IS YOGA THERAPY AN EFFECTIVE TREATMENT/RELIEF FOR ASTHMATICS?

Introduction: Yoga is based on East Indian philosophy and has been practised for nearly 6 000 years. Yoga, as a treatment for asthmatics, can be divided into three categories:

1. Cleansing practices (krija)
2. Body postures (asanas)
3. Breathing techniques (pranajama)

Yoga is perhaps the origin of all mind-body fitness programs; the focus of all these eastern disciplines is to open up the body to a "vital life force". In yoga this energy is called prana (breath), the masculine energy residing above the diaphragm and apana, the feminine energy residing below the diaphragm. One of the principal challenges of hatha yoga (the physical yoga, asanas) is to become proficient at handling increasing amounts of "resistance" in the various postures and breathing patterns while maintaining a steady and comfortable equilibrium of mind and body (1). There is a growing need to establish different mind-body programs to inspire selfcare and thereby also reduce health care costs especially for asthmatics. Initially there will be a quite high cost, teaching the asthmatics yoga. Learning basic yoga techniques may only have to take 1-2 semesters of classes (once a week) and the exercises can be used for life.

The **general physiological effect** of Yoga therapy is to increase parasympathetic tone and reduce sympathetic tone via the putative hypothalamic-pituitary-adrenal axis. This axis can be viewed as one neuroendocrine pathway that focuses on reducing stress-related catecholamine and glucocorticoid production (1)

General mental effects of yoga therapy: In contrast to conventional exercise (where most of the effects can be measured), Yoga programs rely on an inwardly directed self-focus to breathing and muscle sense.

Yoga for astmatics: Yoga has been used to treat asthmatics in India for more than 50 years (2). Yoga may help to balance out psychosomatic imbalances that may appear in asthmatics (2). A reduced vagal efferent reactivity may also reduce psychological hyper-reactivity and emotional instability which has been recognised as the mediator of the psychosomatic factor in asthma. Slow respiration (as performed in Yoga) may prevent reflex bronchoconstriction which can be explained by less excitable vagal efferents (2,3).

Purpose: To compare different studies on yogatherapy for asthmatics and also summarise the results.

Method: Review of scientific articles found in medline.

Results: Table 1 show the effects

of yogatherapy and most of the studies have a very small sample size except two (number 1 and 8) and the articles have the same authors. Both these studies show an increased PEFR along with reduced number of asthma attacks and reduced medication. The other studies also show significant results but might not be valid since the sample sizes where very small.

Discussion and conclusions:

The articles I have reviewed have several drawbacks, mainly that they are not using any control groups and the measurement tools vary a lot. The studies measure many different factors but most of them measure PEFR (peak expiratory flow rate) therefore I choose to summarize mainly PEFR . Most of the studies found on yogatherapy are published in India in publications like Lung India, Yoga mimasana etc etc and they are difficult to find in Sweden therefore the studies that I have found, that are published in fairly well known journals, can not be compared to each other so well. But study 1, 2, 3, 5, 8, 10, 11 have similar age spans but different sample sizes. Common to the studies above are that PEFR increased significantly. The general study design should be more planned in detail and also more controlled especially during the follow up periods. It might be better to measure the subjects PEFR and other parameters more regularly in the lab than collecting a written questionary every month or every 6 month from the patients. Also more long term studies are needed, one wonders is you can see any effects of a yoga training camp in seven days. If one compares the articles together the yogatraining varied in time, some studies did yoga training for 60-120 minutes a day every day of the week while others only had 15-30 minutes only a few times a week (see table). Using longer training times (more than 60 min.) like the studies 1, 2, 4, 8 you will of course get the most significant results like for example PEFR and the number of asthma attacks. These studies all used both and sometimes all three yoga categories (cleansing, asanas, breathing) and might be an explanation why they get highly significant results. The way that the training was performed (time) and the choice of exercises should be more standardized in the different studies. The procedure of the collection of the baseline data and the history of other diseases than asthma was different from each article. In a gender perspective it is easy to see that there are mostly men taking part in the studies. There should be more well designed studies in this field to prove the value of yogatherapy for healthy people as well as for asthmatics.

Table 1: Summary of articles reviewed on the topic: Yogatherapy as a form of treatment/relief for asthmatics

Study	Purpose	Sample Size	Sample Description	Comparison Group	Study Period	Outcome Measures	Study Design	Results
1. Nagendra H.R Nagarathna R. (1986)	Present data obtained from 30 parameters before and after yoga therapy in three different groups	570 Bronchial asthmatics	570 patients with Bronchial Asthma 408 men. 7-78 years	3 groups where compared with each other depending on amount of yoga practiced: Regular-, Irregular-, and discontinued group.	Two or four weeks intervention, follow up 3-54 months	PEFR, Subjective and objective data (specific and general parameters)	Controlled trial, Prospective study. Questionnaires Yoga training (65 min./day) and medication analysis	69,2% of patients reduced or stopped oral medication, 66% have stopped or reduced cortisone and 72,3% stopped or reduced injections. Breathholding time incr. in intervention group. PEFR improvement in regular and discontinued groups. Also a significant reduction in the number of asthma attacks per week in regular yoga group
2. Khanam A.A. Sachdeva U. Guleria R. Deepak K.K (1996)	To study pulmonary and autonomic functions of asthma patients after yoga training	9 asthmatics	6 males, 3 females aged 12-60 years	None	Seven days	Different autonomic function tests and also pulmonary function tests (PEFR,PIF)	Intervention study Yoga training (2h./day)	Breathholding time incr. Decreased sympathetic reactivity
3. Singh V. Wisniewski A. Britton J. Tattersfield A. (1990)	To see the effect of yoga breathing exercises on airway reactivity in asthmatics	18	19-54 years	placebo respiratory device for 2 weeks (served as control) and "real" respiratory device for 2 weeks	4 weeks	PEFR (twice daily). Airway reactivity with a respiration training device	Yoga training (30min/day), randomised, double-blind, placebo-controlled, crossover trial	PEFR incr. more with respiratory device compared with placebo group. Inhaler use and symptom scores decreased more compared to placebo group but none of the above statistically significant.

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4. Jain S.C Rai L. Valecha A. et al (1991)	To see the effect of yogatraining on exercise tolerance in adolescents with childhood asthma	46	28 males, 18 females age between 11-18		40 days. 26 subjects followed up for 2 years	Pulmonary functions at rest and exercise. 12 min. walking test. Physical Fitness index	Yoga training (2,5 h.) Intervention study	All showed significant improvement in pulmonary function measurements, though the females showed larger responses than males. Significant improvements in exercise tolerance in both genders. Also a decreased exercise-induced bronchoconstriction in subjects.
5. Singh V. (1987)	To see the effect of respiratory exercises on asthma	12	12 asthmatics aged 11-58		6 weeks (2weeks placebo intervention)	PEFR, number of nocturnal wheezes	Respiratory exercises, Intervention study	Statistically significant incr. PEFR with lung exercises in comparison with placebo. highly statistically significant incr. PEFR with the lung exerciser with a hydration equipment
6. Singh V. (1987)	Evaluation of a nonspecific protective factor in management of bronchial asthma	7	7 asthmatics, 6 males and 1 women. age from 18-40		3 weeks	PEFR, number of nocturnal wheeze, inhalation use.	Yoga training (Kunjal), intervention study	Five patients had highly significant incr. i PEFR. Number of nocturnal wheeze was reduced during the second and third weeks as salbutamol inhalation was.
7. Hanel B. Secher N.H (1991)	The influence of inspiratory muscle training on maximal oxygen uptake and work capacity	20	5 females 5 males aged 20-24	Sham training 10 people	27,5 days	Maximal inspiratory pressure	Inspiratory muscle training, PEFR, intervention study	Increase in maximal inspiratory pressure does not change FEV, FVC, peak expiratory flow, Vo2 max of work capacity. But breathing frequency during max exercise decreased by 3 breaths/min. in the training group.

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8. Nagarathna R. Nagendra H R (1985)	To see how yoga therapy can effect the long term management of bronchial asthma	106	53 in yoga group (38 men, 15 women) and 53 in control group (38 men, 15 women) aged between 9-47	yes, matched	2 week intervention and follow up check ups every 6 month. Some of the subjects where followed up 54 months	PEFR, no of asthma attacks/ week, Drug treatment score	Yoga training (65 min.), medical check ups, controlled trial	Significant improvements in yoga group compared with controls in PEFR, no of asthma attacks and drug treatment scores.
9. Behera D (1998)	To show that yoga therapy can be replaced with conventional form of therapy	15	15 chronic bronchitis patients, one woman and 14 males aged 48-75		1 week intervention and followed up for 2 and 4 weeks.	Lung function tests. Drug intake	Yoga training (30 min./day) Laboratory analysis. Intervention study.	Significant improvement in VC, forced exp. volume in 1st s. and PEFR.

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