

Health Benefits of Yoga

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Two of the most common inquiries we receive from professional members preparing presentations on Yoga and from journalists and students writing about Yoga are:

- What are the health benefits of Yoga?
- How does Yoga differ from conventional exercise?

Following are answers drawn from various sources and provided in a succinct format. I wish to especially thank the following three individuals: First, A. Malathi, M.D. (amalathi@vsnl.net), for her presentation in November 2000 on the benefits of Yoga at Sutter Medical Center in Santa Rosa, California. Her paper "Promotive, Prophylactic Benefits of Yogic Practice in Middle Aged Women" furnishes research results and explanations for many of the benefits noted below. Thanks also to IAYT member Matra Majmundar (matra@post.com) for her presentation on Yoga physiology at the Integrating Yoga Therapeutics into Rehabilitation seminar at San Francisco Memorial Hospital in April 2000. Her book, tentatively titled *Physiology of Yoga Therapeutics*, is in preparation. I also would like to thank Arpita for her article "The Physical and Psychological Benefits of Yoga," which appeared in the 1991 issue of *The Journal of The International Association of Yoga Therapists*. Bibliographic details for these and other references are provided at the end of this article.

Health Benefits

This information is grouped into three categories—physiological benefits, psychological benefits, biochemical effects—and is based on the regular practice of traditional *âsana*, *prânâyâma*, and meditation. Please note that while pulse rate, etc., may increase during the practice of various *âsanas*, some forms of *prânâyâma*, and some stages of meditation, but overall benefits to general health are as listed below. For information on the physiological changes that occur during the practice of specific *âsanas*, etc., please see James Funderburk's *Science Studies Yoga* and other resources cited at the end of this article.

Physiological Benefits

- Stable autonomic nervous system equilibrium, with a tendency toward parasympathetic nervous system dominance rather than the usual stress-induced sympathetic nervous system dominance
- Pulse rate decreases
- Respiratory rate decreases
- Blood pressure decreases (of special significance for hyporeactors)
- Galvanic Skin Response (GSR) increases

- EEG - alpha waves increase (theta, delta, and beta waves also increase during various stages of meditation)
- EMG activity decreases
- Cardiovascular efficiency increases
- Respiratory efficiency increases (respiratory amplitude and smoothness increase, tidal volume increases, vital capacity increases, breath-holding time increases)
- Gastrointestinal function normalizes
- Endocrine function normalizes
- Excretory functions improve
- Musculoskeletal flexibility and joint range of motion increase
- Posture improves
- Strength and resiliency increase
- Endurance increases
- Energy level increases
- Weight normalizes
- Sleep improves
- Immunity increases
- Pain decreases

Psychological Benefits

- Somatic and kinesthetic awareness increase
- Mood improves and subjective well-being increases
- Self-acceptance and self-actualization increase
- Social adjustment increases
- Anxiety and depression decrease
- Hostility decreases

- *Psychomotor functions improve:*
 - Grip strength increases
 - Dexterity and fine skills improve
 - Eye-hand coordination improves
 - Choice reaction time improves
 - Steadiness improves
 - Depth perception improves
 - Balance improves
 - Integrated functioning of body parts improves

- *Cognitive function improves:*
 - Attention improves
 - Concentration improves
 - Memory improves
 - Learning efficiency improves

- Symbol coding improves
- Depth perception improves
- Flicker fusion frequency improves

Biochemical Effects

The biochemical profile improves, indicating an antistress and antioxidant effect, important in the prevention of degenerative diseases.

- Glucose decreases
- Sodium decreases
- Total cholesterol decreases
- Triglycerides decrease
- HDL cholesterol increases
- LDL cholesterol decreases
- VLDL cholesterol decreases
- Cholinesterase increases
- Catecholamines decrease
- ATPase increases
- Hematocrit increases
- Hemoglobin increases
- Lymphocyte count increases
- Total white blood cell count decreases
- Thyroxin increases
- Vitamin C increases
- Total serum protein increases
- Oxytocin increases
- Prolactin increases
- Oxygen levels in the brain increase

Yoga Compared to Conventional Exercise

Yoga	Exercise
Parasympathetic nervous system dominates	Sympathetic nervous system dominates
Subcortical regions of brain dominate	Cortical regions of brain dominate
Slow dynamic and static movements	Rapid forceful movements
Normalization of muscle tone	Increased muscle tension
Low risk of injuring muscles and ligaments	High risk of injury
Low caloric consumption	Moderate to high caloric consumption
Effort is minimized, relaxed	Effort is maximized
Energizing (breathing is natural or controlled)	Fatiguing (breathing is taxed)
Balanced activity of opposing muscle groups	Imbalanced activity of opposing groups
Noncompetitive, process-oriented	Competitive, goal-oriented
Awareness is internal (focus is on breath and the infinite)	Awareness is external (focus is on reaching the toes, reaching the finish line, etc.)
Limitless possibilities for growth in self-awareness	Boredom factor

Select General References

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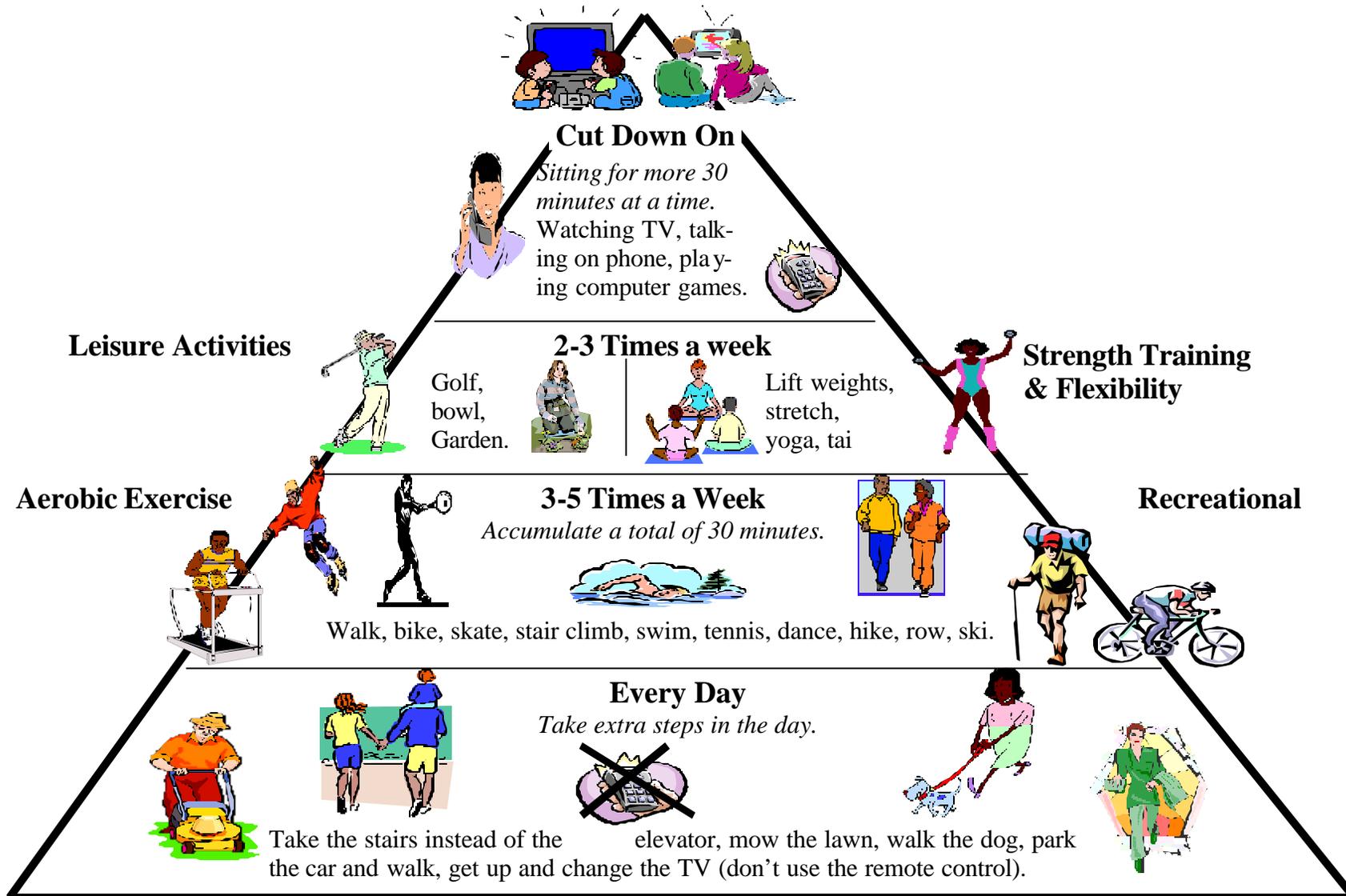
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For additional references, see the extensive bibliography "Psychophysiological Effects" at the IAYT website, www.iayt.org/biblio.html. To view abstracts in the Medline database for some of the cited articles, go to <http://www.ncbi.nlm.nih.gov/pubmed> and in the search box enter the complete title of the article. If this generates too many hits or no hits, try entering the names of the article's authors using the following format: Delmonte MM (no comma, no periods following the initials, and no space between the initials; if there is more than one author, separate the names by comma, e.g.: Corby JC, Roth WT, etc.; capitalization is not required).

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PHYSICAL ACTIVITY PYRAMID



Erikson's Stages of Psychosocial Development

Love: Intimacy vs. Isolation (Young Adults, 20 to 40 years)

Main Question: "Am I loved and wanted?" or "Shall I share my life with someone or live alone?"

Virtue: Love

Related Elements in Society: patterns of cooperation (often marriage)

The Intimacy vs. Isolation conflict is emphasized around the ages of 20 to 34. At the start of this stage, identity vs. role confusion is coming to an end, and it still lingers at the foundation of the stage (Erikson, 1950). Young adults are still eager to blend their identities with friends. They want to fit in. Erikson believes we are sometimes isolated due to intimacy. We are afraid of rejections such as being turned down or our partners breaking up with us. We are familiar with pain, and to some of us, rejection is painful; our egos cannot bear the pain. Erikson also argues that "Intimacy has a counterpart: Distantiation: the readiness to isolate and if necessary, to destroy those forces and people whose essence seems dangerous to our own, and whose territory seems to encroach on the extent of one's intimate relations" (1950).

Once people have established their identities, they are ready to make long-term commitments to others. They become capable of forming intimate, reciprocal relationships (e.g. through close friendships or marriage) and willingly make the sacrifices and compromises that such relationships require. If people cannot form these intimate relationships – perhaps because of their own needs – a sense of isolation may result.

Care: Generativity vs. Stagnation (Middle Adulthood, 45 to 65 years)

Psychosocial Crisis: Generativity vs. Stagnation

Main Question: "Will I produce something of real value?"

Virtue: Care

Related Elements in Society: parenting, educating, or other productive social involvement

Generativity is the concern of establishing and guiding the next generation. Socially-valued work and disciplines are expressions of generativity. Simply having or wanting children does not in and of itself achieve generativity.

During middle age the primary developmental task is one of contributing to society and helping to guide future generations. When a person makes a contribution during this period, perhaps by raising a family or working toward the betterment of society, a sense of generativity- a sense of productivity and accomplishment- results. In contrast, a person who is self-centered and unable or unwilling to help society move forward develops a feeling of stagnation- a dissatisfaction with the relative lack of productivity.

Central tasks of Middle Adulthood

- Express love through more than sexual contacts.
- Maintain healthy life patterns...
- Develop a sense of unity with mate.
- Help growing and grown children to be responsible adults.
- Relinquish central role in lives of grown children.
- Accept children's mates and friends.
- Create a comfortable home.

Erikson's Stages of Psychosocial Development

- Be proud of accomplishments.
- Reverse roles with aging parents.
- Achieve mature, civic and social responsibility.
- Adjust to physical changes of middle age.
- Use leisure time creatively.
- Love for mothers

Wisdom: Ego Integrity vs. Despair (Seniors, 65 years onwards)

Psychosocial Crisis: Ego Integrity vs. Despair

Main Question: "Have I lived a full life?"

Virtue: Wisdom

As we grow older and become senior citizens we tend to slow down our productivity and explore life as a retired person. It is during this time that we contemplate our accomplishments and are able to develop integrity if we see ourselves as leading a successful life. If we see our life as unproductive, or feel that we did not accomplish our life goals, we become dissatisfied with life and develop despair, often leading to depression and hopelessness.

The final developmental task is retrospection: people look back on their lives and accomplishments. They develop feelings of contentment and integrity if they believe that they have led a happy, productive life. They may instead develop a sense of despair if they look back on a life of disappointments and unachieved goals.

Emotional Bucket List

Current Stage of Development: _____

3 Examples of ways I share my virtue:

- 1.
- 2.
- 3.

3 Emotional goals for my remaining time in this stage of development:

- 1.
- 2.
- 3.

What do I need to obtain these goals?
