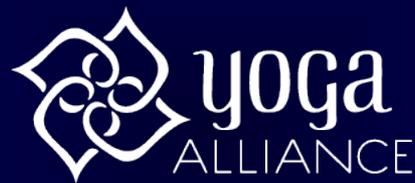




Yoga and the Elderly

Yoga Alliance Webinar

April 16, 2020



Sat Bir S. Khalsa, Ph.D.

Assistant Professor of Medicine, Harvard Medical School

Director of Yoga Research, Yoga Alliance

Director of Research, Kundalini Research Institute

Editor in Chief, International Journal of Yoga Therapy

Research Associate, Benson Henry Institute for Mind Body Medicine

Research Affiliate, Osher Center for Integrative Medicine

Aging Consequences and Challenges

- Diminution in most psychological and physical functioning
- Decline in brain function and structure: risk for cognitive decline, memory deterioration, depression, anxiety
- Bone shrinkage in size and density: risk of fracture
- Loss of muscle strength, endurance, flexibility: risk of falls/balance
- Stiffening blood vessels/arteries: risk of hypertension and CVD's
- Reduced immune function: risk for infectious diseases and cancer
- Weakened sleep integrity: risk for insomnia
- Structural changes in intestines, bladder and prostate: risk for constipation, weak and/or frequent urination, incontinence
- Declines in vision, hearing, skin integrity, sexual health, metabolism
- Overall increase in stress and fall in well-being and quality of life

Yoga Practices

Postures, Breathing, Relaxation, Meditation

Fitness

↑Flexibility
↑Strength
↑Coordination/Balance
↑Respiratory Function
↑Self-Efficacy

Self-Regulation

↑Stress Regulation
↑Emotion Regulation
↑Resilience
↑Equanimity
↑Self-Efficacy

Awareness

↑Attention
↑Mindfulness
↑Concentration
↑Cognition
↑Meta-cognition

Spirituality

↑Unitive State
↑Transcendence
↑Flow
↑Transformation
↑Life Meaning/Purpose

Global Human Functionality

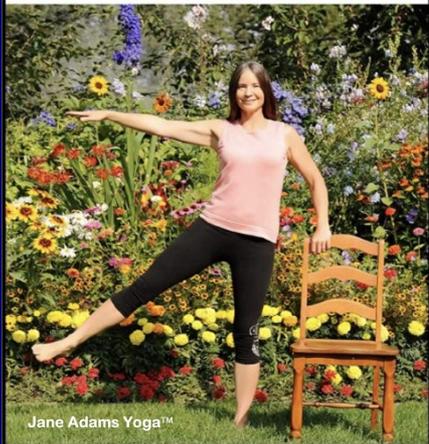
↑Physical & Mental Health, ↑Physical Performance
↑Stress & Emotion Regulation, ↑Awareness/Mindfulness, ↑Meta-cognition
↑Positive Behavior, ↑Wellbeing, ↑Values, ↑Life Purpose & Meaning, ↑Spirituality

Yoga for Seniors

with Jane Adams

3 Complete Programs for Different Levels of Ability

Gentle * Easy to Follow * Effective



Jane Adams Yoga™

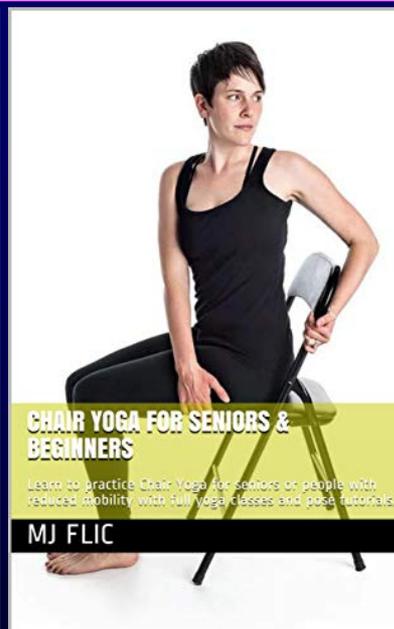
Copyrighted Material



Over 200 Chair and Standing Yoga Poses
for Seniors and the Health-Challenged

Janet Rae Humphrey, E-RYT
Certified Therapeutic Yoga for Seniors Instructor

Copyrighted Material



CHAIR YOGA FOR SENIORS & BEGINNERS

Learn to practice Chair Yoga for seniors or people with reduced mobility with full yoga classes and pose tutorials.

MJ FLIC

Chair Yoga

Seated Exercises
for Health and
Wellbeing



SINGING DRAGON

Edeltraud Rohnfeld

The Best is Yet to Come

Yoga on a chair?
Try if you dare!



Willem Wittstamm, Mangala Singh

CHAIR YOGA FOR SENIORS

Stretches and Poses
that You Can Do
Sitting Down at Home

50
Step-by-Step
Exercises and
Positions



LYNN LEHMKUHL REGISTERED YOGA TEACHER

SIT N FIT CHAIR YOGA

By KRISTINE LEE

SIMPLE
CHAIR
YOGA



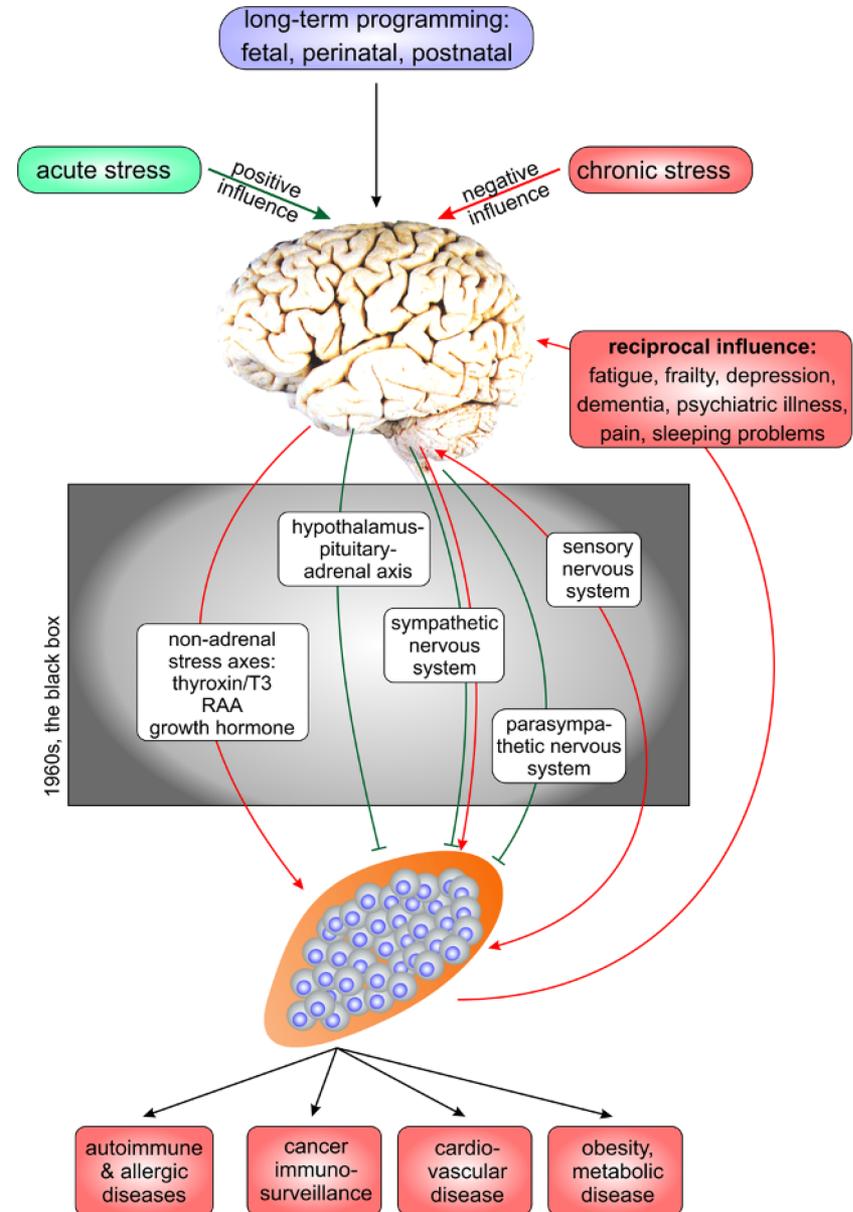
Aging Consequences and Challenges

- Diminution in most psychological and physical functioning
- Decline in brain function and structure: risk for cognitive decline, memory deterioration, depression, anxiety
- Bone shrinkage in size and density: risk of fracture
- Loss of muscle strength, endurance, flexibility: risk of falls/balance
- Stiffening blood vessels/arteries: risk of hypertension and CVD's
- Reduced immune function: risk for infectious diseases and cancer
- Weakened sleep integrity: risk for insomnia
- Structural changes in intestines, bladder and prostate: risk for constipation, weak and/or frequent urination, incontinence
- Declines in vision, hearing, skin integrity, sexual health, metabolism
- Overall increase in stress and fall in well-being and quality of life

Psychoneuro-immunology and Stress

From: *Psychoneuroimmunology-developments in stress research*, Straub RH, Cutolo M, *Wiener Medizinische Wochenschrift*, 168:76-84, 2018.

Fig. 1 Psychoneuroimmunology crosstalk. The brain communicates with the immune system, thereby influencing immune function (*red lines*: stimulating; *green lines*: inhibiting). The immune system communicates with the brain by reciprocal pathways. Both directions are linked to the development of diseases. This is mainly relevant when either psychological stress lasts too long or immune system activation is chronic. In both situations, physical and mental activity are low, which can lead to illness. RAA renin–angiotensin–aldosterone system, T3 triiodothyronine (active thyroid gland hormone)



Yoga Therapy in Practice

The Psychological Benefits of Yoga Practice for Older Adults: Evidence and Guidelines

Kimberlee Bethany Bonura, PhD, RYT

Walden University, Minneapolis, MN

Table 1. *Yoga Practice Recommendations for Older Adults*

<p><i>Benefits of Yoga Practice (Based on Scientific and Clinical Evidence)</i></p>	<ul style="list-style-type: none">• Increased ability to maintain activities of daily living.• Increased self-efficacy for maintaining activities of daily living.• Reduced levels of stress, anxiety, anger, and depression.• Increased self-control over thoughts and emotions.• Improved sleep quality.• Reduced levels of pain.• Opportunity for self-reflection and spiritual inquiry.
-------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



Contents lists available at ScienceDirect

Journal of Bodywork & Movement Therapies

journal homepage: www.elsevier.com/jbmt



PREVENTION & REHABILITATION: LITERATURE REVIEW

Evidence based effects of yoga practice on various health related problems of elderly people: A review

A. Mooventhan*, L. Nivethitha

Department of Research and Development, S-VYASA University, #19, Eknath Bhavan, Kavipuram Circle, Kempegowda Nagar, Bengaluru, 560019, Karnataka, India



“...regular practice of Yoga can be considered as an effective intervention in improving...mental (reduces depression, anxiety), emotional (reduces anger, stress, tension and improve self-efficacy)...planes of elderly individuals, offering a better quality of sleep and quality of life.”

Yoga-based exercise improves health-related quality of life and mental well-being in older people: a systematic review of randomised controlled trials

ALICE TULLOCH¹, HANNAH BOMBELL¹, CATHERINE DEAN¹, ANNE TIEDEMANN²

¹Department of Health Professions, Macquarie University, NSW 2109, Australia

²Sydney School of Public Health, The University of Sydney, NSW 2050, Australia

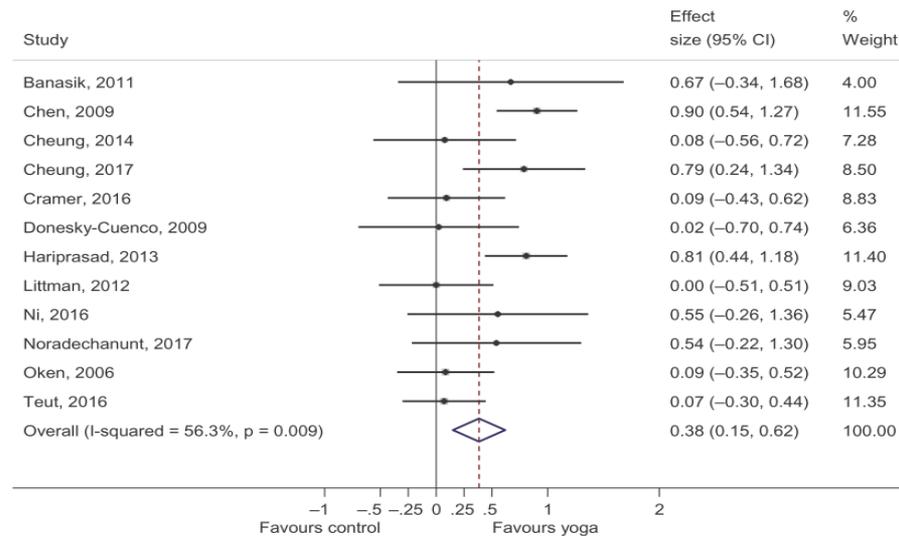
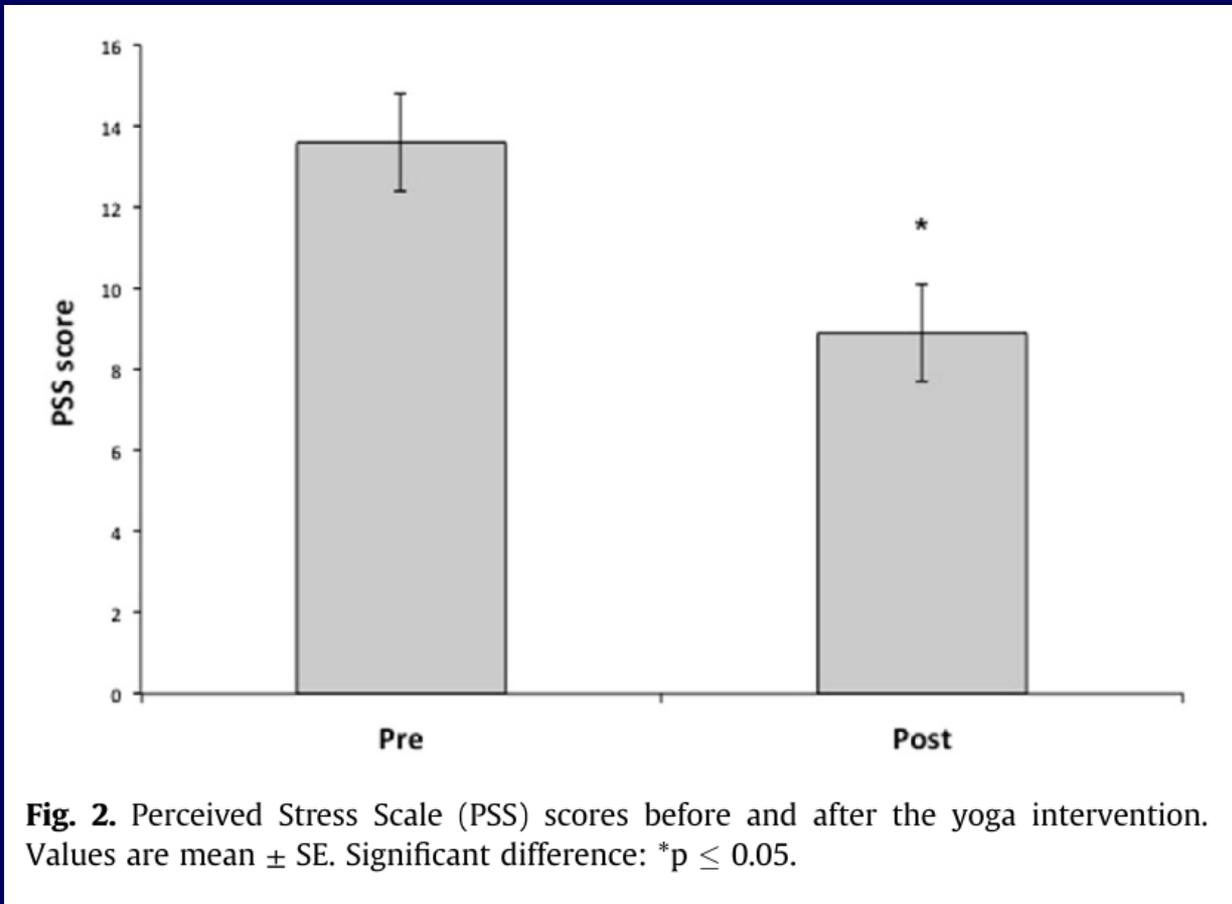


Figure 3 Effect size (95% CI) of yoga on mental well-being by pooling data from 12 studies comparing yoga versus control using random effects meta-analysis ($n = 752$).

Yoga on Stress in the Elderly



From: *Yoga reduces perceived stress and exhaustion levels in healthy elderly individuals.* Lindahl E, Tilton K, Eickholt N, Ferguson-Stegall L. *Complementary Therapies in Clinical Practice*, 24:50-6, 2016.

Yoga on Stress in the Elderly

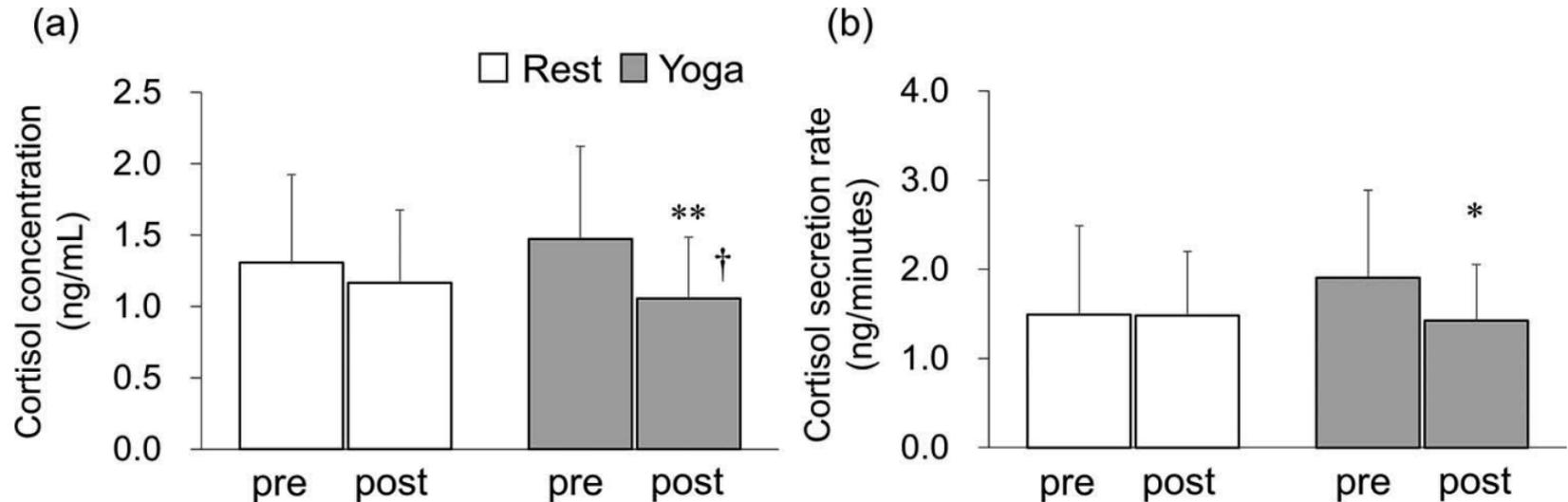


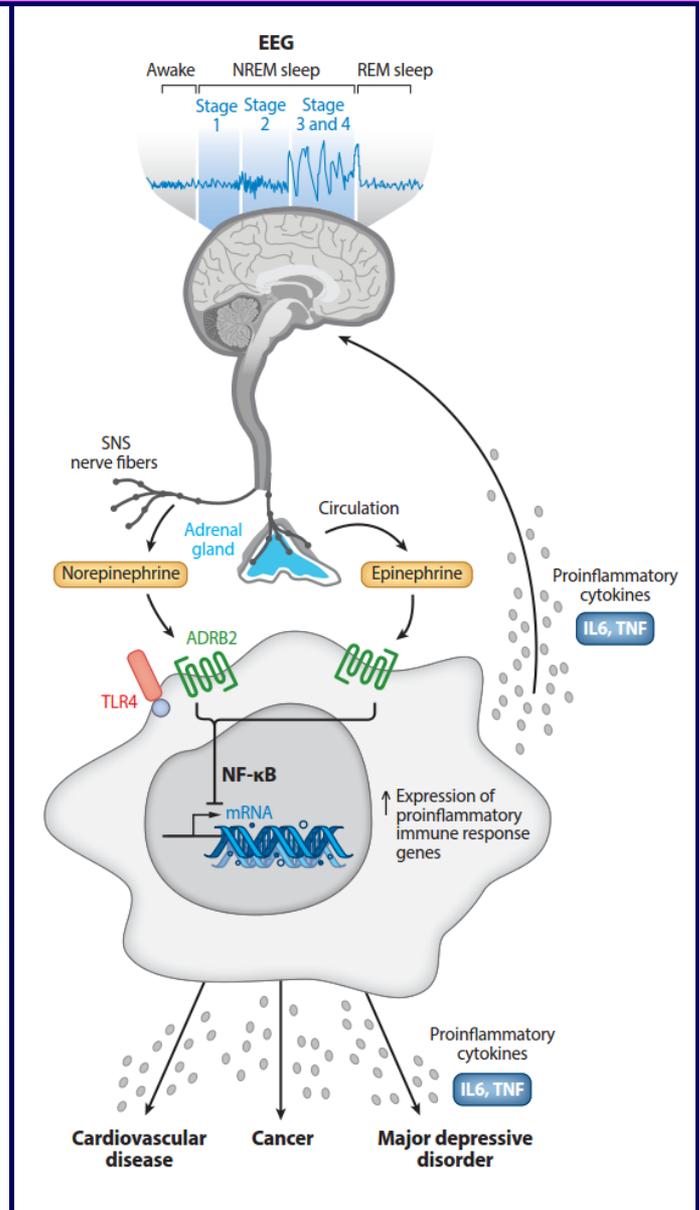
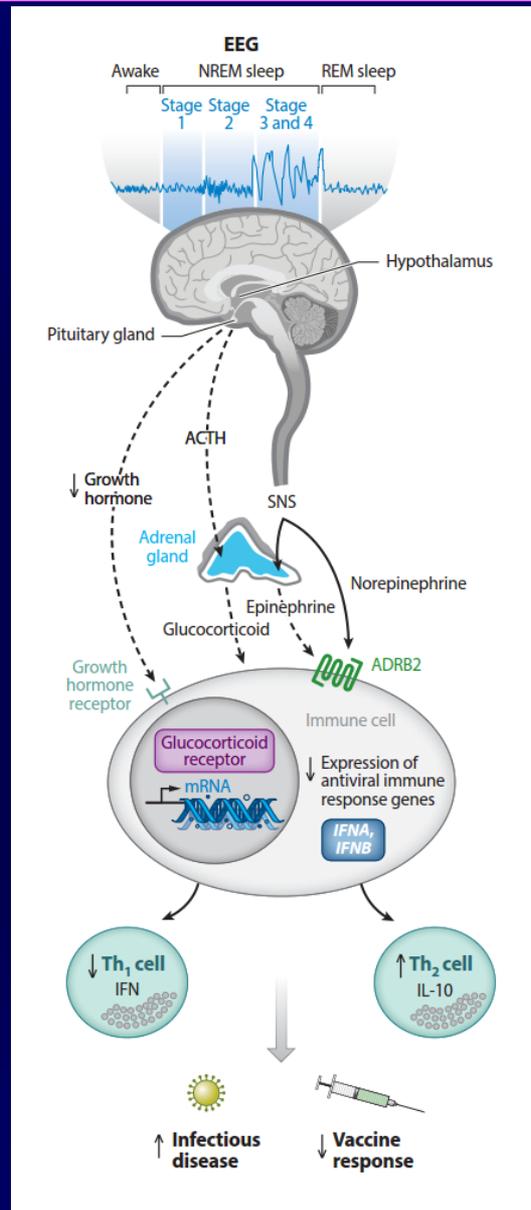
Figure 2. Salivary cortisol concentration (a) and cortisol secretion rate (b) before and after rest and yoga stretching. Data are expressed as mean \pm SD values. * $p < .05$, ** $p < .01$ vs. before yoga (pre), † $p < .05$; rest vs. yoga.

From: *Yoga stretching for improving salivary immune function and mental stress in middle-aged and older adults.* Eda N, Ito H, Shimizu K, Suzuki S, Lee E, Akama T. *Journal of Women and Aging*, 30:227-241, 2018.

Sleep Deprivation/ Disturbance and Immune Function

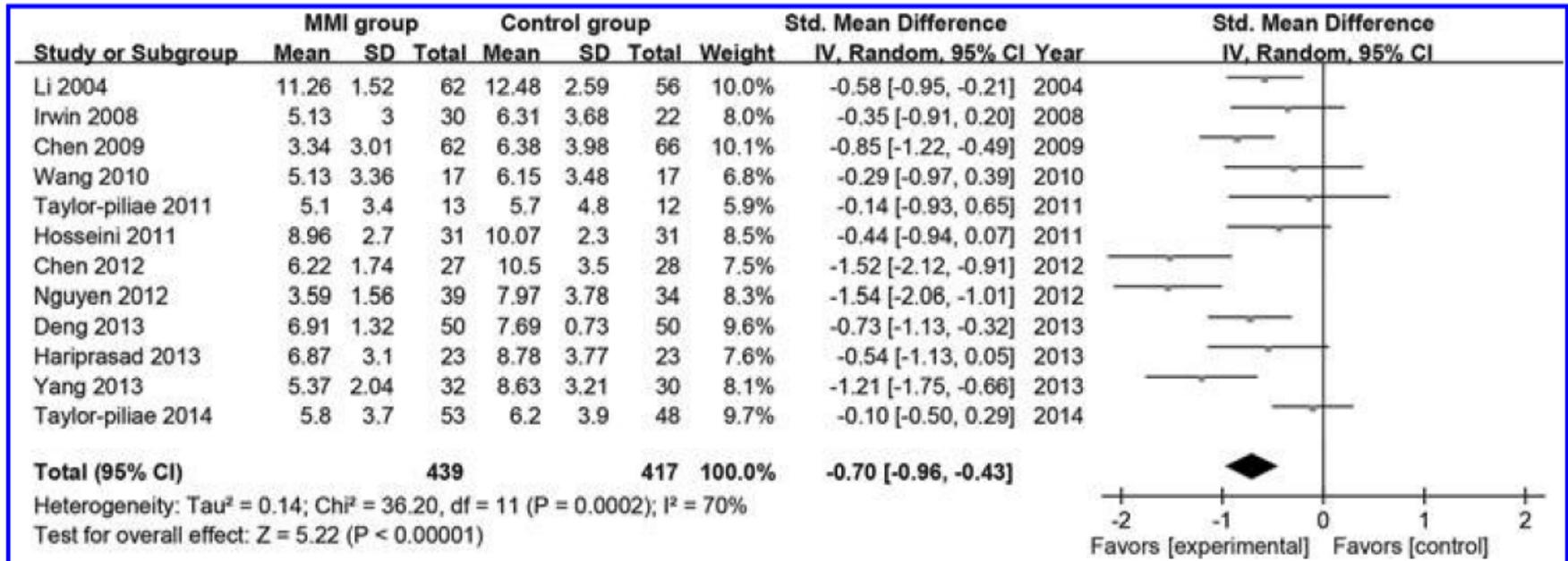
From: *Why sleep is important for health: a psychoneuroimmunology perspective*, Irwin MR, *Annual Review of Psychology* 66:143-72, 2015.

<https://www.annualreviews.org/doi/pdf/10.1146/annurev-psych-010213-115205>



The Effect of a Meditative Movement Intervention on Quality of Sleep in the Elderly: A Systematic Review and Meta-Analysis

Wei-wei Wu, RN, MSc,^{1,2} Enid Kwong, RN, RM, PhD,²
 Xiu-yun Lan, RN, BN,¹ and Xiao-ying Jiang, RN, BN¹



Impact of long term Yoga practice on sleep quality and quality of life in the elderly

Mangesh A. Bankar, Sarika K. Chaudhari¹, Kiran D. Chaudhari²

Department of Pharmacology, Government Medical College, Nagpur, India, ¹Departments of Integrative Physiology, and ²Pharmacology and Neuroscience, University of North Texas Health Science Centre, Fort Worth, Texas, USA

Journal of Ayurveda & Integrative Medicine | January-March 2013 | Vol 4 | Issue 1

Table 2: Scores of various domains of quality of life Leiden-Padua quality of life in Yoga and non-Yoga group participants

Domains	Yoga group (N=35) Mean±SEM	Non-Yoga group (N=30) Mean±SEM	P
PF	1.500±0.1137	4.533±0.5503	<0.0001
SC	0.3529±0.1185	2.467±0.4516	<0.0001
DA	1.765±0.3754	2.733±0.3804	0.0732
CF	1.647±0.3678	3.200±0.4969	0.0042
SF	2.853±0.1798	4.267±0.2534	<0.0001
LS	3.882±0.3424	4.333±0.4189	0.3426

Mann-Whitney U test (To compare the QOL of Yoga and non-Yoga groups), PF=Physical functioning scale, SC=Self-care scale, DA=Depression and anxiety scale, CF=Cognitive functioning scale, SF=Social functioning scale, LS=Life satisfaction scale, QOL=Quality of life

“...older adults practicing Yoga regularly had better overall sleep quality, less episodes of disturbed sleep, took less time to fall asleep, less day time dysfunction, less use of sleep medications and also felt more rested and energetic in the morning.”

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3667430/pdf/JAIM-4-28.pdf>



ELSEVIER

Available online at www.sciencedirect.com

SciVerse ScienceDirect

journal homepage: www.elsevierhealth.com/journals/ctim



National survey of yoga practitioners: Mental and physical health benefits

Alyson Ross^{a,*}, Erika Friedmann^a, Margaret Bevens^b, Sue Thomas^a

^a University of Maryland School of Nursing, Baltimore, MD, United States

^b National Institutes of Health Clinical Center, Bethesda, MD, United States

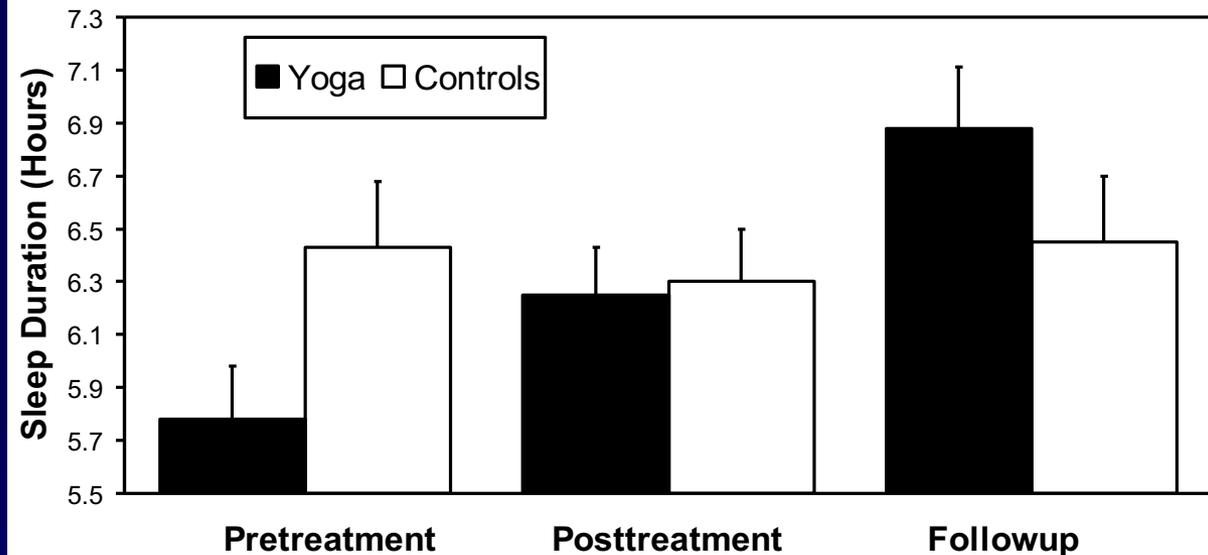
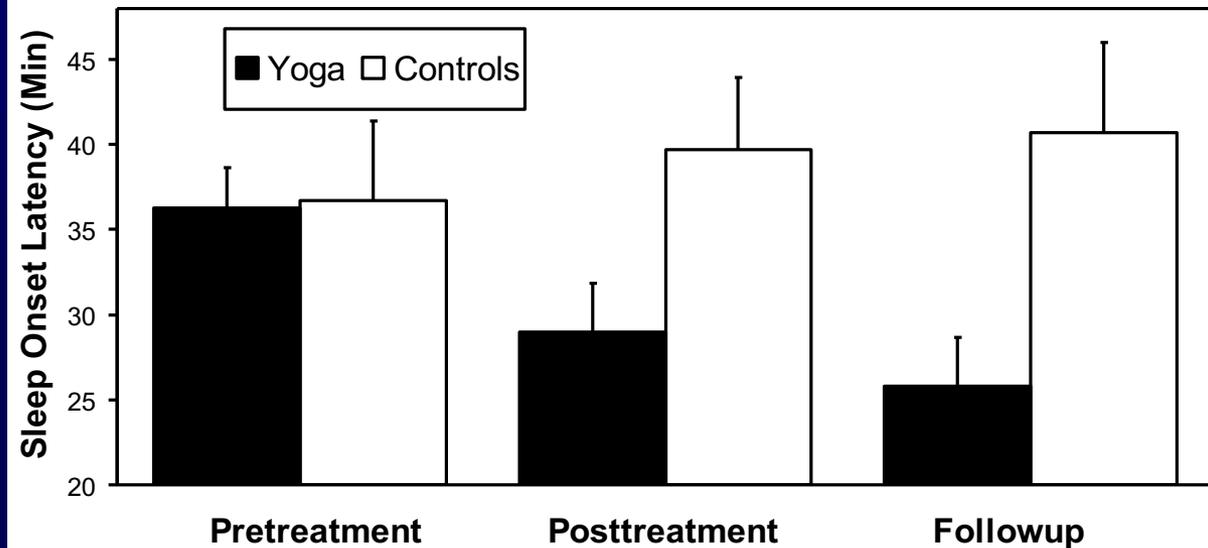
Available online 2 May 2013

“Age also behaved in an interesting manner in...this population. While older individuals commonly experience higher rates of fatigue and sleep disturbances, no such relationship existed in this population of yoga practitioners. Sleep disturbance was unrelated to age, and fatigue levels significantly *decreased* with age.”

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3721070/pdf/nihms475569.pdf>

Yoga on Sleep in the Elderly

From: *Influence of Yoga & Ayurveda on self-rated sleep in a geriatric population*, Manjunath NK, Telles S, *Indian Journal of Medical Research* 121:683-690, 2005.



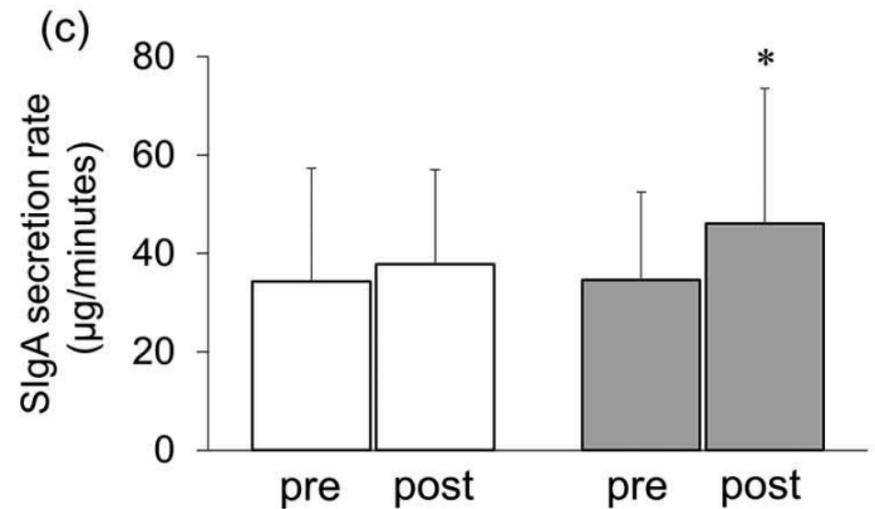
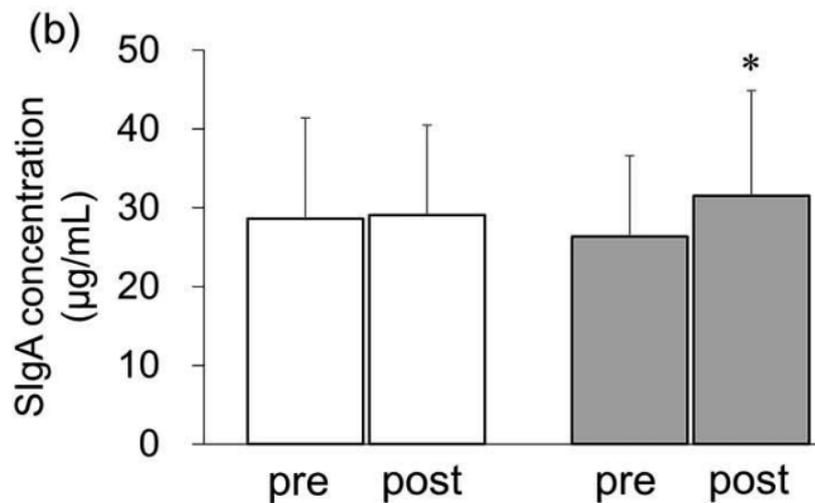
Effects of Yoga on Sleep Quality and Depression in Elders in Assisted Living Facilities

Kuei-Min Chen • Ming-Hsien Chen* • Mei-Hui Lin** • Jue-Ting Fan***
Huey-Shyan Lin**** • Chun-Huw Li*****

“After 6 months of performing yoga exercises, participants’ overall sleep quality had significantly improved, whereas depression, sleep disturbances, and daytime dysfunction had decreased significantly.”

“It is recommended that yoga exercise be incorporated as an activity program in assisted living facilities or in other long-term care facilities to improve sleep quality and decrease depression in institutionalized elders.”

Yoga on Immune Function in the Elderly



From: *Yoga stretching for improving salivary immune function and mental stress in middle-aged and older adults*. Eda N, Ito H, Shimizu K, Suzuki S, Lee E, Akama T. *Journal of Women and Aging*, 30:227-241, 2018.



Join

Log In

Search...

[Become a Member](#)

[Member Benefits](#)

[About Yoga](#)

[Get Involved](#)

[About Us](#)

[Sexual Misconduct Resources](#)

Serving the Yoga Community

[Find a Yoga Teacher](#)

[Find a Yoga School](#)

[Find Continuing Ed](#)

Yoga Alliance® is committed to promoting and supporting the integrity and diversity of the teaching of yoga.





Find: Teachers Schools Continuing Ed

Join | Log In

Search...

New RYS Standards Become a Member Member Benefits About Yoga Get Involved About Us Foundation

Scientific Research on Yoga

Substantial research has been done on many of the populations and parts of the body that COVID-19 preys on most. Use this section of Yoga Alliance's website to learn more about scientific research on the effects of yoga on the **elderly, respiratory function, anxiety, and depression**, to name a few.

Perhaps more than ever, yoga is being widely studied and evaluated for its positive effects and benefits. At Yoga Alliance, we curate the latest and most relevant research on yoga's applications in health, wellness, and disease. We have filtered it in a digestible manner for our Registered Yoga Schools and Registered Yoga Teachers as well as for the broader yoga community.

This evidence-based research not only reveals the science of yoga, it also explains its therapeutic efficacy when used in conjunction with conventional medicine. Our goal is that this impactful content will be utilized in a way that highlights even more of yoga's ancient, multi-faceted ability to improve lives.

Join us! Let us know how research on yoga is important or valuable to you on social media (@YogaAlliance) or by emailing us at research@yogaalliance.org. We honor and value your personal experiences and look forward to featuring your stories.

Our Research Conversation

Our Director of Yoga Research



Our Director of Yoga Research Dr. Sat Bir Singh Khalsa is a renowned yoga research expert and yoga teacher who has committed his professional life to clinical research surrounding yoga's full spectrum of healing efficacy.

Learn More

Featured Research Video



Learn about the process of aging and how yoga affects (and even slows down) aging.

Watch Now

Featured Health News



Visit our COVID-19 website, YourYA.org, for the most recent and applicable information on the coronavirus and the COVID-19 pandemic.

Learn More

Main Research Categories



Basic Research



Special Populations



Disease and Disorders

Archived Videos

Browse our selection of **yoga research videos** to learn more about research done in specific categories of health and wellness.

The Elderly and Aging Balance, Falling, Mobility, Cognition, Memory, Sleep, Dementia

Video Spotlight: Aging



Watch this video to learn more about the research conducted on yoga and aging.

Our hope is for yoga schools and yoga teachers to utilize this impactful content in their teachings to promote and highlight yoga's evident multi-faceted ability to improve lives. Let us know how research on yoga is important or valuable to you on social media (@YogaAlliance) or by emailing us at research@yogaalliance.org. We honor and value your personal experiences and look forward to featuring your stories.

These citations were curated by Yoga Alliance's Director of Yoga Research, [Dr. Sat Bir Singh Khalsa](#).

Main Research Categories



Basic
Research



Special
Populations



Disease and
Disorders

Review Papers [\(What's this?\)](#)

The effects of yoga compared to active and inactive controls on physical function and health related quality of life in older adults- systematic review and meta-analysis of randomised controlled trials.

Sivaramakrishnan D, Fitzsimons C, Kelly P, Ludwig K, Mutrie N, Saunders DH, Baker G.

Int J Behav Nutr Phys Act. 2019 Apr 5;16(1):33.

[\[full text \]](#)

Yoga-based exercise improves health-related quality of life and mental well-being in older people: a systematic review of randomised controlled trials.

Tulloch A, Bombell H, Dean C, Tiedemann A.

Age Ageing. 2018 Jul 1;47(4):537-544.

[\[full text \]](#)

Mind-Body Therapies for Late-Life Mental and Cognitive Health.

Laird KT, Paholpak P, Roman M, Rahi B, Lavretsky H.

Curr Psychiatry Rep. 2018 Jan 25;20(1):2.

[\[abstract \]](#)

Notable Publications [\(What's this?\)](#)

Greater Anteroposterior Default Mode Network Functional Connectivity in Long-Term Elderly Yoga Practitioners.

Santaella DF, Balardin JB, Afonso RF, Giorjani GM, Sato JR, Lacerda SS, Amaro E Jr, Lazar S, Kozasa EH.

Front Aging Neurosci. 2019 Jul 2;11:158.

[\[full text \]](#)

Effects of yoga on well-being and healthy ageing: study protocol for a randomised controlled trial (FitForAge).

Östh J, Diwan V, Jirwe M, Diwan V, Choudhary A, Mahadik VK, Pascoe M, Hallgren M.

BMJ Open. 2019 May 29;9(5):e027386.

[\[full text \]](#)

Hatha Yoga Practice Improves Attention and Processing Speed in Older Adults: Results from an 8-Week Randomized Control Trial.

Gothe NP, Kramer AF, McAuley E.

J Altern Complement Med. 2017 Jan;23(1):35-40.

[\[abstract \]](#)