

Yoga and Behavior Change

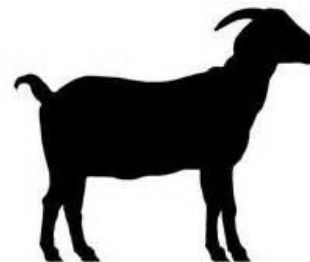


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Some Popular Types of Yoga

Kundalini	Classes focus on sequences, relaxation, mantras and chanting – based on moving energy up the spine
Ashtanga	Poses are linked by breath flowing in sequences to produce internal health and purifying sweat
Power	A vigorous American adaptation of Ashtanga – focus on holding poses and building strength
Bikram	Series of 26 poses and breathing exercises performed in a room heated to 105 degrees. Aka: “hot yoga”
Iyengar	Emphasis on awareness through mindful movement, anatomical precision and alignment of the poses.
Kripalu	Described as “moving meditation”; focus on relaxation and healing and is especially good for those with physical limitations
Yoga Therapy	An individualized practice for those recovering from trauma.



Asanas

**Hatha
Yoga**

Meditation

Pranayama

Yoga practices aim to reinforce and improve connections between the body, mind and spirit.



Five Principles of Yoga

Swami Sivananda's "Five principles of yoga"

- *Savasana*: relaxation
- *Asanas*: exercise/postures
- *Pranayama*: breathing practice
- Proper Diet
- *Dhyana*: positive thinking/meditation/
contemplation

Yoga is like exercise...

Improves

- Muscle strength
- Blood vessels & circulation
- Sleep quality
- Bone & Joint strength
- Executive function / cognition
- Life expectancy


Reduces

- Risk of heart disease
- Risk of colon and breast cancers
- Depressive symptoms
- Anxiety
- Hypertension
- Weight gain

Yoga is like exercise... only different?

Yoga may be more effective for improving:

- Fatigue
- Physical flexibility
- Depressive symptoms
- Anxiety
- Perceived stress
- Quality of life

A person wearing a white robe is sitting in a meditative pose on a sandy beach. Their right hand is resting on their knee in a mudra. The background shows the ocean and a clear sky. The text is overlaid on the upper left portion of the image.

“Mindfulness means paying attention in a particular way; On purpose, in the present moment, and nonjudgmentally.”

- Jon Kabat-Zinn

Executive Functioning

Executive functioning is an umbrella term for cognitive processes that regulate, control, and manage other cognitive processes, such as planning, problem solving, organization, and prioritizing.

What are the “executive functions”?

- Inhibiting automatic responses/resisting urges
- Working memory – holding and processing information
- Decision making
- Planning
- Problem solving
- Attention control

Yoga and Executive Functioning

Yoga may improve EF

- In healthy adults (2/3)
- In older adults (1/2)
- Adolescents (1/1)
- Medical patients (diabetics: 2/3, and adults with MS: 1/3)

Diabetes Management

Can be complex involving...

- Endocrinologists and other specialists
- Medications
- Dietitians and dietary counseling
- Continuous glucose monitoring
- Regular exercise regime
- Weight management

Diabetes Distress

Stress hormones

- Elevated glucose
- Increased depression
- Increased anxiety
- Reduced self-care
- Diabetes distress: patients feel overwhelmed
- Can lead to a vicious cycle



Studies of Yoga & Diabetes

132 Manuscripts assessed for eligibility

109 Excluded

- 26 – no control condition
- 17 – included some non-diabetics
- 16 – measurement issues
- 12 – inadequate post-test length
- 11 – methods papers
- 8 – no diabetics
- 8 – no yoga intervention
- 7 – qualitative/case study
- 3 – type of diabetes not specified
- 1 – article retracted

23 Studies included in the meta-analysis

Yoga and Diabetes

- A meta-analytic review
- Hatha yoga
- Identified 23 clinical trials
- 2473 adult participants (mean age 53, 45% women)
- Measures included: HbA1c, Fasting blood glucose
- Other health metrics
- Measures of methodological quality

Yoga and Diabetes

Improved

- HbA1c
- Fasting glucose
- Post-prandial glucose
- Stress hormones (cortisol)

Also Reduced

- Lipids
- Blood pressure
- Body mass index
- Waist/hip ratio



Future Directions: Moving Forward

Future Directions

Limitations

- Small numbers of participants
- Lack of control/comparison
- Non-randomized & single armed trials
- Absence of biomarkers
- Short term follow up

Improvements

- Larger size studies with more statistical power
- Rigorous comparison arms and randomization
- Use of biomarkers and analysis by biological variables (e.g., sex, race)
- Detailed descriptions of yoga protocols



Namaste