2025 International Congress on Integrative Medicine & Health

S25: Yoga and Spirituality: The Underlying Psychophysiology and the Research Evidence in Healthy and Patient Populations

Presenters:

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Brigham and Women's Hospital
Founding Member, Mass General Brigham

Harvard Medical School

Introduction to Yoga and Spirituality

ICIMH 2025 Symposium S25
Yoga and Spirituality:
The Underlying Psychophysiology and the Research Evidence in Healthy and Patient Populations
March 6, 2025

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Associate Professor of Medicine, Harvard Medical School
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

Spirituality and it's Relevance for Health Care

Towards clarification of the meaning of spirituality

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TANYI R.A. (2002) *Journal of Advanced Nursing* **39**(5), 500–509

"Spirituality and religion are often used interchangeably, but the two concepts are different."

"Some authors agreed that religion involves an organized entity, such as an institution with certain rituals, values, practices, and beliefs about God or a higher power. Religions also have definable boundaries and may provide guidelines to which individuals adhere."

"Conversely, many authors acknowledge that spirituality involves an individual's search for meaning in life, wholeness, peace, individuality, and harmony, and is a biological, and integral component of being human. Spirituality is also described as a way of being; an energizing force that propels individuals to reach their optimal potential; a meaningful and extensive way of knowing the world; and is expressed through several personal mechanisms such as meditation…"

J Behav Med (2017) 40:39–51
DOI 10.1007/s10865-016-9755-5

Advancing our understanding of religion and spirituality in the context of behavioral medicine

Crystal L. Park[1] · Kevin S. Masters[2] · John M. Salsman[3] · Amy Wachholtz[2,4] · Andrea D. Clements[5] · Elena Salmoirago-Blotcher[6] · Kelly Trevino[7] · Danielle M. Wischenka[8]

"Recognizing and understanding the potentially powerful roles that religiousness and spirituality (RS) may serve in the prevention and amelioration of disease, as well as symptom management and health related quality of life, significantly enhances research and clinical efforts across many areas of behavioral medicine."

“Reimagining the future of public health should address integrating deeply valued spiritual determinants of health that shape ultimate meaning, purpose, transcendence, and connectedness for individual well-being and population health.”

By Katelyn N. G. Long, Xavier Symons, Tyler J. VanderWeele, Tracy A. Balboni, David H. Rosmarin, Christina Puchalski, Teresa Cutts, Gary R. Gunderson, Ellen Idler, Doug Oman, Michael J. Balboni, Laura S. Tuach, and Howard K. Koh

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HEALTH AFFAIRS 43,
NO. 6 (2024): 783–790

ANALYSIS

Spirituality As A Determinant Of Health: Emerging Policies, Practices, And Systems

ABSTRACT **Reimagining public health's future should include explicitly considering spirituality as a social determinant of health that is linked to human goods and is deeply valued by people and their communities. Spirituality includes a sense of ultimate meaning, purpose, transcendence, and connectedness. With that end in mind, we assessed how recommendations recently issued by an expert panel for integrating spiritual factors into public health and medicine are being adopted in current practice in the United States. These recommendations emerged from a systematic review of empirical evidence on spirituality, serious illness, and population health published between 2000 and 2022. For each recommendation, we reviewed current federal, state, and local policies and practices recognizing spiritual factors, and we considered the ways in which they reflected the panel's recommendations. In this article, we highlight opportunities for broader application and scale while also noting the potential harms and benefits associated with incorporating these recommendations in various contexts. This analysis, while respecting the spiritual and religious diversity of the US population, identifies promising approaches for strengthening US public health by integrating spiritual considerations to inform person- and community-centered policy and practice.**

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Reimagining the future of public health should address integrating deeply valued spiritual determinants of health that shape ultimate meaning, purpose, transcendence, and connectedness for individual well-being and population health.[1–4] Although the definitions of *spirituality* and *religion* vary by academic discipline, multidisciplinary international consensus conferences have defined *spirituality* as a “dynamic and intrinsic aspect of humanity through which persons seek ultimate meaning, purpose, and transcendence, and experience relationship to self, family, others, community, society, nature, and the significant or sacred,”[3] and *religion* as the search for significance within the context of established institutions oriented to facilitating spirituality.[5,6] Leading scholars of public health, medicine, and religion define *spiritual determinants of health* as the spiritual or religious aspects of a person's life leading to health and well-being.[1]

Although some may view these topics as beyond the bounds of formal public health, a historical view highlights their age-old influence in promoting individual and population well-being. For millennia, faith organizations and networks have integrated spiritual factors into

Including Spirituality Into a Fuller Picture of Research on Whole Person Health

Director's Page
Helene M. Langevin, M.D.

August 18, 2023

Does health have a spiritual dimension? For many, the answer is yes. As the National Center for Complementary and Integrative Health (NCCIH) team looks ahead to the development of our next strategic plan, I hope to get a conversation started about how we may thoughtfully include spirituality as one of the domains of research on whole person health.

Helene M. Langevin, M.D.

As we strive to better understand the components of overall health, we'll need to answer a core question. What are the elements of spiritual health that would be most amenable to research and would interconnect with the biological, behavioral, social, and environmental domains that we study? Although it will be challenging to define data elements and research methods related to spirituality, I am encouraged by recent discussions with our Advisory Council on this issue and with our interactions with the Veterans Health Administration's (VHA) Office of Patient Centered Care & Cultural Transformation, which has put spirituality front and center in their Whole Health patient care model.

Positive spiritual experiences are often defined as a sense of oneness and connection to others, a higher power, or the natural world. Spirituality is often linked to a sense of meaning and purpose in life, which also represents connections. Spiritual "unhealth," in contrast, could be viewed as disconnection, a sense of isolation, unmooring, or hopelessness.

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Past Messages From the Director

Including Spirituality Into a Fuller Picture of Research on Whole Person Health
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https://www.nccih.nih.gov/about/offices/od/director/past-messages/including-spirituality-into-a-fuller-picture-of-research-on-whole-person-health?nav=govd

Clinical Review & Education

JAMA | Special Communication JAMA. 2022;328(2):184-197. doi:10.1001/jama.2022.11086

Spirituality in Serious Illness and Health

Tracy A. Balboni, MD, MPH; Tyler J. VanderWeele, PhD; Stephanie D. Doan-Soares, DrPH; Katelyn N. G. Long, DrPH, MSc; Betty R. Ferrell, PhD, RN; George Fitchett, DMin, PhD; Harold G. Koenig, MD, MHSc; Paul A. Bain, PhD, MLS; Christina Puchalski, MD, MS; Karen E. Steinhauser, PhD; Daniel P. Sulmasy, MD, PhD; Howard K. Koh, MD, MPH

Table 5. Spirituality in Health: Multidisciplinary Delphi Expert Panel 3 Top-Ranked Suggested Implications for Serious Illness and Health Outcomes[a]

Ranking of suggested implication	Suggested implication	
	Serious illness	Health outcomes
Highest ranking	Routinely incorporate spiritual care into the medical care of patients with serious illness.	Incorporate patient-centered and evidence-based approaches regarding the beneficial associations of religious/spiritual community participation to improve medical care and population health.
Second highest ranking	Include spiritual care education in the training of all members of the interdisciplinary medical team caring for seriously ill patients.	Increase awareness among public health professionals of evidence of protective health associations of religious/spiritual community participation.
Third highest ranking	Include specialty practitioners of spiritual care (eg, chaplains) in the care of patients with serious illness.	Recognize spirituality as a social factor associated with health in research, community assessments, and program implementation.

[a] The full lists of ranked suggested implications are available in eAppendixes 6A and 6B in the Supplement.

The NEW ENGLAND JOURNAL of MEDICINE

N ENGL J MED 390;12

Perspective

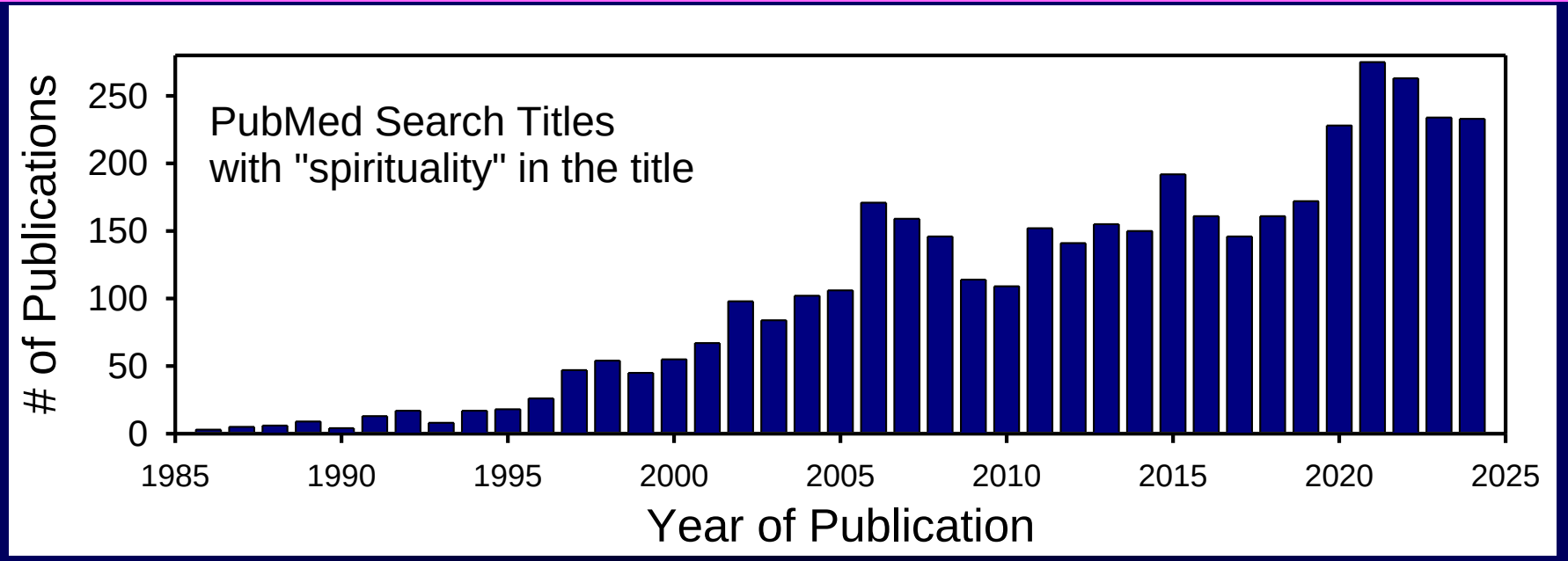
MARCH 21/28, 2024

FUNDAMENTALS OF MEDICAL ETHICS

Physicians, Spirituality, and Compassionate Patient Care

Daniel P. Sulmasy, M.D., Ph.D.

"The past few decades have seen an international revival of interest in the role of spirituality in patient care. … I believe this trend is salutary for patients and health care professionals alike."


PubMed Search Titles
with "spirituality" in the title
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50
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150
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250
1985
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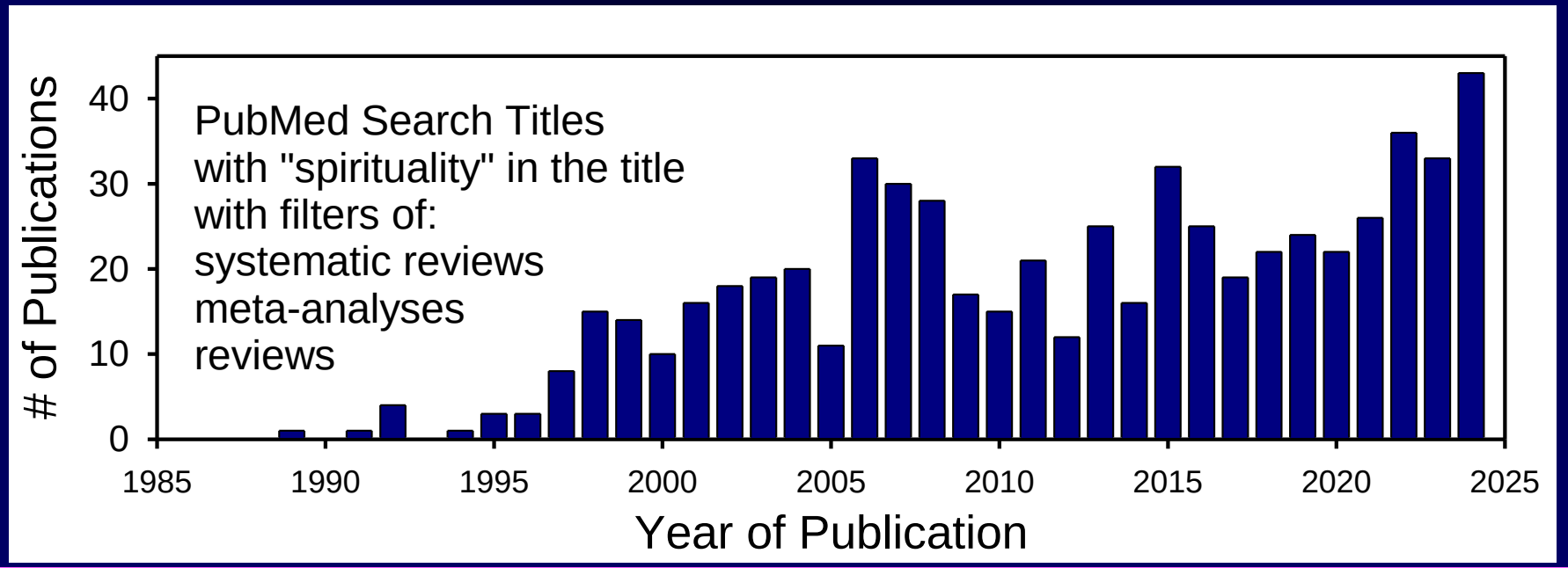
2015
2020
2025
Year of Publication


PubMed Search Titles
with "spirituality" in the title
with filters of:
systematic reviews
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2020
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Year of Publication

Contemplative States

The Mystical Experience

"They are transient states of consciousness, usually lasting for only a few minutes and distinctly different from normal consciousness. The person typically experiences them passively, not a product of personal will or control, and has a difficult time expressing the experience in words. They usually are intensely positive, joyful experiences, and often the person senses the presence of an awe-inspiring transcendent Other. Often there is a noetic element of revelation, a sudden knowing of a new truth. An experience of unity is common; for example, an ineffable oneness with all of humankind, with nature, or the universe."

From: *The phenomenon of quantum change. Miller WR, Journal of Clinical Psychology 60:453-60, 2004.*

The Mystical Experience

Samadhi
Sahaja
Nirvana
Turiya
Moksha
Bodhi
Satori

Mystical State
Unitive State
Enlightenment
Kundalini Awakening
Spiritual Awakening
Transcendence
Peak Experience
Cosmic Consciousness
Universal Consciousness
Noetic Experience
Flow State
Insight
Quantum Change

Oneness
Union
Nonduality
Ecstacy
Bliss
Absorption
Merger
Consummation
Rapture

Quantifying the Mystical Experience

Table 2. Four Factors of the MEQ30, With Corresponding Items

Factor and cluster	Item
Mystical	
Internal unity	Freedom from the limitations of your personal self and feeling a unity or bond with what was felt to be greater than your personal self. Experience of pure being and pure awareness (beyond the world of sense impressions). Experience of oneness in relation to an "inner world" within. Experience of the fusion of your personal self into a larger whole. Experience of unity with ultimate reality. Feeling that you experienced eternity or infinity.
External unity	Experience of oneness or unity with objects and/or persons perceived in your surroundings. Experience of the insight that "all is One." Awareness of the life or living presence in all things.
Noetic quality	Gain of insightful knowledge experienced at an intuitive level. Certainty of encounter with ultimate reality (in the sense of being able to "know" and "see" what is really real at some point during your experience). You are convinced now, as you look back on your experience, that in it you encountered ultimate reality (i.e., that you "knew" and "saw" what was really real).
Sacredness	Sense of being at a spiritual height. Sense of reverence. Feeling that you experienced something profoundly sacred and holy.
Positive mood	Experience of amazement. Feelings of tenderness and gentleness. Feelings of peace and tranquility. Experience of ecstasy. Sense of awe or awesomeness. Feelings of joy.
Space-time	Loss of your usual sense of time. Loss of your usual sense of space. Loss of usual awareness of where you were. Sense of being "outside of" time, beyond past and future. Being in a realm with no space boundaries. Experience of timelessness.
Ineffability	Sense that the experience cannot be described adequately in words. Feeling that you could not do justice to your experience by describing it in words. Feeling that it would be difficult to communicate your own experience to others who have not had similar experiences.

Note: MEQ30 = 30-item Mystical Experience Questionnaire. Based on Barrett et al. (2015). All of the items in the mystical factor load together. Barrett et al. used the cluster headings to organize the mystical items, presumably to show their relationship to Stace's (1960) criteria.

From: *Mystical and other alterations in sense of self: An expanded framework for studying nonordinary experiences. Taves A, Perspectives on Psychological Science 15:669-690, 2020.*

Psychoactive Drug Studies

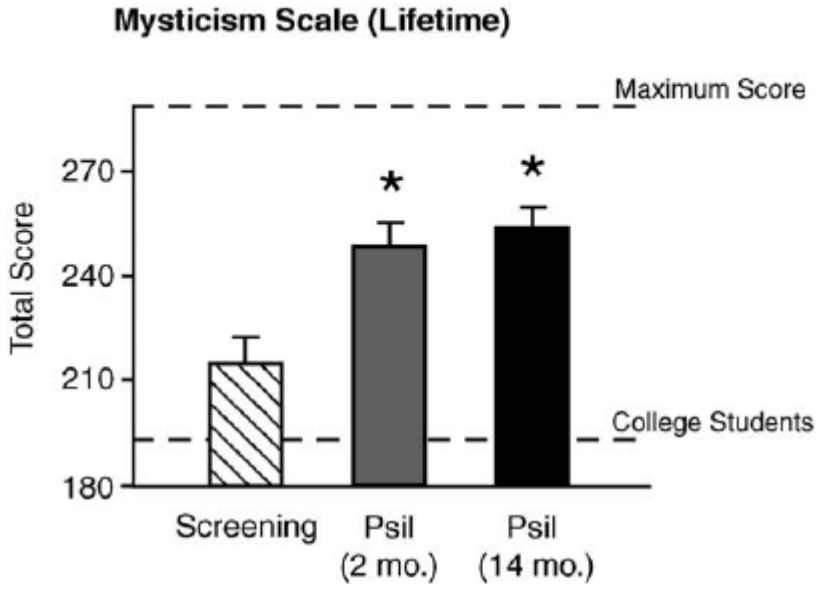


Figure 1 Total score on lifetime version of the Mysticism Scale at screening, 2 months following psilocybin, and at the 14-month follow-up. Bars are mean scores with brackets showing 1 SEM ($N = 36$). Asterisks show significant differences from the screening assessment. For comparison, lower dashed line shows mean score for college students (Hood, *et al.*, 2001; Ralph W. Hood Jr, 2007, personal communication); upper dashed line show maximum possible score.

From: *Mystical-type experiences occasioned by psilocybin mediate the attribution of personal meaning and spiritual significance 14 months later, Griffiths RR, Richards WA, Johnson MW, McCann UD, Jesse R, Journal of Psychopharmacology, 22:621–632, 2008.*

Neurophysiological Mechanisms

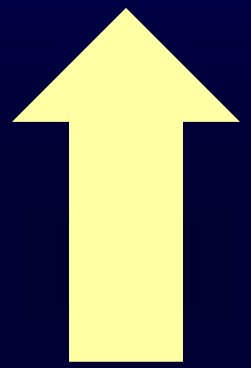
"We have highlighted an intriguing overlap in neural findings on classic hallucinogens and neural findings on meditative practices that may occasion mystical experiences. More specifically, changes in activity, connectivity, and neural oscillatory processes in regions of the default mode network may underlie dimensions of mystical experience, especially decreased self-referential processing and altered sense of time and space that accompany introvertive mystical experiences."

From: *Classic Hallucinogens and Mystical Experiences: Phenomenology and Neural Correlates. Barrett FS, Griffiths RR, Current Topics in Behavioral Neuroscience 36:393-430, 2018.*
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6707356/pdf/nihms-1044542.pdf

"…these studies collectively suggest the possibility that the pattern and structure of communication between brain networks constitutes the neurobiological basis of consciousness, such that alterations of consciousness are driven by alterations of communication between brain regions."

From: *Classic psychedelics: An integrative review of epidemiology, therapeutics, mystical experience, and brain network function. Johnson MW, Hendricks PS, Barrett FS, Griffiths RR. Pharmacology and Therapeutics, 197:83-102, 2019.*

Spirituality



Experience of Contemplative States

Quantum Change

"A common response, when we asked people what had changed, was "everything."

"…they often reported a sense of settled peacefulness and safety as an immediate and enduring aftereffect."

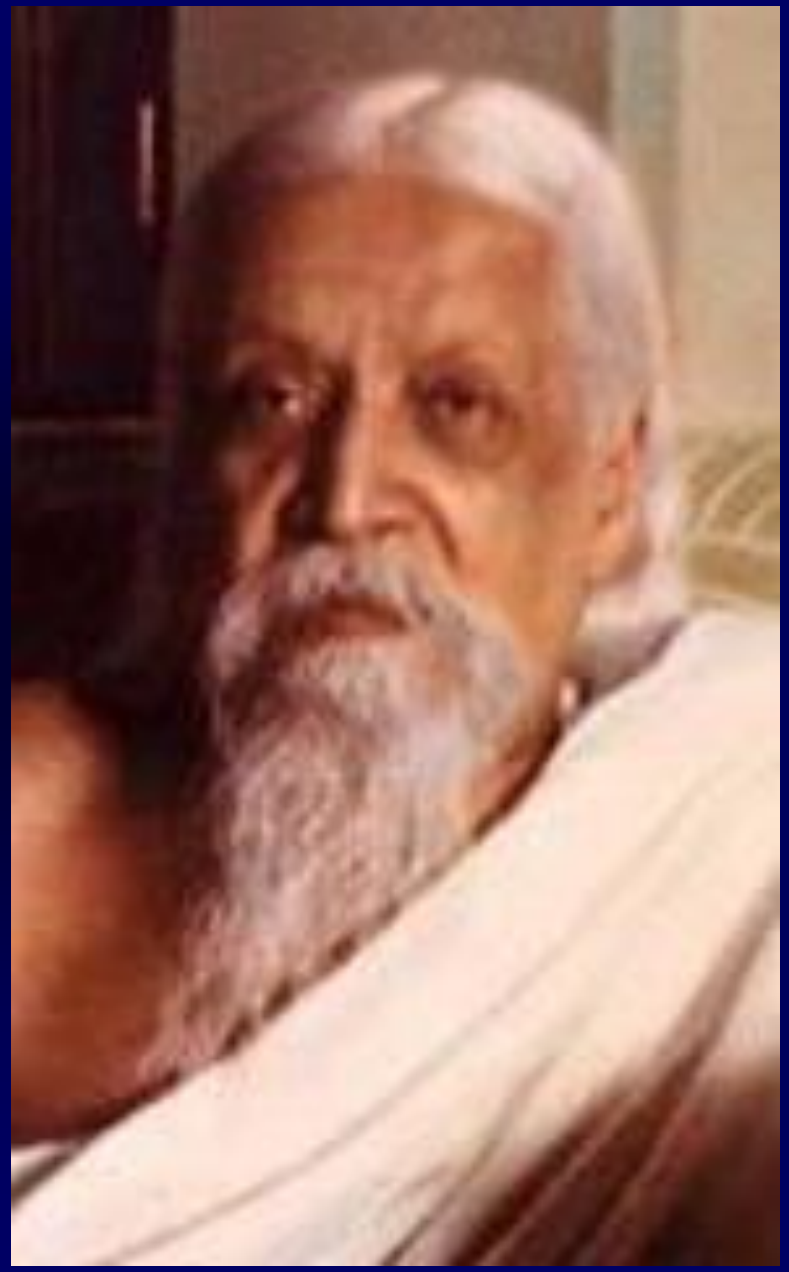
"Another major change that quantum changers reported was in their values and priorities…an abrupt and enduring shift in their most central values…"They were no longer possessed by their possessions. Often, characteristics that had been valued least became most important, and those that had ranked as highest priorities fell to the bottom. Spirituality, though not necessarily religion, became central for many."

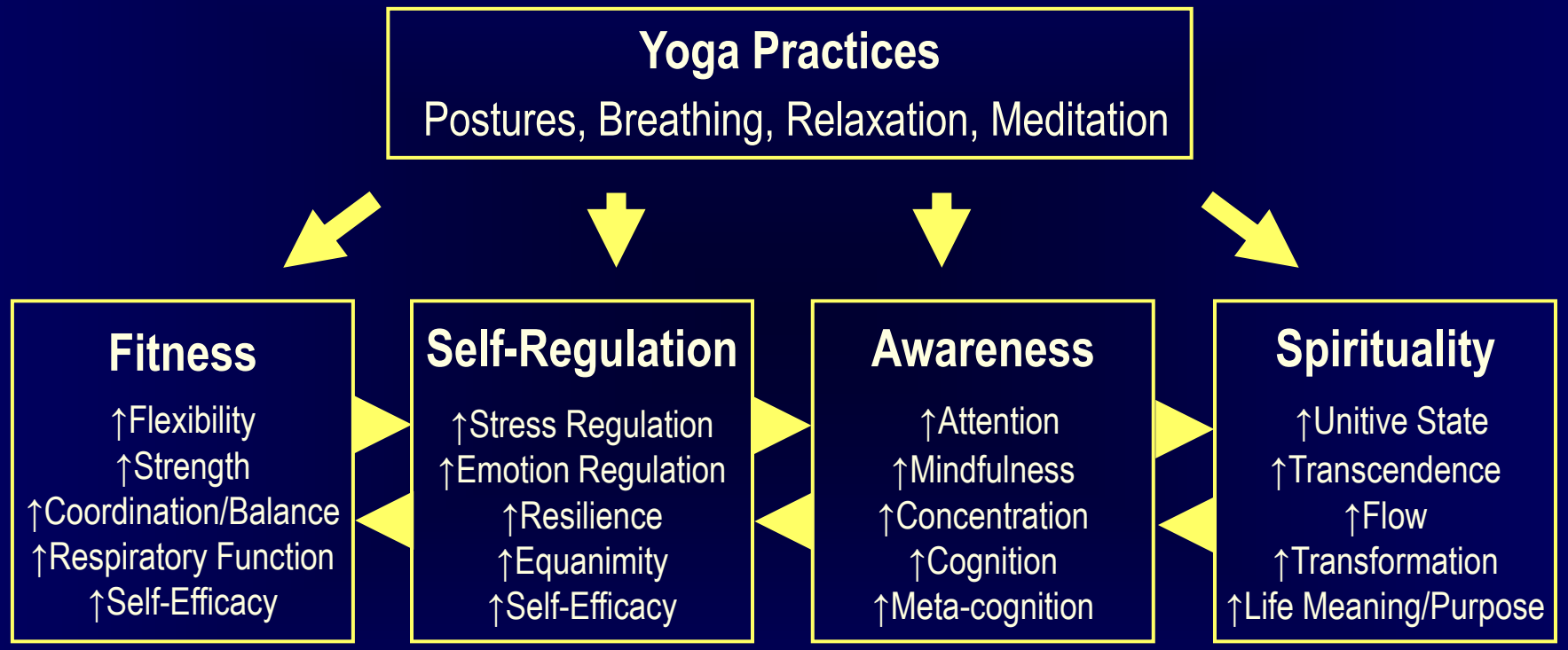
From: *The phenomenon of quantum change. Miller WR, Journal of Clinical Psychology 60:453-60, 2004.*

Yoga as a Contemplative/Spiritual Practice

"…a methodised effort towards self-perfection by the expression of the secret potentialities latent in the being … a union of the human individual with the universal and transcendent Existence…"

Sri Aurobindo




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

Temporal Changes in Yoga Practice

- Arousal reduction, physical/mental well-being
- Mind/body awareness, resilience, self-regulation
- Psychological / philosophical transformation

“Yoga changed my life”

Research in Yoga and Spirituality

REVIEW

A Systematic Review of Transcendent States Across Meditation and Contemplative Traditions

Helané Wahbeh, ND, MCR[1#] Amira Sagher, MSc[1] Wallis Back, MA[1] Pooja Pundhir, MD[1] and Frederick Travis, PhD[2]

Background: Across cultures and throughout history, transcendent states achieved through meditative practices have been reported. The practices to attain transcendent states vary from transcendental meditation to yoga to contemplative prayer, to other various forms of sitting meditation. While these transcendent states are ascribed many different terms, those who experience them describe a similar unitive, ineffable state of consciousness. Despite the common description, few studies have systematically examined transcendent states during meditation.

Objectives: The objectives of this systematic review were to: 1) characterize studies evaluating transcendent states associated with meditation in any tradition; 2) qualitatively describe physiological and phenomenological outcomes collected during transcendent states and; 3) evaluate the quality of these studies using the Quality Assessment Tool.

Methods: Medline, PsycINFO, CINAHL, AltHealthWatch, AMED, and the Institute of Noetic Science Meditation Library were searched for relevant papers in any language. Included studies required adult participants and the collection of outcomes before, during, or after a reported transcendent state associated with meditation.

Results: Twenty-five studies with a total of 672 combined participants were included in the final review. Participants were mostly male (61%; average age 39 ± 11 years) with 12.7 ± 6.6 (median 12.6; range 2–40) average years of meditation practice. A variety of meditation traditions were represented: (Buddhist; Christian; Mixed (practitioners from multiple traditions); Vedic: Transcendental Meditation and Yoga). The mean quality score was 67 ± 13 (100 highest score possible). Subjective phenomenology and the objective outcomes of electroencephalography (EEG), electrocardiography, electromyography, electrooculogram, event-related potentials, functional magnetic resonance imaging, magnetoencephalography, respiration, and skin conductance and response were measured. Transcendent states were most consistently associated with slowed breathing, respiratory suspension, reduced muscle activity and EEG alpha blocking with external stimuli, and increased EEG alpha power, EEG coherence, and functional neural connectivity. The transcendent state is described as being in a state of relaxed wakefulness in a phenomenologically different space-time. Heterogeneity between studies precluded any formal meta-analysis and thus, conclusions about outcomes are qualitative and preliminary.

Conclusions: Future research is warranted into transcendent states during meditation using more refined phenomenological tools and consistent methods and outcome evaluation.

Key words: transcendent states, meditation, contemplative traditions, psychophysiology

(Explore 2018; 14:19-35 © 2018 Elsevier Inc. All rights reserved.)

frontiers in Psychology

SYSTEMATIC REVIEW
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The Relationship Between Yoga and Spirituality: A Systematic Review of Empirical Research

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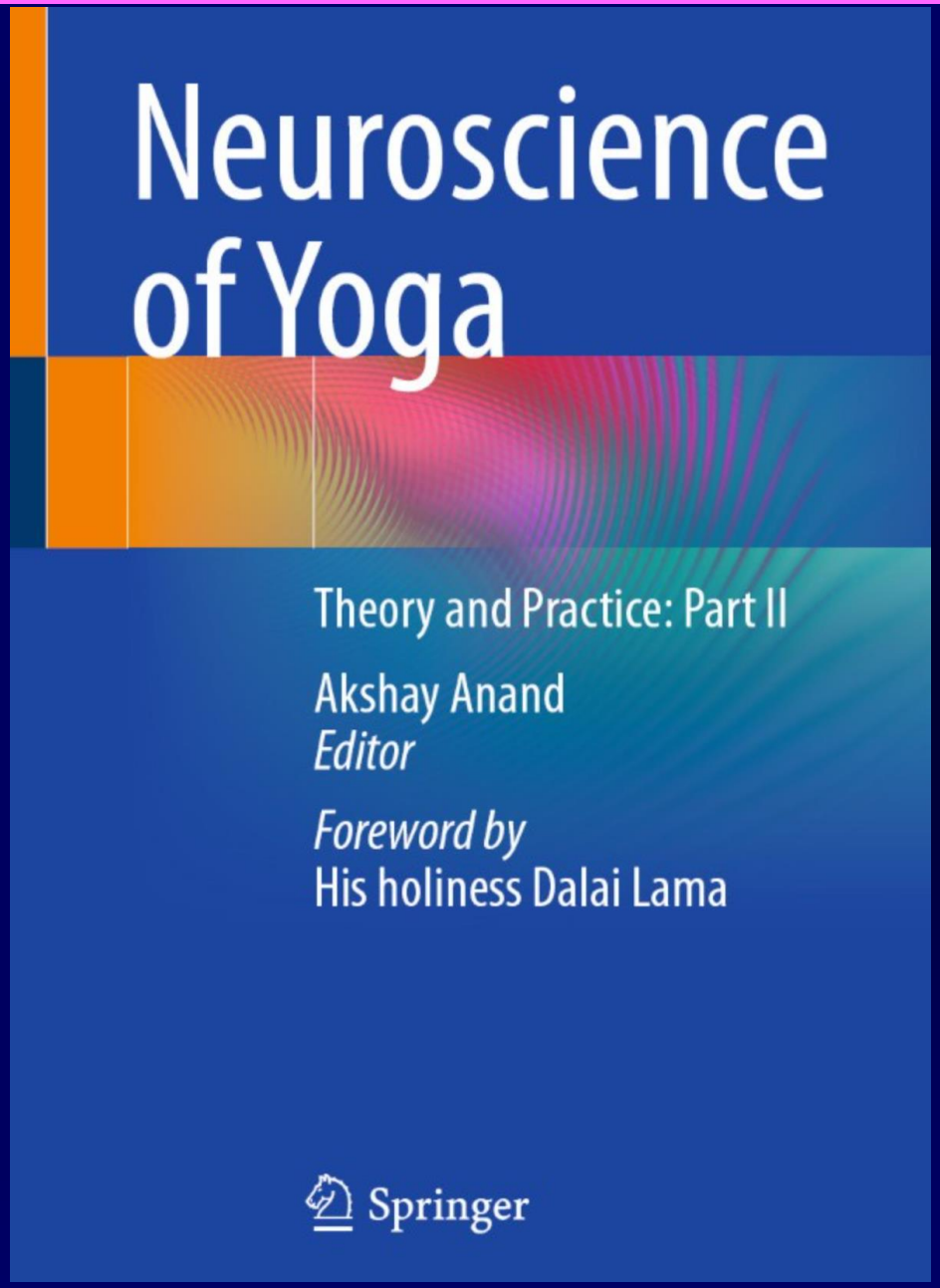
Objective: Both yoga practice and spirituality are associated with beneficial mental health outcomes. Within yoga research, however, spirituality is still a widely neglected area. The present systematic review aims to explore empirical studies, which do, in fact, investigate the relationship between yoga and spirituality in order to provide an overview and future directions for research on this topic. The review examines whether available empirical research supports an association between yoga practice and spirituality and, if so, which specific aspects of spirituality are associated with yoga practice.

Results: According to the quantitative and qualitative studies reviewed, yoga practice seems to be positively associated with spirituality. This association concerns various aspects of spirituality, such as spiritual aspirations, a search for insight/wisdom, an integrative worldview, a sense of meaning and peace, faith, hope, compassion, and happiness within. To harness the potential spiritual benefits of yoga, regular practice appears to be essential. Yoga practitioners seem to have both physical and spiritual motives for practicing. At least in Western societies, however, physical intentions are more prevalent than spiritual ones. The meaning of spirituality for yoga practitioners is also discussed. Due to risk of bias of the majority of the reviewed studies, however, outcomes must be taken with caution.

Conclusion: Yoga practice may be positively associated with several aspects of spirituality. For more evidence, further investigation of the topic is suggested. Particularly, we propose the inclusion of holistic forms of yoga practice and a comparison of Eastern and Western approaches to yoga.



Chapter 15
Science and Research on *Yoga* and Spirituality

Pooja Swami Sahni, Kanupriya Sharma, Deepeshwar Singh, and Sat Bir Singh Khalsa

Contents

Abstract Research on unitive states, mystical experiences, and spirituality engendered by *Yoga* practice, although currently limited, is an area of growing interest and importance. This chapter examines the research evidence for the association of *Yoga* with multiple aspects of spirituality and its related characteristics/phenomena, such as transcendence, nondual awareness, and mystical experiences. It also examines various factors reported in the literature that have been found to facilitate the

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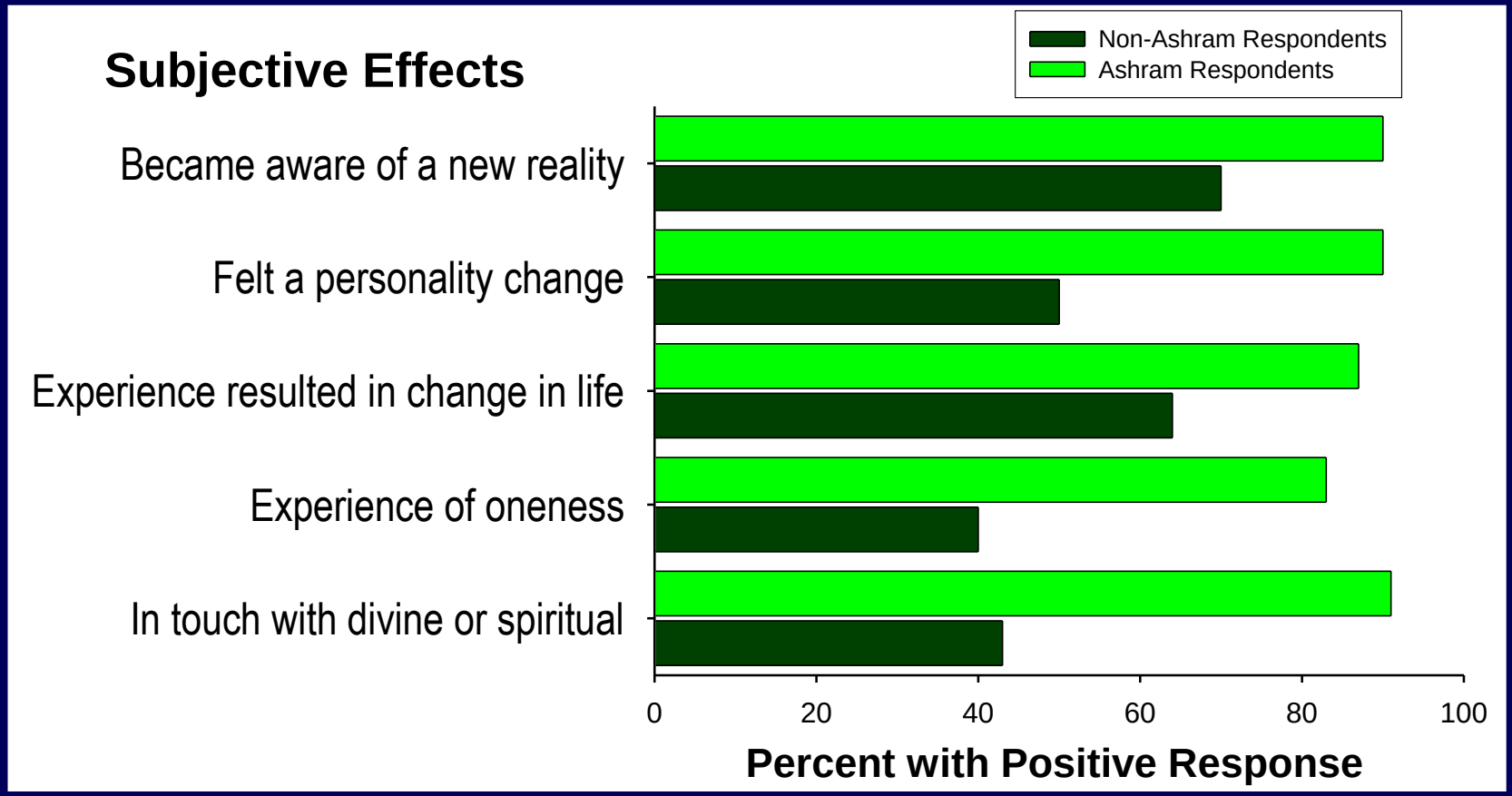
A. Anand (ed.), *Neuroscience of Yoga*,
https://doi.org/10.1007/978-981-97-2855-8_15

Mystical Experience in Yoga Practitioners



From: *Intense personal experiences: Subjective effects, interpretations, and after-effects, Wilson SR, Spencer RC, Journal of Clinical Psychology 46:565-573, 1990.*

Spirituality as a Perceived Benefit of Yoga

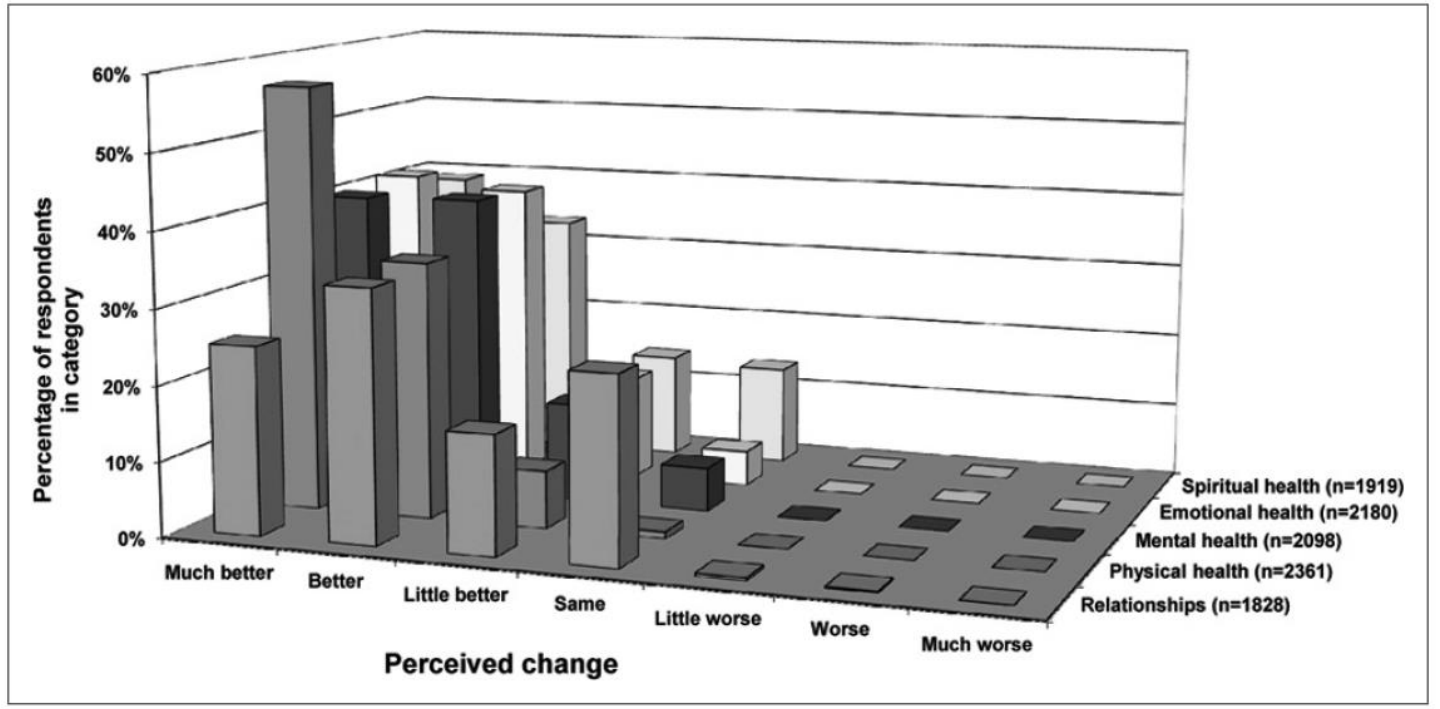


Figure 2: Effect of yoga practice on perceptions of quality of life by category (respondents were able to report perceptions of quality of life in multiple categories. *N*=2,389 respondents reported, *n*=10,386 quality of life measures in 5 categories)

From: *Yoga in Australia: Results of a national survey. Penman S, Cohen M, Stevens P, Jackson S, International Journal of Yoga 5:92-101, 2012.*

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3410203/?report=printable

Transcendence in Yoga Practitioners

Table 4: Bivariate correlations: Hatha yoga experience with psychological outcomes

	Current hours per week		Total lifetime hours		Total calendar years	
Measure	*N*	*r*	*N*	*r*	*N*	*r*
Positive psychological attitudes	209	0.28***	201	0.32***	201	0.19**
Transcendence	211	0.33***	203	0.28***	203	0.18**
Mental mastery	211	0.19**	203	0.18**	203	0.08
Subjective vitality	211	0.22***	203	0.20**	203	0.13

**$P \leq 0.01$; ***$P<0.001$

From: *Yoga experience as a predictor of psychological wellness in women over 45 years, Moliver N, Mika E, Chartrand M, Haussmann R, Khalsa S, International Journal of Yoga, 6:11-9, 2013.*

Self-transcendence in Yoga Practitioners

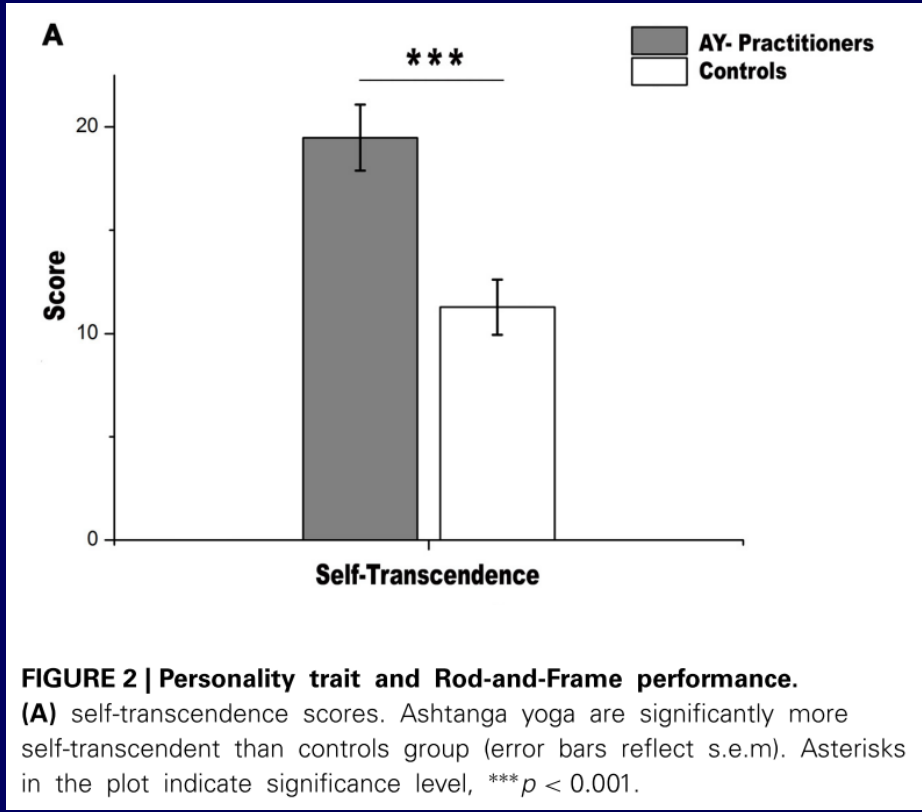
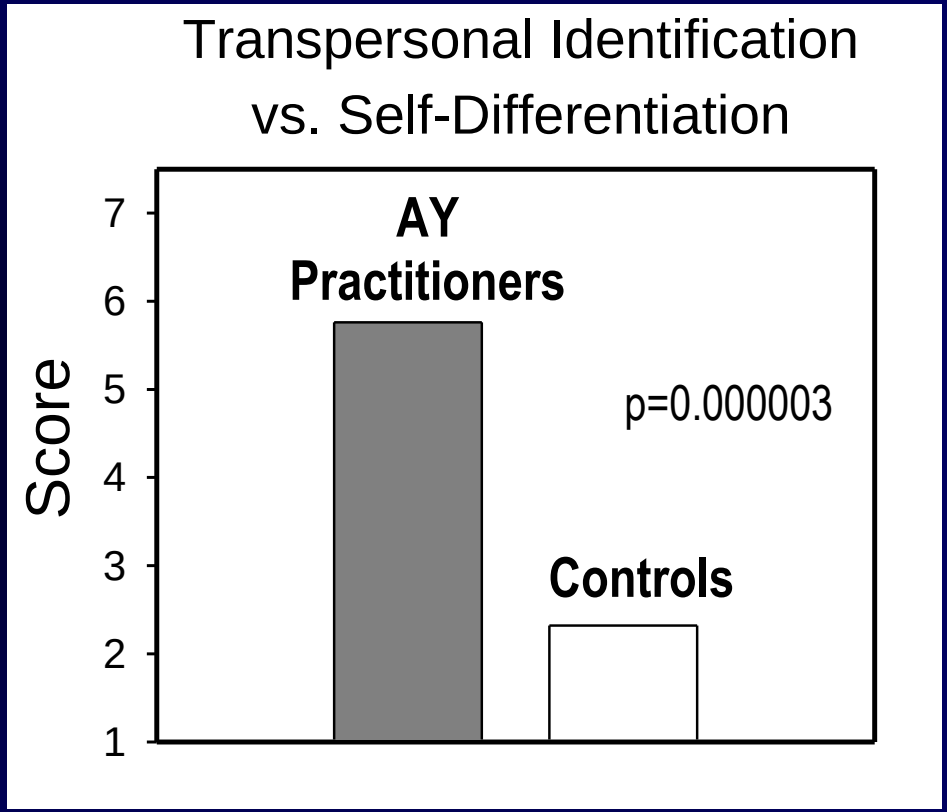


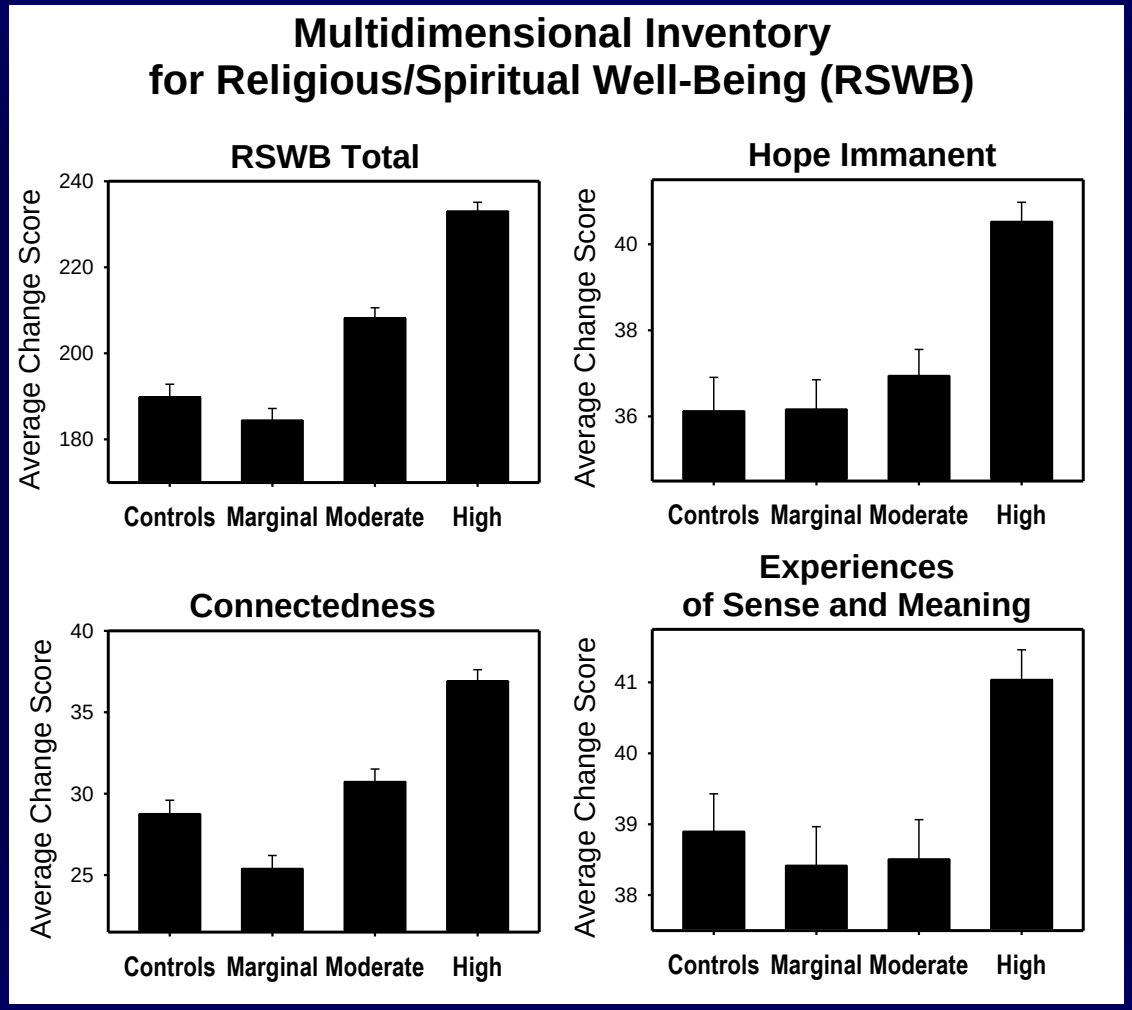
FIGURE 2 | Personality trait and Rod-and-Frame performance. **(A)** self-transcendence scores. Ashtanga yoga are significantly more self-transcendent than controls group (error bars reflect s.e.m). Asterisks in the plot indicate significance level, $^{***}p < 0.001$.



From: *Processing of proprioceptive and vestibular body signals and self-transcendence in Ashtanga yoga practitioners, Fiori F, David N, Aglioti SM, Frontiers in Human Neuroscience, 8:734, 2014.*

https://www.frontiersin.org/articles/10.3389/fnhum.2014.00734/full

Spirituality in Yoga Practitioners

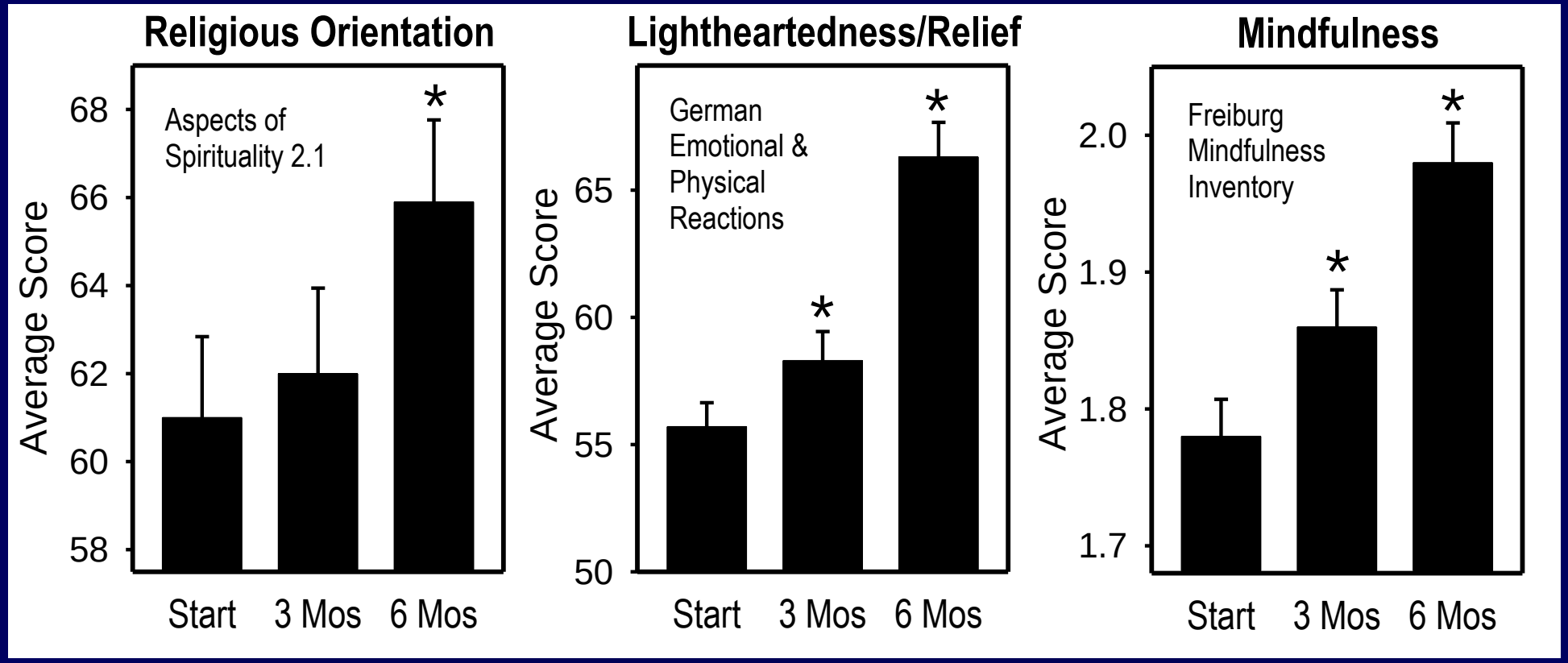


From: *The relationship between yoga involvement, mindfulness & psychological well-being, Gaiswinkler L, Unterrainer HF, Complementary Therapies in Medicine, 26:123-7, 2016.*

Yoga in Occupational Setting

From: *The effectiveness of yoga for the improvement of well-being and resilience to stress in the workplace. Hartfiel N, Havenhand J, Khalsa SB, Clarke G, Krayer A. Scandinavian Journal of Work, Environment and Health,* 37:70-6, *2011.*

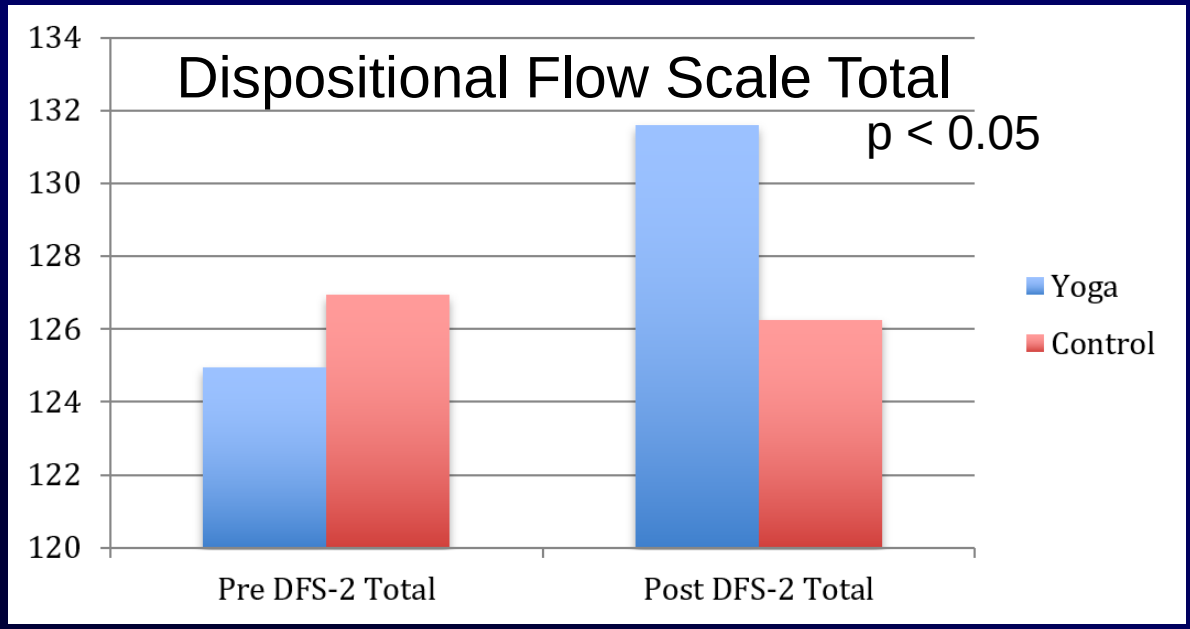
6-Month Intensive Yoga Practice

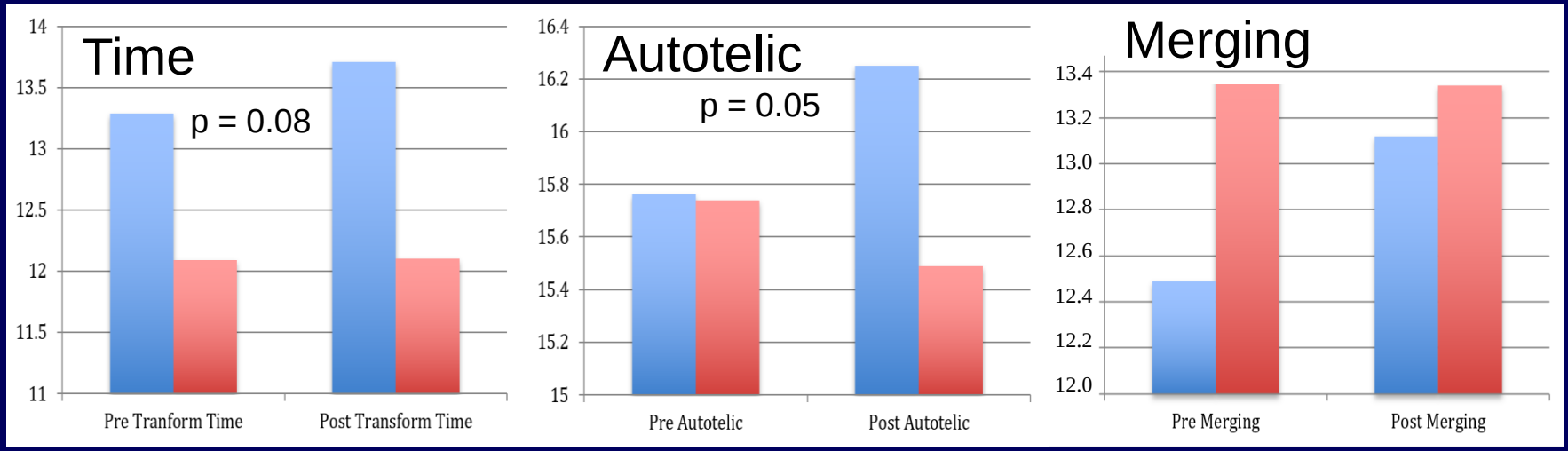


From: *Development of Specific Aspects of Spirituality during a 6-Month Intensive Yoga Practice. Büssing A, Hedtstück A, Khalsa SB, Ostermann T, Heusser P. Evidence Based Complementary and Alternative Medicine. 2012:981523, 2012.*

https://onlinelibrary.wiley.com/doi/epdf/10.1155/2012/981523

Increase in Flow State in Musicians after Kripalu Yoga





From: *Yoga Enhances Positive Psychological States in Young Adult Musicians, Butzer B, Ahmed K, Khalsa SB, Applied Psychophysiology and Biofeedback, 41:191-202, 2016.*

Asanas Facilitating Transpersonal Change in Meditators

Table 4

Depth of meditation scores in pre- and post-test in the two groups

	Pretest	Posttest	Effect size (*d*)	*P*
Yoga				
Hindrances	7.62 (3.93)	7.00 (2.94)	−0.23	0.65
Relaxation	8.38 (3.78)	9.54 (2.26)	0.57	0.11
Personal self	15.00 (8.81)	20.23 (7.47)	0.90	0.02
Transpersonal qualities	14.85 (9.27)	21.85 (8.36)	0.84	0.01
Transpersonal Self	10.00 (7.59)	15.46 (6.40)	0.71	0.04
Control				
Hindrances	6.69 (4.15)	6.92 (3.57)		
Relaxation	9.46 (1.98)	9.08 (2.78)		
Personal self	20.00 (6.14)	18.46 (7.64)		
Transpersonal qualities	20.23 (7.67)	20.38 (7.43)		
Transpersonal Self	14.08 (6.24)	14.69 (6.95)		

From: *Effects of Maharishi Yoga Asanas on Mood States, Happiness, and Experiences during Meditation. Gobec S, Travis F, International Journal of Yoga, 11:66-71, 2018.*
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5769201/?report=printable

Qualitative Experiences of Spirituality with Yoga

- “This has been a life changing, grounding experience.”
- “I have noticed a positive shift in my entire life.”
- “Renewed sense of purpose. Increased appreciation for life, stillness, mindfulness and nature...Life changing.”

  From: *RISE program study qualitative interviews, unpublished data.*

- “With yoga, I had a connection of mind, body, and spirit. During the practice and when you become aware of those three things, or be aware of them, it seems like things are more possible. I had more peace, the idea of finding increased peace of mind. I mean what could be richer than a sense of you know a spirit; my spiritual self.”

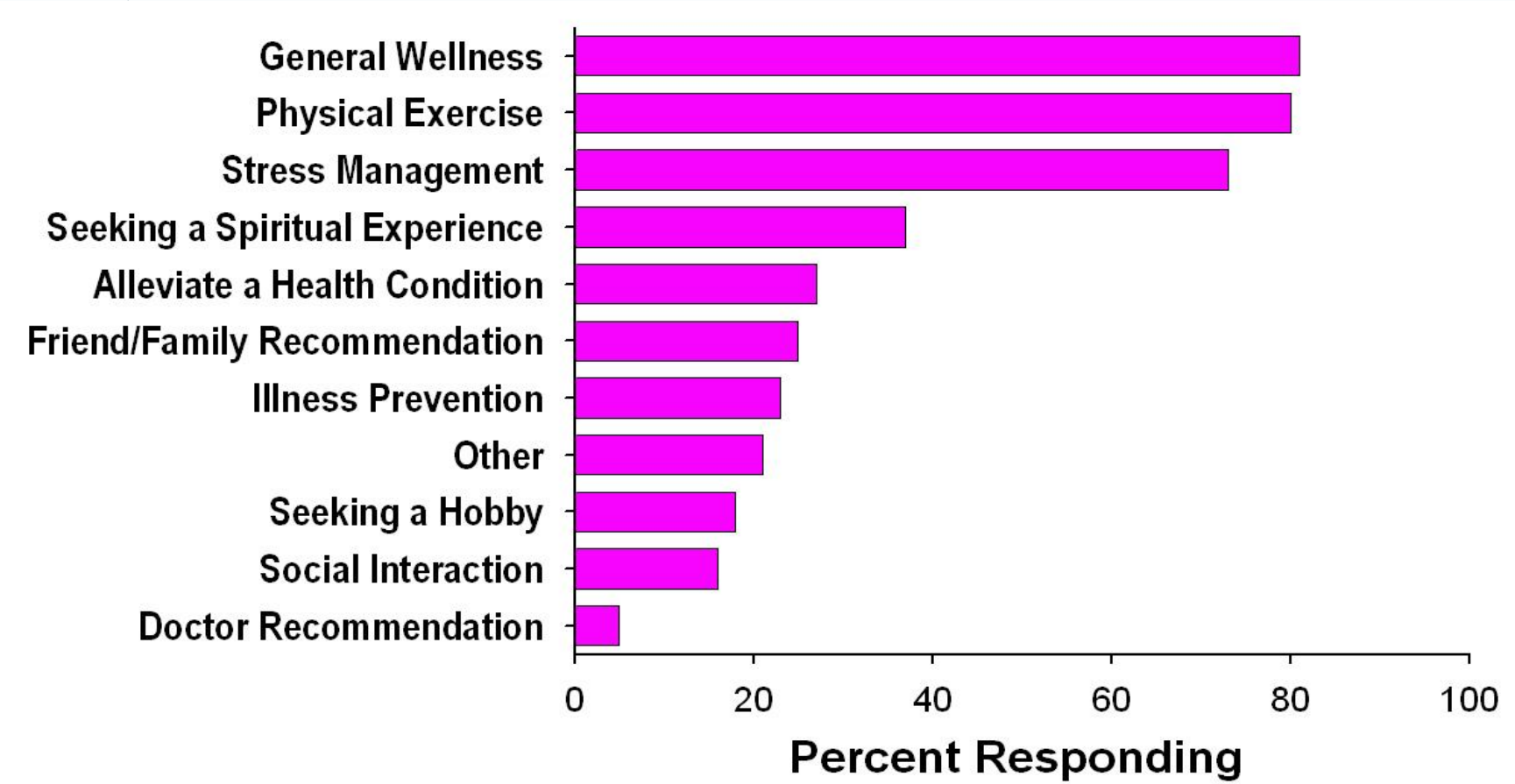
From: *A Yoga Intervention Program for Patients Suffering from Symptoms of Posttraumatic Stress Disorder: A Qualitative Descriptive Study. Jindani FA, Khalsa GF, Journal of Alternative and Complementary Medicine 21:401-8, 2015.*

Spirituality as a Motive for Practicing Yoga

Crystal L. Park
University of Connecticut

How salient is spirituality among motivations for starting to practice yoga? What are initial motives for practice?

Reasons for Practice in a Beginners Program



Quilty, M. T., Saper, R. B., Goldstein, R., & Khalsa, S. B. S. (2013). Yoga in the real world: Perceptions, motivators, barriers, and patterns of use. *Global Advances in Health & Medicine, 2,* 44-49.

Reasons for Practice

Table 3: Motivations for beginning and continuing yoga practice

	Beginning (*n*=2, 456)	Continuing (*n*=2, 384)
Trendy, in vogue	2.6% (64)	0.5% (11)
Increase health and fitness	71.9% (1,767)	82.3% (1,962)
Increase flexibility, muscle tone	70.5% (1,732)	86.5% (2,061)
Reduce stress or anxiety	58.4% (1,434)	79.4% (1,893)
Specific health or medical reason	19.7% (485)	21.2% (505)
Pregnancy, childbirth	3.2% (79)	3.8% (91)
Menopause or other women's health	3.4% (83)	7.8% (187)
Spiritual path	18.9% (463)	42.7% (1,017)
Personal development	29.4% (723)	59.1% (1,410)
Enhance performance in other activity	10.9% (268)	19.6% (468)
Other	5.2% (127)	5.8% (138)

Respondents were able to make multiple selections

Penman S, Cohen M, Stevens P, & Jackson S. (2012).
Yoga in Australia: Results of a national survey. *International Journal of Yoga 5,* 92-101.

Park, C. L., Riley, K. E., Bedesin, E., & Stewart, V. M. (2016). Why practice yoga? Practitioners' motivations for adopting and maintaining yoga practice. *Journal of Health Psychology, 21*(6), 887-896.

- Snowball sample of 512 participants from across the US (156 teachers)
- Mostly female (93.4%), Caucasian (94%), and well educated
- Aged 18 to 85 years (M = 45.78, SD = 14.04)
- Students practiced a mean of 245 min/week in a yoga studio and a mean of 85 min/week at home, and reported they had been practicing yoga for a mean of 8.5 years (SD = 7.67 years)
- Teachers practiced an average of 374 min/week in a yoga studio and 168 min/week at home, and reported that they had been practicing yoga for a mean of 13 years (SD = 9.26 years)

Motivations for starting to practice yoga

Table 1. Primary reason and additional reasons students and teachers reported for adopting yoga practice.

	Original primary reason to adopt practice		Additional original reasons to adopt practice	
	Students, *n* (%)	Teachers, *n* (%)	Students, *n* (%)	Teachers, *n* (%)
Relaxation	25 (6.9)	5 (3.2)	194 (53.9)	64 (41.0)
Stress relief	52 (14.4)	31 (19.9)	189 (52.5)	63 (40.4)
Pain relief	12 (3.3)	3 (1.9)	63 (17.5)	24 (15.4)
Weight control	16 (4.4)	4 (2.6)	98 (27.2)	25 (16.0)
Flexibility	60 (16.7)	10 (6.4)	209 (58.1)	65 (41.7)
Spirituality	13 (5.0)	11 (7.1)	87 (24.2)	50 (32.1)
Depression/anxiety relief	18 (5.0)	15 (9.6)	79 (21.9)	43 (27.6)
Deal with physical health issues	29 (8.1)	10 (6.4)	68 (18.9)	34 (21.8)
Get into shape	40 (11.1)	9 (5.8)	159 (44.2)	45 (28.8)
Get exercise	70 (19.4)	33 (21.2)	172 (47.8)	55 (35.3)
Other	25 (6.9)	25 (16.0)	63 (17.5)	39 (25.0)

The majority changed their motivation for practicing yoga or discovered new aspects

- 61.3% reported yes, they had changed their primary reason for doing yoga or discovered other aspects
- 38.6% reported no, they had not

New primary and additional reasons to practice yoga

Table 2. Newly discovered primary and additional reasons for continuing to practice yoga for those who discovered new reasons to practice.

	New primary reason to continue practice		Additional new reasons to continue practice	
	Students, *n* (%)	Teachers, *n* (%)	Students, *n* (%)	Teachers, *n* (%)
Relaxation	24 (10.9)	2 (1.5)	139 (62.9)	80 (60.2)
Stress relief	35 (15.8)	17 (12.8)	137 (62.0)	77 (57.9)
Pain relief	3 (1.4)	3 (2.3)	58 (26.2)	41 (30.8)
Weight control	1 (0.5)	2 (1.5)	75 (33.9)	49 (36.8)
Flexibility	15 (6.8)	2 (1.5)	140 (63.3)	82 (61.7)
Spirituality	52 (23.5)	67 (50.4)	106 (48.0)	66 (49.6)
Depression/anxiety relief	20 (9.0)	10 (7.5)	75 (33.9)	56 (42.1)
Deal with physical health issues	8 (3.6)	0 (0)	63 (28.5)	45 (33.8)
Get into shape	15 (6.8)	2 (1.5)	102 (46.2)	49 (36.8)
Get exercise	11 (5.0)	1 (0.8)	122 (55.2)	63 (47.4)
Other	37 (16.7)	27 (20.3)	65 (29.4)	40 (30.1)

Park, C. L., Quinker, D., Dobos, G., & Cramer, H. (2019). Motivations for adopting and maintaining a yoga practice: A national cross-sectional survey. *The Journal of Alternative and Complementary Medicine*, *25*(10), 1009-1014.

- Snowball sample of 1702 participants from across Germany
- The most common primary reasons for starting yoga were relaxation (26.6%) and prevention (25.5%), which were also the most common secondary reasons
- 55.3% reported a different primary reason for maintaining than for adopting yoga practice
- Prevention (38.4%) and spirituality (26.4%) were the most commonly reported primary reasons for maintaining yoga practice

Reasons for Practice

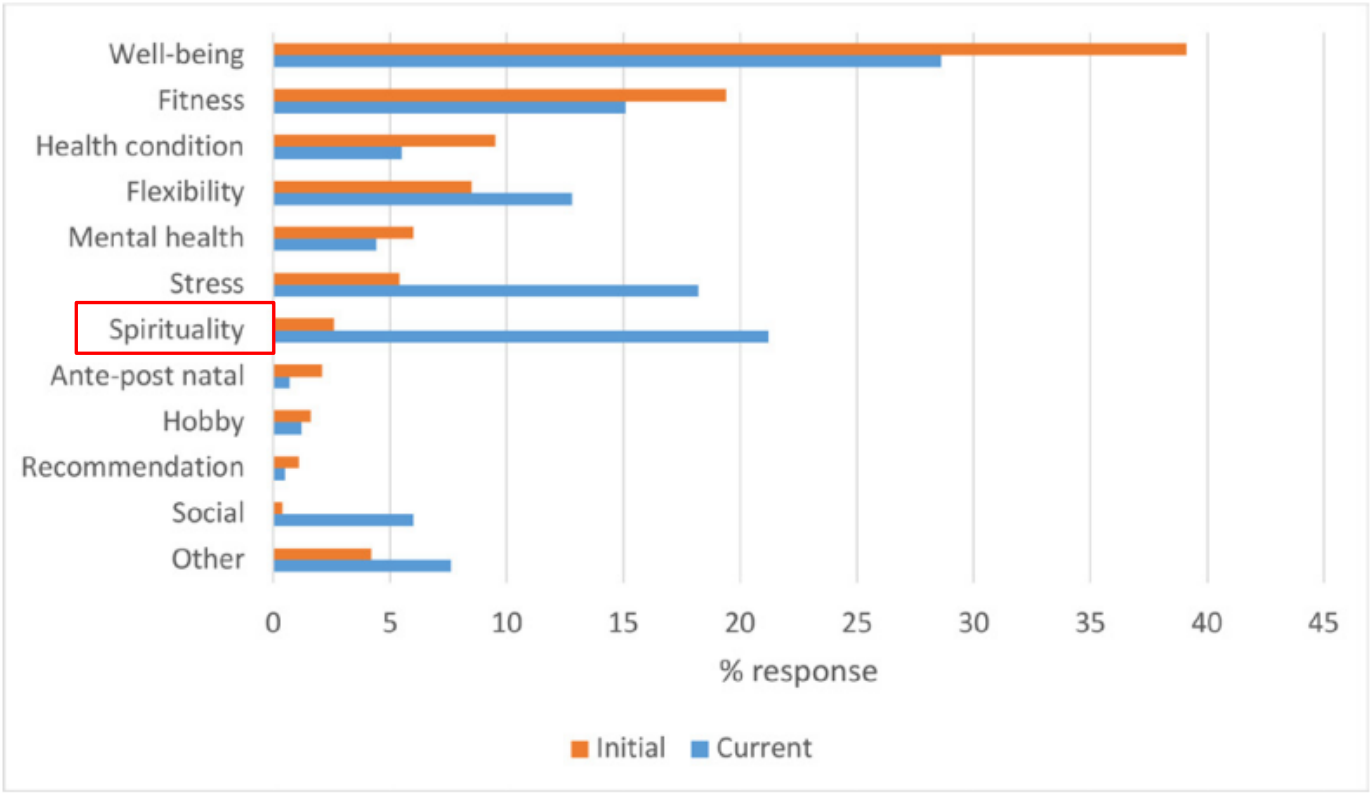


Figure 1 Initial and current principal reasons for practising yoga.

Cartwright, T., Mason, H., Porter, A., & Pilkington, K, (2020). Yoga practice in the UK: A cross-sectional survey of motivation, health benefits and behaviours. *BMJ Open, 12;10*(1):e031848.

Reasons for Practice

"…practitioners had greater initial and continued physical intentions than spiritual intentions. However, spiritual intentions become more salient over time, suggesting that Western yoga can cultivate spirituality. Results also showed that practitioners with spiritual intentions reported significantly higher psychological wellbeing."

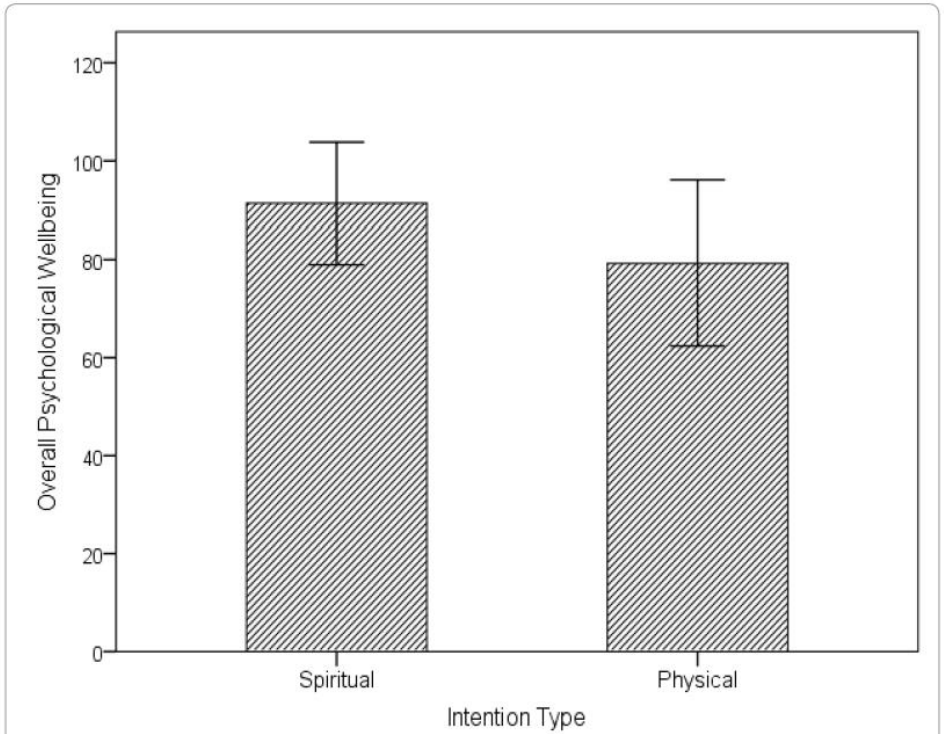


Figure 1: Overall psychological wellbeing as a function of continued intention type. Mean overall wellbeing scores (SWLS + SHS + MLQ) for practitioners classified as continued spiritual intentions and those grouped as having continued physical intentions. Error bars indicate standard deviation adjusted to eliminate between-subjects variance (+/- 1 standard deviation).

Gaiswinkler, L., & Unterrainer, H. F. (2016). The relationship between yoga involvement, mindfulness & psychological well-being, *Complementary Therapies in Medicine, 26,123-127.*

Ahmadi, S. E., Park, C. L., & Carney, L. (in progress). Does taking yoga "off the mat" moderate associations of practice with coping, stress, and distress?

- Snowball sample of 341 participants in the US
- Participants were 81.1% White, 3.2% Asian, 2.7% multiracial, 1.7% Black or African American, and 11.3% unknown or preferred not to disclose
- Participants were majority not Latino or Hispanic (88.0%) and female (84.8%)
- Average age was 40.8 years (SD = 15.7)
- Participants had practiced yoga for an average of 1051 minutes (SD = 909.1) in the past month(or an average of 35 minutes per day)

Top reason for starting a yoga practice

- 23.3% stress management/relaxation
- 3.9% spirituality

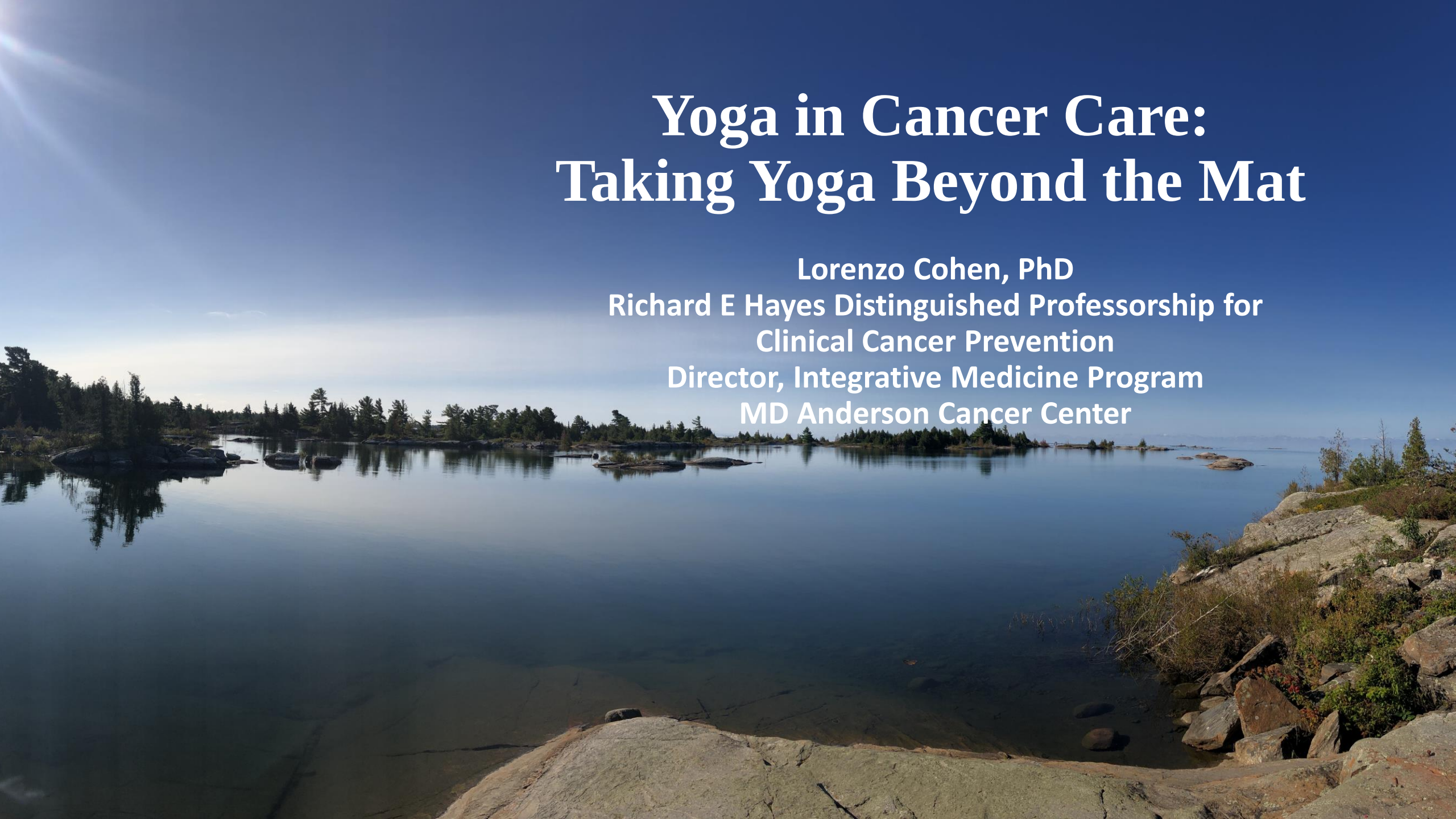
52.8% changed to a new top reason for continuing yoga practice

- 23.7% spirituality

Correlates of length of time practicing yoga

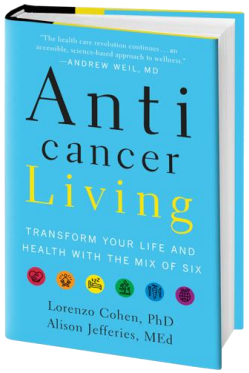
- To what extent do you consider yourself a religious person? r = -.09 (ns)
- Frequency of religious service attendance r = .01 (ns)
- To what extent do you consider yourself a spiritual person? r = .16**
- Sleep quality r = .19***
- Depression/anxiety/stress r = .21***
- Self-rated overall health r = .21***

Contact me: crystal.park@uconn.edu



Yoga in Cancer Care: Taking Yoga Beyond the Mat

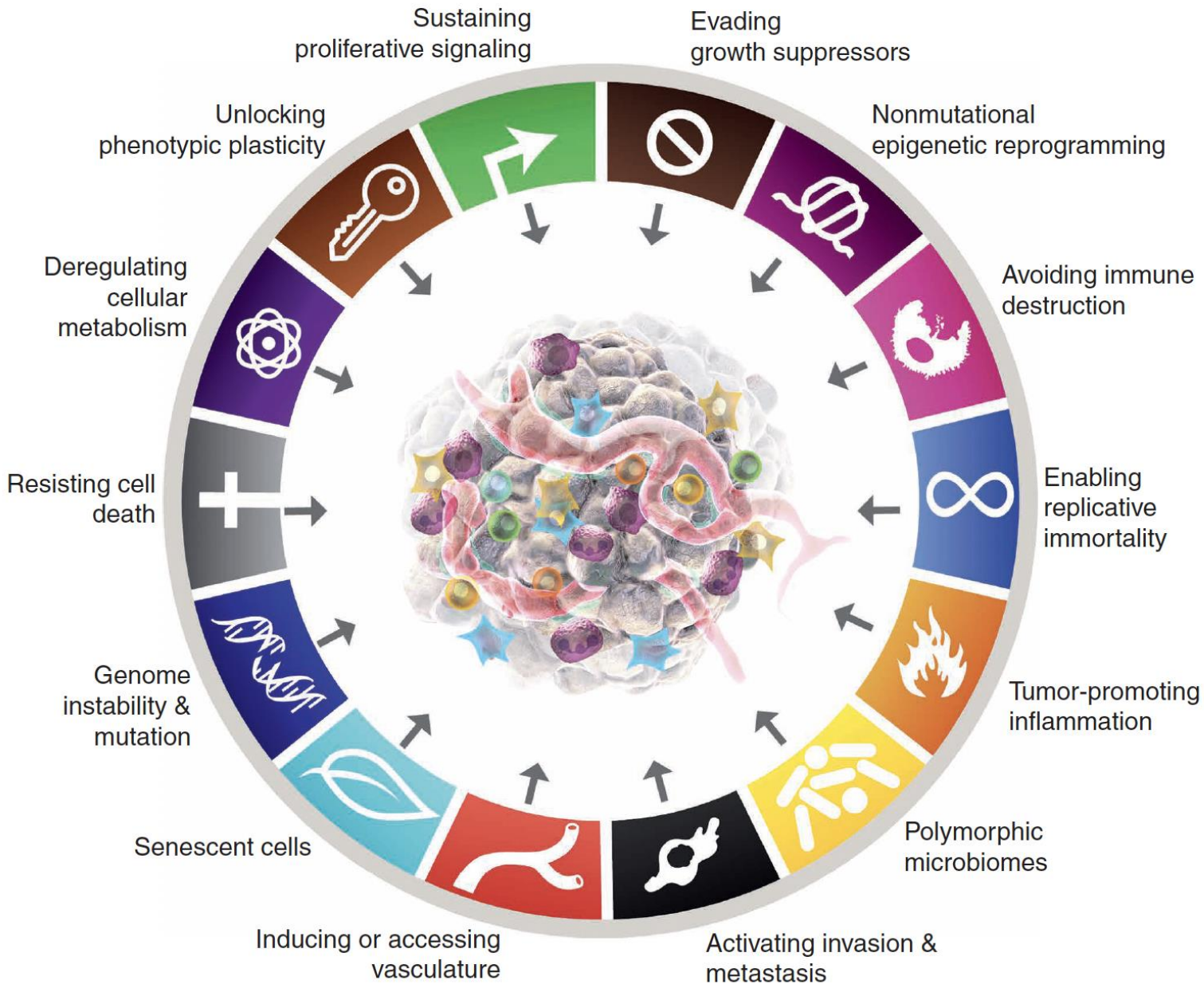
Lorenzo Cohen, PhD
Richard E Hayes Distinguished Professorship for Clinical Cancer Prevention
Director, Integrative Medicine Program
MD Anderson Cancer Center



Cancer Prevention and Control:

The Mix of Six

- Social Support
- Stress Management
- Sleep
- Physical Activity
- Diet
- Environmental Toxins

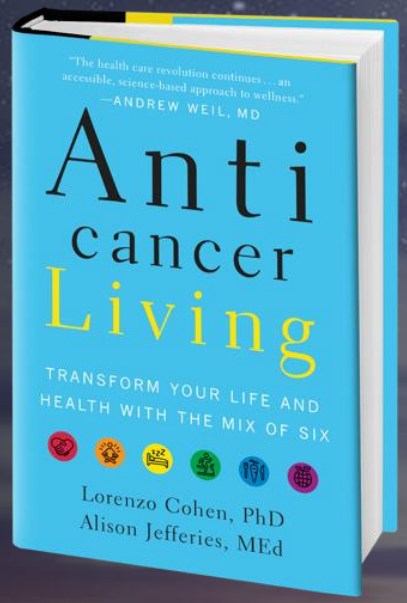


Hannahan, Cancer Discovery 2022

Yoga with a Capital "Y"

Synergy

A phenomena where the whole is more than the sum of the parts



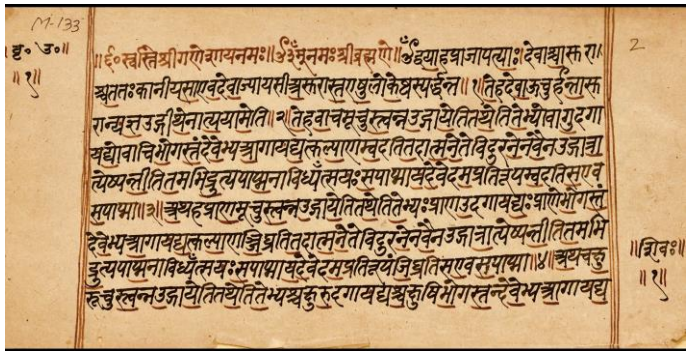
DEFINITION OF YOGA

- *YUJYATE ANENA ITI YOGAH*
  - ***JOINING INDIVIDUAL SOUL TO UNIVERSAL SOUL***
    Classical

- *TAM YOGAM ITI MANYANTE STIRAM INNDRIYA DHARANAM*
  - ***YOGA IS HOLDING THE SENSES STEADY***
    Upanishad

- *MANH PRASAMANA UPAYAH YOGAH*
  - ***A TECHNIQUE TO MAKE THE MIND QUIET***
    Yoga Vasista
  -

- *SAMATVAM YOGA UCCHYATE*
  - ***YOGA IS A STATE OF EQUANIMITY***
    Bhagavad-Gita

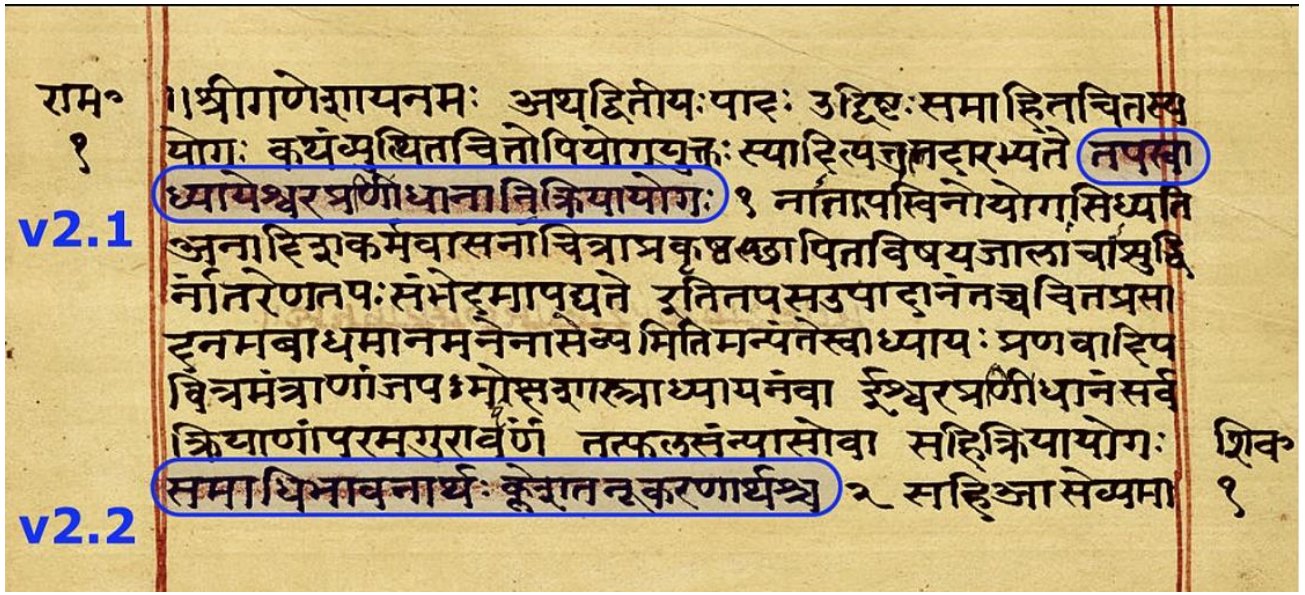


Courtesy of NV Raghuram

DEFINITION OF YOGA

- *YOGAH CITTA VRITTI NIRODHAH*
  - ***YOGA IS CONTROLLING THE DISTURBANCES OF THE MIND***

Patanjali Yoga Sutras



Courtesy of NV Raghuram

Yoga with a Capital “Y”

- Social Support
- Stress Management
- Sleep
- Physical Activity
- Diet
- Environmental Toxins

THE UNIVERSITY OF TEXAS

MD Anderson ~~Cancer~~ Center

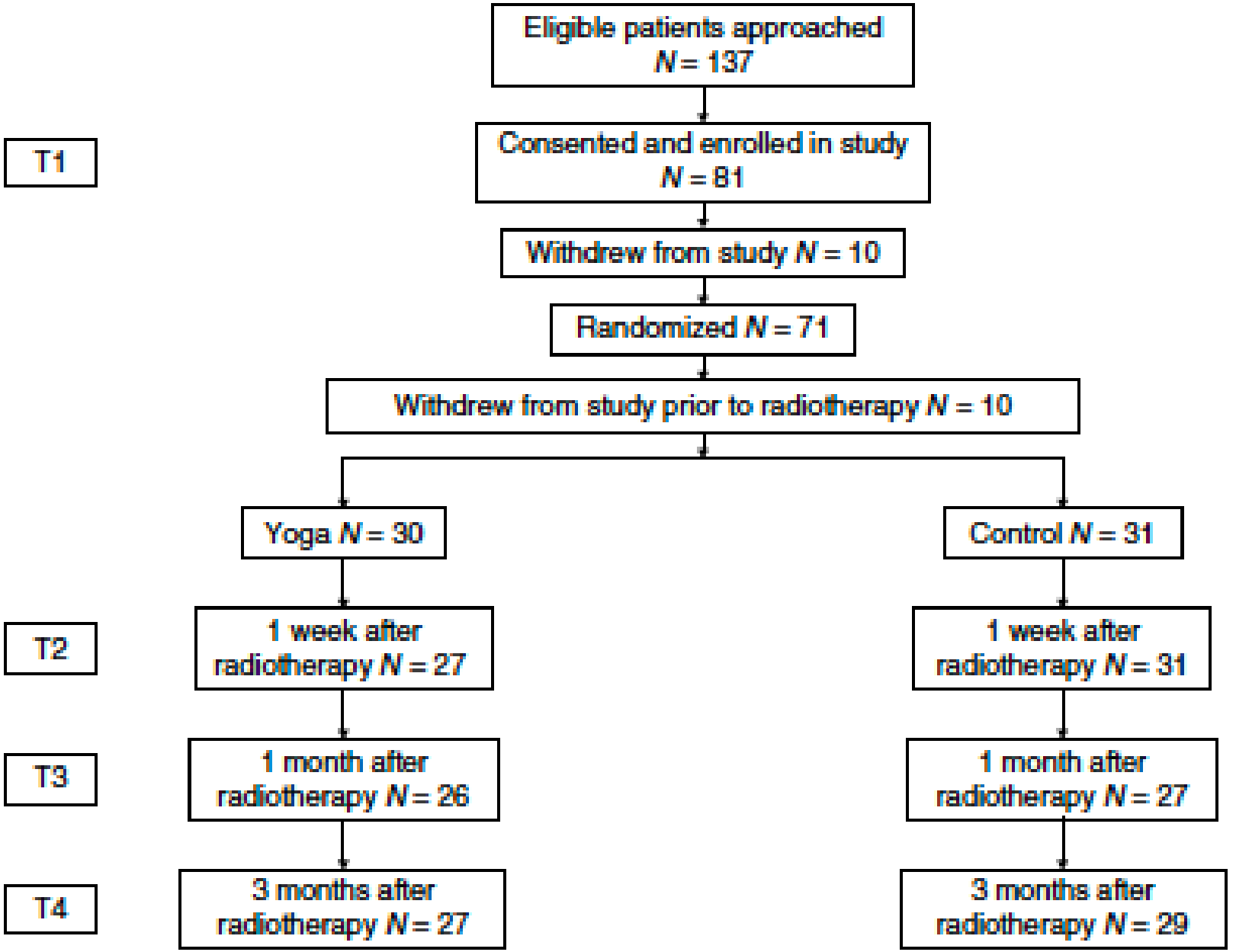
Making Cancer History®

ARTICLE

Yoga Improves Quality of Life and Benefit Finding in Women Undergoing Radiotherapy for Breast Cancer

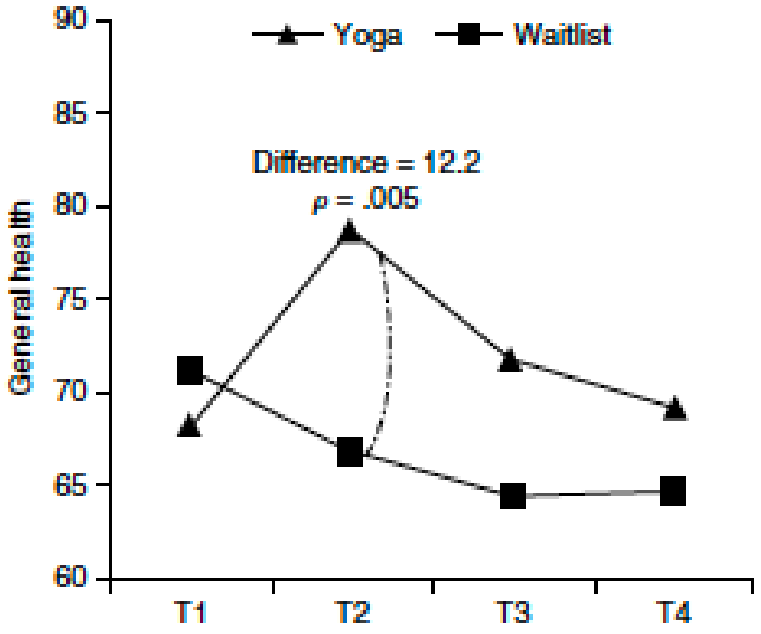
Kavita D. Chandwani, MPH, MD, Bob Thornton, MPH, George H. Perkins, MD, Banu Arun, MD, N.V. Raghuram, PhD, H.R. Nagendra, PhD, Qi Wei, MPH, and Lorenzo Cohen, PhD

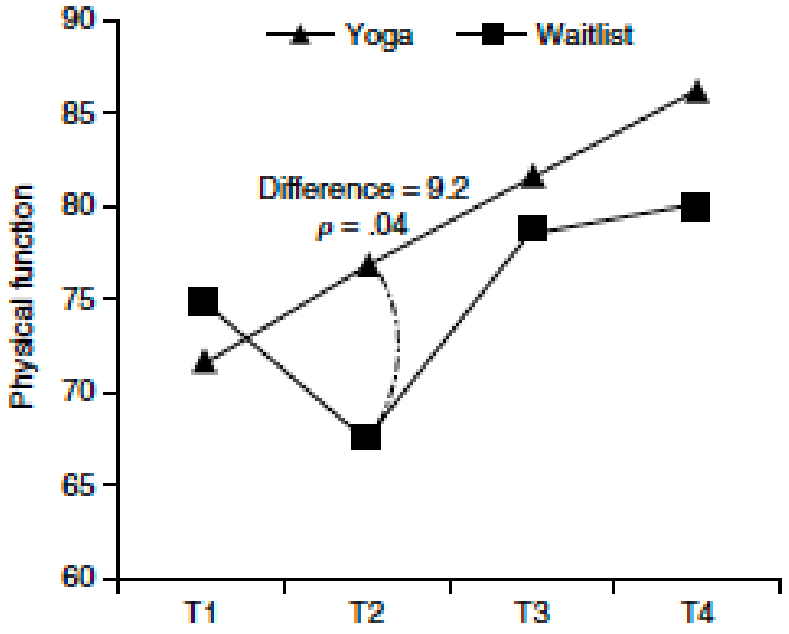
This study examined the effects of yoga on quality of life (QOL) and psychosocial outcomes in women with breast cancer undergoing radiotherapy. Sixty-one women were randomly assigned to either a yoga or a wait-list group. Yoga classes were taught biweekly during the 6 weeks of radiotherapy. Participants completed measures of QOL, fatigue, benefit finding (finding meaning in the cancer experience), intrusive thoughts, sleep disturbances, depressive symptoms, and anxiety before radiotherapy and then again 1 week, 1 month, and 3 months after the end of radiotherapy. General linear model analyses revealed that compared to the control group, the yoga group reported significantly better general health perception (p = .005) and physical functioning scores (p = .04) 1 week postradiotherapy; higher levels of intrusive thoughts 1 month postradiotherapy (p = .01); and greater benefit finding 3 months postradiotherapy (p = .01). There were no other group differences in other QOL subscales for fatigue, depression, or sleep scores. Exploratory analyses indicated that intrusive thoughts 1 month after radiotherapy were significantly positively correlated with benefit finding 3 months after radiotherapy (r = .36, p = .011). Our results indicated that the yoga program was associated with statistically and clinically significant improvements in aspects of QOL.

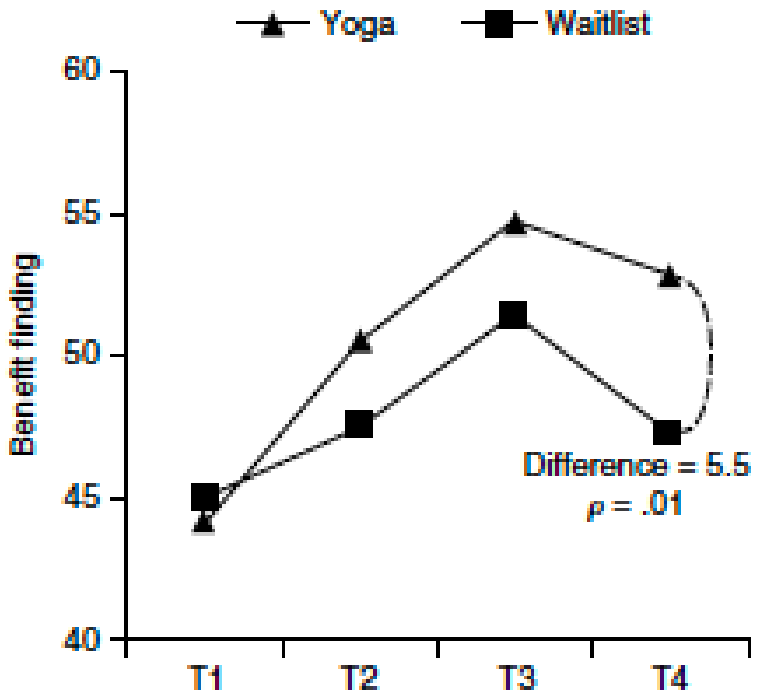


Chandwani……..Cohen, JSIO, 2010

SF-36 and Benefit Finding







Chandwani et al., JSIO, 2010

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The latest version is at http://jco.ascopubs.org/cgi/doi/10.1200/JCO.2012.48.2752

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Randomized, Controlled Trial of Yoga in Women With Breast Cancer Undergoing Radiotherapy

Kavita D. Chandwani, George Perkins, Hongasandra Ramarao Nagendra, Nelamangala V. Raghuram, Amy Spelman, Raghuram Nagarathna, Kayla Johnson, Adoneca Fortier, Banu Arun, Qi Wei, Clemens Kirschbaum, Robin Haddad, G. Stephen Morris, Janet Scheetz, Alejandro Chaoul, and Lorenzo Cohen

Kavita D. Chandwani, University of Rochester Medical Center, Rochester, NY; Kavita D. Chandwani, George Perkins, Amy Spelman, Kayla Johnson, Adoneca Fortier, Banu Arun, Qi Wei, Robin Haddad, Janet Scheetz, Alejandro Chaoul, and Lorenzo Cohen, The University of Texas MD Anderson Cancer Center, Houston, TX; G. Stephen Morris, St. Jude Children's Research Hospital, Memphis, TN; Hongasandra Ramarao Nagendra, Nelamangala V. Raghuram, Raghuram Nagarathna, Swami Vivekananda Yoga Anusandhana Samsthana, Bengaluru, India; and Clemens Kirschbaum, Technical University of Dresden, Dresden, Germany.

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Presented in part at the American Psychosomatic Society Annual Meeting, San Antonio, TX, March 2011; the

ABSTRACT

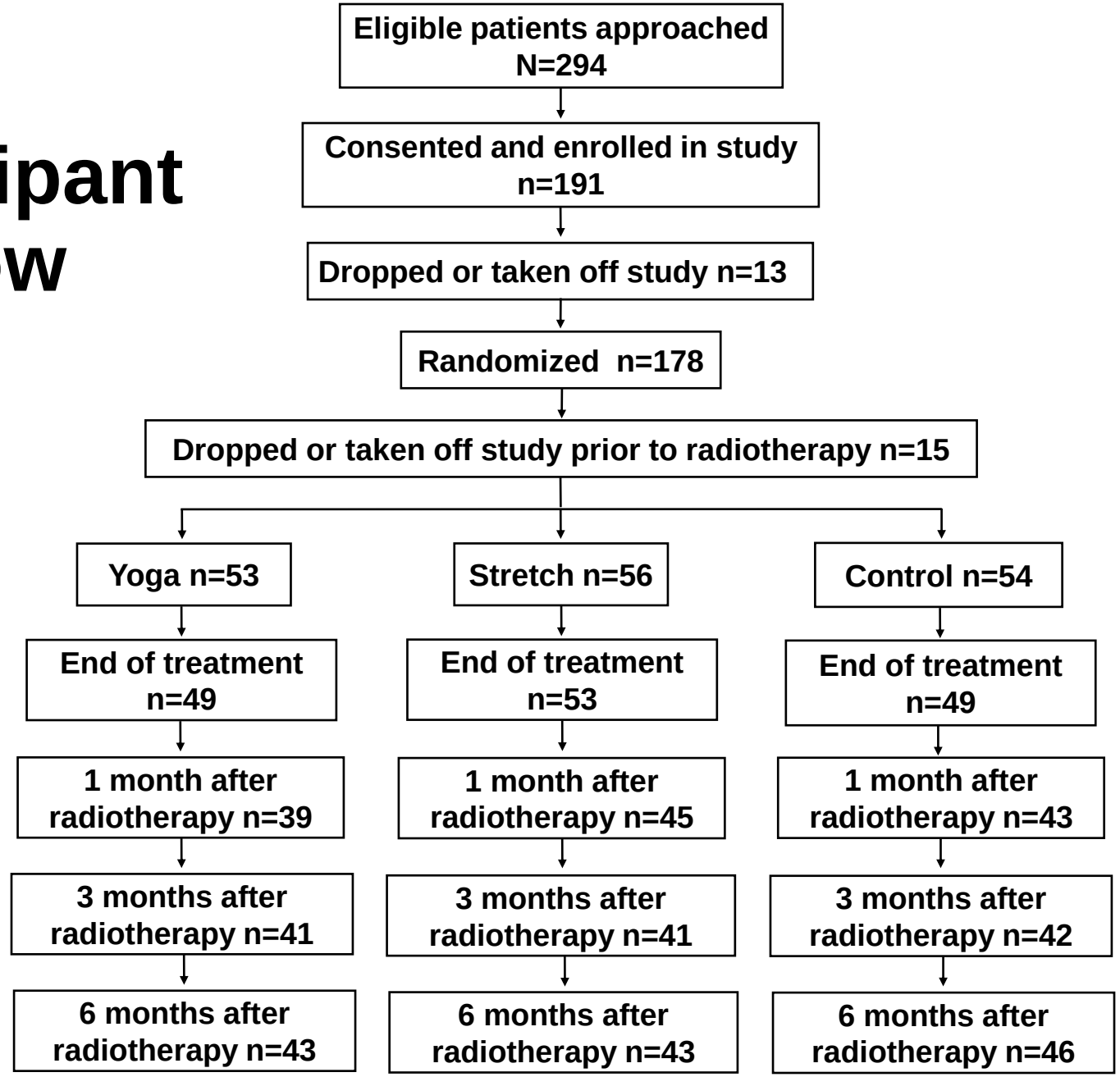
Purpose
Previous research incorporating yoga (YG) into radiotherapy (XRT) for women with breast cancer finds improved quality of life (QOL). However, shortcomings in this research limit the findings.

Patients and Methods
Patients with stages 0 to III breast cancer were recruited before starting XRT and were randomly assigned to YG (n = 53) or stretching (ST; n = 56) three times a week for 6 weeks during XRT or waitlist (WL; n = 54) control. Self-report measures of QOL (Medical Outcomes Study 36-item short-form survey; primary outcomes), fatigue, depression, and sleep quality, and five saliva samples per day for 3 consecutive days were collected at baseline, end of treatment, and 1, 3, and 6 months later.

Results
The YG group had significantly greater increases in physical component scale scores compared with the WL group at 1 and 3 months after XRT ($P = .01$ and $P = .01$). At 1, 3, and 6 months, the YG group had greater increases in physical functioning compared with both ST and WL groups ($P < .05$), with ST and WL differences at only 3 months ($P < .02$). The group differences were similar for general health reports. By the end of XRT, the YG and ST groups also had a reduction in fatigue ($P < .05$). There were no group differences for mental health and sleep quality. Cortisol slope was steepest for the YG group compared with the ST and WL groups at the end ($P = .023$ and $P = .008$) and 1 month after XRT ($P = .05$ and $P = .04$).

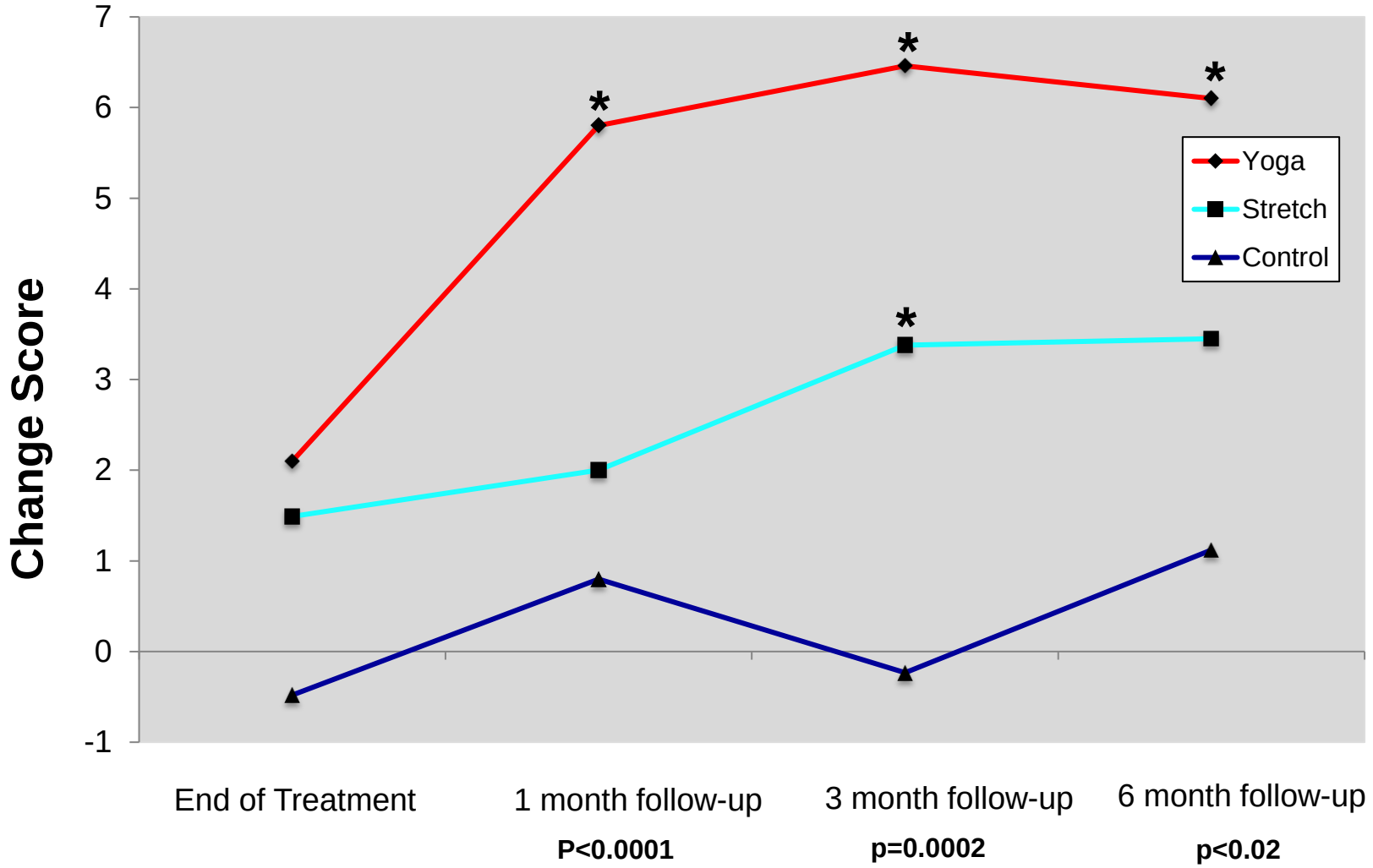
Conclusion
YG improved QOL and physiological changes associated with XRT beyond the benefits of simple ST exercises, and these benefits appear to have long-term durability.

Participant Flow



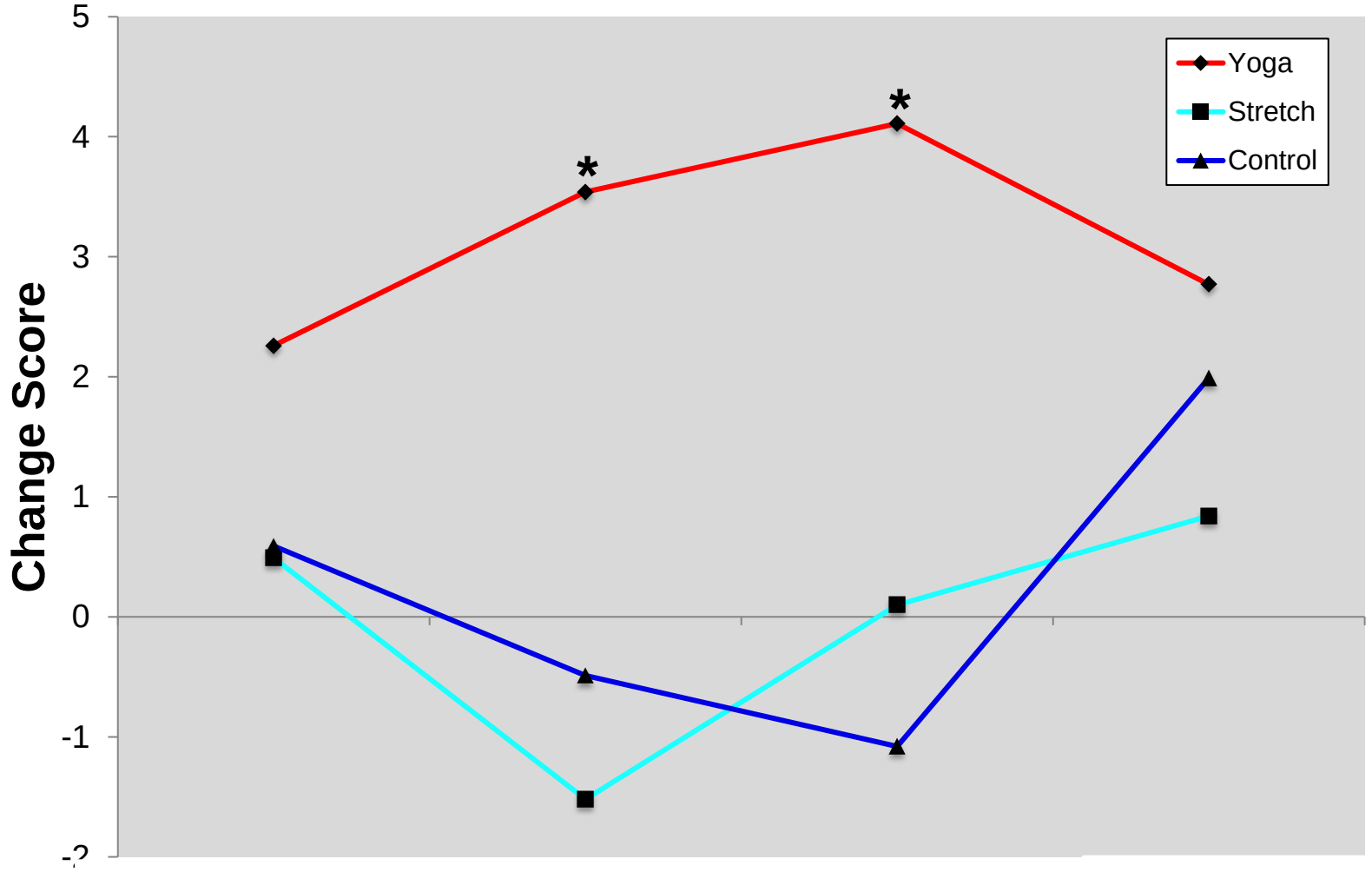
Chandwani et al., JCO, 2014

SF-36 Physical Functioning



Chandwani et al., JCO, 2014

SF-36 General Health

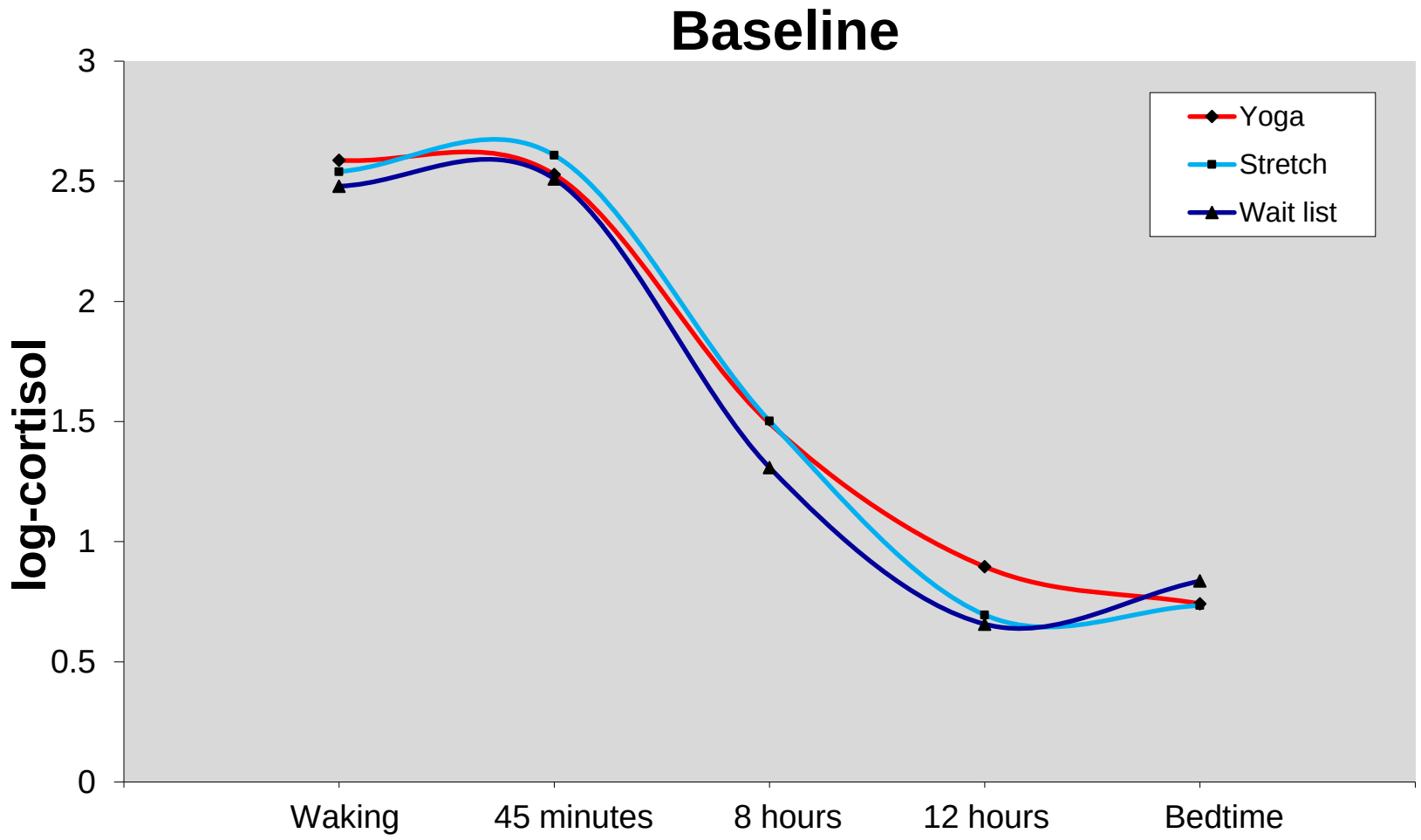


p=0.011

p=0.005

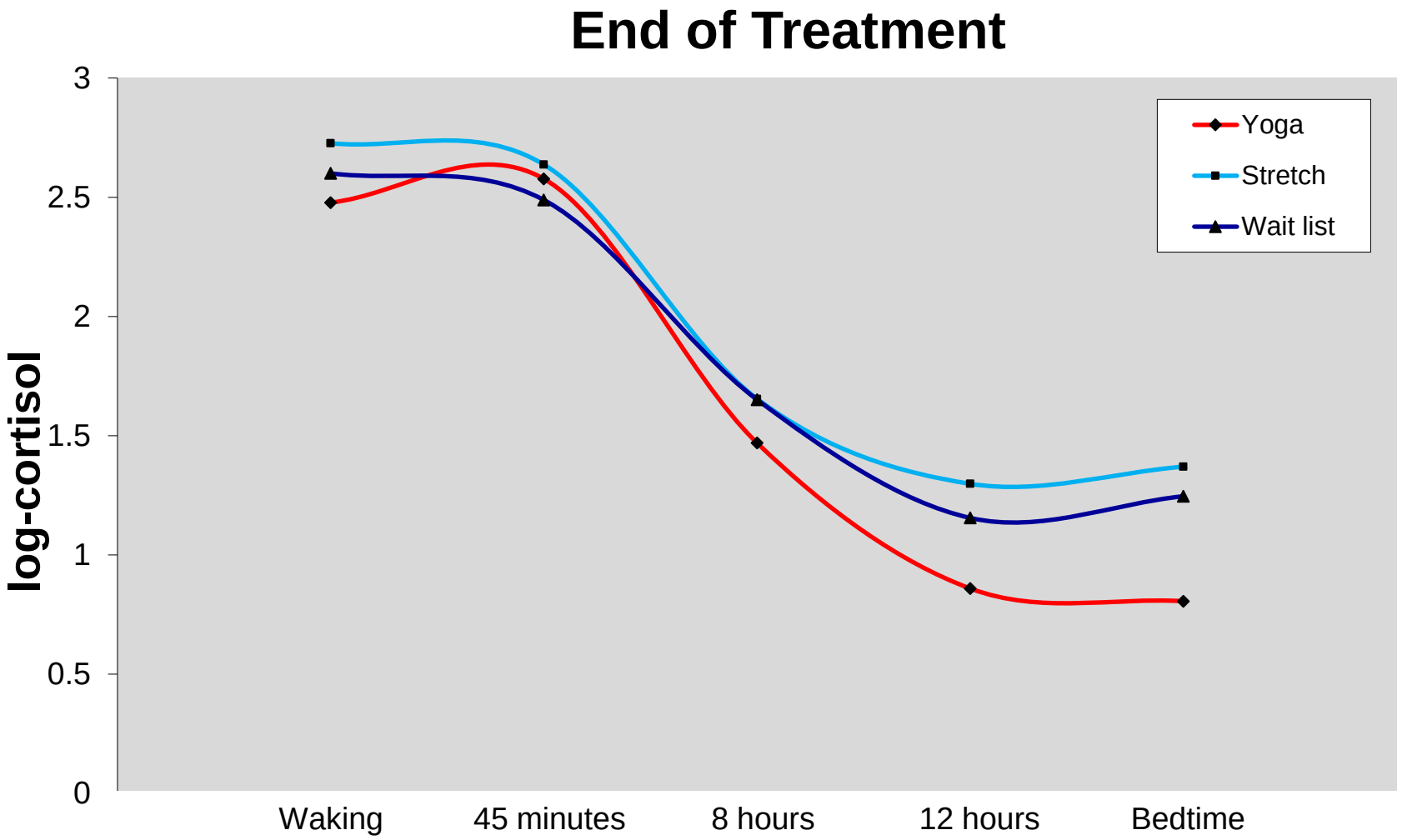
Chandwani et al., JCO, 2014

Cortisol



Chandwani et al., JCO, 2014

Cortisol



Chandwani et al., JCO, 2014

p=0.01

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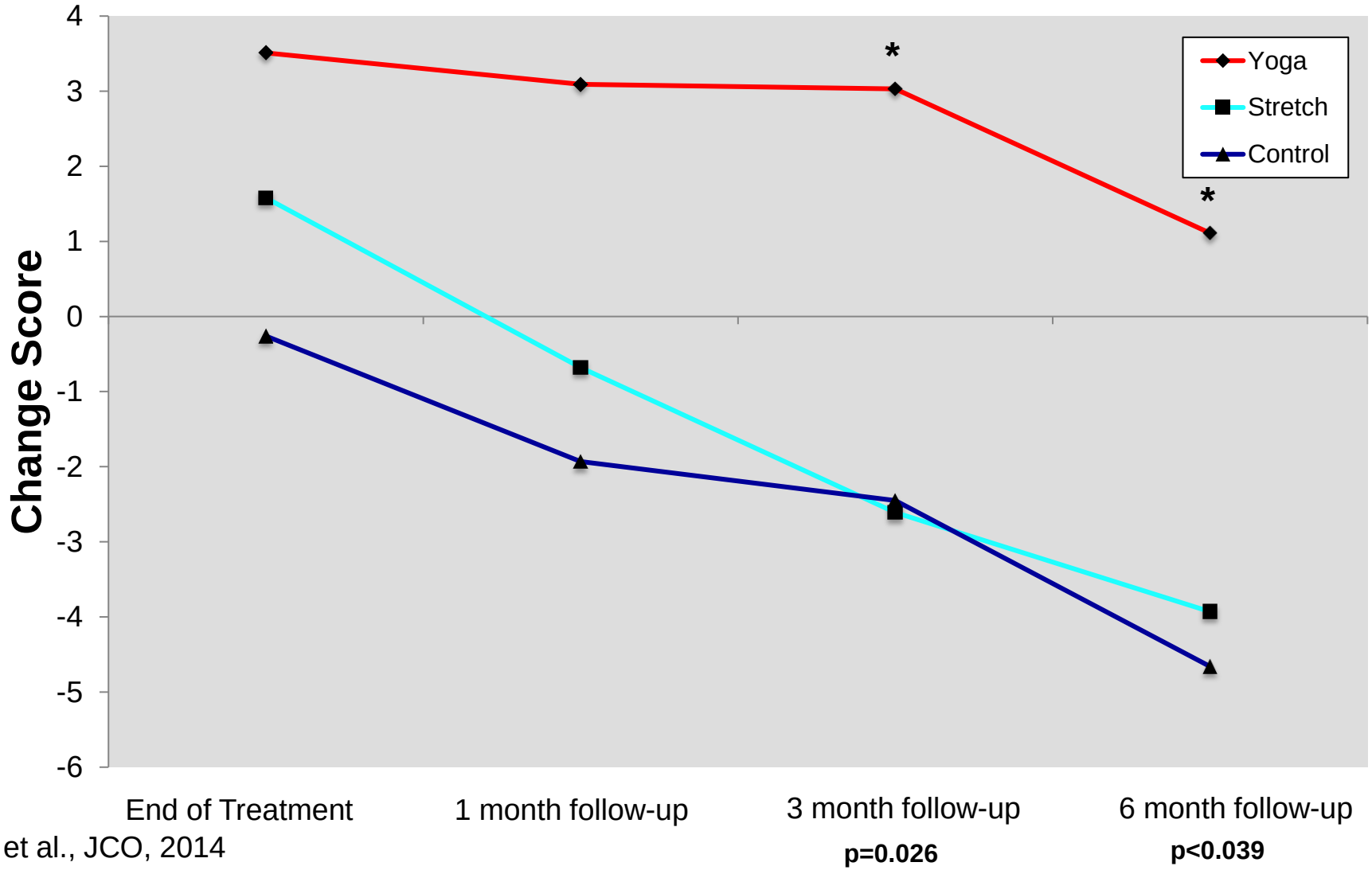
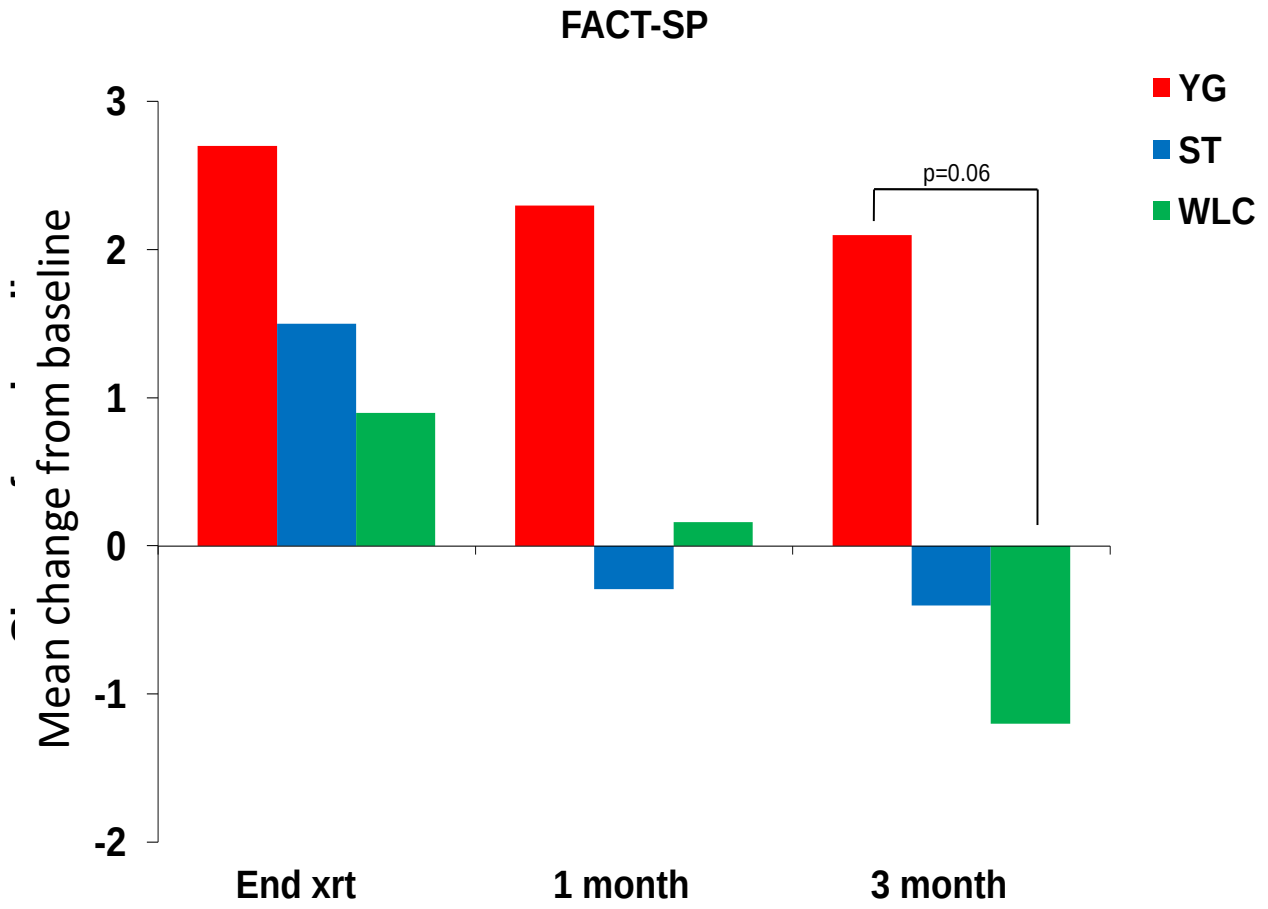
Benefit Finding



Chandwani et al., JCO, 2014

Figure 6


FACT-SP
YG
ST
WLC
p=0.06
Mean change from baseline
3
2
1
0
-1
-2
End xrt
1 month
3 month

Examining Mediators and Moderators of Yoga for Women With Breast Cancer Undergoing Radiotherapy

Integrative Cancer Therapies
January-March 2016: 1–13

DOI: 10.1177/1534735415624141
ict.sagepub.com
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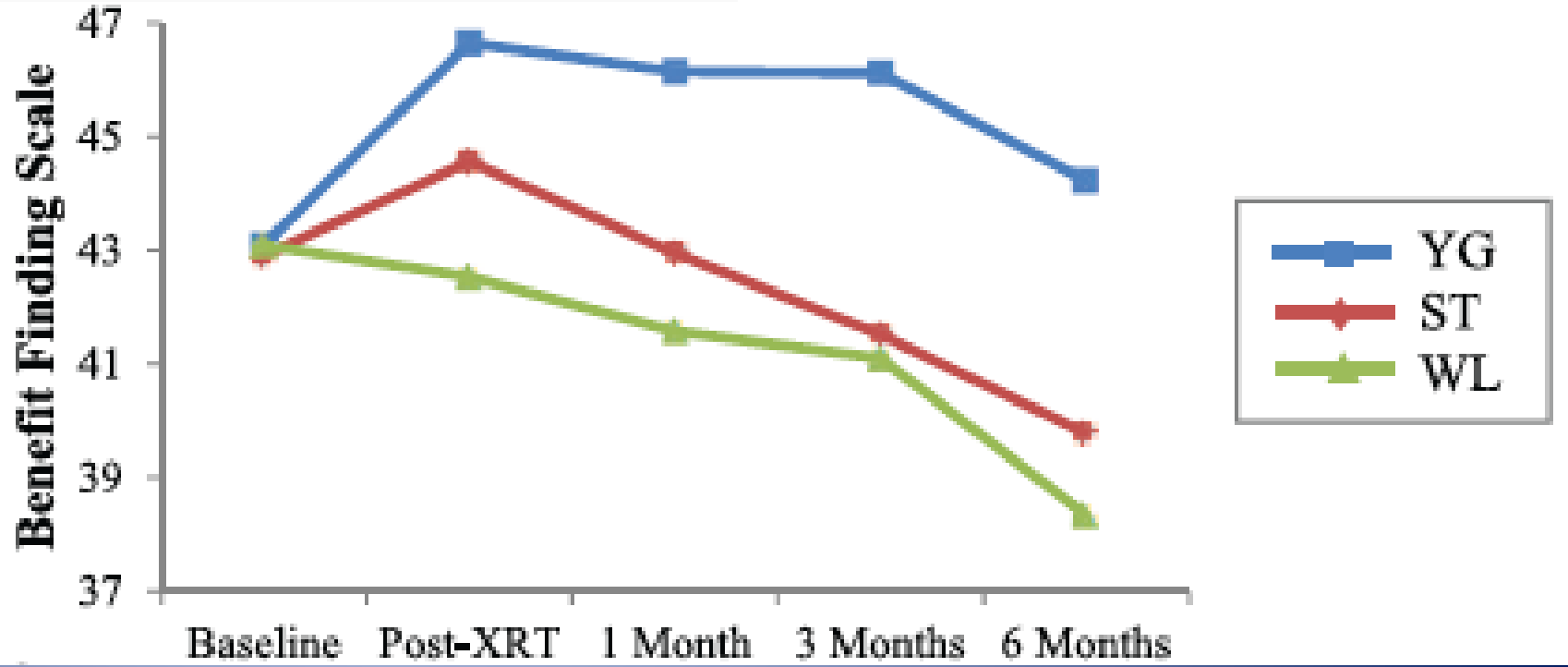
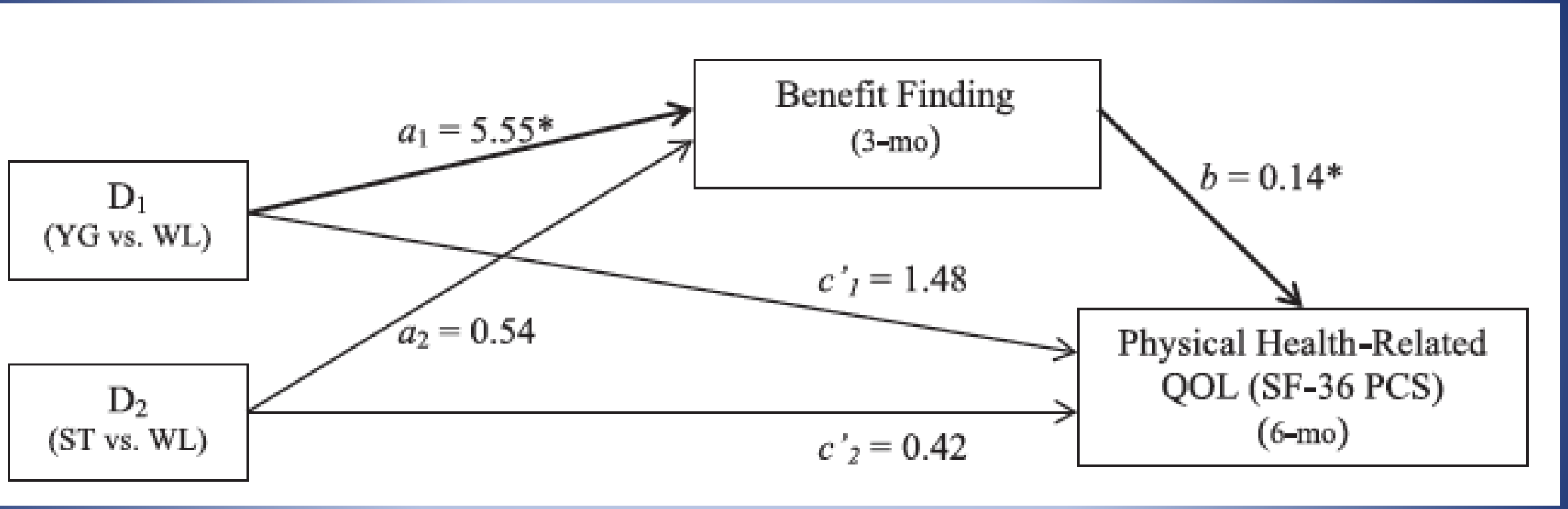
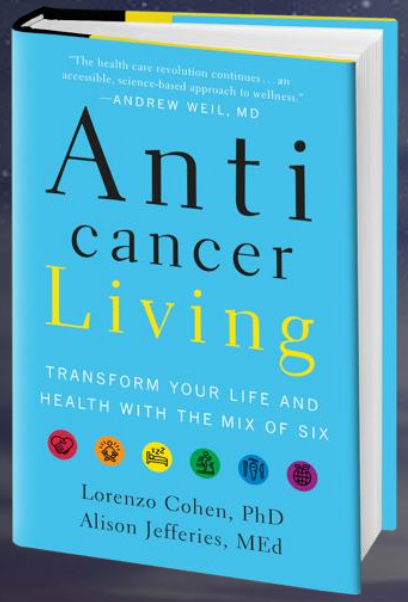
Chelsea G. Ratcliff, PhD[1,2,3], Kathrin Milbury, PhD[4], Kavita D. Chandwani, MD, MPH, DrPH[5], Alejandro Chaoul, PhD[4], George Perkins, MD[4], Raghuram Nagarathna, PhD[6], Robin Haddad, MPH[4], Hongasandra Ramarao Nagendra, PhD[6], N. V. Raghuram, BS[6], Amy Spelman, PhD[4], Banu Arun, MD[4], Qi Wei, MS[4], and Lorenzo Cohen, PhD[4]





Ratcliff et al., ICT, 2016

Yoga with a Capital “Y”



Research Article

A Comprehensive Lifestyle Randomized Clinical Trial: Design and Initial Patient Experience

Integrative Cancer Therapies
1–18

DOI: 10.1177/1534735416679516
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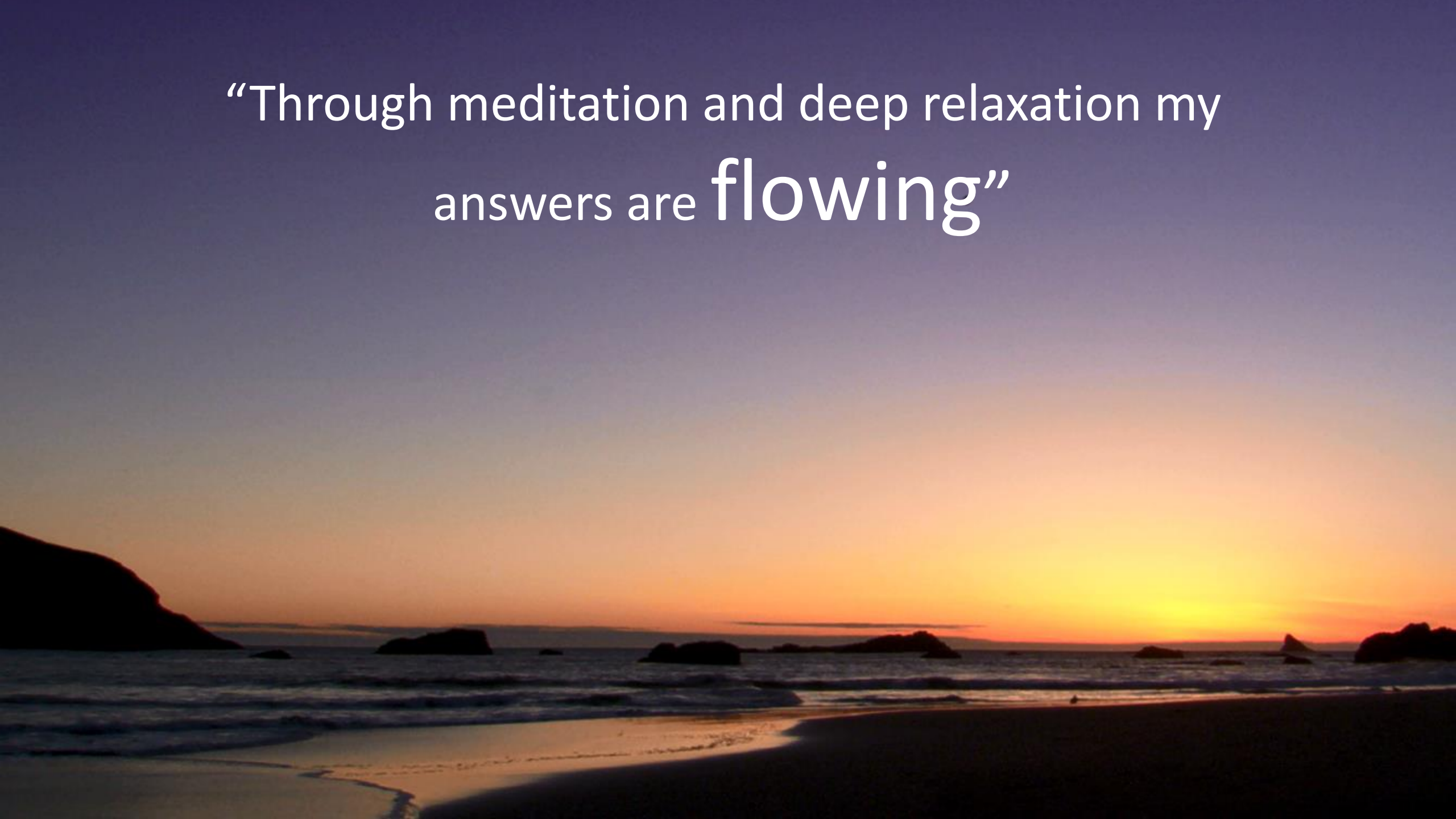
Banu Arun, MD[1], Taylor Austin, BA[1], Gildy V. Babiera, MD[1], Karen Basen-Engquist, MPH, PhD[1], Cindy L. Carmack, PhD[1], Alejandro Chaoul, PhD[1], Lorenzo Cohen, PhD[1], Lisa Connelly, MEd, LPC[1], Robin Haddad, MPH[1], Carol Harrison, MEd[1], Yisheng Li, PhD[1], Smitha Mallaiah, BS, DYSc, YICC[1], Raghuram Nagarathna, PhD, MD[2], Patricia A. Parker, PhD[1,3], George H. Perkins, MD[1], James M. Reuben, MBA, PhD[1], Ya-Chen Tina Shih, PhD[1], Amy Spelman, PhD[1], Anil Sood, MD[1], Peiying Yang, ME, MS, PhD[1], and Sai-Ching J. Yeung, R Ph, MS, PhD, MD, FACP[1]


“Through meditation and deep relaxation my answers are flowing”

HANDSPRING PUBLISHING

THE PRINCIPLES AND PRACTICE OF YOGA IN HEALTH CARE

Editors
Sat Bir Singh Khalsa · Lorenzo Cohen
Shirley Telles · Holger Cramer · Timothy McCall

Forewords by
Dean Ornish, MD • Belle Monappa Hegde, MD, PhD, FRCP

SECOND EDITION

Section 6

CANCER

Table 16.1 Randomized controlled studies examining the effects of yoga on QOL, symptoms, or mood during cancer treatment

Study	Author, year	Design/sample - Design, $N = X$ (total) - $n = X$ by group - Age: mean (SD; range) - Type of yoga	Cancer type, treatment and intervention - Cancer type - Stage - Treatment(s) received during the study - Intervention duration	Outcome measures - Primary measures - Timing of assessment	Results *p<0.05 **p<0.01 ***p<0.001
1	Jain et al., 2023	- 2 arm RCT, $N = 96$ - Yoga group, $n = 48$ - Control group 1 (standard care), $n = 48$ - Yoga - Age: 30–65	- Breast cancer - Stage II/III - Chemotherapy and radiation therapy - Yoga 5 days/week for 48 weeks	- EORTC-QLQ30 - Serum inflammatory and oxidative stress markers - Baseline, 16, 32, 48 weeks	- Yoga significantly* reduced the level of IFN-γ, TNF-α, and MDA and improved QOL*** and symptomatic scale* in yoga group patients compared with controls
2	Lu et al., 2023	- 3 arm RCT, $N = 106$ - Problem solving + yoga breathing exercise, $n = 38$ - Yoga breathing exercises, $n = 34$ - Usual care, $n = 34$	- Lung cancer patients undergoing surgery - Intervention over pre- and postoperative period – 4 weeks	- Dyspnea, exercise capacity and anxiety - On admission, day before surgery and at discharge	- Patients in the combined intervention group showed a significantly greater improvement in dyspnea*, exercise capacity*, and anxiety ** compared with the control group
3	Sohl et al., 2023	- 2 arm RCT, $N = 31$ - E Mindful Movement - Breathing (eMMB), $n = 14$ - Attention Control (AC), $n = 17$ - Mean age: 59.7 (SD = 11.2)	- Women undergoing surgery for suspected gynecologic malignancy - Self-directed video session of 20 minutes before surgery and daily home practice for 2 weeks after surgery	- Recruitment proportion, retention, adherence - PROMIS pain intensity - Baseline, 2 weeks and 4 weeks	- Demonstrated feasibility and reductions in the primary outcome of pain intensity were larger in the eMMB group than AC group (week 2 d = −0.38; week 4 d = −0.46)
4	Milbury et	- 3 arm RCT, $N = 67$	- Glioma patients and caregivers	- Depressive symptoms,	- Medium effect sizes for improved mental QOL (d

Integrative medicine in oncology: redefining the standard of care

Gabriel Lopez, Santhosshi Narayanan & Lorenzo Cohen

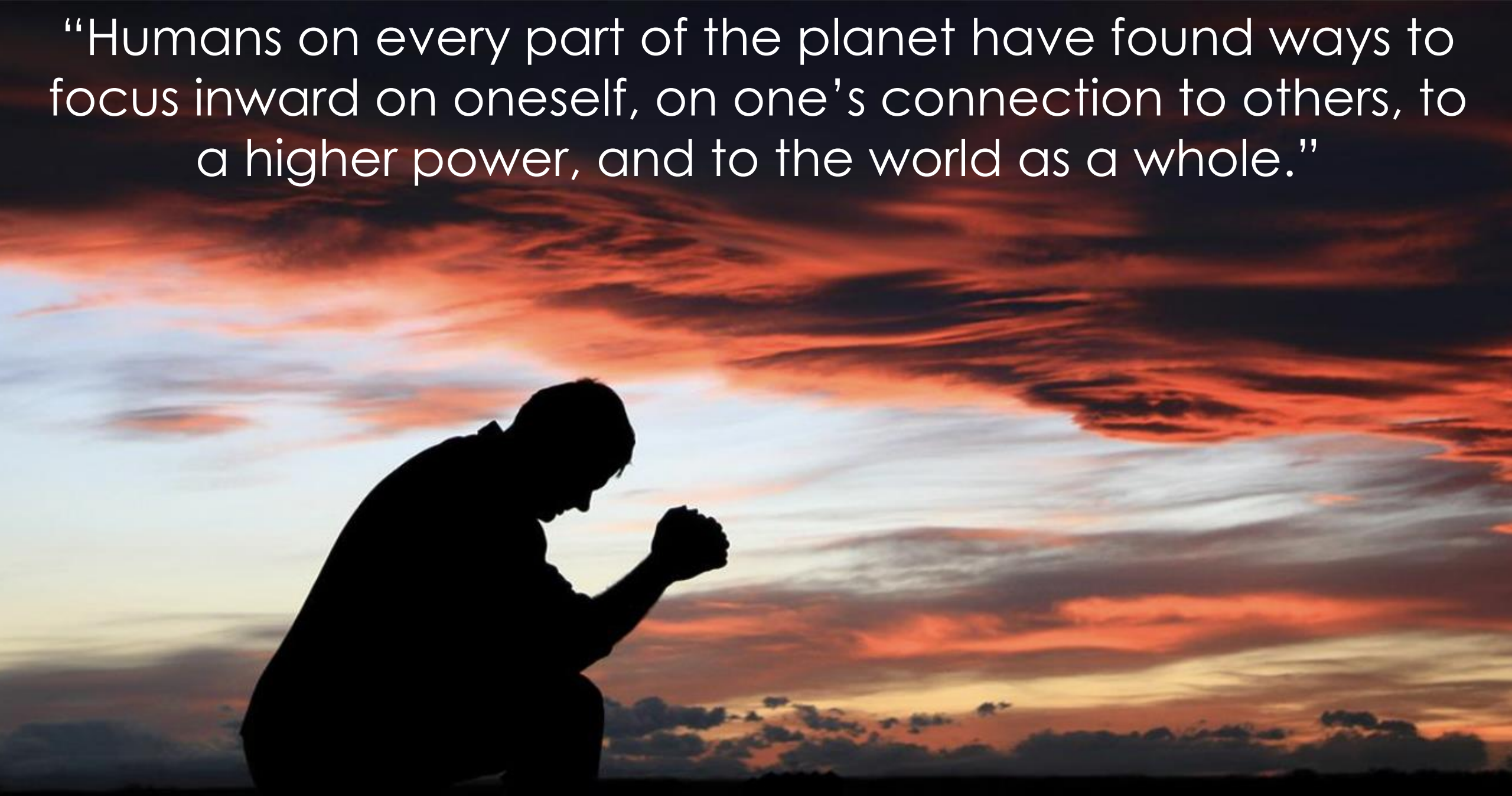
Table 1 | Recommendations for integrative oncology in cancer care

	Acupuncture/ Acupressure	Massage/ reflexology	Yoga/ meditation/ MBSR	Tai Chi/ Qigong	Hypnosis	Music Therapy	Nutrition	Exercise
Pain	X	X	X		X	X	X	X
Arthralgia	X		X					X
Fatigue	X	X	X	X			X	X
Anxiety/ depression			X	X	X	X		X
Sleep dysfunction			X	X				X
Nausea	X		X		X	X		
Cognitive dysfunction			X					
Hot flashes/ night sweats	X		X		X			X

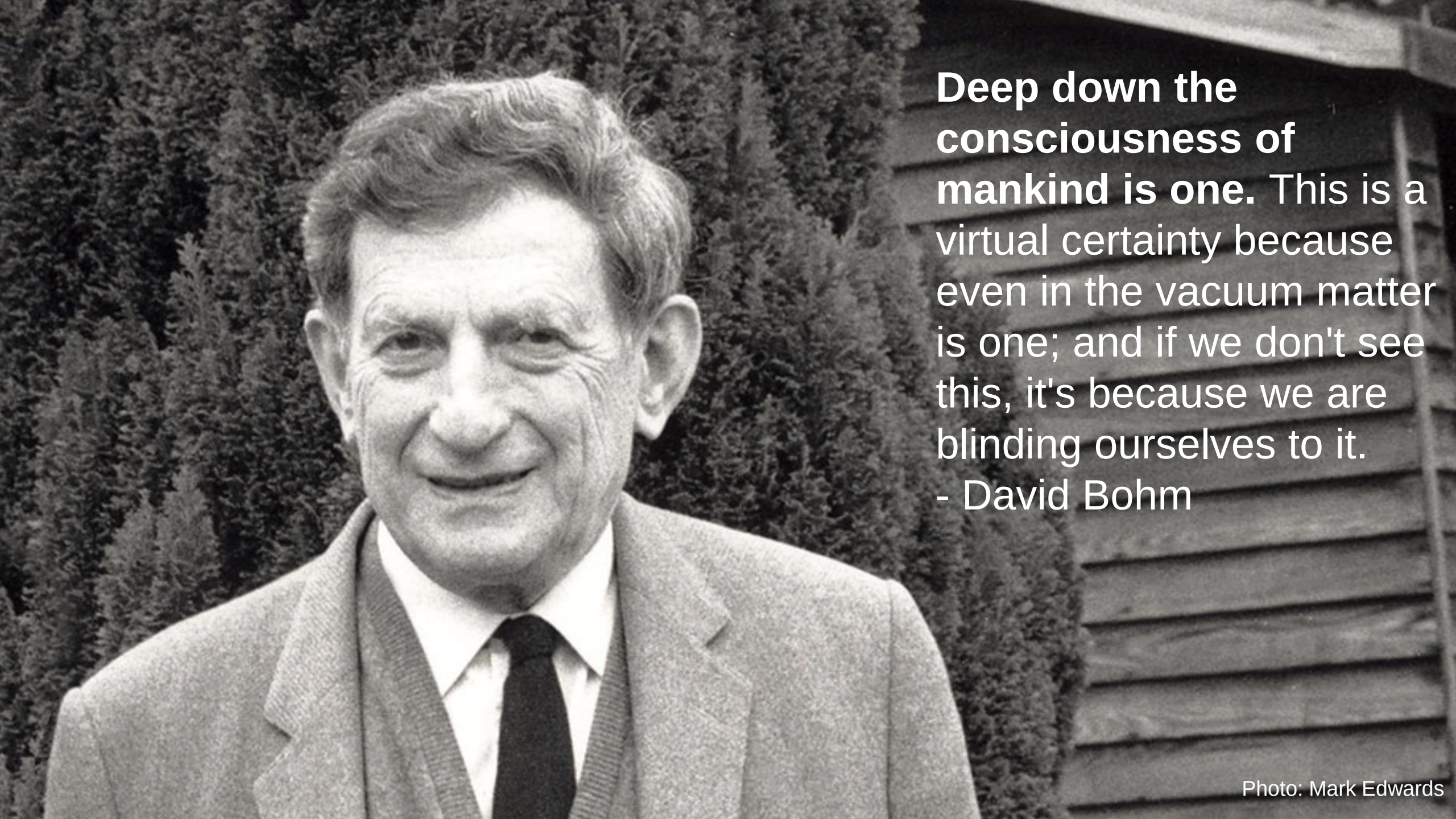
Combination of NCCN and ASCO–SIO guidelines that have: moderate/intermediate or higher evidence; moderate to strong recommendation; and/or NCCN category 2A or higher. MBSR, mindfulness-based stress reduction. The table is adapted with permission from ref. 5, Wiley.

nature reviews cancer 2024

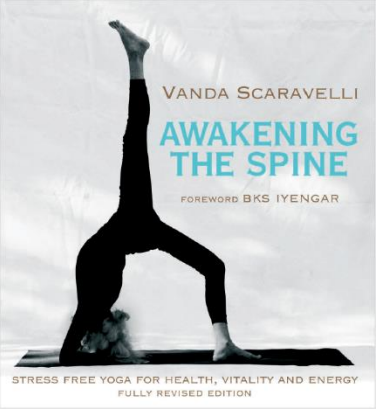
"Humans on every part of the planet have found ways to focus inward on oneself, on one's connection to others, to a higher power, and to the world as a whole."



Cohen & Jefferies: *Anticancer Living: Transform Your Life and Health With the Mix of Six*


Deep down the consciousness of mankind is one. This is a virtual certainty because even in the vacuum matter is one; and if we don't see this, it's because we are blinding ourselves to it.
- David Bohm
Photo: Mark Edwards

Yoga with a Capital “Y”



“Yoga…it is a living process that changes moment by moment. Watching when we eat - how we eat; when we walk - how we walk; what we say - how we say it. All these things are in us and we must be pationately interested in them all.”

Vanda Scaravelli: *Awakening The Spine.*

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