Yoga and Asthma

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Last Revised: May 7, 2004

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Abstract: There is growing interest on the part of both patients and providers in the use of complementary and alternative medicine (CAM) therapies to treat allergy, otitis media, and asthma. Research efforts investigating CAM are increasing in frequency and quality. Studies suggest possible efficacy for some vitamin and mineral supplements for allergic diseases; results are less clear in asthmatic patients. The use of polyunsaturated fatty acids appears particularly promising for treatment and even prevention of allergy and asthma conditions. Studies also suggest that probiotic preparations have a role in the treatment of allergic conditions. Xylitol gum, syrup, and lozenges have shown efficacy in treatment of acute otitis media, as have some naturopathic herbal remedies. Preliminary results with studies of yoga and various relaxation therapies for treatment of asthmatics suggest that these therapies may have a role, but further work would be needed to document efficacy and delineate the specific types of interventions most appropriate for particular asthmatic populations.

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Abstract: Background: Patients with asthma are interested in the use of breathing exercises but their role is uncertain. The effects of the Buteyko breathing technique, a device which mimics pranayama (a yoga breathing technique), and a dummy pranayama device on bronchial responsiveness and symptoms were compared over 6 months in a parallel group study. Methods: Ninety patients with asthma taking an inhaled corticosteroid were randomised after a 2 week run in period to Eucapnic Buteyko breathing, use of a Pink City Lung Exerciser (PCLE) to mimic pranayama, or a PCLE placebo device. Subjects practised the techniques at home twice daily for 6 months followed by an optional steroid reduction phase. Primary outcome measures were symptom scores and change in the dose of methacholine provoking a 20% fall in FEV1 (PD20) during the first 6 months. Results: Sixty nine patients (78%) completed the study. There was no significant difference in PD20 between the three groups at 3 or 6 months. Symptoms remained relatively stable in the PCLE and placebo groups but were reduced in the Buteyko group. Median change in symptom scores at 6 months was 0 (interquartile range -1 to 1) in the placebo group, -1 (-2 to 0.75) in the PCLE group, and -3 (-4 to 0) in the Buteyko group ($p=0.003$ for difference between groups). Bronchodilator use was reduced in the Buteyko group by two puffs/day at 6 months; there was no change in the other two groups ($p=0.005$). No difference was seen between the groups in FEV1, exacerbations, or ability to reduce inhaled corticosteroids. Conclusion: The Buteyko breathing technique can improve symptoms and reduce bronchodilator use but does not appear to change bronchial responsiveness or lung function in patients with asthma. No benefit was shown for the Pink City Lung Exerciser.

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"*The Yoga of Healing*, an anthology of articles published in *The Hindu* examines eight systems of healing—allopathy, Ayurveda, homeopathy, acupuncture, pranic healing, Reiki, Yoga, and pyschoanalysis—their approach to sickness, their intrinsic healing power, and their limitations. Yoga expert T. K. V. Desikachar and allopathic surgeon Dr. Arjun Rajgopalan anchor a series of dialogues with specialists in the various fields. What emerges is the need for a synthesis—a mixing and merging of the positive aspects of all the systems, a need to discover a cohesive path towards holistic healing." The second part of the book focuses on four common chronic conditions (asthma, backache, headache and high blood pressure), and panels of practitioners from the various disciplines outline how they would begin to treat these problems.

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"This straightforward . . . guide shows readers how to take advantage of several easy breathing techniques and exercises to effectively reduce stress—the most common health complaint in North America—as well as a range of other health problems, including asthma, migraines, hypertension, hyperventilation, and psychosomatic disorders. The author presents simple breathing exercises anyone can do, any time . . ."

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Abstract: While the standard physiological and even certain psychological characteristics of asthmatic patients are well known, the current diagnostic and therapeutic approach to asthma remains inadequate, as it neglects certain interrelated somatopsychic factors vital to an optimal

diagnostic-therapeutic programme. These include the role of skeletal muscle tension and posture, the role of the "voluntary" respiratory musculature, especially the diaphragm, as well as anxiety, emotional suppression and excessive self-consciousness, all of which may be precipitants rather than the outcome of the onset of asthma. On the basis of these neglected factors and others, implications for an optimally effective therapy are discussed. The physical medicine or physiotherapeutic, as well as other recent therapeutic approaches, are reviewed and evaluated. It is concluded that all of these therapies are too "specific," and that a more holistic approach is necessary (which is provided in "Asthma: The Yoga Perspective, Part II-Yoga Therapy in the Treatment of Asthma").

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Abstract: The integral yoga approach to asthma (and other psychosomatic disorders) is briefly outlined as meeting all of the requirements for an optimal, holistic, somatopsychic therapy (as outlined in Part I), including correction of distorted posture and faulty breathing habits, teaching a system of general muscle relaxation, techniques for the release of suppressed emotion and for reducing anxiety and self-conscious awareness, as well as special methods for the expectoration of mucus. Yoga practices are described in detail and the available psychophysiological research on yoga practice, as well as clinical-therapeutic studies on yoga as asthmatic therapy, are reviewed. It can therefore be concluded that yoga therapy is most effective with asthma.

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_____. *Yoga for Asthma* CD. India: Kirloskar Computer Services Ltd. Available for purchase at http://www.bksiyengar.com. Inquiries: yoga@kcsl.com.

"This CD-ROM provides . . . insight on asthma, its causes, symptoms and diagnosis. It also delves into the commonly asked questions on asthma and the respiratory system. There are altogether 24 asanas explained and demonstrated with appropriate instructions. These asanas are divided into 6 groups: Standing, Sitting, Forward bends, Back bends, Inversions and Supine."

"The main section of the CD-ROM consists of a description of 24 *asanas* to be performed with the help of props. Precise oral instructions accompanied by a visual demonstration systematically describe how the props are to be adjusted, how one gets into the pose, a clear explanation on what needs to be done while staying in the pose, followed by how to get out of the pose. Special instructions are also given for those suffering from additional problems or stiffness."

Jaber, R. Respiratory and allergic diseases: from upper respiratory tract infections to asthma. *Primary Care*, Jun 2002, 29(2):231-261. Email: rjaber@notes.cc.sunysb.edu.

From the abstract: For the motivated patient [with asthma and allergic rhinitis], mind-body interventions such as yoga, hypnosis, and biofeedback-assisted relaxation and breathing exercises are beneficial for stress reduction in general and may be helpful in further controlling asthma.

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days in a camp in Adhyatma Sadhna Kendra, New Delhi. The autonomic function tests to measure the parasympathetic reactivity (Deep Breathing test, Valsalva Manouever), Sympathetic reactivity (Hand Grip test, Cold Pressure test), and pulmonary function tests FVC, FEV1, PEFR, PIF, BHT and CE were recorded before and after yoga training. The resting heart rate after yoga training ($P < 0.05$) was significantly decreased (89.55 +/- 18.46/min to 76.22 +/- 16.44/min). The sympathetic reactivity was reduced following yoga training as indicated by significant ($P < 0.01$) reduction in DBP after HGT. There was no change in parasympathetic reactivity. The FVC, FEV1, PEFR did not show any significant change. The PIF ($P < 0.01$), BHT ($P < 0.01$) and CE ($P < 0.01$) showed significant improvement. The results closely indicated the reduction in sympathetic reactivity and improvement in the pulmonary ventilation by way of relaxation of voluntary inspiratory and expiratory muscles. The "comprehensive yogic life style change programme for patients of Bronchial Asthma" [has] shown significant benefit even within a short period.

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BACKGROUND: Sahaja Yoga is a traditional system of meditation based on yogic principles which may be used for therapeutic purposes. A study was undertaken to assess the effectiveness of this therapy as an adjunctive tool in the management of asthma in adult patients who remained symptomatic on moderate to high doses of inhaled steroids. METHODS: A parallel group, double blind, randomised controlled trial was conducted. Subjects were randomly allocated to Sahaja yoga and control intervention groups. Both the yoga and the control interventions required the subjects to attend a 2 hour session once a week for 4 months. Asthma related quality of life (AQLQ, range 0-4), Profile of Mood States (POMS), level of airway hyperresponsiveness to methacholine (AHR), and a diary card based combined asthma score (CAS, range 0-12) reflecting symptoms, bronchodilator usage, and peak expiratory flow rates were measured at the end of the treatment period and again 2 months later. RESULTS: Twenty one of 30 subjects randomised to the yoga intervention and 26 of 29 subjects randomised to the control group were available for assessment at the end of treatment. The improvement in AHR at the end of treatment was 1.5 doubling doses (95% confidence interval (CI) 0.0 to 2.9, p=0.047) greater in the yoga intervention group than in the control group. Differences in AQLQ score (0.41, 95% CI -0.04 to 0.86) and CAS (0.9, 95% CI -0.9 to 2.7) were not significant (p>0.05). The AQLQ mood subscale did improve more in the yoga group than in the control group (difference 0.63, 95% CI 0.06 to 1.20), as did the summary POMS score (difference 18.4, 95% CI 0.2 to 36.5, p=0.05). There were no significant differences between the two groups at the 2 month follow up assessment. CONCLUSIONS: This randomised controlled trial has shown that the practice of Sahaja yoga does have limited beneficial effects on some objective and subjective measures of the impact of asthma. Further work is required to understand the mechanism underlying the observed effects and to establish whether elements of this intervention may be clinically valuable in patients with severe asthma.

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second and morning symptom scores were apparent in both groups at 4 and 16 weeks; however, no significant differences between groups were observed on any outcome measures. CONCLUSIONS: Iyengar yoga conferred no appreciable benefit in mild-to-moderate asthma. Circumstances under which yoga is of benefit in asthma management, if any, remain to be determined.

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I don't believe asthma is simply a physical manifestation of psychologically based issues—there are many environmental and inherited, allergenic components to this condition—but this book helps you explore the emotional aspects and ameliorate them. It's really well written, too."

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control period, subjects breathed through a matched placebo device. Mean forced expiratory volume in 1 s (FEV1), peak expiratory flow rate, symptom score, and inhaler use over the last 3 days of each treatment period were assessed in comparison with the baseline assessment period; all improved more with the PCL exerciser than with the placebo device, but the differences were not significant. There was a statistically significant increase in the dose of histamine needed to provoke a 20% reduction in FEV1 (PD20) during pranayama breathing but not with the placebo device. The usefulness of controlled ventilation exercises in the control of asthma should be further investigated.

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In a 2001 survey of some of its members, the American Academy of Pediatrics found that of the 733 respondents, 55 percent said they recommended Yoga as part of an asthma treatment regimen.

From *Women's Health Alternative Medicine Report*, Mar 1999, 1(3):1—No. of Americans with asthma: approx. 15 million, 4 million of whom are under 18 years of age. Much of the incidence of increase worldwide in recent years is attributable to the increase in pollutants that affect the structure and function of the lung directly. In the U.S. approx. $6.2 billion are spent on asthma annually; $1 billion of that just for medication. The death rate from asthma has increased significantly, doubling between 1978 and 1988, leveling off somewhat since then, but continuing to rise in people between 5 and 34 years of age. People in urban areas, especially New York and Chicago, have the highest death rates, and the African-American death rate is three times that of white counterparts. Several medical reports have linked the increased death rate to improper use of medications and, even more importantly, to the overuse of beta-agonist inhalers.

From "Puzzling rise in asthma deaths: Cases, fatalities increase despite smog reductions," *San Francisco Chronicle*, July 3, 1996 (http://www-camra.ucdavis.edu/sfchron.html): According to the NIH, 14.6 million Americans had asthma in 1994. The number of asthmatics grew by 6.2 million between 1984 and 1994, an increase of 74%. According to the National Center for Health Statistics, annual asthma deaths grew 59%, to 5,680, between 1984 and 1994. Potential reasons for the increase are discussed in the *Chronicle* article.

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CAM for health problems. In this study, 160 inner-city high school students with asthma were surveyed. Of those, they found 33 percent reported having weekly symptoms from their condition and 14 percent had daily symptoms. Overall, 80 percent of the students reported using CAM for asthma.

"According to the study, asthma is the most prevalent chronic disease affecting adolescents in the United States. The study authors believe it is important for physicians who treat adolescents to know 80 percent are using CAM. Only 54 percent of the students reported telling their physician about their use of alternative medicines.

The list of alternatives ranged from herbal teas to prayer to massages and rubs. Close to a quarter of all the adolescents reported using Jarabe 7, an herbal preparation commonly sold in Puerto Rican communities. About 60 percent of the study participants felt the alternative methods helped and they would try it again."

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Abstract: OBJECTIVE: An increasing number of patients with asthma are attracted by complementary and alternative medicine (CAM). Therefore, it is of importance that scientific evidence about the efficacy of this type of therapy is regarded. METHOD: We searched the electronic databases Medline, Embase and the Cochrane Library for controlled trials and systematic reviews to evaluate the evidence of the most popular alternative therapies, i.e. acupuncture, homeopathy, breathing techniques, herbal and nutritional therapies. RESULTS: Claims that acupuncture is effective for the treatment of asthma are not based on well-performed clinical trials. The role of homeopathy in the treatment of asthma needs further evaluation. Breathing techniques, e.g. improved control of breathing by yoga, may contribute to the control of asthma symptoms, but due to the small number of controlled trials and due to the small number of patients it is not possible to make firm judgments. Herbal remedies cannot be recommended based on the available evidence. Recommendations for a diet high in vitamin C and marine fatty acids are not harmful, but evidence for clinically meaningful effects is scant. CONCLUSION: Up to now evidence is lacking that alternative forms of medicine are more effective than placebo in asthma. However, lack of evidence does not always mean that treatment is ineffective, but it could mean that effectiveness has not been adequately investigated. High quality research as in conventional therapy should be fostered in complementary medicine.

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Abstract: Adult asthmatics, ranging from 19 to 52 years from an asthma and allergy clinic in a university setting volunteered to participate in the study. The 17 students wre reandomly divided into yoga (n = 9) and nonyoga control (n = 8) groups. The yoga group was taught a set of breathing and relaxation techniques including breath slowing exercises (pranayama), physical postures (yogasanas) ,and meditation. Yoga techniques were taught at the university health center, three times a week for 16 weeks. All the subjects in both groups maintained daily symptom and medication diaries, collected A.M. and P.M. peak flow readings, and completed weekly questionnaires. Spirometry was performed on each subject every week. Analysis of the data showed that the subjects in the yoga group reported a significant degree of relaxation, positive attitude, and better yoga exercise tolerance. There was also a tendency toward lesser usage of beta adrenergic inhalers. The pulmonary functions did not vary significantly between yoga and control groups. Yoga techniques seem beneficial as an adjunct to the medical management of asthma.

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Abstract: Yoga Breathing Techniques (YBT) have been claimed to be beneficial in patients with asthma during acute bronchospasm. This study was undertaken to verify this claim under controlled conditions using objective data. Six adult asthmatics (4 female, 2 male) in the age range of 23 to 48 years (mean age 34 years) volunteered to participate in this study. All the volunteers were taught YBT by a senior Yoga instructor over 2 sessions and were instructed to practice these sessions daily with the help of a prerecorded guiding tape over a period of 2 weeks. Subjects acted as their own controls. During the "control day," their baseline vital signs were measured, including pulse rate (PR), blood pressure (BP), peak flow measurements (PEFR), and spirometry (PFT). They all then underwent exercise testing by climbing up and down 14 steps indoors with controlled temperature and humidity. Serial PFT, BP, and PR were measured and recorded at 1 minute, 7 minutes, and 15 minutes post exercise. On the "control day," subjects sat on a chair resting after exercise. They were treated by bronchodilator aerosol if their PFT dropped 30% or more from their baseline values or if they complained of increasing difficulty in breathing during that period. On the "Yoga day," subjects underwent similar baseline studies as well as exercise testing as outlined above, and all the subjects were requested to perform the YBT immediately after they had completed their exercise test. A drop of 20% in FEV1 (one of the PFT parameters measured) was considered as being consistent with exercise induced bronchospasm (EIB).

Three out of 6 subjects on the "control day" needed bronchodilator nebulizer treatments to relieve their EIB, whereas only 1 out of 6 subjects on the "Yoga day" needed a nebulizer treatment. The average time for the PFT to return to baseline from the post-exercise drop was shorter (18 mins. vs. 24 mins.) on the "Yoga day" compared to the "control day." Five out of 6 subjects subjectively felt better after the YBT compared to none on the "control day."

Conclusion: Yoga Breathing techniques (YBT) can be useful in relieving mild attacks of asthma.

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The Yoga for Health Foundation. Yoga for Breathing Disorders classes. For more information, contact: The Yoga for Health Foundation, Ickwell Bury, Ickwell Green, Biggleswade, Beds. SG18 9EF, Great Britain, tel: 01767 627261, fax: 627266, URL: http://www.yogaforhealthfoundation.co.uk/remedialyoga.htm#breathing.

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The Yoga Science Box© was written after a pilot program with K-12 teachers in the San Francisco Unified School District. Program content complies with California Department of Education curriculum guidelines.

The 1999-2000 Yoga Science program includes Yogasthma©: Seven Steps to Asthma Control. It is designed to empower the children with the knowledge and skills to control their asthma. It includes yoga breathing and stretching exercises, an indoor garden to produce fresh air and a series of fun workshops conducted with St. Luke's Hospital.

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"The Asthma patients have a strong feeling that Asthma is incurable and that they will die. So Roopa starts treatment with counseling, two sittings daily for one hour to build confidence and change the patient's mindset.

"Roopa [Muralidhar, a Yoga and Naturopathy expert] said Asthma and constipation go together. Asthmatics will have constipation, cough, Vaatha and Pitta. In three sittings, this will be cleared. Through Shakti Kriyas, nose and throat are cleared.

"The Kriyas are:

"*Jala Neethi: Nose will be cleaned through Jala Neethi where the patient is asked to suck salt added luke warm water through nose.

"* Suthra Neethi: Through nose a tube is inserted to throat and through light massage throat is cleaned.

"*Vamana Dhavathi: Salt added water is given to drink. Patient will vomit. This will help in removing 75 per cent of mucos.

"* Vastra Dhoti: 3-metre long 4 inch breadth thin cloth soaked in water is asked to swallow. In between the patient is asked to drink water. Once it is fully swallowed, after 5 minutes, it is slowly pulled out. It brings all "Kalmasha" stored in intestines.

"* Shanka Prakshalana Kriya: Patient is asked to drink half bucket of water added with salt. It will serve as purgative. He will have 8-10 times loose motion.

"Now all the Kalmasha related to Asthma is removed. Simultaneously, patient is taught Yoga exercises—Pranayama, Dhyana, Ajjapajapa—relaxing techniques. Music (Naada Yoga) will also help to keep calmness.

"Tips:

"* Stop taking Bakery items and oily items that produce Cougha (Mucous).

"* Massage at umbalicus and spinal cord that helps producing warm. * herbal tea is given made up of Tulasi, Viledele (bettle-leaf), Pudina, Kottambari.

"* South Indian normal diet, fruits, raw vegetables help controlling weight.

"Roopa said generally asthmatics are stout because of medicines they take earlier. Yoga exercises will help reducing the weight.

"Besides Pranayama, Bhujangasana, Supta Vajrasana, Sashankasana and Naadishoda Pranayama will cure Asthma completely."

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Of Related Interest

Aldridge, David. Philosophical speculations on two therapeutic applications of breath. *Subtle Energies and Energy Medicine Journal*, 2001, 12(2).

Abstract: Life begins and ends with breath. Slight bodily changes are brought about by alteration in the mechanisms of breath. In addition, mental changes are also influenced by breath. Our general condition of well-being is dependent upon the rhythmic cycles of breathing within us. Similarly, emotions change the rhythm of breath and when we become overexcited, then we lose control over the breath. By gaining control of the breath then we gain mastery of mind and body. Not only that, we also establish a connection with the world around us, of which we are part, through the breath.

Two specific healing initiatives based upon breath are used as illustration of breath both as a subtle organizing property and as a material manifestation. The first example is the use of breath through singing to intentionally organize the physiological abilities of another person as they recover from coma. Singing is literally the intentional use of breath to heal realized through a particular therapeutic form, which is improvised music therapy. A fundamental property of breathing is that it has rhythm. In musical terms, rhythm has to have the property of intention otherwise it would be simply cyclic repetition or pulse. The second healing initiative is that of Qigong Yangsheng for the treatment of asthma. Breathing is used here also as an intentional activity, this time by the patient to improve his or her own breathing abilities and to heal what is essentially a breathing problem, the material manifestation of air-flow. In this latter example, the healer acts as a teacher and guide for the sufferer to influence her own breathing.

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Abstract: A chronic inflammatory disorder of the respiratory airways, asthma is characterized by bronchial airway inflammation resulting in increased mucus production and airway hyper-responsiveness. The resultant symptomatology includes episodes of wheezing, coughing, and shortness of breath. Asthma is a multifactorial disease process with genetic, allergic, environmental, infectious, emotional, and nutritional components. The underlying pathophysiology of asthma is airway inflammation. The underlying process driving and maintaining the asthmatic inflammatory process appears to be an abnormal or inadequately regulated CD4+ T-cell immune response. The T-helper 2 (Th2) subset produces cytokines including interleukin-4 (IL-4), IL-5, IL-6, IL-9, IL-10, and IL-13, which stimulate the growth, differentiation, and recruitment of mast cells, basophils, eosinophils, and B-cells, all of which are involved in humoral immunity, inflammation, and the allergic response. In asthma, this arm of the immune response is overactive, while Th1 activity, generally corresponding more to cell-

mediated immunity, is dampened. It is not yet known why asthmatics have this out-of-balance immune activity, but genetics, viruses, fungi, heavy metals, nutrition, and pollution all can be contributors. A plant lipid preparation containing sterols and sterolins has been shown to dampen Th2 activity. Antioxidant nutrients, especially vitamins C and E, selenium, and zinc appear to be necessary in asthma treatment. Vitamins B6 and B12 also may be helpful. Omega-3 fatty acids from fish, the flavonoid quercetin, and botanicals Tylophora asthmatica, Boswellia serrata and Petasites hybridus address the inflammatory component. Physical modalities, including yoga, massage, biofeedback, acupuncture, and chiropractic can also be of help.

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Abstract: Breathing retraining is used increasingly throughout the world by many patients with asthma in addition to their usual medical care. We undertook a systematic review of the literature in order to determine the effectiveness of breathing retraining in the management of asthma. Six randomised-controlled trials were identified that involved breathing retraining in asthma. Due to the variation in reported trial outcomes, limited reporting of study data and small number of included trials it was not possible to draw any firm conclusions as to its effectiveness. However, outcomes that were reported from individual trials do show that breathing retraining may have a role in the treatment and management of asthma. Further large-scale trials using breathing retraining techniques in asthma are required to address this important issue.

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"Over 14 million Americans, or 7.2% of the adult population, reported having asthma in 2000 . . . and cost the nation an estimated $12.7 billion during 1998 . . . Based on responses from more than 180,000 people, the overall prevalence of lifetime asthma was 10.5%, and the overall prevalence of current asthma was 7.2%, indicating that an estimated 14.6 million American adults currently have asthma . . . Blacks reported a higher prevalence of current asthma (8.5%) than whites (7.1%) and persons of other race/ethnicity (5.6%)."

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Ongoing Research

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Conducting research at Magee-Women's Hospital on Yoga and peak flow rates in pregnant asthmatics. Funded by NIH (NCCAM).

Geoffrey Barkley, Ph.D.
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Is in the process of developing a pilot study for lifestyle intervention with asthmatics that would include Yoga practices. Contacted IAYT 5/24/05.

Alyse Behrman, M.P.H.
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Conducting a CDC-funded study on asthma (URL: http://www.yalegriffinprc.org/asthma.html). It is a double-blind randomized controlled trial. Participants must have mild to moderate asthma, be on asthma medications, be over 18, not smoke, and not be pregnant to be involved. Participants are randomized to one of 2 groups: an Iyengar yoga class or a stretching control class. The class is held 2 nights a week for 4 weeks. Participants are given print and audio materials (and yoga props, if in the yoga group) to practice with at home. After the class is over, participants are expected to continue practicing the exercises they learned in class at home. They come in every 4 weeks for the next 3 months for a follow-up assessment, which consists of a

spirometry (breathing) test and filling out questionnaires on their asthma symptoms. They also keep a diary of their asthma symptoms and peak flow measurements for one week out of each month they are involved in the study. The 4th cohort is running right now (October 2002) and they are recruiting for a 5th. The study should be completed by late Spring 2003.

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Dr. Manocha is Barry Wren Fellow at the Royal Hospital for Women, where he initiated the Meditation Research Program in the hospital's Natural Therapies Unit. Using the Sahaja Yoga meditation technique, the research has shown promising results for the treatment of asthma, headache, menopause and depression.

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Ongoing research on Yoga and asthma and Yoga and COPD. IAYT contacted Dr. Vedanthan 8/02.