

InterFaith Coalition of Fulton County
Health and Yoga: Yoga Naturally
Dr. S.V. Char

Scientific Evidence of Yoga Effectiveness

Thursday, April 18, 2013



Outline

- Introduction
- Components of Yoga
- Scientific Evidence of Yoga's Effectiveness
- Conclusion
- Questions



Introduction

- Goals of the Presentation
 - Creating awareness about Yoga
 - Understand capabilities of Yoga in
 - Promoting robust physical and mental health
 - Preventing health problems (prophylaxis)
 - Healing

Informal Temple Study Results

- Two main Questions in a Random Survey
- 16 Participants
- Memory Improvement after Yoga?
 - 9 somewhat
 - 4 yes Together with “Somewhat” answers, positives = 81 %
 - 3 no
- Feel younger overall?
 - 8yes
 - 1 no
 - 7 somewhat : Together with “yes” positives are 94%

What is Ashtanga Yoga?

1. Yama

(Shall-not)

3. Asana

(Body Position)

5. Prathyahara

(Withdrawal of Senses)

7. Dhyana

(Meditation)

2. Niyama

(Shall-do)

4. Pranayama

(Breath)

6. Dharana

(Concentration)

8. Samadhi

(Complete Consciousness)

Conditions Bettered by Yoga

MEDICAL CONDITION	Number of people Reporting	Percentage Helped by Yoga
Alcoholism	26	100
Anxiety	838	94
Arthritis and Rheumatism	589	90
Asthma or Bronchitis	226	88
Back Disorders	1142	98
Cancer	29	90
Diabetes	10	80
Duodenal Ulcers	40	90
Heart Disease	50	94
Hemorrhoids	391	88
High Blood Pressure	150	84
Insomnia	542	82
Menopausal disorders	247	83
Menstrual Problems	317	68
Migraine	464	80
Neurological and Neuromuscular Diseases	112	96
Obesity	240	74
Premenstrual Syndrome	848	77
Smoking	219	74

Source: The Yoga Biomedical Trust, London, reproduced from "Yoga as Medicine", by Timothy McCall, M.D. (2007), p.5

Yoga and Traditional Exercise

Yoga	Traditional Exercise
Parasympathetic Nervous System (Relaxation Response)	Sympathetic Nervous System (Fight or Flight)
Subcortical Brain used	Cortical Response
Low risk of injuring of muscles and ligaments Minimal Effort Energizing Relaxing Self-awareness	Muscle Tension Fatiguing Boredom



Yoga and the Cardiovascular System

- **Yoga Retards progression and increases regression of coronary atherosclerosis** in patients with severe coronary artery disease
- **Yogic breathing maintains better blood oxygenation** (more efficient breathing)
- **Reduces sympathetic activation during altitude** (induced hypoxia)

Assoc Physicians India. 2000 Jul. "Retardation of coronary atherosclerosis with yoga lifestyle intervention." Manchanda SC, Narang R, et al. 48:687-94
Hypertension. 2001 May. "Breathing patterns and cardiovascular autonomic modulation during hypoxia induced by simulated altitude" Bernardi L, Passino, et al. 19(5):947-58



Yoga and the Cardiovascular System (Contd.)

- Rhythm formulas that involve breathing at six breaths per minute **induce favorable psychological and possibly physiological effects**
- **Lung function parameters (VC, FEV₁, and PEF_R) also improved** after the practice of yoga

Bhattacharya S, Pandey US, Verma NS "Effect of rosary prayer and yoga mantras on autonomic cardiovascular rhythms: comparative study" *Bernardi L, Sleight P, et al Assoc Physicians India. 1998 Feb.* "Lung function parameters (VC, FEV₁, and PEF_R) also improved after the practice of yoga " *Behera D. 46(2):207-8*



Yoga and Cardiovascular Fitness

- **Mind-body exercise programs** will be a **welcome and necessary addition** to evolving **disease management** models that focus on self-care and decreased health care use.

Cardiovascular Nurse. 1997 Apr. "Mind-body fitness: encouraging prospects for primary and secondary prevention " La Forge R . 11(3):53-65



Yoga and the Nervous System

- Yoga has been **proved to moderate emotional arousal** – EEG Power findings provide the first empirical proof of such moderating influence



Yoga's Effectiveness on Nervous System

- **Improvement in various psychological parameters like:**
 - **Reduction in anxiety and depression**
 - **Better mental function**
 - **RECOMMENDATION OF THE STUDY:**
- **A multi-centre, cross-cultural, blinded (difficult for yoga), well-randomized controlled trial, especially using a single yogic technique in a homogeneous population such as juvenile myoclonic epilepsy is justified to find out how yoga affects seizure control and QOL of the person with epilepsy.**

Indian Physiologic Pharmacology. 2001 Jan. "Effect of yogic exercises on physical and mental health of young fellowship course trainees " Ray US, Mukhopadhyaya S, Purkayastha SS , et al. 45(1):37-53
Seizure. 2001 Jan. "Yoga for control of epilepsy " Yardi N. 10(1):7-12



Yoga and Fitness

- Mind-body fitness programs may offer **therapeutic effects different from** those offered by **traditional body fitness programs**
- The study showed a statistically significant ($P < .001$) **improvement in vital capacity** across all categories over time. Conclusions: It is not known whether these findings were the result of yoga poses, breathing techniques, relaxation, or other aspects of exercise in the subjects' life.

Obstetric & Gynecological Neonatal Nurses. 1998 Sep-Oct. "Yoga: intuition, preventive medicine, and treatment" Collins C. 27(5):563-8
Altern Ther Health Med 2000 Nov. "Hatha yoga: improved vital capacity of college students " Birkel DA, Edgren L. 6(6):55-63

Yoga and Stress Reduction

- The improvement in various parameters such as **better sense of well being, feeling of relaxation, improved concentration, self confidence, improved efficiency, good interpersonal relationship, increased attentiveness, lowered irritability levels, and an optimistic outlook in life** were some of the beneficial effects enjoyed by the yoga group indicated by feedback score
- The results revealed that the **effects of stress was reversed** in significantly ($P < 0.01$) shorter time **in Shavasana**, compared to the resting posture in chair and a supine posture.

Cooper S, Osborne J, Newton S, *et al*

Bhattacharya S, Pandey US, Verma NS

Udupak, Madanmohan, Bhavnani AB *et al*

Indian J Physiol Pharmacol 1999 Apr;43(2):218-24

Indian J Physiol Pharmacol 1998 Oct;42(4):473-8

"Stress due to exams in medical students--role of yoga " Malathi A, Damodaran A

"Recovery from stress in two different postures and in Shavasana--a yogic relaxation posture " Bera TK, Gore MM , et al



Yoga and Stress Reduction

- Statistically **significant decreases in medical and psychologic symptoms** and **improvement in self-esteem** were found. Many program completers reported **dramatic changes in attitudes, beliefs, habits, and behaviors**
- We conclude that an intensive but time-limited group stress reduction intervention based on **mindfulness meditation** can have **long-term beneficial effects** in the treatment of **people diagnosed with anxiety disorders.**

Nurse Pract 1997 Mar;22(3):150-2, 154, 157 *passim* "Mindfulness meditation-based stress reduction: experience with a bilingual inner-city program" Roth B, Creaser T
Gen Hosp Psychiatry 1995 May;17(3):192-200 "Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders." Miller JJ, Fletcher K, Kabat-Zinn J



Yoga and Arthritis

- Two limited studies of **yoga in osteoarthritis of the hands and carpal tunnel syndrome** show **greater improvement in pain** than in control groups. **Yoga uses stretching and improves strength** so that it theoretically **should be beneficial for some musculoskeletal problems**. Yoga merits further study into its cellular and physiologic effects.
- **Facilitation of higher physiological melatonin levels** at appropriate times of day might be one avenue through which the claimed health promoting effects of meditation occur

Dash M, Telles S

Rheum Dis Clin North Am 2000 Feb;26(1):125-32 "Yoga" Garfinkel M, Schumacher HR Jr.

Biol Psychol 2000 May;53(1):69-78 "Acute increases in night-time plasma melatonin levels following a period of meditation" Tooley GA, Armstrong SM, et al



Yoga and Cancer

- A preliminary study finds an **association between meditation practice and levels of melatonin** produced by the pineal gland.
- Long-term yoga practice was responsible for a **generalised reduction in chemoreflex**

Semin Urol Oncol 1999 May; 17(2):111-8 "Meditation and prostate cancer: Integrating a mind/body intervention with traditional therapies " Coker KH.
Lancet 2000 Oct 28; 356(9240):1495-6"Yoga and chemoreflex response to hypoxia and hypercapnia " Spicuzza L, Gabutti A , et al

Yoga and Diabetes

- A number of Yoga Learners at the Temple were able to **reduce blood sugar levels** significantly and even **give up insulin injections** for that purpose.
- Oral evidence



Yoga's Psychosomatic Influence

- **Increased CRH immunoreactivity following meditation** indicates, however, that **physical exercise is not an essential requirement for CRH release**
- **The usefulness of yoga in the prevention of stress and burn-out** in health care professionals is emphasized

Biol Psychol 1995 Jun;40(3):251-65 "The effects of running and meditation on beta-endorphin, corticotropin-releasing hormone and cortisol in plasma, and on mood" Harte JL, Eifert GH, Smith R
Int J Psychosom 1993;40(1-4):105-7 "Int J Psychosom 1993;40(1-4):105-7" Nespor



Yoga's Psychosomatic Influence (contd.)

- In the personality inventory the yoga group showed markedly **higher scores in life satisfaction and lower scores in excitability, aggressiveness, openness, emotionality and somatic complaints.**
- Significant differences could also be observed concerning **coping with stress and the mood** at the end of the experiment. The yoga group had **significant higher scores in high spirits and extravertedness.**

Int J Psychosom 1994;41(1-4):46-52 "Physiological and psychological effects of Hatha-Yoga exercise in healthy women." Schell FJ, Allolio B, Schonecke OW



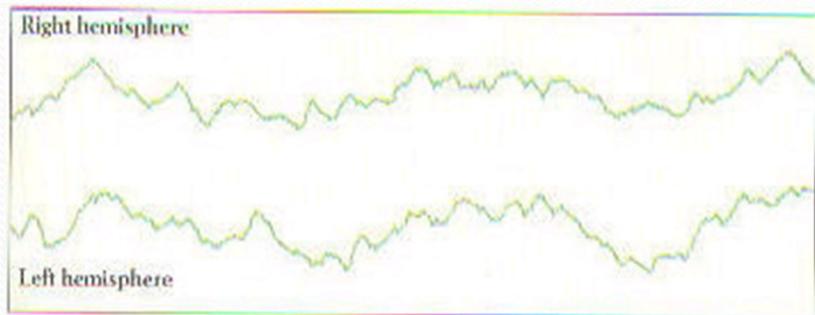
Yoga's Psychosomatic Influence (contd.)

- Dominant Electroencephalographic activity in one cerebral hemisphere correlated with predominant airflow in the contralateral nostril, in a cycle lasting 25-200 minutes when awake (*Human Neurobiology* 1983;2:39-43)
- **Yoga postures, pranayama, relaxation and meditation are powerful tools for helping to stimulate or calm the immune response.** And depending on the situation, yoga postures ... and deep pranayama can **help relax the nervous system and boost the immune response.**

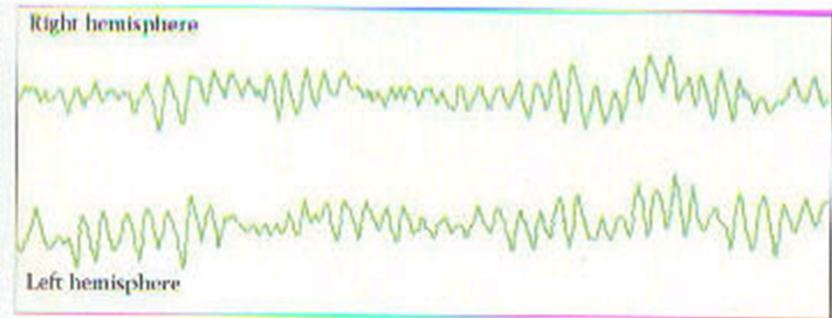
Left-sided UFNB improves spatial skills whereas right UFNB increases verbal skills (*Int J Neurosci* 1993; 73: 61-68)
LANCET Vol 351, April 4, 1998 "Meditating on Yogic Science" Kelly Morris
Yoga Bulletin, Kripalu Yoga Teachers Assoc. 2001; "Balancing the Immune System with Yoga" Jeff Migdow, M.D.

Alpha Waves during Meditation

- Amplitude and intensity **increased significantly during yogic meditation than during sleep dream-state or any other.**



Alpha Waves during sleep



Alpha Waves during meditation



Yoga Effective for Backpain

- At 26 weeks, **disability scores continued to be better in the Yoga Group** than in Exercise Class or in the Self-Care Group.



Yoga Intervention in ADHD

- Yoga proved **superior to conventional motor training**. All children showed **sizeable reductions in symptoms of ADHD**
- Yogic Breathing and Meditation proved **effective in improving cognitive functions of Seniors (65-85 Years)** n= 135

Yogic Intervention in Individuals living with HIV/AIDS

- Mulkins. A, American Journal of Health Promotion Jan-Feb 2006
- Mental Health Index, Daily Stress Inventory etc showed positive changes



Yoga for Weight Reduction

- Regular yoga practice was associated with **attenuated weight gain**, most strongly among individuals who were overweight. Although causal inference from this observational study is not possible, results are consistent with the hypothesis that **regular yoga practice can benefit individuals who wish to maintain or lose weight.**

Yoga Improves Quality of Sleep

- Reports on a study to be conducted at Swami Vivekananda Yoga Research Foundation, a University in Bangalore, India, on how **yoga can improve sleep**.
- General Research Articles:
- 1. <http://www.forbes.com/sites/alicegwalton/2011/06/16/penetrating-postures-the-science-of-yoga>
- 2. http://www.yogajournal.com/for_teachers/201
- 3. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3156498/>

Comment from Shirley Telles, leader of the *research* team; Information on the stage IV of sleep; Effect of yogic exercises on inmates of a home for the aged in Bangalore, India

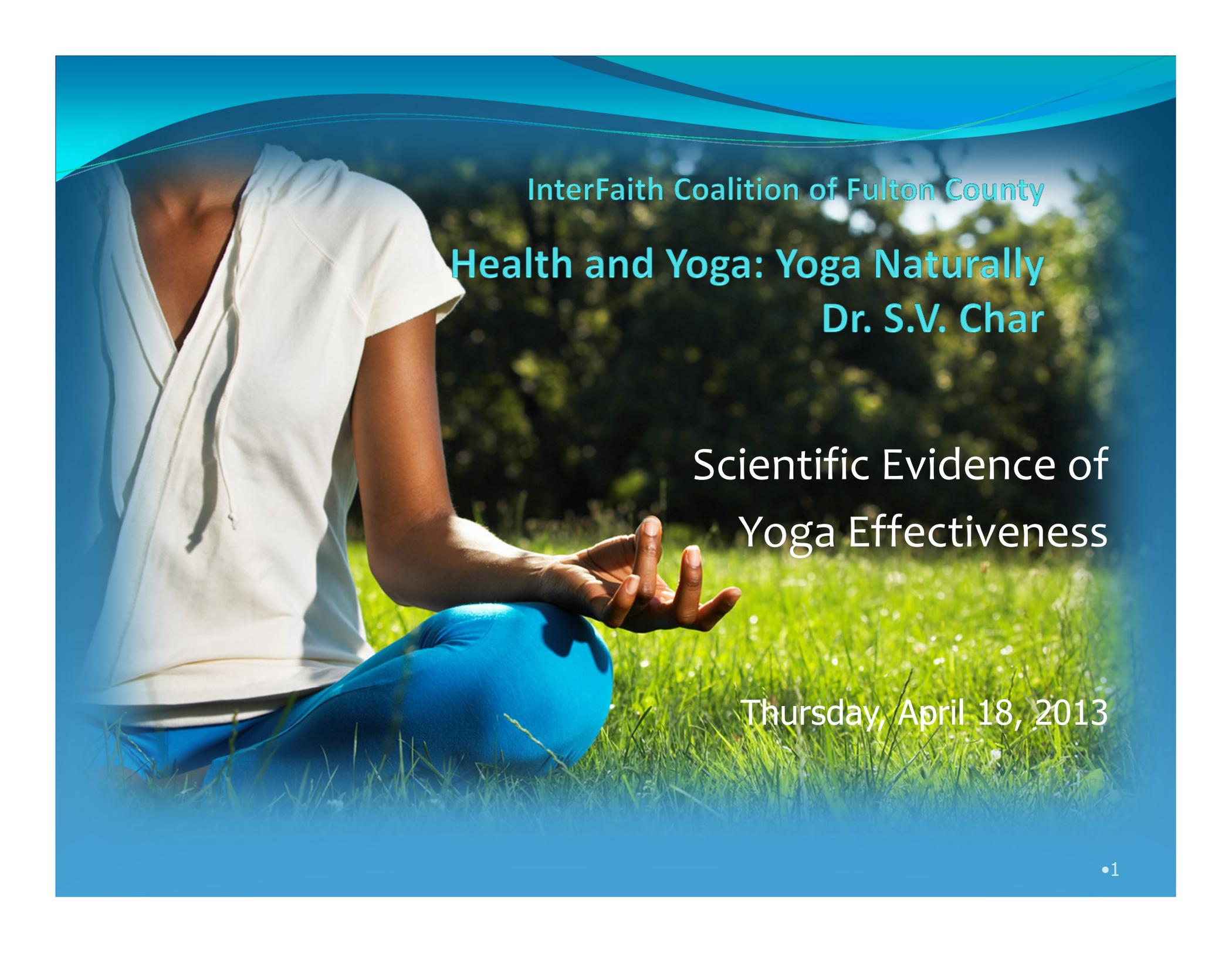


Conclusion

- Stress is the root cause of over 80% of all sickness from common colds to cancer
- Health problems can be minimized through a well planned regimen of asanas and pranayama
- Scientific Evidence clearly demonstrates Yoga's prophylactic and therapeutic effects.



THANK YOU AND NAMASTE



InterFaith Coalition of Fulton County
Health and Yoga: Yoga Naturally
Dr. S.V. Char

Scientific Evidence of
Yoga Effectiveness

Thursday, April 18, 2013



Outline

- Introduction
- Components of Yoga
- Scientific Evidence of Yoga's Effectiveness
- Conclusion
- Questions



Introduction

- Goals of the Presentation
 - Creating awareness about Yoga
 - Understand capabilities of Yoga in
 - Promoting robust physical and mental health
 - Preventing health problems (prophylaxis)
 - Healing

Informal Temple Study Results

- Two main Questions in a Random Survey
- 16 Participants
- Memory Improvement after Yoga?
 - 9 somewhat
 - 4 yes Together with “Somewhat” answers, positives = 81 %
 - 3 no
- Feel younger overall?
 - 8yes
 - 1 no
 - 7 somewhat : Together with “yes” positives are 94%

What is Ashtanga Yoga?

1. Yama

(Shall-not)

3. Asana

(Body Position)

5. Prathyahara

(Withdrawal of Senses)

7. Dhyana

(Meditation)

2. Niyama

(Shall-do)

4. Pranayama

(Breath)

6. Dharana

(Concentration)

8. Samadhi

(Complete Consciousness)

Conditions Bettered by Yoga

MEDICAL CONDITION	Number of people Reporting	Percentage Helped by Yoga
Alcoholism	26	100
Anxiety	838	94
Arthritis and Rheumatism	589	90
Asthma or Bronchitis	226	88
Back Disorders	1142	98
Cancer	29	90
Diabetes	10	80
Duodenal Ulcers	40	90
Heart Disease	50	94
Hemorrhoids	391	88
High Blood Pressure	150	84
Insomnia	542	82
Menopausal disorders	247	83
Menstrual Problems	317	68
Migraine	464	80
Neurological and Neuromuscular Diseases	112	96
Obesity	240	74
Premenstrual Syndrome	848	77
Smoking	219	74

Source: The Yoga Biomedical Trust, London, reproduced from "Yoga as Medicine", by Timothy McCall, M.D. (2007), p.5

Yoga and Traditional Exercise

Yoga	Traditional Exercise
Parasympathetic Nervous System (Relaxation Response)	Sympathetic Nervous System (Fight or Flight)
Subcortical Brain used	Cortical Response
Low risk of injuring of muscles and ligaments Minimal Effort Energizing Relaxing Self-awareness	Muscle Tension Fatiguing Boredom



Yoga and the Cardiovascular System

- **Yoga Retards progression and increases regression of coronary atherosclerosis** in patients with severe coronary artery disease
- **Yogic breathing maintains better blood oxygenation** (more efficient breathing)
- **Reduces sympathetic activation during altitude** (induced hypoxia)

Assoc Physicians India. 2000 Jul. "Retardation of coronary atherosclerosis with yoga lifestyle intervention." Manchanda SC, Narang R, et al. 48:687-94
Hypertension. 2001 May. "Breathing patterns and cardiovascular autonomic modulation during hypoxia induced by simulated altitude" Bernardi L, Passino, et al. 19(5):947-58



Yoga and the Cardiovascular System (Contd.)

- Rhythm formulas that involve breathing at six breaths per minute **induce favorable psychological and possibly physiological effects**
- **Lung function parameters (VC, FEV₁, and PEF_R) also improved** after the practice of yoga

Bhattacharya S, Pandey US, Verma NS "Effect of rosary prayer and yoga mantras on autonomic cardiovascular rhythms: comparative study" *Bernardi L, Sleight P, et al Assoc Physicians India. 1998 Feb.* "Lung function parameters (VC, FEV₁, and PEF_R) also improved after the practice of yoga " *Behera D. 46(2):207-8*



Yoga and Cardiovascular Fitness

- **Mind-body exercise programs** will be a **welcome and necessary addition** to evolving **disease management** models that focus on self-care and decreased health care use.

Cardiovascular Nurse. 1997 Apr. "Mind-body fitness: encouraging prospects for primary and secondary prevention " La Forge R . 11(3):53-65



Yoga and the Nervous System

- Yoga has been **proved to moderate emotional arousal** – EEG Power findings provide the first empirical proof of such moderating influence



Yoga's Effectiveness on Nervous System

- **Improvement in various psychological parameters like:**
 - **Reduction in anxiety and depression**
 - **Better mental function**
 - **RECOMMENDATION OF THE STUDY:**
- **A multi-centre, cross-cultural, blinded (difficult for yoga), well-randomized controlled trial, especially using a single yogic technique in a homogeneous population such as juvenile myoclonic epilepsy is justified to find out how yoga affects seizure control and QOL of the person with epilepsy.**

Indian Physiologic Pharmacology. 2001 Jan. "Effect of yogic exercises on physical and mental health of young fellowship course trainees " Ray US, Mukhopadhyaya S, Purkayastha SS , et al. 45(1):37-53
Seizure. 2001 Jan. "Yoga for control of epilepsy " Yardi N. 10(1):7-12



Yoga and Fitness

- Mind-body fitness programs may offer **therapeutic effects different from** those offered by **traditional body fitness programs**
- The study showed a statistically significant ($P < .001$) **improvement in vital capacity** across all categories over time. Conclusions: It is not known whether these findings were the result of yoga poses, breathing techniques, relaxation, or other aspects of exercise in the subjects' life.

Obstetric & Gynecological Neonatal Nurses. 1998 Sep-Oct. "Yoga: intuition, preventive medicine, and treatment" Collins C. 27(5):563-8
Altern Ther Health Med 2000 Nov. "Hatha yoga: improved vital capacity of college students " Birkel DA, Edgren L. 6(6):55-63

Yoga and Stress Reduction

- The improvement in various parameters such as **better sense of well being, feeling of relaxation, improved concentration, self confidence, improved efficiency, good interpersonal relationship, increased attentiveness, lowered irritability levels, and an optimistic outlook in life** were some of the beneficial effects enjoyed by the yoga group indicated by feedback score
- The results revealed that the **effects of stress was reversed** in significantly ($P < 0.01$) shorter time **in Shavasana**, compared to the resting posture in chair and a supine posture.

Cooper S, Osborne J, Newton S, *et al*

Bhattacharya S, Pandey US, Verma NS

Udupak, Madanmohan, Bhavnani AB *et al*

Indian J Physiol Pharmacol 1999 Apr;43(2):218-24

Indian J Physiol Pharmacol 1998 Oct;42(4):473-8

"Stress due to exams in medical students--role of yoga " Malathi A, Damodaran A

"Recovery from stress in two different postures and in Shavasana--a yogic relaxation posture " Bera TK, Gore MM , et al



Yoga and Stress Reduction

- Statistically **significant decreases in medical and psychologic symptoms** and **improvement in self-esteem** were found. Many program completers reported **dramatic changes in attitudes, beliefs, habits, and behaviors**
- We conclude that an intensive but time-limited group stress reduction intervention based on **mindfulness meditation** can have **long-term beneficial effects** in the treatment of **people diagnosed with anxiety disorders.**

Nurse Pract 1997 Mar;22(3):150-2, 154, 157 *passim* "Mindfulness meditation-based stress reduction: experience with a bilingual inner-city program" Roth B, Creaser T
Gen Hosp Psychiatry 1995 May;17(3):192-200 "Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders." Miller JJ, Fletcher K, Kabat-Zinn J

Yoga and Arthritis

- Two limited studies of **yoga in osteoarthritis of the hands and carpal tunnel syndrome** show **greater improvement in pain** than in control groups. **Yoga uses stretching and improves strength** so that it theoretically **should be beneficial for some musculoskeletal problems**. Yoga merits further study into its cellular and physiologic effects.
- **Facilitation of higher physiological melatonin levels** at appropriate times of day might be one avenue through which the claimed health promoting effects of meditation occur

Dash M, Telles S

Rheum Dis Clin North Am 2000 Feb;26(1):125-32 "Yoga" Garfinkel M, Schumacher HR Jr.

Biol Psychol 2000 May;53(1):69-78 "Acute increases in night-time plasma melatonin levels following a period of meditation" Tooley GA, Armstrong SM, et al



Yoga and Cancer

- A preliminary study finds an **association between meditation practice and levels of melatonin** produced by the pineal gland.
- Long-term yoga practice was responsible for a **generalised reduction in chemoreflex**

Semin Urol Oncol 1999 May; 17(2):111-8 "Meditation and prostate cancer: Integrating a mind/body intervention with traditional therapies " Coker KH.
Lancet 2000 Oct 28; 356(9240):1495-6"Yoga and chemoreflex response to hypoxia and hypercapnia " Spicuzza L, Gabutti A , et al

Yoga and Diabetes

- A number of Yoga Learners at the Temple were able to **reduce blood sugar levels** significantly and even **give up insulin injections** for that purpose.
- Oral evidence



Yoga's Psychosomatic Influence

- **Increased CRH immunoreactivity following meditation** indicates, however, that **physical exercise is not an essential requirement for CRH release**
- **The usefulness of yoga in the prevention of stress and burn-out** in health care professionals is emphasized

Biol Psychol 1995 Jun;40(3):251-65 "The effects of running and meditation on beta-endorphin, corticotropin-releasing hormone and cortisol in plasma, and on mood" Harte JL, Eifert GH, Smith R
Int J Psychosom 1993;40(1-4):105-7 "Int J Psychosom 1993;40(1-4):105-7" Nespor



Yoga's Psychosomatic Influence (contd.)

- In the personality inventory the yoga group showed markedly **higher scores in life satisfaction and lower scores in excitability, aggressiveness, openness, emotionality and somatic complaints.**
- Significant differences could also be observed concerning **coping with stress and the mood** at the end of the experiment. The yoga group had **significant higher scores in high spirits and extravertedness.**

Int J Psychosom 1994;41(1-4):46-52 "Physiological and psychological effects of Hatha-Yoga exercise in healthy women." Schell FJ, Allolio B, Schonecke OW



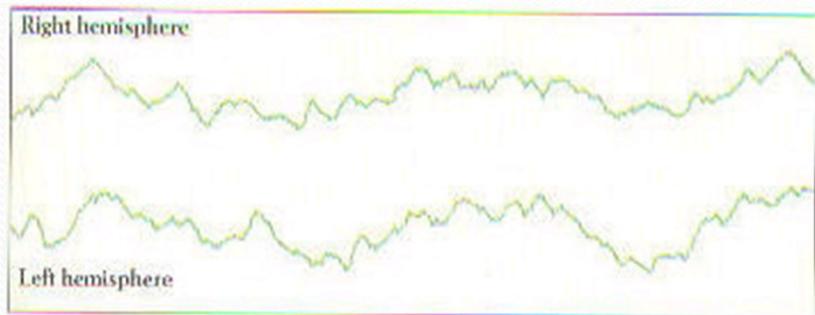
Yoga's Psychosomatic Influence (contd.)

- Dominant Electroencephalographic activity in one cerebral hemisphere correlated with predominant airflow in the contralateral nostril, in a cycle lasting 25-200 minutes when awake (*Human Neurobiology* 1983;2:39-43)
- **Yoga postures, pranayama, relaxation and meditation are powerful tools for helping to stimulate or calm the immune response.** And depending on the situation, yoga postures ... and deep pranayama can **help relax the nervous system and boost the immune response.**

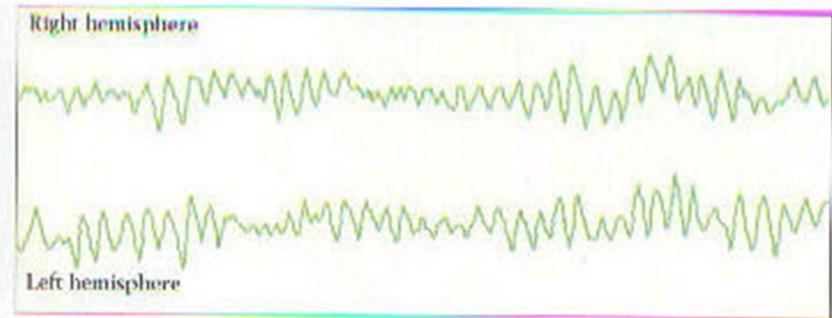
Left-sided UFNB improves spatial skills whereas right UFNB increases verbal skills (*Int J Neurosci* 1993; 73: 61-68)
LANCET Vol 351, April 4, 1998 "Meditating on Yogic Science" Kelly Morris
Yoga Bulletin, Kripalu Yoga Teachers Assoc. 2001; "Balancing the Immune System with Yoga" Jeff Migdow, M.D.

Alpha Waves during Meditation

- Amplitude and intensity **increased significantly during yogic meditation than during sleep dream-state or any other.**



Alpha Waves during sleep



Alpha Waves during meditation



Yoga Effective for Backpain

- At 26 weeks, **disability scores continued to be better in the Yoga Group** than in Exercise Class or in the Self-Care Group.



Yoga Intervention in ADHD

- Yoga proved **superior to conventional motor training**. All children showed **sizeable reductions in symptoms of ADHD**
- Yogic Breathing and Meditation proved **effective in improving cognitive functions of Seniors (65-85 Years)** n= 135

Yogic Intervention in Individuals living with HIV/AIDS

- Mulkins. A, American Journal of Health Promotion Jan-Feb 2006
- Mental Health Index, Daily Stress Inventory etc showed positive changes



Yoga for Weight Reduction

- Regular yoga practice was associated with **attenuated weight gain**, most strongly among individuals who were overweight. Although causal inference from this observational study is not possible, results are consistent with the hypothesis that **regular yoga practice can benefit individuals who wish to maintain or lose weight.**

Yoga Improves Quality of Sleep

- Reports on a study to be conducted at Swami Vivekananda Yoga Research Foundation, a University in Bangalore, India, on how **yoga can improve sleep**.
- General Research Articles:
- 1. <http://www.forbes.com/sites/alicegwalton/2011/06/16/penetrating-postures-the-science-of-yoga>
- 2. http://www.yogajournal.com/for_teachers/201
- 3. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3156498/>

Comment from Shirley Telles, leader of the *research* team; Information on the stage IV of sleep; Effect of yogic exercises on inmates of a home for the aged in Bangalore, India



Conclusion

- Stress is the root cause of over 80% of all sickness from common colds to cancer
- Health problems can be minimized through a well planned regimen of asanas and pranayama
- Scientific Evidence clearly demonstrates Yoga's prophylactic and therapeutic effects.



THANK YOU AND NAMASTE