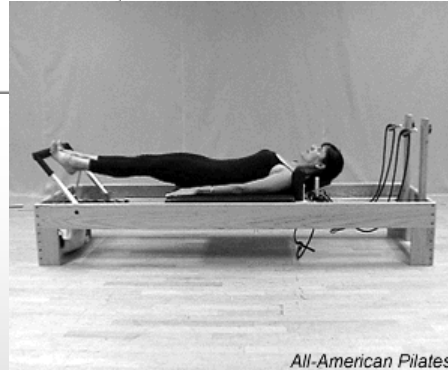
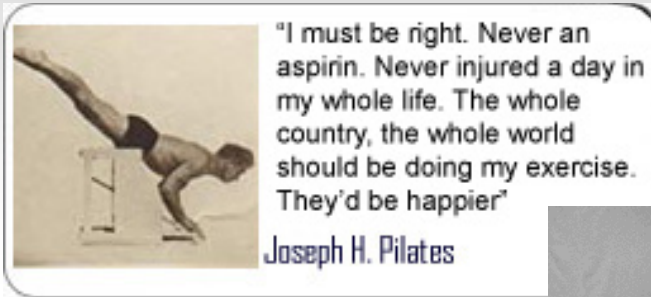
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Ancient vs. Modern

- Most Yoga practiced today developed around the turn of the 20th century!
- Influenced by British Physical culture – gymnastics – brought to Indian palaces during colonization
- Pilates –developed in Britain during WWI, by Joseph Pilates was interned in a Veteran hospital in England. Developed prototype reformer with mattress springs to rehabilitate injured Veterans



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Yoga Certification

Yoga Alliance

- Yoga Alliance
 - Provides standards for yoga teacher training
 - Recognizes appropriate training programs
 - Provides Registration and continuing education requirements
- International Association of Yoga Therapists



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Do we need Research on Yoga and Veterans?

- PubMed search of “Yoga”
 - >1500 published articles
- PubMed search of “Yoga” and “Veteran”
 - 19 published articles – only 2 used Veterans as subjects
 - The effectiveness of Yoga to help reduce chronic low back pain (Groessl, 2008)
 - Yoga as physical fitness in a Veteran nursing home (Hamilton-Word V, 1982)

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Evidence for Yoga as Therapy

Study	Target	Population	Sample	Results
Groessl et al, 2008	Low back pain	Veterans	33	Significantly less: Pain, Depression, Fatigue
Sherman et al, 2005	Chronic low back pain	Civilian Adults	101	Both exercise and yoga reduced pain, yoga superior in medication use reduction
Da Silva et al, 2007	Fibromyalgia	Civilian females	33	RY & RYT improve FIQ scores & reduce VAS scores – RY continued to provide benefit after study
Vera et al, 2009	Sleep and HPA axis	Healthy yoga practitioners & controls	26	Long term yoga practice improves SSQ, increase in cortisol

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Reviews

Literature Review	Target	Results
Yang, (review of 32 articles)	Chronic diseases	Weight loss, lower BP, lower blood glucose, lower cholesterol
Kirkwood et al, (2005) review of 8 studies	Anxiety	Positive but inconclusive results
Chou & Huffman, (2007)	Chronic low back pain	Small advantage of yoga over exercise in some but benefits of yoga last longer than benefits of exercise

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Summary of Benefits

- Reduced back pain
- Lowered stress
- Increased functional ability
- Improved sleep
- Increased cardiovascular health
- Lower cholesterol
- Decrease general pain such as experienced in fibromyalgia

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Possible Mechanisms of Action

- ?
- Improve structural/postural alignment
- Improve muscle tone and flexibility
- Enhance function and regulation of autonomic nervous system and re-setting of chronic pain response
- Modulation of hormones

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SUDARSHAN KRIYA YOGIC BREATHING

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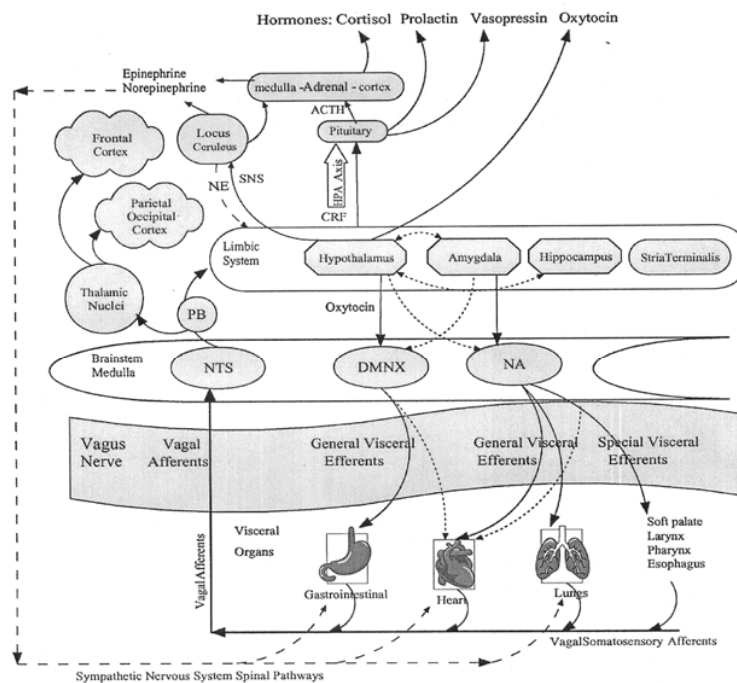
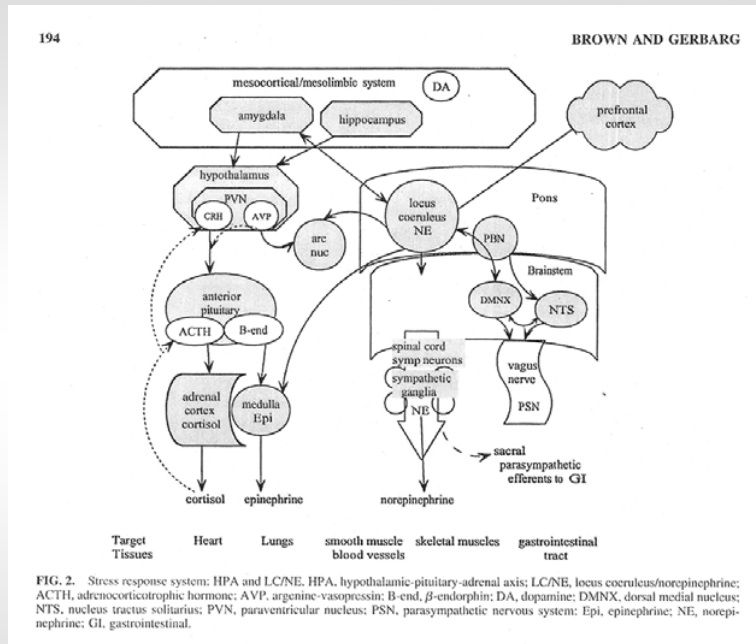


FIG. 1. Neurophysiological model. NTS, nucleus tractus solitarius; DMNX, dorsal medial nucleus; NA, nucleus ambiguus; PB, parabrachial nucleus; ACTH, adrenocorticotropic hormone; CRF, corticotrophin; HPA Axis, hypothalamic-pituitary-adrenal axis; NE, norepinephrine; E, epinephrine; SNS, sympathetic nervous system.

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WRIISC-CA Yoga

**Mind/Body
 Classes Offered**
 at the
 VA Palo Alto Health Care System

WRIISC
 War Related Illness & Injury Study Center

The War Related Illness & Injury
 Study Center (WRIISC)
 at VA Palo Alto Health Care System

- January, 2010 – Program start
- 2 Mat classes – 1/week each
 - Mixed gender mat class
 - Women only mat class
- July 2010, Chair yoga class added
- ~59 referrals to WRIISC yoga through CPRS consult

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WRIISC-CA Yoga (cont'd)

- Mixed gender mat class
 - 20 referrals, 14 have attended at least once, 4 have completed baseline & post 12-week report
- Women only mat class
 - 24 referrals, 10 have attended at least once, 3 have completed baseline & post 12-week
- Chair yoga
 - 15 referral, 10 have attended at least one session, 6 have completed baseline & post 12-week

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Gulf War I Veterans & Yoga

- 36 GWI Veterans visited WRIISC-CA since January 2008
- 5 of 12 (42%) of Veterans who visited when Yoga was offered participated in class
- 18 (50%) expressed an interest in yoga and indicated they would like information about home practice

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Barriers to Attendance?

- Location not convenient
- No transportation
- No childcare
- Conflicts with work schedule
- Class held during high traffic commute time
- Not psychiatrically or medically stable

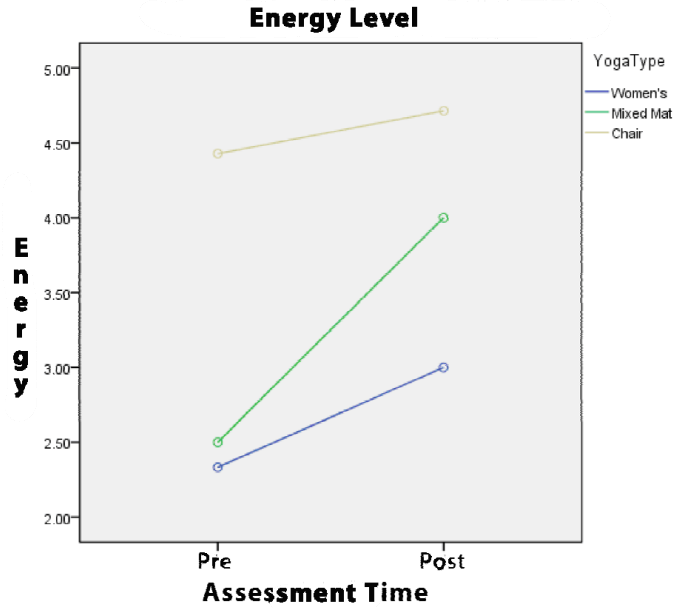
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Pilot Data: n=12

- Feasibility – Will Veterans participate in yoga?
 - Yes, with caveats not related to yoga
- SF-12 – Health and Well-Being
 - Increase in energy – most significant
 - Trend toward improvement in most others areas except depression
- McGill Pain Short Form
 - Decrease in pain intensity

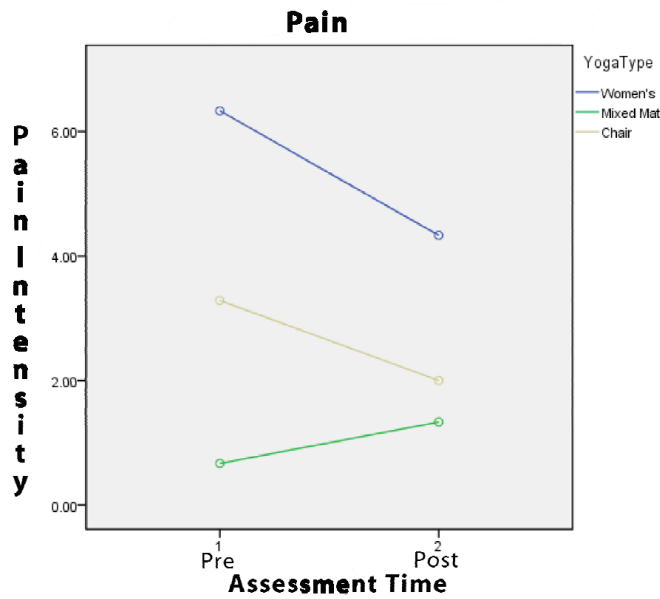
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SF-12 Energy Level



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McGill Pain Short Form



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Pilot Data (cont'd)

- PTSD Checklist (PCL-M)
 - Small trend downward
- Flanders Fatigue Scale
 - Small trend upward
- Yoga Satisfaction Questionnaire

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Yoga Satisfaction – n=12

- Yoga class quality: 5 item scale from poor to excellent:
 - All answered either “Excellent” or “Very Good”
- Do you feel better after class than you did before?
 - All answered “Yes”
- Would you participate in WRIISC yoga again?
 - All answered “Yes”
- Would you recommend WRIISC yoga to a friend?
 - All answered “Yes”
- Have your symptoms improved?
 - 3 answered “Yes, completely”
 - 6 answered “Yes, somewhat”

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Veteran Comments

- “It is one thing I look forward to because for that short amount of time I have hope”
– *Female Operation Iraqi Freedom Veteran*
- “Best thing in years”
– *Male Korean War Veteran*
- “Wonderful for body and soul”
– *Female Gulf War I Veteran*
- “Great class, should meet 2x per week”
– *Male Vietnam War Veteran*”

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Other Benefits

- Provides opportunity for Veterans to bond with other Veterans in a positive space
- Relief from social isolation cause by the illness
- Sense of belonging to a group
- Lets Veterans know that the VA cares about them

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Gulf War Veterans



- Common Symptoms
 - Chronic Pain
 - Chronic Fatigue
 - Disrupted Sleep
 - Gastrointestinal Disorders
 - Anxiety
 - Depression

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12 week Randomized Controlled Trial

- Enroll ~ 100 GWI/OEF/OIF Veterans
- Assess for:
 - Pain
 - Functional disability
 - Sleep
 - Depression
 - Anxiety
 - Memory
 - Genetic factors

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WRIISC Washington, DC
wriisc.dc@va.gov
1-800-722-8340

WRIISC East Orange, NJ
wriisc.nj@va.gov
1-800-248-8005

WRIISC Palo Alto, CA
wriisc.pa@va.gov
1-888-482-4376

WRIISC Referrals

Contact your local WRIISC for referral information.

More information @ www.warrelatedillness.va.gov

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References

1. Groessl EJ, Weingart KR, Aschbacher K, Pada L, Baxi S.(2008). Yoga for veterans with chronic low-back pain, J Altern Complement Med., Nov;14(9),1123-9.
2. Hamilton-Word V, Smith FW, Jessup E. (1982). Physical fitness on a VA nursing home unit, Geriatr Nurs. 3(4), 260-2.
3. Pal, G.K., Velkumary, S., Madanmohan, (2004). Effect of short-term practice of breathing exercises on autonomic functions in normal human volunteers, Indian J Med Res, 120, 115-121.
- Yank, K. (2007). A Review of Yoga Programs for Four Leading Risk Factors of Chronic Diseases, eCAM, 4(4), 487-491.

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Namaste



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