



# Yoga for Depression

Yoga Alliance Webinar  
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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

# **Major Depressive Disorder (MDD)**

## **DSMV Criteria**

(Diagnostic & Statistical Manual of Mental Disorders, 5th Ed)

5 or more symptoms for 2-weeks including symptom #1 or #2 below and clinically significant distress/impairment in overall functioning

1. Depressed mood (sad, empty, hopeless)
2. Loss of interest/pleasure in daily activities
3. Weight or appetite change
4. Sleep disturbance
5. Psychomotor agitation or retardation
6. Fatigue or loss of energy
7. Feelings of worthlessness or guilt
8. Difficulty with concentration or indecisiveness
9. Suicidal ideation

# Sadness or Depressed Mood

- Short term or temporary
- Specific to a life event or circumstance
- There is still interest/pleasure in other activities
- No serious disruption of sleeping and eating patterns
- No self-diminishing negative thought patterns
- No suicidal ideation

# Etiology of Depression

- biological
- genetic
- environmental
- childhood or developmental events
- stressful life events
- severe and prolonged stress

# Stress and Depression

“Research has supported a strong association between stress and depression...

...higher levels of significant stressors prior to the onset of major depressive episodes in patients...

...stressors were 2.5 times more likely in depressed patients...

... in community samples, 80% of depressed cases were preceded by major life events...most episodes of major depression are preceded by stressful life events”

*From: Stress and depression. Hammen C. Annual Review of Clinical Psychology  
1:293-319, 2005.*

# Stress and Depression

“...chronic stress (defined as stress ongoing for more than 12 months) is a stronger predictor of depressive symptoms than acute stressors.”

“Other research has found that continuing adverse conditions, such as poverty, medical disabilities, and lasting marital discord, are associated with risk for depression.”

From: *Stress and depression*. Hammen C. *Annual Review of Clinical Psychology* 1:293-319, 2005.

# Treatments for Depression

- Pharmaceuticals
- Psychotherapy
- Cognitive Behavioral Therapy
- Exercise
- Relaxation Therapy
- Meditation
- Yoga

## 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 Treatment of Depression

## Mechanisms of Action

- Decreasing rumination
- Promoting decrease in stress reactivity
- Regulating neurotransmitters
- Promoting more adaptive thinking
- Promoting behavioral activation
- Increasing sleep regulation

*From: Hatha yoga for depression: critical review of the evidence for efficacy, plausible mechanisms of action, and directions for future research, Uebelacker LA, Epstein-Lubow G, Gaudiano BA, Tremont G, Battle CL, Miller IW, Journal of Psychiatric Practice, 16:22-33, 2010.*

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"Yoga for Depression is a godsend: beautifully written, medically accurate, and very practical. I highly recommend it!"—Christiane Northrup, M.D., author of *Women's Bodies, Women's Wisdom*

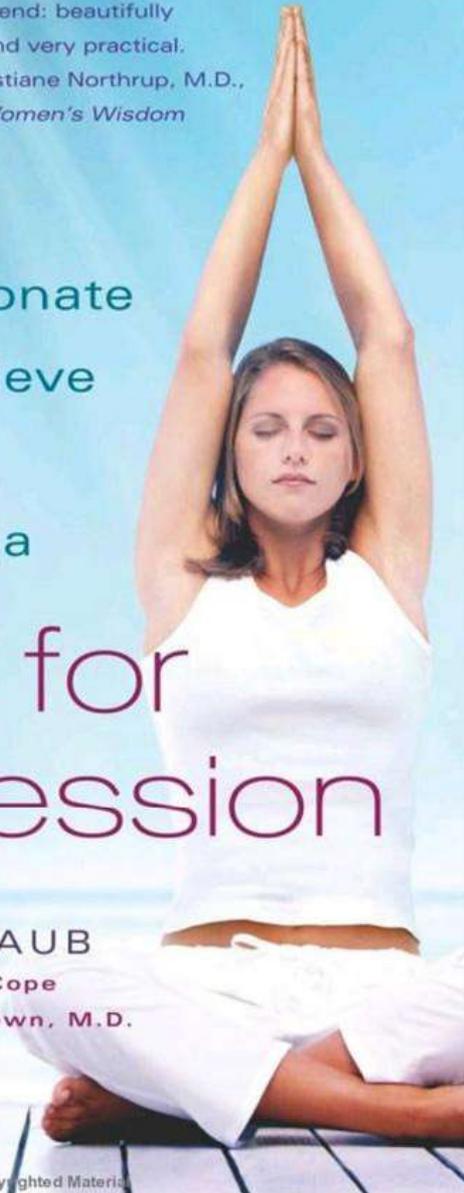
A Compassionate  
Guide to Relieve  
Suffering  
Through Yoga

# Yoga for Depression

AMY WEINTRAUB

Foreword by Stephen Cope

Preface by Richard Brown, M.D.



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"Donna's clear, simple, and communal instruction is available to everyone. Here is the voice of a good friend: encouraging, practical, wise, and always very real."  
—Hillary Dowdle, Editor-in-Chief, Yoga Journal



# yoga

# beats the blues



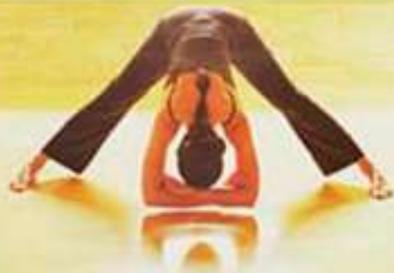
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DONNA RASKIN

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DEPRESSION THE  
MIND-BODY WAY



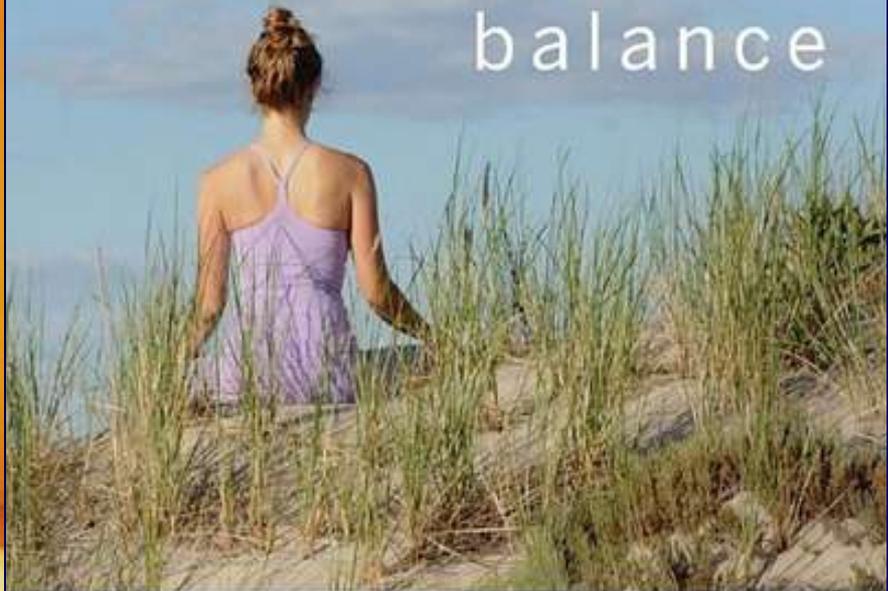
creating happiness with  
meditation, yoga and ayurveda

Nancy Liebler Ph.D. and Sandra Moss M.S.P.H.

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yoga for  
emotional  
balance



simple practices to  
help relieve anxiety and depression

bo forbes, PsyD



## Yoga on our minds: a systematic review of yoga for neuropsychiatric disorders

**Meera Balasubramaniam<sup>1\*</sup>, Shirley Telles<sup>2</sup> and P. Murali Doraiswamy<sup>1,3\*</sup>**

<sup>1</sup> Department of Psychiatry and Behavioral Sciences, Duke University School of Medicine, Durham, NC, USA

<sup>2</sup> Indian Council of Medical Research Center for Advanced Research in Yoga and Patanjali Research Foundation, Bengaluru, India

<sup>3</sup> Duke Institute for Brain Sciences, Durham, NC, USA

**Edited by:**

Susan A. Everson-Rose, University of Minnesota, USA

**Reviewed by:**

Dusan Kolar, Queen's University, Canada

Felicia Ittens, Queens University, Canada

**\*Correspondence:**

Meera Balasubramaniam,  
Department of Psychiatry and  
Behavioral Sciences, Duke University  
School of Medicine, Durham, NC,  
USA.

e-mail: meera.balasubramaniam@  
duke.edu;

P. Murali Doraiswamy, DUMC-3018,  
Department of Psychiatry, Duke  
University Medical Center, Durham,  
NC 27710, USA.

e-mail: dorai001@mc.duke.edu

**Background:** The demand for clinically efficacious, safe, patient acceptable, and cost-effective forms of treatment for mental illness is growing. Several studies have demonstrated benefit from yoga in specific psychiatric symptoms and a general sense of well-being.

**Objective:** To systematically examine the evidence for efficacy of yoga in the treatment of selected major psychiatric disorders.

**Methods:** Electronic searches of The Cochrane Central Register of Controlled Trials and the standard bibliographic databases, MEDLINE, EMBASE, and PsycINFO, were performed through April 2011 and an updated in June 2011 using the keywords yoga AND psychiatry OR depression OR anxiety OR schizophrenia OR cognition OR memory OR attention AND randomized controlled trial (RCT). Studies with yoga as the independent variable and one of the above mentioned terms as the dependent variable were included and exclusion criteria were applied.

**Results:** The search yielded a total of 124 trials, of which 16 met rigorous criteria for the final review. Grade B evidence supporting a potential acute benefit for yoga exists in depression (four RCTs), as an adjunct to pharmacotherapy in schizophrenia (three RCTs), in children with ADHD (two RCTs), and Grade C evidence in sleep complaints (three RCTs). RCTs in cognitive disorders and eating disorders yielded conflicting results. No studies looked at primary prevention, relapse prevention, or comparative effectiveness versus pharmacotherapy.

**Conclusion:** There is emerging evidence from randomized trials to support popular beliefs about yoga for depression, sleep disorders, and as an augmentation therapy. Limitations of literature include inability to do double-blind studies, multiplicity of comparisons within small studies, and lack of replication. Biomarker and neuroimaging studies, those comparing yoga with standard pharmaco- and psychotherapies, and studies of long-term efficacy are needed to fully translate the promise of yoga for enhancing mental health.

# THE PRINCIPLES AND PRACTICE OF YOGA IN HEALTH CARE



Sat Bir Khalsa • Lorenzo Cohen  
Timothy McCall • Shirley Telles



## THE PRINCIPLES AND PRACTICE OF YOGA IN HEALTH CARE



The Principles and Practice of Yoga in Health Care is a professional-level textbook with contributions by multiple expert researchers and therapists in the field.

- This book**
- brings together the science and the practice of yoga therapy
  - supports the emergence of yoga therapy as a credible profession
  - comprehensively summarizes research findings and their practical implications for professionals who use yoga in their practices
  - includes chapter contributions by leading biomedical researchers of yoga
  - reviews the scientific evidence base for yoga for a wide variety of medical conditions
  - provides first-of-its-kind descriptions of yoga therapy describing practical implementation issues relevant to yoga for specific conditions

The editors include three eminent yoga therapy researchers and one seasoned practitioner in the field. They have brought together an experienced team of researchers and yoga therapist contributors.

This book will prove essential for yoga therapists, physical therapists, medical doctors, psychologists and other health professionals interested in yoga as a therapeutic intervention.

THE PRINCIPLES AND PRACTICE OF YOGA IN HEALTH CARE  
Khalsa et al

## CHAPTER FIVE YOGA THERAPY FOR DEPRESSION

L UEBELACKER • H LAVRETSKY • G TREMONT

### Pathophysiology, etiology, and prevalence of depression

#### Definition and prevalence

Major depressive disorder (MDD) is defined as a period of 2 weeks or longer in which there is depressed mood or loss of interest or pleasure and at least four other symptoms involving changes in weight/appetite, sleep, activity level, energy, self-image, concentration, or suicidality. To meet diagnostic criteria, these symptoms must significantly impair social, occupational, or other functioning. MDD is one of the most common psychiatric conditions, estimated to affect 350 million individuals worldwide (World Health Organization, 2010). In 2012, 16 million adults in the United States had at least one depressive episode within the past year (Substance Abuse and Mental Health Services Administration, 2012). It is estimated that 20% of women and 12% of men will experience major depression in their lifetime.

#### Etiology and pathophysiology

Major depression is a complex biopsychosocial disorder, frequently co-occurs with anxiety disorders and substance use disorders (Kessler et al., 2003), and is likely clinically and etiologically heterogeneous (Hasler, 2010). Thus, many etiological hypotheses have been proposed. Considerable evidence suggests that alterations in metabolism of neurotransmitters such as serotonin, norepinephrine, or dopamine in the brain underlie the pathophysiology of depression (Belmaker & Agam, 2008). There is also evidence that acute depression is associated with decreased total gamma-aminobutyric acid (GABA) in the prefrontal and occipital cortex (Hasler et al., 2007). GABA is the primary inhibitory neurotransmitter in the brain.

Chronic stress (Roy & Campbell, 2013) and impaired emotion regulation (Compare, Zarbo, Shonin,

Van Gordon, & Marconi, 2014)—which affects how one copes with stress—are risk factors for MDD. Thus, MDD is considered to be a stress-related disorder, and some individuals show dysfunction of the hypothalamic–pituitary–adrenal (HPA) axis and have heightened levels of the stress hormone cortisol (Pariante & Lightman, 2008). High levels of cortisol release and abnormalities in the stress response are hypothesized to account for associations between volume loss in the hippocampus (an important brain structure for learning and memory) and longer durations of episodes of depression (Sheline, Gado, & Kraemer, 2003). Relatedly, inflammatory-response activation has been implicated in depression. Elevated levels of proinflammatory cytokines, such as interleukin-1, interleukin-6, and tumor necrosis factor alpha, are seen in depression and associated with activation of the HPA axis and disruption of the central serotonin system (Dantzer, O'Connor, Freund, Johnson, & Kelley, 2008).

Genetic factors and heritability are implicated in depression. Estimates suggest that genes account for 30–40% of the variance in susceptibility to MDD, although there is little evidence for specific genes or gene-by-environment interactions (Donnelly, 2008; Kendler, Gardner, & Prescott, 2006). Environmental factors are also likely to increase susceptibility to or precipitate MDD. Specific environmental factors may include childhood traumatic events, interpersonal difficulties, interpersonal loss, isolation, and ongoing stressors. Psychological factors, such as increased anxiety and tendency to interpret events in negative ways, may also be related to depression. Similarly, cognitive biases and deficits in cognitive control may be associated with poor emotion regulation and are common in depressive disorders, and therefore could have implications for treatment strategies (Joormann & Quinn, 2014).

# The Efficacy of Yoga as a Form of Treatment for Depression

Ledetra Bridges, LMSW<sup>1</sup>  
and Manoj Sharma, MBBS, MCHES, PhD<sup>1</sup>

Journal of Evidence-Based  
Complementary & Alternative Medicine  
2017, Vol. 22(4) 1017-1028  
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DOI: 10.1177/2156587217715927  
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## Abstract

The purpose of this article was to systematically review yoga interventions aimed at improving depressive symptoms. A total of 23 interventions published between 2011 and May 2016 were evaluated in this review. Three study designs were used: randomized control trials, quasi-experimental, and pretest/posttest, with majority being randomized control trials. Most of the studies were in the United States. Various yoga schools were used, with the most common being *Hatha yoga*. The number of participants participating in the studies ranged from 14 to 136, implying that most studies had a small sample. The duration of the intervention period varied greatly, with the majority being 6 weeks or longer. Limitations of the interventions involved the small sample sizes used by the majority of the studies, most studies examining the short-term effect of yoga for depression, and the nonutilization of behavioral theories. Despite the limitations, it can be concluded that the yoga interventions were effective in reducing depression.

“...it can be concluded that the yoga interventions were effective in reducing depression.”

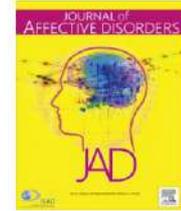
[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5871291/pdf/10.1177\\_2156587217715927.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5871291/pdf/10.1177_2156587217715927.pdf)



Contents lists available at ScienceDirect

## Journal of Affective Disorders

journal homepage: [www.elsevier.com/locate/jad](http://www.elsevier.com/locate/jad)



Review article

### A systematic review of yoga for major depressive disorder

Holger Cramer<sup>a,b,\*</sup>, Dennis Anheyer<sup>a</sup>, Romy Lauche<sup>b</sup>, Gustav Dobos<sup>a</sup>



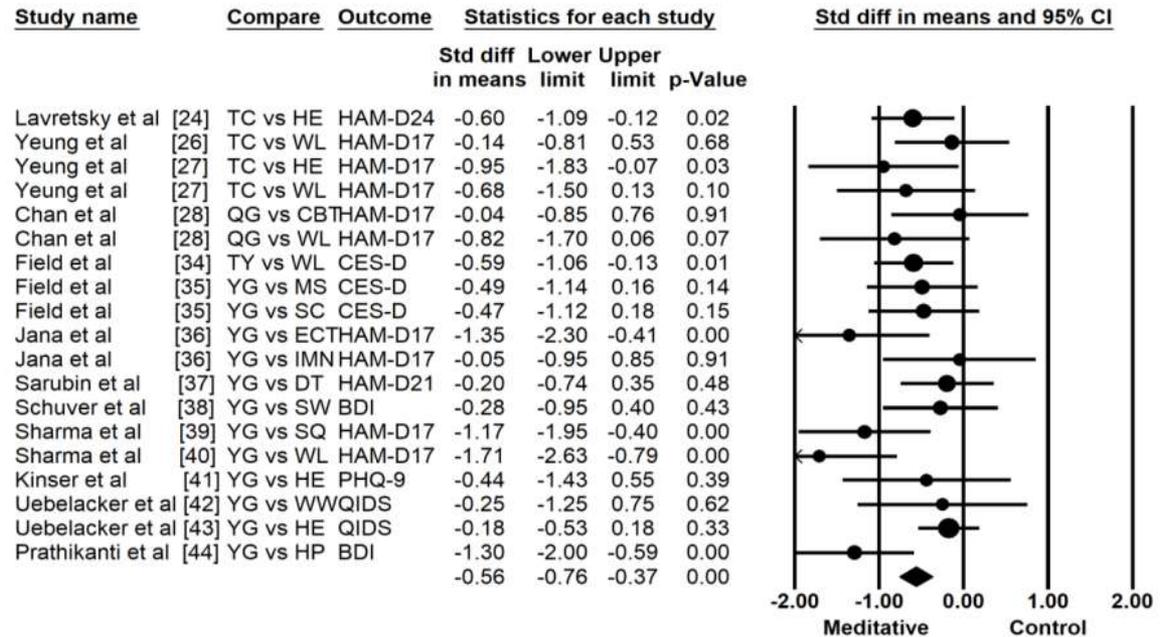
<sup>a</sup> Department of Internal and Integrative Medicine, Kliniken Essen-Mitte, Faculty of Medicine, University of Duisburg-Essen, Essen, Germany

<sup>b</sup> Australian Research Centre in Complementary and Integrative Medicine (ARCCIM), Faculty of Health, University of Technology Sydney, Sydney, Australia

“This review found some evidence for positive effects beyond placebo and comparable effects compared to evidence-based interventions.”

# Yoga Treatment of Depression

“...meditative movements may have positive effects on the treatment of MDD, and importantly, with no occurrence of significant adverse events.”



Meta Analysis

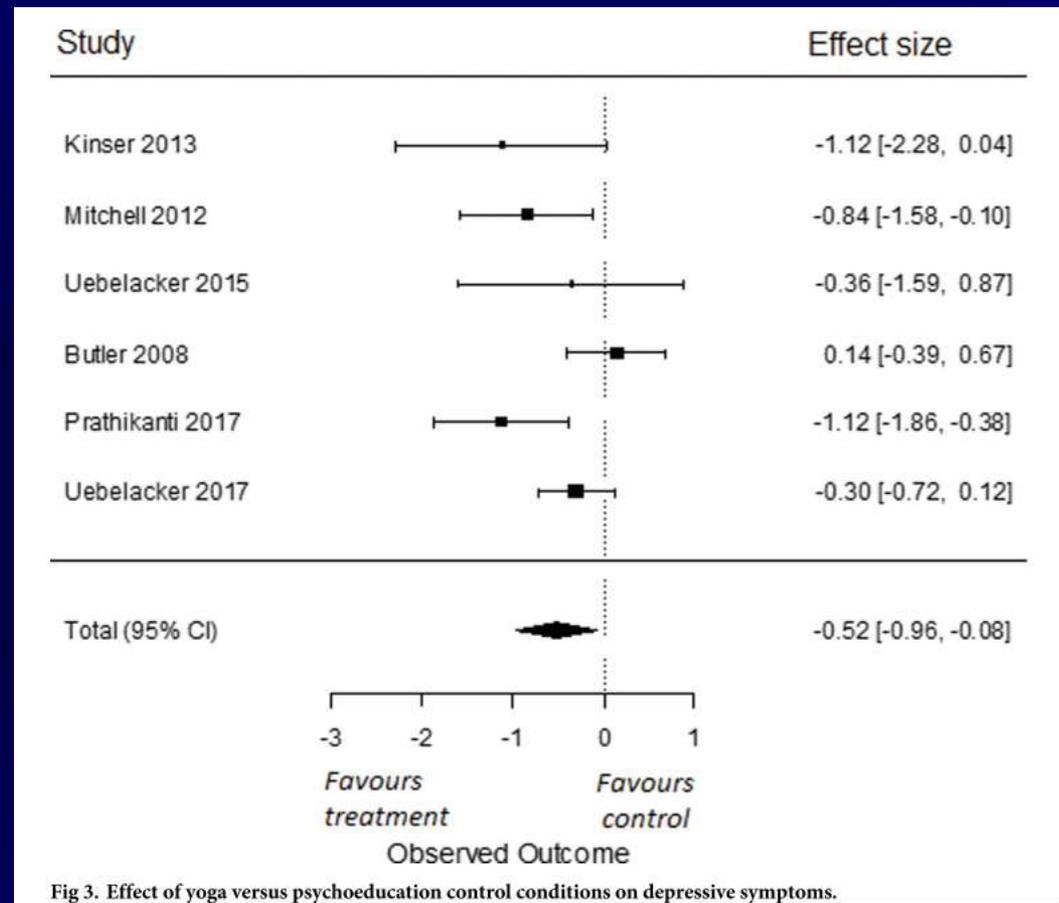
Figure 3. Effects of meditative movements on depression.

From: *Effects of Meditative Movements on Major Depressive Disorder: A Systematic Review and Meta-Analysis of Randomized Controlled Trials*. Zou L, Yeung A, Li C, Wei GX, Chen KW, Kinser PA, Chan JSM, Ren Z, *Journal of Clinical Medicine*, 1;7(8), 2018.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6111244/pdf/jcm-07-00195.pdf>

# Yoga Treatment of Chronic Depression

“...data of thirteen RCTs...”  
“...a comparison of yoga to psychoeducation control showed that hatha yoga led to reductions of symptoms of depression...”



From: *Hatha yoga for acute, chronic and/or treatment-resistant mood and anxiety disorders: A systematic review and meta-analysis.* Vollbehr NK, Bartels-Velthuis AA, Nauta MH, Castelein S, Steenhuis LA, Hoenders HJR, Ostafin BD, *PLoS One*, 1;13:e0204925, 2018

<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0204925&type=printable>



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## Complementary Therapies in Medicine

journal homepage: [www.elsevier.com/locate/ctim](http://www.elsevier.com/locate/ctim)



### Perceptions of hatha yoga amongst persistently depressed individuals enrolled in a trial of yoga for depression



Lisa A. Uebelacker<sup>a,b,\*</sup>, Morganne Kraines<sup>c</sup>, Monica K. Broughton<sup>a,d</sup>, Geoffrey Tremont<sup>b,e</sup>,  
L. Tom Gillette<sup>f</sup>, Gary Epstein-Lubow<sup>a,b,d</sup>, Ana M. Abrantes<sup>a,b</sup>, Cynthia Battle<sup>a,b</sup>, Ivan W. Miller<sup>a,b</sup>

<sup>a</sup> Butler Hospital, Providence, RI, United States

<sup>b</sup> Alpert Medical School of Brown University, Providence, RI, United States

“...comments reinforced the importance of aspects of mindfulness, such as attention to the present moment and acceptance of one’s self and one’s experience...”

“Practicing mindfulness in class is likely associated with some of the notable effects of yoga cited by our participants, including learning to focus, concentrate, or be in the present moment; learning self-acceptance; and learning self-awareness.”

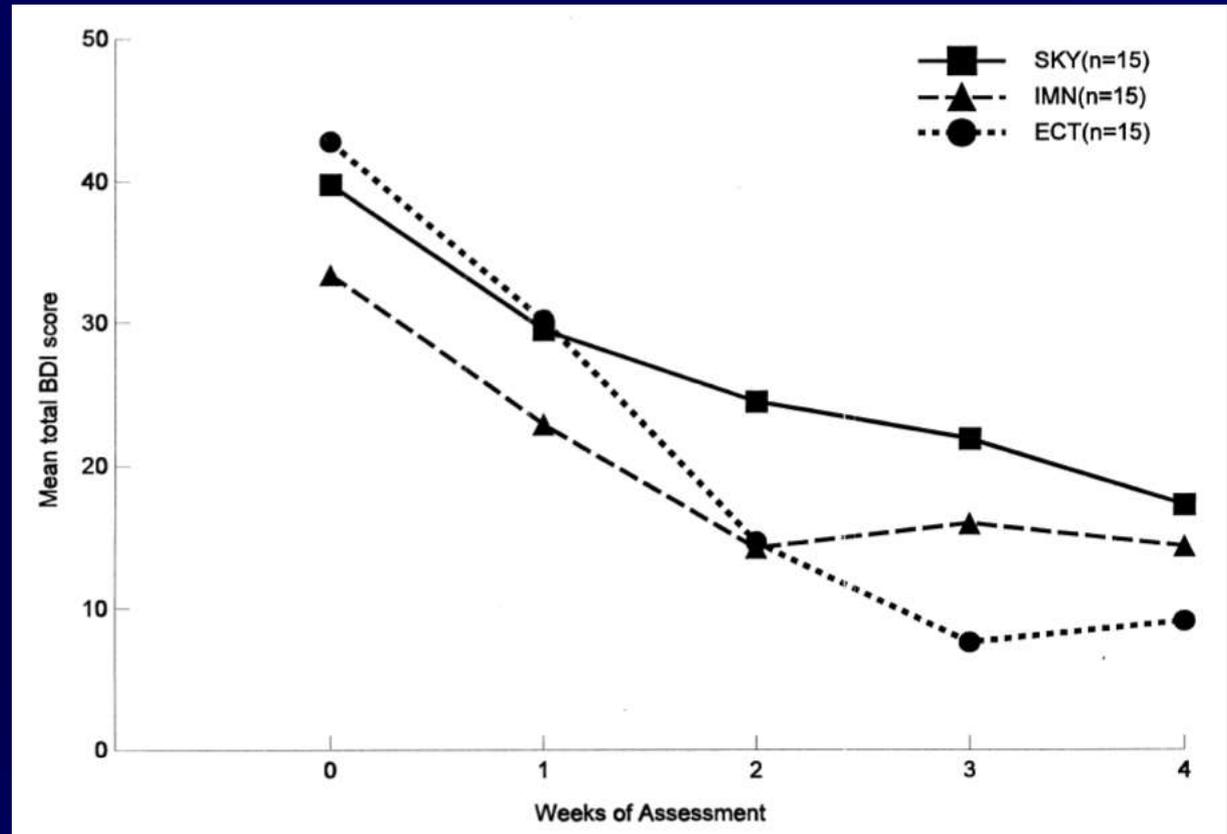
“Many participants discussed the use of breathing techniques in the context of their life outside of yoga class, and particularly to cope with stressful situations.”

“...not only did participants report engaging in home practice, but they found they found breathing practices in particular to be helpful.”

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5679431/pdf/nihms904085.pdf>

# Yoga Treatment of Depression

- RCT N=15
- severe MDD hospitalized
- SKY – yogic breathing
- 4-week 30' daily 6/wk

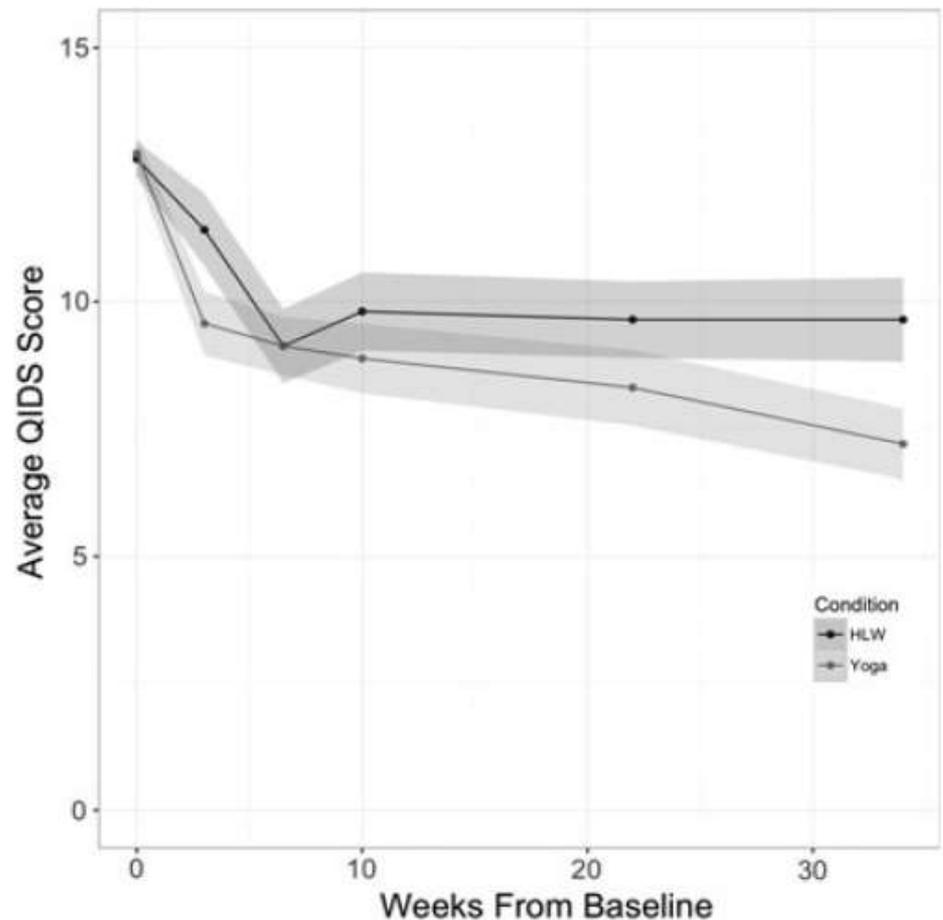


From: *Antidepressant efficacy of Sudarshan Kriya Yoga (SKY) in melancholia: a randomized comparison with electroconvulsive therapy (ECT) and imipramine*, Janakiramaiah N et al., *Journal of Affective Disorders* 57:255-259, 2000.

# Yoga Treatment of Depression

From: *Adjunctive yoga v. health education for persistent major depression: a randomized controlled trial.* Uebelacker LA, Tremont G, Gillette LT, Epstein-Lubow G, Strong DR, Abrantes AM, Tyrka AR, Tran T, Gaudiano BA, Miller IW, *Psychological Medicine*, 47:2130-2142, 2017

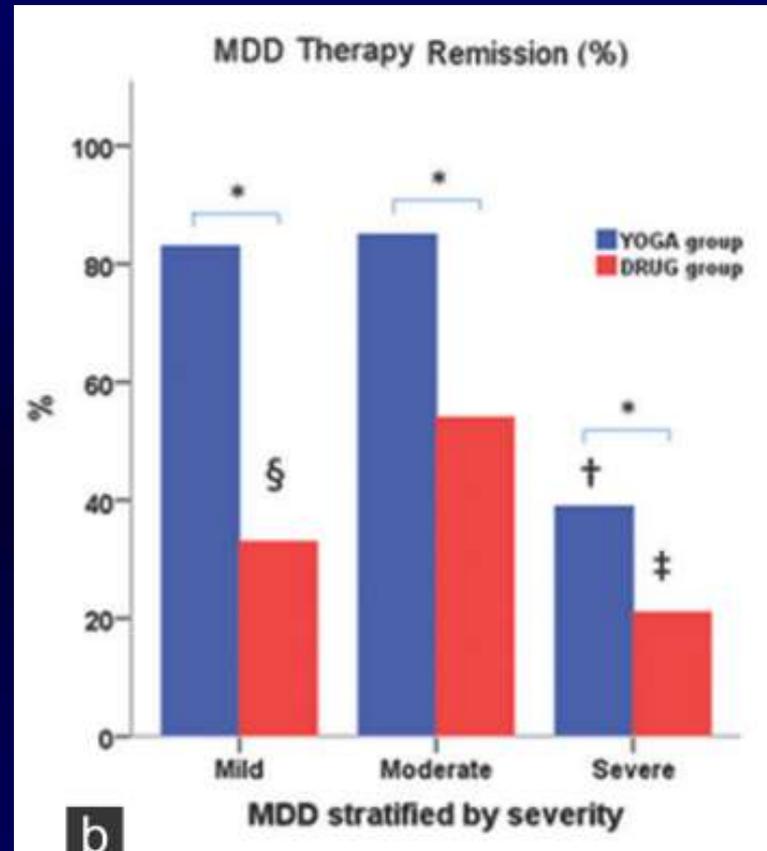
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5548599/pdf/nihms852580.pdf>



**Fig. 2.** Mean unadjusted Quick Inventory of Depression Symptomatology – Clinician Rating (QIDS) scores for yoga and Healthy Living Workshop (HLW) participants across assessments. Shaded areas represent standard errors.

# Yoga Treatment of Depression

“Patients who had susceptible polymorphisms and were poor responders to SSRI treatment showed significant improvement of depressive symptoms with yoga therapy.”

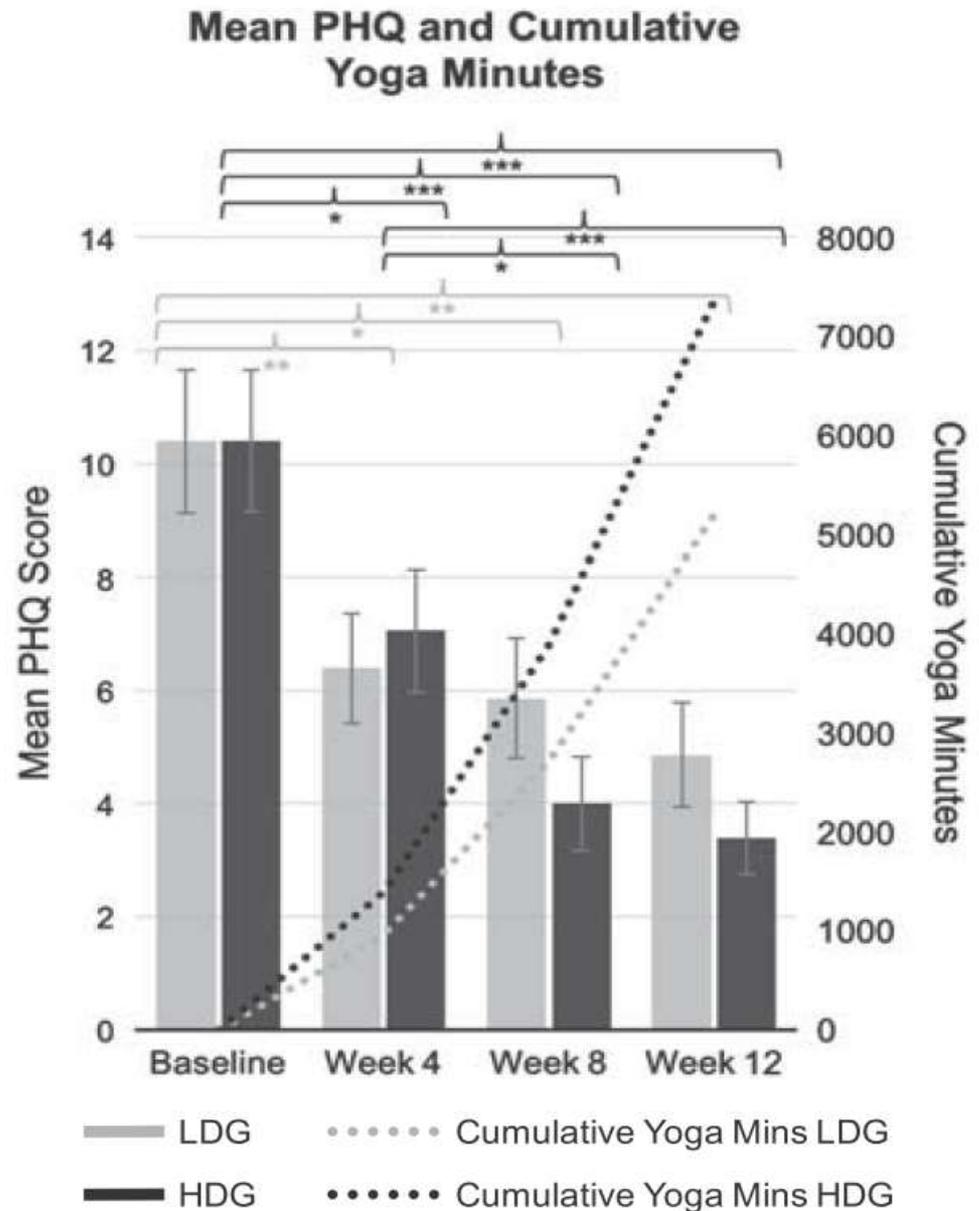


From: *5-HTTLPR and MTHFR 677C>T polymorphisms and response to yoga-based lifestyle intervention in major depressive disorder: A randomized active-controlled trial.* Tolahunase MR, Sagar R, Dada R, *Indian Journal of Psychiatry*, 60:410-426, 2018.

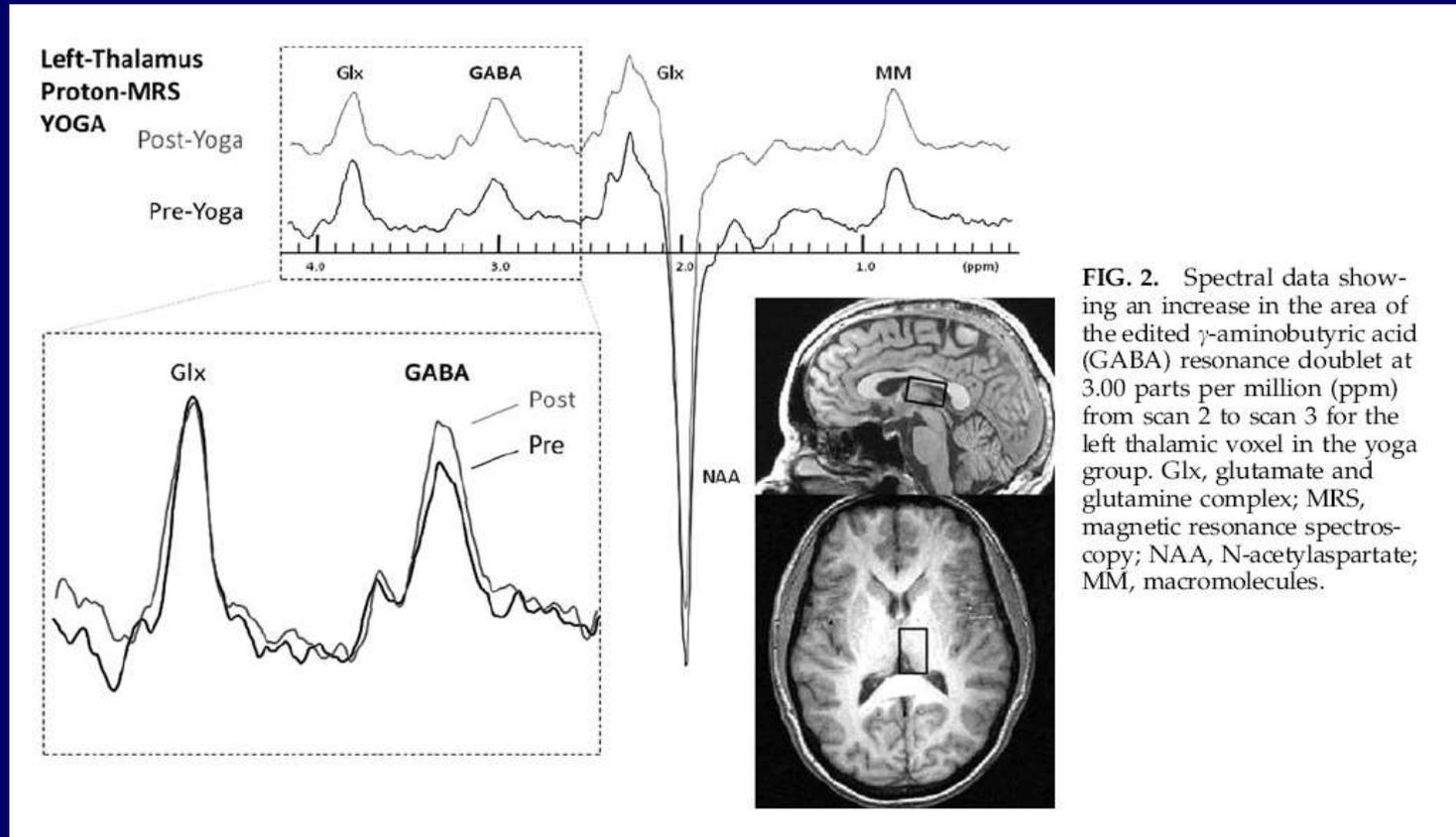
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6278208/?report=printable>

# Yoga Treatment of Depression

From: *Psychological Function, Iyengar Yoga, and Coherent Breathing: A Randomized Controlled Dosing Study*. Scott TM, Gerbarg PL, Silveri MM, Nielsen GH, Owen L, Nyer M, Brown RP, Streeter CC, *Journal of Psychiatric Practice*, 25:437-450, 2019.



# Yoga, Thalamic GABA, Mood & Anxiety



From: *Effects of yoga versus walking on mood, anxiety, and brain GABA levels: a randomized controlled MRS study*, Streeter CC, Whitfield TH, Owen L, Rein T, Karri SK, Yakhkind A, Perlmutter R, Prescott A, Renshaw PF, Ciraulo DA, Jensen JE. *Journal of Alternative and Complementary Medicine*, 16:1145-52, 2010.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC311147/pdf/acm.2010.0007.pdf>

## Thalamic Gamma Aminobutyric Acid Level Changes in Major Depressive Disorder After a 12-Week Iyengar Yoga and Coherent Breathing Intervention

Chris C. Streeter, MD,<sup>1–6</sup> Patricia L. Gerbarg, MD,<sup>7</sup> Richard P. Brown, MD,<sup>8</sup>  
Tammy M. Scott, PhD,<sup>1,4,9,10</sup> Greylin H. Nielsen, BA,<sup>1,4</sup> Liz Owen, BArch,<sup>1</sup> Osamu Sakai, MD, PhD,<sup>11</sup>  
Jennifer T. Sneider, PhD,<sup>3,5</sup> Maren B. Nyer, PhD,<sup>3,12</sup> and Marisa M. Silveri, PhD<sup>1,3,5</sup>

“...one of the mechanisms through which yoga improves mood is by increasing the activity of the GABA system. The observed increase in GABA levels following a YI [yoga intervention] that was no longer observed 8 days after a YI suggests that the associated increase in GABA after a YI is time limited such that at least one YI a week may be necessary to maintain the elevated GABA levels.”

## Original Research Article

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# Yoga- and meditation-based lifestyle intervention increases neuroplasticity and reduces severity of major depressive disorder: A randomized controlled trial

Madhuri R. Tolahunase<sup>a</sup>, Rajesh Sagar<sup>b</sup>, Muneeb Faiq<sup>a</sup> and Rima Dada<sup>a,\*</sup>

<sup>a</sup>*Department of Anatomy, Lab for Molecular Reproduction and Genetics, All India Institute of Medical Sciences (AIIMS), New Delhi, India*

<sup>b</sup>*Department of Psychiatry, All India Institute of Medical Sciences (AIIMS), New Delhi, India*

“...decrease in depression severity after [yoga and meditation-based lifestyle intervention] YMLI in MDD is associated with improved systemic biomarkers of neuroplasticity. Thus YMLI can be considered as a therapeutic intervention in MDD management.”



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## Complementary Therapies in Medicine

journal homepage: [www.elsevier.com/locate/ctim](http://www.elsevier.com/locate/ctim)



### Yoga for the treatment of depression: Five questions to move the evidence-base forward



Maya Nauphal<sup>a,\*</sup>, David Mischoulon<sup>b,c,1</sup>, Lisa Uebelacker<sup>d,e,2</sup>, Chris Streeter<sup>f,g,h,i,j,3</sup>,  
Maren Nyer<sup>b,c,4</sup>

<sup>a</sup> Department of Psychology, Boston University, Boston MA, United States

<sup>b</sup> Department of Psychiatry, Harvard School of Medicine, Boston MA, United States

<sup>c</sup> Department of Psychiatry, Massachusetts General Hospital, Boston MA, United States

<sup>d</sup> Alpert Medical School, Brown University, Providence RI, United States

<sup>e</sup> Butler Hospital, Providence RI, United States

<sup>f</sup> Department of Psychiatry, Boston University School of Medicine, Boston MA, United States

<sup>g</sup> Department of Psychiatry, Boston Medical Center, Boston MA, United States

<sup>h</sup> Department of Psychiatry, McLean Hospital, Belmont MA, United States

<sup>i</sup> Department of Neurology, Boston University School of Medicine, Boston MA, United States

<sup>j</sup> Department of Psychiatry, Edith Nourse Rogers Memorial Veterans Hospital, Bedford MA, United States

- Style/content
- Dosing
- Safety
- Treatment interactions
- Barriers to access



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## 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](mailto: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.

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### 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.

## Depression and Anxiety Major Depressive Disorder, Dysthymia, Bipolar Disorder, Generalized Anxiety Disorder, Social Anxiety Disorders

### Video Spotlight: Anxiety



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

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](mailto: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 [\(What's this?\)](#)

#### **Body-Centered Interventions for Psychopathological Conditions: A Review.**

Tarsha MS, Park S, Tortora S.  
Front Psychol. 2020 Jan 24;10:2907.  
[\[ full text \]](#)

#### **Yoga for the treatment of depression: Five questions to move the evidence-base forward.**

Nauphal M, Mischoulon D, Uebelacker L, Streeter C, Nyer M.  
Complement Ther Med. 2019 Oct;46:153-157.  
[\[ abstract \]](#)

#### **Depression and Anxiety Disorders: Benefits of Exercise, Yoga, and Meditation.**

Saeed SA, Cunningham K, Bloch RM.  
Am Fam Physician. 2019 May 15;99(10):620-627.  
[\[ abstract \]](#)

#### **A meta-analysis of the effectiveness of yoga-based interventions for maternal depression during pregnancy.**

Ng QX, Venkatanarayanan N, Loke W, Yeo WS, Lim DY, Chan HW, Sim WS.  
Complement Ther Clin Pract. 2019 Feb;34:8-12.  
[\[ abstract \]](#)

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

#### **Thalamic Gamma Aminobutyric Acid Level Changes in Major Depressive Disorder After a 12-Week Iyengar Yoga and Coherent Breathing Intervention.**

Streeter CC, Gerbarg PL, Brown RP, Scott TM, Nielsen GH, Owen L, Sakai O, Sneider JT, Nyer MB, Silveri MM.  
J Altern Complement Med. 2020 Mar;26(3):190-197.  
[\[ abstract \]](#)

#### **Effect of adjunct yoga therapy in depressive disorders: Findings from a randomized controlled study.**

Kumar S, Subramaniam E, Bhavanani AB, Sarkar S, Balasundaram S.  
Indian J Psychiatry. 2019 Nov-Dec;61(6):592-597.  
[\[ abstract \]](#)

#### **Psychological Function, Iyengar Yoga, and Coherent Breathing: A Randomized Controlled Dosing Study.**

Scott TM, Gerbarg PL, Silveri MM, Nielsen GH, Owen L, Nyer M, Brown RP, Streeter CC.  
J Psychiatr Pract. 2019 Nov;25(6):437-450.  
[\[ abstract \]](#)

#### **Cortical inhibition in major depression: Investigating the acute effect of single-**