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DEB ROBERTSON - PROJECT REPORT

*The Effectiveness of Yoga
Therapy Practices for
Individuals with Asthma:
A Pilot Study*

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What we experience in yoga is a conscious influence and change in the overall system. We may choose to begin with the body, the breath, our food, or our relationships. Whatever the point of beginning, we change the totality of the system. It is impossible to overstate the possibilities of this gradual approach to wellbeing in our lives.

(Desikachar 1998:119)

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Chapter 1: Introduction and Background

Asthma is a common chronic disease that causes episodes of wheezing, chest tightness and shortness of breath due to widespread narrowing of the airways within the lungs and obstruction to airflow. The underlying problem is usually inflammation of the air passages, which overreact by narrowing too often and too much in response to a wide range of triggers. Asthma affects persons of all ages and people with asthma report impacts in the physical, psychological and social domains of their lives.

My research drew on the medical treatment of asthma and the work of Asthma Australia, Asthma Victoria, The National Council of Asthma and other organisations as well as studies conducted on yoga for asthma.

The 2011 *Asthma in Australia Report* (AIHW) stresses the importance of understanding asthma as a chronic disease. Although it may have intermittent manifestations, the report indicates that it is most helpful to consider the disease in terms of the underlying chronic abnormality.

The management of asthma offered by modern medicine – for example, inhaled relievers or inhaled/oral cortico-steroids – certainly saves lives and is an essential aspect of the treatment regime. However, many individuals with asthma suffer not only during an attack, but the effects of treatment linger on. Chronic asthma sufferers may also experience mood swings or depression. In addition, cortico-steroids can have the effect of depleting the immune system, leading to other medical complications and issues.

Asthma is all about the breath; the breath is the thread that links the body and the mind. While there have been numerous research studies undertaken to investigate the benefits of breathing retraining, including the Buteyko Breathing Technique (BBT) and the ‘Papworth Method’ in the management of asthma, there has been less formal research into the benefits of yoga.

This research seeks to demonstrate that yoga therapy is a highly beneficial adjunct in the management of asthma.

1.1 Rationale for Current Study

There is plausible evidence that specific yoga practices can support individuals with asthma and enhance breathing capacity, health and quality of life. This study aims to demonstrate that individualised yoga practices, reviewed and refined over time with the guidance of a yoga therapist (in the tradition of Krishnamacharya), results in improved breathing capacity, health and wellbeing. At the completion of this study, the intention will be to further expand this project.

1.2 My Own Experience of Asthma

I have been a chronic asthma sufferer since I was a baby. Although asthma is commonly diagnosed in children these days, I was the only serious asthmatic at my primary school, and the only one to carry a preventer. Many nights I remember waking unable to breathe, and would spend as long as I could, trying to be patient and not panic or wake my parents, as I didn't want to cause them concern. To calm myself I would rock on all fours on my bed (similar to 'cat' posture in yoga), but eventually my wheeze and cough would worsen and my parents would wake.

At this time I also had eczema so badly that my arms and legs often had to be bandaged to prevent me scratching myself to pieces during sleep. Again the treatment was cortisone cream and the resulting skin weakness is evident in the creases of my arms and legs.

Medication was Alupent as a reliever with cortisone and theophylline orally. These high maintenance doses of cortisone showed physically. Photos of me from five years onwards show my face blown up, my skin pallid with dark circles under my eyes, and my body very chubby, particularly my legs.

From an early age, I was under the care of a respiratory specialist and well remember the cold table of the huge X-ray machine I had to lie on many times in a darkened room with my parents and the doctor out of sight behind a thick screen. As medication and treatment improved, my doctor was able to lower the oral cortisone dose when I was in my mid teens, and the subsequent weight loss was dramatic though my legs remain disproportionately large and prone to fluid.

When I was 12 years old, I stayed with a friend of my parents who introduced me to the idea of improving my diet, exercise and Vitamin C therapy (popular at the time in the writings of Adele Davis). This sparked a lifelong interest in endeavouring to do something to help myself. I swam from an early age and joined a gym for a period of time.

At 18, I had my first anaphylactic shock episode in the street after eating a bun; a frightening experience, but a 'guardian angel' closed her shop, put me in her car and sat on the horn to the emergency room at St Vincent's Hospital in Melbourne. I knew I was dying, and apologised to this remarkable woman, who really saved my life. My clothes were cut off and I was resuscitated a couple of times. I remember well the feeling of coming back into my body from 'heaven', a place of intense light. I was still in intensive care when my shaken father came in, noting that I was still 'blue'.

The then director of intensive care, also a respiratory specialist, took an interest in me and I remained under his care until his retirement. Allergy tests were done and I was allergic to everything in some degree, even saline. I have had other anaphylactic episodes, and been resuscitated again, and I now carry an EpiPen. I have also been part of the Melbourne Atopy Cohort Family Study (MACS) auspiced by the University of Melbourne and the Royal Children's Hospital. This longitudinal study, which follows babies of atopic parents from birth into adulthood, is one that my whole family has participated in since the birth of my first child 21 years ago.

When I was about 26, I discovered a book explaining simple yoga breathing and postures and would do these with varying degrees of application over the years as I found it helpful in ways I did not really try to analyse. In my mid 30s I began attending regular Hatha yoga classes and decided to do yoga teacher training in 2000. All through these years I would still get serious asthma exacerbations, as well as bronchial infections, pleurisy and bouts of pneumonia that required hospitalisation. I also developed arthritis during this time. The pain and degeneration of my hip socket led me to have my first hip replacement at 45, and my second at 52.

In 2001, I discovered Barbara Brian and the yoga of Krishnamacharya. By then, I was a serious yoga practitioner in my final months of yoga teacher training though the way I was practising yoga was increasing my pain. Determined to be a yoga teacher, despite a couple of orthopaedic surgeons advising my against this, I asked Barbara to help modify my yoga practice to better manage, and perhaps reduce, my chronic pain.

Just as I found with many of my study participants, asthma was not prominent in my mind as it was 'controlled' in varying degrees by medication. Barbara taught me to breathe, so much more deeply and consciously than my yoga teacher training or classes ever had. It was this fundamental change in my breathing pattern – from top to bottom on the inhale and bottom to top on the exhale – that revolutionised my asthma management and my overall health and wellbeing. Linking the breath with movement and the experience of the breath's effect on my spine, and therefore on my posture had such a profound effect.

From this time onwards, my quality of life and my outlook improved. Nowadays, I am more positive, more stable mentally and emotionally and I have more energy and zest for life than I had as a child or in my 20s and 30s.

1.3 Why this Study?

Having experienced chronic asthma, arthritis and anaphylaxis, it is understandable that I have had a great deal of experience with doctors, respiratory specialists and Western medicine. In fact, I would not be alive if it were not for medical intervention. However, my later introduction to, and experience with, yoga therapy, has dramatically improved my breathing, health and quality of life in ways I did not imagine possible.

As a direct result of my personal experience, this research study was born. It is my intention, with this research and my yoga therapy work, to continue assisting people with asthma and breathing difficulties, lift the profile of yoga therapy and encourage an ongoing and healthy dialogue between yoga therapists and the medical profession.

This study may also contribute to the evidence base around the efficacy of using yoga to alleviate asthma. While several randomised control studies have been conducted in groups, none have individualised and progressed practices over time for each person, nor integrated breath and movement.

1.4 Background Research

In order to begin researching this topic from a yoga therapy perspective, I undertook detailed face-to-face interviews with two senior yoga therapists at the Krishnamacharya Yoga Mandarim (KYM) in Chennai, India (*see Appendix for interview notes*). These individuals have extensive experience in the treatment of asthma and, like myself, have chronic asthma.

As well as conducting these interviews, I was privileged to sit in on yoga therapy sessions with 16 different individuals seeking assistance with their asthma at the KYM. With a couple of these individuals, I had the opportunity to observe their progress from an initial consultation through to their fourth sessions. The effects of these yoga therapy sessions were clearly beneficial for these students. I was also able to review 15 asthma case study files from the archives at the KYM.

The sessions I observed at the KYM made me realise that in the yoga therapy approach no two students are completely alike and therefore no two practices will be the same. However, there are a couple of fundamental differences between students in an Indian context and those here in Australia.

The main difference has to do with the concepts of faith and the attitude of respect towards the teacher as well as a quality of acceptance and an understanding that 'healing' does not happen overnight, that there is not a 'quick fix', rather healing may take time, perseverance and patience.

Dr Latha Satish director of KYM advised me at my final meeting on completion of my internships to take what I had learnt and observed and adapt it to suit my students in a Western context. This background research has fundamentally informed my approach to this research study.

1.5 Objective of Study

Many people with asthma do not receive any training or guidance regarding how to breathe. Thus, my hypothesis is that the regular practice of appropriate yoga postures and breathing techniques increases breathing capacity and assists in the management of asthma by restoring a sense of regulation and control to the individual.

In particular, my aim is to explore and study the effect of the positive '*nimitta*' (the positive intervention of a personalised yoga practice), done regularly, on the health, wellbeing and quality of life of the individual, including the establishment of a sense of emotional stability.

This research seeks to determine whether the regular practice of an individualised yoga therapy program, under the guidance of a yoga therapist, is able to:

- increase breathing capacity;
- improve overall health and quality of life for people with asthma; and
- assist in reducing the regularity, severity and duration of asthma exacerbations

In essence, this study examines the subjective experience of asthma and, through yoga, provides tools for each individual to connect with their inner resources for their own health and wellbeing.

In Chapter 2, I present some of the literature connected with the study of asthma management and breath training. The literature review also re-emphasises the importance of this study in today's world.

Chapter 3 presents the methodological approach that I employed including a brief outline of both the medical and yoga therapy paradigms, how the sample was selected, methodological tools used and information regarding how the data would be evaluated and analysed.

Chapter 4 then presents the study itself, based on the work I did with eight individuals with asthma. It discusses the methods employed in the study – the four consultations, journal entries, comments made by the participants regarding their practice, observations regarding health and quality of life matters during the consultations, by email or during telephone conversations – and then analyses the various themes emerging from this research: Diagnosis of Asthma and Compliance (Medication); Breath; Diet, Digestion and Bowel; Lifestyle and Sleep; Energy Levels; Awareness Levels; and Mental and Emotional Wellbeing.

Finally, Chapter 5 summarises the key findings from the research, highlights certain limitations that were evident during the research process, and concludes with some recommendations for future research in the field of yoga therapy.

Chapter 2: Literature Review

This study draws on various Australian reports for definitions of asthma, usual medical approach and treatment, initiatives such as asthma plans and peak flow reading, co-morbid conditions often accompanying asthma, an understanding of spirometry testing, and the impact of asthma on overall health and quality of life (HQoL).

In addition, a search of databases such as Pub Med and the Cochrane database was undertaken and studies of yoga and breathing retraining methods such as Buteyko and the Papworth method in relation to asthma were reviewed.

Interestingly, I could find no study that used the individual practice of yoga for asthma, with development over ensuing practices.

The more widely I read, the more interested I became in health and quality of life as a tool for evaluating the effect of the intervention of yoga in this project. As my study was not a clinical trial, nor a randomised control trial, and there was no spirometry readings as a base marker, this provided me with the best framework and was responsive to within-subject changes in the HQoL attributes.

As discussed in the Introduction, the therapeutic approach to asthma taken at the KYM in Chennai, along with the writings of TKV Desikachar as well as my many years of study, have fundamentally informed my whole approach.

2.1 *Asthma Management in an Australian Context*

In *Asthma management and outcomes in Australia* (Marks et al.:2007), a telephone- and computer-aided survey shows that there is room for improvement in the uptake of asthma plans and the use of inhaled steroids for patients who could benefit from them. In my study, only six of the original 14 participants had an asthma plan, or a clear understanding of what to do when their symptoms worsened.

Marks' study also advises caution when using the word 'control' to describe asthma. Depending on individual perceptions of health, some individuals may report their asthma as

'in control' even though they experience symptoms every day, only calling their asthma 'out of control' when presenting at a hospital emergency department. Indeed this whole notion of asthma being 'in control' made recruiting difficult as many individuals felt medical management was the only avenue available and tended to dismiss their asthma until it was too late.

2.2 Studies on Asthma from a Yoga Therapy Perspective and Examples of other Complementary Approaches to Breath Training and Asthma

A recent search revealed a substantial bibliography compiled by Lamb for the International Association of Yoga Therapists in 2004, *Yoga and asthma*. Many of the reports listed, while interesting, were not relevant or helpful for this study as they were more than 15 years old, conducted in an Indian context that would not be applicable to Western students or were untraceable. The major studies of Burton, Cooper, Goyeche, Manocha, Nagarathna, Sabina, Thomas, Vedanthan, Vempati cited were already known to me and differed from my approach in the following ways:

- group yoga practices, everyone doing the same thing;
- many were randomised control trials, against the yoga therapy approach; and
- the Buteyko and Papworth methods seem to use only a portion of the tools that yoga offers.

In *Yoga for bronchial asthma: A controlled study* (1985), Nagarathna and Nagendra, highlighted the efficacy of yoga in the long-term management of bronchial asthma, but the physiological basis for this beneficial effect needs to be examined in more detail. The researcher stated that yoga had been used to treat patients with asthma for more than 50 years in yoga centres in India and that many studies, including Goyeche *et al* (1982), had shown convincing evidence of the beneficial effects of yoga based on subjective judgments. The researchers went on to report that earlier investigations clearly indicated short-term (two to four weeks) benefits from yoga, as established by standard controlled studies of large numbers of patients who underwent yogic training as outpatients. Prospective long-term studies using standardised research procedures were, however, unavailable.

In this Indian study, although all 106 patients were equally motivated to take up yoga, the 53 randomly allocated patients willingly served as controls. They continued taking their usual medication during the study. All techniques of measurement, the length of each interview,

and the people recording the data were the same for both groups. The yoga group attended a training program of two and a half hours daily between 6.00–8.30pm for two weeks:

'We instructed 53 patients to continue the 65 minutes of yoga daily during the follow-up period. For the purposes of analysis those patients who stopped the practiced or did not practise for more than 16 days each month were eliminated from the study, although we continued to record their progress.'

These individuals were introduced to an integrated program of yoga practices including *surya namaskar*, *pranayama*, *kriyas* (traditional cleansing practices) and devotional chant. Such a rigorous and standardised program would not have suited participants in this study, nor would devotional chant and *kriyas* have been appropriate.

Moreover, Nagarathna and Nagendra (1985) quote Goyeche et al. (1982) who claims that psychosomatic imbalance is present in many, if not all, patients with asthma. Suppressed emotion, anxiety, dependence and extreme self-consciousness may all be accompanied by generalised and localised muscle tension, including that of the voluntary respiratory musculature. This increased muscle tension may be a precipitating or concomitant factor that perpetuates and aggravates the asthmatic syndrome.

Nagarantha and Nagendra state that yoga clearly relaxes the muscles, and this deep physical and mental relaxation associated with the physiological changes seen in our patients after the daily yoga, seems to have a stabilising effect on bronchial reactivity, thus making the vagal afferent's less excitable. In conclusion, these researchers claim that the reduction in psychological hyper-activity and emotional instability achieved by yoga can reduce efferent vagal reactivity, which has been recognised as the mediator of the psychosomatic factor in asthma.

Nagarantha and Nagendra's study differs from mine in a number of key regards:

- classes were conducted in a group setting, rather than individually
- all participants received the same program
- the study was for a short two weeks of group practice, with daily practice of over two hours then participants continued with a set practice of 65 minutes, presumably in their own time and space
- There is a control group
- the value of face-to-face contact, relationship between student and teacher, trust does not appear to be considered

- one can assume individual co-morbid conditions and other pre-existing or emerging factors were not dwelt on, and
- the 'patients' were not given a voice.

There is some confusion regarding what constitutes correct breathing in yoga. Many schools of yoga follow inhaling into the belly, teaching their students to fill their lungs from the bottom to the top, sometimes called 'balloon breathing'. While this can be a useful starting point for some students, it is not anatomically possible to fill the lungs from the bottom up.

The approach taken in the yoga therapy tradition of T Krishnamacharya and TKV Desikachar as practised at the KYM, where the inhale is chest to belly, or 'top to bottom' is simply linking the shape-change in breathing that occurs in the two cavities (thoracic and abdominal), to the direction of airflow into the body. This is very well explained by Leslie Kaminoff in 'What yoga therapists should know about the anatomy of breathing' (2006) and in his book *Yoga Anatomy: Your illustrated guide to postures, movements and breathing techniques* (2007). I recommend both of these texts to anyone seeking clarification on the anatomy and physiology of breathing as undertaken in this study.

Because of this fundamental difference in approach, I will not consider other yoga and asthma studies here in detail, though all have been read.

The Papworth Method was pioneered at the Papworth Hospital in Cambridgeshire, UK in the 1960s and was designed to reduce 'over-breathing' or rapid, shallow breathing using only the top of the chest. It was developed by research physiotherapist Elizabeth Holloway with over 30 years of clinical experience and is outlined in Holloway and Ram's *Breathing exercises for asthma* (2004). Holloway writes:

'...key is learning to breathe using the abdomen and the diaphragm rather than the chest, as practiced by singers and public speakers for generations... it's not just psychological, its physical... patients need to learn to drop their shoulders, relax their tummies and breathe calmly and appropriately, then they gain greater control and confidence.'

Holloway claims that the Papworth Method also improves mood. In Holloway's study, relaxation training was also taught and the study participants were tested immediately after the course and 12 months later. Not only did they have better respiratory symptom scores on both occasions than people who relied on drug therapy alone, but they also had less depression and anxiety and showed some improvement in lung function too.

Both Buteyko and Papworth methods discourage mouth breathing, yawning and sighing. Buteyko encourages suppressing coughing, even suggesting coughing with the mouth closed. Some Buteyko teachers encourage bandaging the mouth in children and adults during sleep to facilitate mouth breathing.

This goes against yoga therapy principals as natural urges such as coughing should not be suppressed, nor should any changes of habit be so extreme as to cause distress or agitation.

In Lunardi et al. (2011) study, *Musculoskeletal dysfunction and pain in adults with asthma*, 30 patients with mild and severe asthma were enrolled and assessed for postural alignment, chest wall mobility and pain – among other things. The study found that the asthmatic patients held their head and shoulders more forward and had reduced chest wall expansion, shoulder movement and thoracic spine movement when compared to the non-asthmatic subjects.

In my study, the yoga postures given aimed to increase expansion and a feeling of space in the chest, lengthen and strengthen the spinal column and relax the neck and shoulders, within the capacities of each individual participant.

2.3 *Why Health and Quality of Life?*

More specific background to measures of health and quality of life and a review of asthma specific questionnaires was sought from a number of references, including: Ampon et al. (2005), *Impact of asthma on self-reported status and quality of life: a population based study of Australians aged 18–64* and the Australian Centre for Asthma Monitoring (2004), *Measuring the impact of asthma on quality of life in the Australian population*.

In these papers, it was evident that most people who identify asthma as their main disabling condition report some restriction in their core activities and also report poorer health status than people without asthma. There is also evidence that asthma is associated with a predisposition to anxiety and depression in adults, and that individuals with asthma experience sleep disturbances and often feel tired and frustrated because of their condition.

In the second paper mentioned above, one particular table (2.1) used the ‘core domains’ of GLOBAL, PHYSICAL, which included symptoms, physical functioning and disability, sleep and dependence on others within family situation, PSYCHOLOGICAL including mental and emotional health, behavior including fear, embarrassment, stress, increased risk of depression

and the effects of these things on both the individual and the family and SOCIAL including daily role, work and personal relationships (ACAM 2004:26).

Though my questionnaire did not specifically cover all these domains, many of these aspects came up for each participant during the course of this study. It was helpful to have read this discussion beforehand.

The second study mentioned above also discussed asthma in Australian indigenous communities. As with diabetes, the prevalence of asthma and the rate of hospitalisation are considerably higher in our indigenous population. The idea of including a SPIRITUAL domain for the indigenous population is muted, referencing a study by King et al. (1999) *Our place, our health: Local values, and global directions*. Given the diverse ethnic, cultural, religious and spiritual backgrounds of Australia's population, it could be argued that a spiritual domain could be included for all, and the decision to answer questions in this realm could be left to the individual.

Also highly relevant and interesting to review, was the article by Juniper et al. (1988) entitled 'Development and validation of the Mini Asthma Quality of Life Questionnaire'. This was a 'mini' questionnaire developed to meet the same specifications as Juniper's original 'Asthma Quality of Life Questionnaire', including physical and emotional impairments that adults with asthma consider most important, while being valid, reliable, sensitive to small variations and above all, short and easy to complete. It was tested in a 9-week observational study of 40 adults with symptomatic asthma, with the Asthma Control Questionnaire and spirometry as a baseline at 1, 5 and 9 weeks. Symptoms were also checked at this time and patients were advised to increase their medication if this occurred.

Interestingly, the study recognised that '*disease specific quality of life questionnaires are designed to measure the problems considered most important to most of the patients with this condition, but patients are heterogeneous in their experiences and priorities and no questionnaire can cover all of the problems experienced by all patients*'. For the purposes of my study, I thought the greater the number of questions the more obstacles to participants completing the study!

I found it useful to review a number of questionnaires. *Measuring the impact of asthma on quality of life in the Australian population* (ACAM 2004) provided a comprehensive review of approaches to measuring the impact of asthma on quality of life that can be used in population based monitoring and stated that 'single item questionnaires do not necessarily cover a comprehensive range of HQoL dimensions and may not adequately reflect all the

relevant domains for all individuals. Using one question is vulnerable to influence by the respondents' individual interpretations of the question, and is also unable to provide detail about the dimensions of HQoL that may have influenced the response relative impact of asthma... asthma is an episodic disease, it can be difficult to capture adequately the time variables impacts in a single measure.'

The 'episodic' nature of asthma supports the need for a longer study to verify the reduction in asthma symptoms and severity and to gauge the sustainability of improvements in health and quality of life.

2.4 Research into the Emerging and Allied field of Psychoneuroimmunology

The biomedical model of Psychoneuroimmunology has been extraordinarily successful as evidenced by the dramatic technological advances of the twentieth century. In Trilling's (2000) study *Psychoneuroimmunology: Validation of the biopsychosocial model in Family Practice*, medical investigators identified bacteria and viruses as the cause of many diseases, replacing the attribution models of 'miasmas' and supernatural forces held by prior generations. While we have witnessed an era marked by exceptional medical advances through scientific reductionism, Trilling argues this has caused fragmentation and depersonalisation in patient care.

He goes on to say that lack of consideration of the context of illness, and fragmentation and specialisation of medical care does not fully meet patients' needs, nor address the patient's 'life story'.

This was reiterated in a recent Australian study by Douglass et al. (2004) *Choosing to attend an asthma doctor: A qualitative study in adults attending emergency departments*. In this study, patients appreciated a preventative or productive approach to asthma management and found 'Doctors who really listened and provided a clear and pro-active approach were appreciated'.

These ideas sit perfectly with the yoga therapy approach.

Chapter 3: Methodology

3.1 Recruitment

To be eligible for this study, participants needed to meet the following inclusion criteria:

- (1) ability to read, speak and comprehend English (needed for instrument completion);
- (2) 18 years of age or older;
- (3) have been told by a physician or health care provider that they have asthma;
- (4) show no evidence of cognitive disorders that would interfere with their ability to practice or complete questionnaires for data collection; and
- (5) utilise one of three venues for meeting and practice i.e. Williamstown Yoga, Williamstown Community and Education Centre, and/or Agama Yoga Centre in Middle Park.

Participation was completely voluntary and individuals were able to withdraw at any stage. There was no payment for the consultations or for any follow-up. A number of strategies were used to attract participants to the study during May–June 2012, including:

- a) An A4 poster was placed at Williamstown Yoga and Agama Yoga Centre in Middle Park and on various community noticeboards (e.g. at Williamstown Community and Education Centre and Williamstown Hospital) during May 2012. Interestingly, these yielded no interest at all (*see Appendix for copy*).
- b) A new ‘advertisement’ was developed in late May 2012 – ‘Free Yoga for Asthmatics’ – and this was placed on noticeboards in public spaces around Williamstown (*see Appendix for copy*).
- c) Also during May 2012, an article about the study was published in a local Williamstown newspaper (*see Appendix for copy*).

From these various advertising avenues, 14 participants initially commenced the study. Five participants came as a result of advertising from Williamstown Yoga, two from Agama Yoga, two from Williamstown Community and Education Centre and five participants came from the local Williamstown newspaper article. Participants ranged in age from 26 to 65; 12 were

female and two were male. Data was then collected over the next six months, and by January 2013 a total of eight women completed the study in its entirety.

3.2 *Introducing Research Participants*

Of the 14 participants who began this study between June and the end of August 2012, all had asthma diagnosed by a doctor. Six had an asthma plan or written instructions should their asthma became worse, while eight had neither. The original 14 participants were asked whether they had been taught any breathing techniques before this study such as chest physiotherapy, Buteyko breathing or as part of a yoga practice.

Only four of the original 14 participants had any experience of breath training and of these four, three had experienced some breathing techniques in yoga classes. Only one of 14 had been taught to breath by a health professional. All 14 students completed their first consultation and were given a yoga practice.

Six participants in total withdrew from the study for a variety of reasons including childbirth, family pressures and 'no time for the practice'. One student developed bursitis, which could not be pacified with yoga, and withdrew after the third session, and one left without giving a reason.

Of the eight participants who completed all four appointments most established a regular daily yoga practice. Two students had trouble practising regularly, but still persisted with their breathing practice at some stage during the day.

Outlined below are details of the eight participants who completed the study in its entirety. Included is their medical history and medications as at our first consultation. To ensure confidentiality and anonymity, pseudonyms have been used.

Andrea is a 53-year-old woman, small in stature at 5 feet, with a sharp intellect and a positive outlook. She lives with her partner of many years and his 19-year-old son and works as a consultant in medical ethics at a leading Melbourne hospital. Andrea has great faith in yoga buoyed by the memory of a strong feeling of wellbeing she experienced in recovery from chronic fatigue at the age of 16. At our first consultation, Linda suffered intense migraines and strong symptoms of menopause, including drenching night sweats. Andrea

described her energy levels, fitness and sleep as disturbed or erratic at the beginning of the study.

On her final questionnaire, Andrea writes: *'I accept I have asthma and it needs a range of management strategies. I have become more mindful of my thinking processes that contribute to my asthma. There were moments when stress leads me to 'pause' my breathing because my head was overthinking the stress. Now, I am more aware, take my medication, feel more energy and more positive. I feel that the focus on breathing has also allowed me to view my responses to other maladies – like menopause. I have taken proactive steps to manage the menopausal symptoms and all this has been positive. I enjoy the physical activity and the mindfulness of yoga...what a great program.'*

Medical History: asthma (lifelong), two frozen shoulders, CIN 11, Migraines and post-menopausal symptoms. Andrea also had chronic fatigue at 16 years of age.

Medications: Relpax (migraine) for serious episodes. Seretide, 2 puffs twice daily (200mg). Bricanyl as required.

Belinda is a 47-year-old woman who works part-time in the demanding customer service section of the wine industry and still does a little hairdressing from home. She is married and has two children, a son and a daughter. Both play a lot of sport and Belinda spends a lot of time driving them around, sometimes late at night. Her work as a wine rep. and as mother requires that she be, in her own words, positive, smiling and always engaged. Belinda was diagnosed with asthma at 12 and describes it as 'well controlled' with medication although she reports not always being compliant. A nurse friend recommended this study. Belinda had dabbled in yoga before, but felt she lacked discipline to make it a regular part of her life.

At our first consultation, Belinda reveals her sleep is an issue and describes herself as 'not at all relaxed.' As our meetings and conversations on the phone progress, Belinda comes to realise she never puts herself first and is constantly running around for others, trying to please her boss, her customers, her husband and her children.

Belinda's heart is there but her practice is erratic. Trying to find space and time is always challenging. During our last consultation, Belinda reveals she has taken some positive steps to improve her work/life balance. She also reports improvement in her breathing and her energy levels. She describes herself as 'diligent' in her breathing practice doing this daily for

10 to 15 minutes to clear her mind. She feels that relaxation is a 'work in progress' but is much more able to recognise and respond to signs of stress, rather than push them away.

Medical History: Asthma since 12 years of age, had tonsillitis at age 12.

Medications: Brycanol, Symbicort.

Delia is a 63-year-old woman, married and with two grown sons, one of whom lives at home with his male partner. She is a trained community health nurse, passionate about helping homeless and marginalised people in Melbourne's West. This participant is an asthmatic and undergoing chemotherapy and radiotherapy treatment for lung cancer during the project. Although a smoker, she is committed to reducing and is down to three or four per day when we meet.

As trust develops, Delia discusses her fears and learns to recognise her own health and wellbeing needs are more important than the suggestions and expectations of others. It is a privilege to observe her growing courage in the face of grave health and she was very positive at our last appointment in late January. Sadly, she died shortly afterwards in March 2013.

Medical History: diverticulitis, asthma since childhood, surgery for lung cancer

Medications: Symbicort inhaler, chemotherapy and radiotherapy.

Frances is a 65-year-old woman, an academic with a PhD in Philosophy, a partner and two grown sons. She is passionate about her work educating teachers to teach deaf children to read. A chronic asthmatic since childhood, she has had ovarian cysts removed, a hysterectomy and her gall bladder removed and at the time of the study is on medication for asthma, reflux (in her case, a trigger for pneumonia if left) and restless leg syndrome. She also has a neuroma and osteoarthritis in the hips. A practitioner of yoga for 25 years, she has a keen awareness of her body and provides me with a drawing of her body and issues at our first meeting. She embraces journalling and documents 53 days of continuous practice.

At the outset of this study, Frances describes herself as 'not at all relaxed' and her sleep as 'disturbed.' Sleep remains disturbed due to arthritis pain, though energy levels improve and she feels more stable emotionally, though has peaks and troughs. When we last speak in May

2013, Frances reports that she is continuing her practice daily and that it has completely changed her relationship with her breath and her asthma (*see Appendix*).

Medical History: a chronic asthmatic from early childhood, ovarian cysts, surgery to remove. Hysterectomy for severe endometriosis. Gall bladder removal – metal clip. Hiatus hernia and arthritis in hips.

Medications: nexium for hiatus hernia

Oruvail anti inflammatory for arthritis

½ Kinsen for restless leg syndrome at night.

Kelly is a 39-year-old woman, with a successful career as a leading instructional designer in a local company. She is a single mother with a three-year-old daughter. She was diagnosed with asthma ‘about two years ago’, beginning with a blockage in her left ear. She describes this episode as ‘*feeling like drowning, unable to breathe*’. At the time, her daughter was about a month old. Kelly is on preventer medication for asthma, though she describes herself as very sporadic with this, and nexium for reflux. Stress and anxiety are triggers for her asthma and she recently has been prone to chest infections. She is open, enthusiastic and energetic, though describes herself as also being ‘moody, unstable, angry’ at our first meeting, with ‘high’ energy. She suffers from PMT and a separate practice is given for this. Though Kelly took some time to establish a mind-body connection, her diligence pays off and she comes to love her practice so much, that we add an evening practice to reduce stress at our third meeting.

Medical History: asthma, deviated septum, rhinitis, for the past two years and reflux for last 10 months.

Medications: Symbicort 400 x twice daily, nexium for reflux,

Lucy is a 37-year-old woman in good health, diagnosed with asthma at the age of 15. She is on preventer medication for asthma but tends to self-medicate and admits she is not very good at self-prevention. She works full-time as a conservator, restoring art and lives with her partner and stepchildren when he has them. Although she has practised yoga for 14 years, she describes her first session and practice as ‘a revelation’ and ‘an eye opener.’ Lucy came to

thus study seeking to gain tools to manage her asthma, maintain a calm emotional state and work proactively to take good care of her body. She responds very well to her practices very quickly, and she finds her need for her reliever medication reduces though she is still susceptible to chest infections.

After our second session, she writes '*not only do I feel more in control of my asthma, I also feel more in control of myself, my emotions and my emotional response to things.*' Lucy continues her practice, feels calmer and less like 'running away' in times of stress. She enjoys chanting and tells me she is considering doing yoga teacher training in the future; we discuss this at our last meeting in February 2013.

Medical History: asthma since mi-teens otherwise healthy.

Medications: Ventolin, Seretide.

Rosey is 26-year-old dietician working in a leading Melbourne hospital. She was diagnosed with asthma five months earlier and suffers from bad hay fever. Just before commencing this study, Rosey reports being very depleted having recently had a skin condition treated with cortisone. She was then hospitalised for an allergic reaction to this drug, and then suffered a bad bout of flu. Her immune system is compromised; her fitness and body awareness poor, and her energy levels erratic. Over the course of the study her yoga practice transforms her posture and noticeably increases her strength and flexibility, she feels more relaxed and her asthma symptoms reduce. She was married in April 2013, a very happy occasion.

Medical History: asthma, hay fever.

Medications: Ventolin, Doxycycline (antibiotic), contraceptive pill.

Rachael is a 41-year-old mother of two young children. At the beginning of the study she is a full-time mum, but returns to part-time work towards the end of 2012. She said she joined the study hoping an individualised yoga practice would not only help her asthma, but also help her to sleep better and develop greater patience. She is a fit and positive young woman who jogs, swims and goes to the gym. During the study, she develops painful bursitis in her right hip, which we address in her practice and I advise her to swim rather than run until the condition settles. A busy mum, part-time work is 'more than she bargained for' and this

affects the regularity of her practice. However, she always finds time to do her breathing, 'my time' as she describes it, and her asthma improves as does her strength and stamina.

Medical History: asthma, migraines.

Medications: Seretide 250 proscribed two puffs x 2x daily, ventolin as needed.

3.3 Data Collection Methods

This study employs quantitative research methods to determine the effectiveness of individualised yoga practices for individuals with asthma. It was my intention to select methods that would be empowering for participants and enable them to be heard and not just be a number or a statistic. This is in keeping with the way yoga therapy operates – giving voice to individuals' subjective experiences rather than creating generalised/standardised practices for all.

Data collection methods include:

1. Two 'Participant Questionnaires' are used to capture demographic information, medical history, as well as quality of life markers.
2. Four individualised Yoga Consultations with myself between June 2012 to January 2013.
3. Personal Yoga Programs are developed for each participant, and revised at each of the four sessions (*see Appendix for examples*).
4. Participant record-keeping and journaling of daily yoga practice.
5. Email and telephone conversations.

3.4 Data Collection Procedure

3.4.1 Participant Questionnaires

Two questionnaires were given to each participant at the beginning of the study. The first questionnaire captured general data including age, weight, height, medical history and current medications. Students were also asked to circle the most appropriate word in relation to a number of fields. For example, participants were asked to rate their 'energy levels' as either 'excellent,' 'good,' 'moderate,' 'poor' or 'erratic.' This questionnaire was adapted from the one given to all students at their first appointment at the KYM (*see Appendix for copy*).

The second questionnaire was 'asthma specific', establishing a medical diagnosis of asthma, whether individuals had an 'action plan', and whether they had been taught breathing

exercises at any stage before joining this study. This questionnaire also asked if participants were aware of triggers for asthma, physical symptoms during the past 12 months, and mental and emotional wellbeing responses to five questions ranked on a numerical scale from 1 being 'not at all' to 5 being 'all the time'. This questionnaire was adapted from Juniper and Guy Marks work was also considered (*refer to Chapter 2*).

I chose to use both a numerical expression and a single word to elicit responses from the participants in relation to overall wellbeing and emotional health. Interestingly, participants were less likely to rate themselves 'poorly' on the number scale during the first consultation. The questions using word descriptors opened up avenues of conversation, the number scales did not.

During the final consultation, participants completed a third and final questionnaire which included the same questions in relation to physical symptoms and mental and emotional wellbeing, as asked in the first questionnaire.

3.4.2 Individual Consultations

First Consultation

During the first individual consultation, participants completed the two questionnaires and the sessions ran for approximately 1.5 hrs. While the questionnaires opened discussion, it was the individual consultations that allowed participants to have a 'voice' and this data collection method constituted the primary way information was collected for this study.

The importance of 'face to face' contact in yoga therapy is fundamental so that trust can be developed and questions 'teased out' through discussion. In the Vyuha model of yoga therapy, this is called *Prasnam* (as described in the Yoga Therapy Paradigm section earlier). Many were glad to talk about the effect asthma had had on their lives. Participants shared personal information about their lives, health and wellbeing, and other factors that they believed, had, or were, affecting them. Participant goals were also established during this session.

As the individuals became more accustomed to the process and practice of yoga, and some trust developed in our relationship, they would share their more intimate experiences, not just of the yoga and breathing practices but also of their life circumstances and the changing awareness that this combination of the discipline of regular yoga practice, self-study and the care-seeker/therapist relationship and practice was having on their overall health, wellbeing and outlook. Sometimes what was not said was significant too.

Observation and listening were key elements here. While questionnaires proved useful for measuring results, it was the process of communication, of listening without judgment and ongoing encouragement on the part of the researcher, that allowed the students to have authority over their own experience of both the illness and their responses to the yoga practices in all domains – physical, mental and emotional.

It was important to listen with detachment as well as care. Some individuals had distressing challenges they were coming to terms with. For example, one participant who began the study, was receiving chemotherapy for lung cancer, another had experienced sexual assault and had had her trust shattered, while another was dealing with depression. Though these experiences may not obviously co-relate to their asthma, the breathing and quiet inward attention that is yoga may stir up deep held emotions. What affects us on one layer will also affect us on other layers as well, and yoga therapy deals with the whole person not just the: 'disease'. In this way, the research was conducted in accordance with the same principles as for yoga therapy.

Similarly, in keeping with the practice of yoga therapy, participant's breath, stance, gait, posture, physical mannerisms and comfort level were observed (*darsanam*). Physical issues, such as scoliosis, postural abnormalities, pain, swelling, signs of tension or anxiety, were also identified. Breath was observed in a comfortable lying or seated position and certain movements were given to assess each individual's starting point in terms of strength, flexibility and breathing capacity.

It was vital to observe *heyam*, the physical symptoms – such as pain, tremors, dizziness or breathlessness – as well as any negative thinking, discontent and anxiety as they can show us what has to be avoided. Similarly *hetu*, the cause, in this case triggers for asthma, is important, although the cause may also be a genetic predisposition. And I employed *hanum*, the goal, working step by step to reduce pain and to make breathing easier. *Upayam* – all the tools of yoga: *asana*, *pranayama*, visualisation, meditation, chanting – move us incrementally towards the ultimate goal.

With permission, gentle touch was also used to check spinal and postural alignment (*sparsanam*). When the individual was comfortable, the pulse was taken on both hands to assess regularity, rhythm and beats per minute at the beginning and end of the first and last practice (*nadi pariksa* – pulse diagnosis). The pulse was also taken to see if there were any differences between the right and left side, and the three pulse points for *vata*, *pitta* and

kapha (the three constitutions of Ayurveda) were felt to aid in observing which *dosha* was dominant.¹

During this initial consultation, we also discussed when would be the 'best time' for participants to do their yoga practice, including a conversation around 'making space' for (or giving priority to) practice.

At the first consultation, each individual received a take-home practice tailored to their specific needs and I encouraged individuals to keep a journal of their practice or anything that 'came up' during the study. Some individuals enjoyed journalling, others preferred to email, or were more comfortable with me simply noting their comments during our consultations or over the phone as the study progressed. One participant embraced this practice and kept a detailed daily journal of her practice over 53 days. Her comments included how she felt physically (she has arthritis as well as asthma) at the beginning of her yoga practice, her state of mind, and comments on 'learning' and 'feeling' as a result of her practice each day.²

Second Consultation

During the second consultation, participants were invited to do the yoga practice they were given in the preceding session. Participants were then asked about their experience of the practice, the regularity of practice, any obstacles they may have experienced in establishing a regular practice, and any changes observed as a result of the practice. For example, changes observed in breathing, sleep, energy levels and/or digestion. Refinement and adjustments were then made to the yoga practice as required.

Third Consultation

This third consultation followed the same guidelines as per the second consultation, and included refinements or the development of a new yoga practice, according to needs. For example, two participants asked for a more meditative evening practice and two students asked for and received a pacifying practice to support them while menstruating.

Fourth Consultation

During this final consultation, each participant's yoga practice was reviewed and discussed and a final 'stick with it' practice was given. The final questionnaires were completed, and in the case of participants who had enjoyed the journalling process, these were given to the researcher.

¹ I do not have the skills to diagnose utilising *nadi pariksa*.

² This participant has given permission to make the journal available to anyone who would like to view it.

During the entire data collection process, I made detailed notes during, and after, each consultation. I kept in touch with participants via email and telephone. For example, they would contact me if they need to clarify something about the yoga practice or share information with me about what was going on for them. Conversely, I would contact them if I needed to double-check a detail or attain further information about something. To assist the process, I would also de-brief with my mentor, which enabled me to ascertain if I was proceeding correctly and she would occasionally offer suggestions or things to watch out for. In this way, throughout the entire data collection process, I was continually reflecting on each participant and their situation and refining my approach and what was offered to them.

3.5 Ethics Approval

As I was not enrolled in an Australian Education Institution, I was unable to get Ethics Approval for this study. However, I read the *National Statement on Ethical Conduct in Human Research*, the National Health and Medical Research Council guidelines (NH&MRC 2007), and made every effort to uphold the principals of ethical research. Each participant received a 'Letter of Introduction' and a 'Plain Language/Information Statement' about the project, as well as a 'Consent Form' that was signed by the participants and myself as researcher (*see Appendix for copy*). Moreover, participation was voluntary and participants were free to withdraw from the program at any time. Participants were assigned a numerical code and then a pseudonym to protect their identity and ensure confidentiality. Participants were treated with dignity and respect in all interactions.

Chapter 4: Results and Discussion

4.1 Introduction

This section will seek to demonstrate the effectiveness of individualised yoga practices and the process of yoga therapy for the eight individuals with asthma in this study. Of the eight participants who completed the study, the majority established a daily yoga practice. Two students had trouble practising on a regular basis, but still persisted with their breathing practice at some stage during the day.

In keeping with the yoga therapy model, techniques and practices given to participants varied greatly. Generally, opening movements using arms, either seated or standing, were given. Some participants were given belly breathing, some nostril regulation, and others, *sitali*. In *asana*, some had inhale and retention as a focus, others exhale and hold empty. Chant was often used on exhale and one participant was instructed to chant on all movements.

Based on the responses to the questionnaires given at the first and final consultations, journal entries, comments made by the participants regarding their practice, observations regarding health and quality of life matters during the four consultations, by email or during telephone conversations, the following themes have been chosen for a more in-depth analysis:

(1) *Diagnosis of Asthma and Compliance (Medication)*

(2) *Breath*

(3) *Diet, Digestion and Bowel*

(4) *Lifestyle and Sleep*

(5) *Energy Levels*

(6) *Awareness Levels*

(7) *Mental and Emotional Wellbeing*

To display the data, graphs have been used at times, although in the instance of 'Breath', for example, a graph is not employed as I feel the participants' comments about the changing relationship with their breath 'speak' more than a graph could. This, again, is in keeping with my preference to make this a qualitative study.

In relation to the graphs, all indicate that a large majority of participants improved across all fields, with only a few staying in the same field a couple of times. For example, Kelly described her energy levels as 'high' at the beginning and end of the study, and improved in other fields, notably digestion and breath.

While these graphs show positive results from the yoga and breathing practices, these graphs only tell half the story. For me, the greatest result was watching participants change before my eyes. I observed each participant grow in courage and in strength, both inner strength and often physical strength depending on the unique capacities and circumstances of each.

This courage took many forms: one individual noticed she was always on the move, trying to please her boss, kids, husband and clients, running herself ragged. She observed these patterns through her practice and subsequently took some positive steps to redefine her work/life balance, including speaking clearly and openly to her employer. Another participant moved interstate with her partner – a fresh start. Yet another individual, a long-term yoga practitioner, learnt to synchronise breath and movement, to bring 'intention, breath and movement' into her daily practice and, with guidance, to modify her practice to accommodate the pain of arthritis in her hips. She also learnt to sit with less personal suffering, *dukham*, in her family situation.

Sadly, one individual had to muster the greatest courage of all, to face her own death. Her *sitali*, *nyasum* and practice helped her breathing (made more difficult with lung cancer). The practices also provided her with a sense of openness and peace which made it more possible to deal with her fears and open her heart to receive the love and well wishes that came her way; a difficult lesson for one only used to giving and giving.

Yet another student got married and began a new life, a happy event.

Finally, as the practices appeared to enable participants to grow more grounded and connected, all commented on being more aware of the impact of stress on their health and wellbeing.

4.2 *Diagnosis of Asthma and Compliance (Medication)*

Of the eight participants who completed the study in its entirety, all had been diagnosed with asthma by a doctor. During the first consultation, all were asked whether they were under the care of a doctor and whether they had asthma plans or written instructions regarding what to do if their asthma became worse. Five individuals had asthma plans, three did not.

Interestingly, the majority of participants brushed their asthma 'under the carpet' and were driven to achieve and not let their asthma get in the way. Some were inclined to suspend their preventers when symptoms were absent and they were feeling well, and these participants commented that they had a tendency to dismiss early symptoms, such as stress, a mild wheeze, or a cold, and leave it too late to resume their preventers. Most participants made the comment that they tended to self-medicate.

At all times during the course of this study, participants were encouraged to comply with their medications and asthma plans if they had one. Check ups were encouraged, and though not all individuals visited their doctors for a review, all reported some positive change in the way they personally viewed their asthma. A pleasing outcome of the study, was that participants appeared to become far more aware not only of the triggers for asthma, but also of the importance of maintaining their preventer daily as directed, reducing only after consultation with their doctor.

Andrea offers the following comment, and similar comments were made by four other participants: '*...yes, I have continued to take my medications, the difference being that I have better compliance with taking medication*'.

Moreover, as is usually the case, participants presented with a range of health and other issues. These included: pregnancy, lung cancer and radiation treatment, hiatus hernia, whiplash, reflux contributing to asthma when not controlled, menopausal symptoms and Hormonal Replacement Therapy (HRT), arthritis in hips, bursitis, house renovations, sinusitis, rhinitis, migraines and a single mother with a three-year-old child and a full-time job. This data highlights the complexity of working with a group of individuals who have 'asthma' and demonstrates the necessity of individualised practices for each participant in this study – as yoga therapy would advocate.

4.3 Breath

After this one, first session, I am already feeling like I am breathing deeper, slower and filling my body with breath in a more mindful way. You come to realise when you take a quiet moment, and have someone like Deb guide you, that day to day, we breathe shallowly. I hunch my shoulders for some strange reason – even more so when I have an infection like bronchitis – it is a way of supporting my diminished lung capacity I suppose – but after this one, first session with Deb, I realise that I can change this. I left this session feeling freer and more in control of myself than I had been for weeks, possibly months – maybe even years
(Lucy – Participant 6).

Of the eight participants, six had never been taught to breathe. Three individuals had been introduced to breathing techniques during previously attended yoga classes, although Frances (who had practised yoga for 25 years) said during the first consultation: ‘*I have never been taught to breathe before.*’ Delia had also undertaken some breath training to reduce her fear of flying some years before. Interestingly, none of the original 14 participants had been given breathing exercises by a physiotherapist, nor had they tried Buteyko breathing.

On first observation, all participants breathed fairly shallowly, often with an inhale and exhale of only two seconds and the majority were mouth breathers. By the conclusion of the study, and after months of regular breathing practice, all participants stated that they experienced greater depth and smoothness with their breath. According to their individual capacity, all had lengthened the active components of inhale and exhale and all were aware of the passive components of holding open and holding without breath.

Perhaps a unique contribution of the teaching of Krishnamacharya was to combine the practice of *conscious breathing* with *asana*. Previously, the convention was to perform a sequence of postures, then assume a comfortable position for a prolonged period of breathing exercises or *pranayama*. This is still the case today in many schools of yoga. Krishnamacharya felt that long, smooth inhalations, exhalations and moments of retention were essential to the union of mind, body, and breath.

Participants were introduced to the technique of ‘breath leading movement’ to not only aid in deepening the breath but also leading to greater attention in action. This practice was new to them all.

All participants were given *asanas* to help increase the volume of the lungs and to assist in freeing the muscles of the ribs, back and diaphragm. This helps in two directions: opening

stretches done on inhalation, expanding the lungs and abdomen are called *brmhana* (to 'expand'); postures involving forward bending or twisting are performed on an exhale, drawing the abdomen in and are called *langhana* (to fast or reduce). Always, the most appropriate starting position for each student was used and each pose is counterposed to ensure no negative physical affects result. *Langhana* postures, forward bends and twists encourage the lungs to empty as completely as possible and support holding without breath. The drawing in of the abdomen helps this emptying process and works on the *apana*, improving digestive function and the efficient removal of waste products from the body. As TKV Desikachar says: If you take care of the exhalation, the inhalation takes care of itself.

In yoga therapy, exceptions are made to this general rule if it is deemed more beneficial to the individual. During the study, there were various instances where modifications occurred. For example, with a couple of individuals who had neck and shoulder tension, *dwi pada pitham* (bridge pose) was modified so that the individuals lifted their hips from the floor on the exhale, rather than the inhale. This modification ensured that the experience was much more relaxing and productive for the individuals.

In essence, *asanas* should never be more than the individual is comfortable with and the first practice usually begins gently. However, this is not a hard and fast rule either. If the individual is fit, young and active, stronger *asana* – perhaps even with breathing ratios or an energising chant – may be given early, especially when the individual needs this 'hook' of the physical body to inspire regular practice.

Conversely, individuals whose capacity for *asana* and movement is limited through illness or physical restrictions can be given breathing exercises, perhaps with certain gestures, and asked to practise these a couple of times during the day to clear and restore. The practice given should be enough to enable the individual to meet the responsibilities of their day with energy, enthusiasm and poise; it should never tire or deplete the person. An evening practice should 'clean the slate' from the stresses of the day and prepare for the evening or for restful sleep.

The key to right practice is to maintain the link between breath and body; the easy flow of breath should never be compromised to achieve the posture. '*Rather than struggling with the body in asana we monitor the asana with the number of breaths and the ratio (inhale, pause, exhale, pause) that is appropriate to us* (Desikachar 1995:51).

In this way, the breath becomes our teacher.

Before commencing the consultations with participants, I had expected to be working more with breathing techniques and chanting and less with *asana*. However, I found all participants, regardless of their relative strength and flexibility, actually needed the *asana* and body work to extend their breath awareness and range comfortably. Also, individuals appeared to 'expect' *asana* and all needed specific work to help with other presenting conditions.

One exception was Frances (a student of yoga for 25 years) who was keen to discuss and practise the finer details of breathing and certain *pranayama* practices. For example, she was interested in the effects of 'top to bottom breathing' on the spine and physical body, and we also discussed effects in relation to the yoga concepts of *prana* and *apana*. This led to an interesting exploration of the effects of 'chest to belly breathing' for asthma, its effect on different types of spinal movements, and Kaminoff's explanation of the role of the diaphragm in breathing and the concept of breathing as movement in two cavities causing three dimensional shape change. As Frances' practice developed, she became far more conscious of her abdominal exhale, especially leading her into twists.

At no time was breathing to be forced or strained in either *asana* or breathing practice. The aim was for quiet, calm and relaxed breathing. Initially, a couple of individuals experienced agitation from the effort of synchronising breath with movement, or from changing their pattern of over-breathing or mouth breathing. These individuals were advised to work initially with sets of three, then rest the breath and repeat if and when they were ready. This was no longer necessary after the second or third session.

Whereas the majority of participants had been mouth breathers at the commencement of the study, by its end they had all gradually changed this habit and were breathing through the nose. This was certainly the case during their practice and when 'conscious' of their breathing, for example, when driving in traffic.

Throughout the life of the project, participants made many comments about their breathing as their familiarity and awareness grew. Below are some of these comments from the beginning of the project:

Andrea described herself as an '*over-breather*'. At our first consultation, there was evidence of tension in the neck and shoulders and some tightness in the abdomen; her breathing was very shallow and this was also obvious during her practice. Initially, practices were given with an exhale focus and she reported finding the lying twist '*really relaxing, a nice, new space to get in to*'.

Later, *krama* (in this case, breaking the inhale into two parts) was given in two postures to provide a 'pause' for Andrea to relax her shoulders and deepen her inhale without adding tension to both her breath and her movement. Once the tension was reduced, the *krama* was removed.

Just prior to this study, Andrea had been taught a 'diaphragmatic release' massage technique to help release a 'tight' diaphragm. However, she found the experience painful and wasn't sure if it had actually been beneficial.

Belinda described herself as a '*mouth breather*'. The practices initially set for her aimed to address her sleep issues first, to encourage nostril breathing and an awareness of her breath. The chant '*ma*' was given to lengthen her exhale and provide relaxation; but Belinda did not take to chanting and felt inhibited.

Delia said she was '*...not a particularly good or aware breather.*' She described herself as a '*shallow and mouth breather.*' As stated earlier, Delia was the only participant who had been taught breathing exercises to help overcome her fear of flying, following a plane crash years before. She had been taught to inhale for a count of three and to exhale for a count of six. As such, we were able to use this as a starting point for this study.

Frances offered the following comment during our first consultation when describing the insular experience of being an asthma sufferer during breathing difficulties: '*...struggling to do fundamental breathing. It can make you withdrawn. I retreat inwardly to work on how to breathe the next breath.*' Commenting further on her experience of asthma, Frances hoped: '*to be conscious of where I can breathe without rattling or coughing with people*'.

Frances responded very well to bringing the concept of intention, breath and movement (IBM) in to every stage of her practice – visualise, and then do.

As Desikachar says, there are many techniques of *pranayama* and they must be carefully taught – according to the individual and their current context. In this study, each of the eight individuals was given different *pranayama* practices. For example, Delia worked three times per day with *sitali* and gentle arm movements to open the chest and gently stretch the spine. Delia '*really enjoyed*' the arm movements with nostril breathing that preceded her *sitali* practice and felt that '*sitali is freer and more expansive*' as a result of this preparation for body, breath and mind. Gesture, *nyasum* was also used with *bhavana* to bring internal comfort and strength. Delia had been a heavy smoker her entire life, but was now down to two cigarettes per day. She stated that the practice of *sitali* assisted her to reduce by '*opening my lungs to fresh clean air*' and that she was better able to understand her 'triggers' for

smoking – notably self-blame for being disorganised, such as when she can't find something, which she describes as '*brain fry*' from cancer drugs. Also, the unconscious demands of her family which she interpreted as 'do it now' or 'find it now' triggered panic attacks '*and it's so easy to go to habit and reach for a cigarette, it also provides an escape*'.

As part of Delia's practice, nostril breathing was also given, gently extending the exhale. Like the majority of individuals in this study, Delia had always been a mouth breather. By the end of the study, she felt that her lung capacity had grown and she stated: '*Nose breathing is getting easier.*' Delia was also dealing with the tendency to cough, gag and experience reflux as a result of her treatment for lung cancer. Practices, therefore, needed to be tailored to address her specific situation. For example, the *sitali* technique was modified to help cool Delia's entire system while she was undergoing radiation and chemotherapy.

Frances had previously experienced the practice of *nadi shodhana*, alternate nostril regulation on both the inhale and exhale, using finger placement at the eyebrow centre. *Anuloma ujjayi*, alternate nostril exhale, was given to calm and gently lengthen the exhale. However, we altered the practice for this study as the classical practice of *ujjayi*, breath felt in the throat on the inhale, can cause agitation in people with asthma.

Murghi mudra was also given to move attention away from the brow and Frances was asked to rest her hand on the knee at the end of each regulated exhale. However, Frances found that this practice caused some tension in the elbow so we modified it and the mudra was kept at the bridge of the nose throughout. Frances reported that she found this practice very '*settling*' and provided a clear mind for reflection before assuming the days tasks.

Pranayama also prepares the mind for deeper reflection and the stillness of meditation.

(Yoga Sutra II:52)

In conclusion, all participants reported being able to pick up the simple tool of observing deep smooth breathing when needed – stuck in traffic, 'stuck' with work, when experiencing pain or anxiety. A couple of individuals reported taking three to five minutes 'breathing time' to disperse anger or panic and many found following the exhale a useful tool for sleep.

Andrea reported a cessation of wheezing or whistling in the chest and though she still experienced some shortness of breath during activities, this was reduced. On the final questionnaire, Andrea wrote: '*I accept I have asthma and it needs a range of management*

strategies. I have become more mindful of my thinking processes that contribute to my asthma. There were moments when stress led me to 'pause' my breathing because my head was over-thinking the stress. Now, I am more aware, take my medication, feel more energy and more positive. I feel that the focus on breathing has also allowed me to view my responses to other maladies – like menopause. I have taken proactive steps to manage the menopausal symptoms and all this has been positive. I enjoy the physical activity and the mindfulness of yoga...what a great program.'

Belinda also wrote the following during our final consultation: *'I am far more aware of the positive effects of breathing on my mood and relaxation. I feel I am more at peace and am more aware of an inner calm. I strive at least once a day to be at peace and to breathe 'deeply' to gain an emotional balance. As for asthma, I believe that the breathing techniques I have started will definitely continue to benefit my asthma. Deb has been great, patient and understanding.'*

Frances wrote: *'My breathing changed during the first few months of the study and since then I am aware of flowing breath all of the time – even though I've had asthma in the last two or three weeks, for the first time in a year, because of the bushfires.'*³ Moreover, Frances said that even when hanging out the washing, she feels 'expansion' and moves into breathing.

And Andrea stated: *'I am aware of the impact of anxiety and stress on my breathing. I am more aware of how I literally hold my breath when I'm stressed. I am more cognisant of my thinking and how it races. My breath tends to pause as I'm processing thoughts. I am more mindful.'*

4.4 Diet, Digestion and Bowel

...how do we begin to change our habits so that food nourishes us rather than consume us?

(Desikachar 1998:117)

Mindfulness of eating is a helpful practice, being attentive to the quality and quantity of our food as well as the time, place and spirit in which we eat. Awareness and avoidance of foods that trigger symptoms of allergy can often be a critical component in reducing the symptoms of asthma and in reducing or preventing attacks.

³ Frances was in close proximity to the Tasmanian bushfires.

Triggers are a very individual thing, as my yoga therapy teachers say: ‘...you can be allergic to anything’. Foods that commonly cause allergic reaction including asthma exacerbations in people with sensitivity may include eggs, peanuts, wheat, food and drink containing sulphides.⁴ Environmental triggers are also a concern, including such things as pesticides, dust mites, traffic pollution, cigarette smoking including ‘passive’ smoking, and animal dander especially dogs, cats and horses. Asthmatics are also often sensitive to extreme changes in temperature, for example, moving from a hot outdoors to a cold air-conditioned environment.⁵

Among the participants in this study there was a diverse range in awareness regarding the importance of diet. For example, Delia had an ‘*excellent diet*’ and rated her bowel movement as ‘*very excellent*’, while Kelly said she ‘never had a good stomach’, tended to skip breakfast and ‘run on coffee’ and described her digestion as poor and her bowels as erratic at the beginning. Kelly was advised to eat three regular meals a day and commented that her bowels and digestion were ‘heaps better’ by the end of the study.

Although I did not give a great deal of advice on dietary restrictions, I did encourage students to be vigilant in their awareness of their own diet, discouraging heavy, fried and oily foods especially at night and, for some, the avoidance of icy, cold foods.

I also suggested that meals be warm, nourishing, light and easily digested. Heavy meals late at night were discouraged as this has the potential to overload the system, especially in those who had their sleep disturbed by wheeze. While we discussed diet initially, for most participants, it did not remain an ongoing issue.

Interestingly, some participants reported an improvement in digestion and bowel movement during the study. Andrea claimed that after two weeks of practice her ‘*digestion has improved.*’ Kelly stated after a few weeks of practice and her reflux had improved, although it was still an issue.

⁴ The Australian Society of Clinical Immunology and Allergies makes a distinction between food allergy and food intolerance: ‘*During an allergic reaction to food, irritant chemicals (such as histamine) are released into the tissues. This can result in itchy rashes, stomach upset, cough and wheeze and the more severe symptoms of anaphylaxis. These reactions are due to allergy, which is an immune system reaction to foods. When people complain of symptoms such as headaches, bloating or mouth ulcers after eating, they are describing food intolerance, rather than food allergy*’ (Accessed at: www.allergy.org.au).

⁵ Different climates affect people quite differently. For example, I feel well in Chennai where the air is very hot and humid, despite traffic pollution, yet one of the teachers I interviewed in Chennai experiences wheeze and asthma at home, but not in a drier climate like London.

4.5 Lifestyle and Sleep

*...enjoy, but don't overdo, everything in moderation and within your own personal limits
(Padmini, interview at KYM 2012)*

In relation to lifestyle, *vihara*, participants were encouraged to ensure they had enough sleep and to minimise the impact of stress and anxiety. For example, Delia and I talked about her doing more things for herself, not constantly putting everyone first, including doing voluntary work. And during our last consultation, Belinda informed me that she was requesting a less highly pressured job and one that didn't make her go to her *vata prakopa* (i.e. always rushing around, being friendly and nice). She also said that if her employer did not agree to this, she would leave. Kelly, a single mum with a full-time job, also wrote at the end of the study: *'I'm finding the morning practice very helpful and [my daughter] and I are doing the evening practice together! I'm also doing a couple of poses in the park after work to try to de-stress.'*

An integral aspect of yoga therapy consultations involves actively and compassionately listening to what the individual 'brings' to the session. During one such session with Andrea, we spent almost the entire time discussing her home situation. Andrea spoke of a highly 'supportive partner', but was experiencing some difficulties with his 19-year-old son who lived with them. Andrea felt that her partner believed it was entirely up to her to sort through and 'solve' the problems with his son. An extra consultation was then booked to focus and follow up on the yoga practices previously given. This example highlights the skill required of the yoga therapist to determine and guide the direction of the consultations in collaboration with the client.

Delia reported at the commencement of the study that it was *'bedlam at home'*. She and her husband were renovating their home and he was not happy about their son's gay relationship. However by the end of the study, Delia wrote that her social interactions and family relationships were all great and that she'd made contact with her mother with whom she'd been estranged for years. Delia and her mother were catching up in the next few days. It is not possible to make a direct link between the yoga practices Delia had been doing and this re-connection with her mother, but this interesting correlation does pose the question.

In relation to lifestyle, good, restful sleep is essential to a positive outlook and the ability to carry out our daily tasks whatever they may be. Various yoga practices were recommended to help restore good sleep rhythms, including guided relaxation techniques (e.g. Yoga Nidra), *nyasum* (hand gestures, finger movements with breathing), extended counting of exhale, as well as appropriate chants and *bhavana* (visualisations).

Positions for sleep were not discussed with participants beyond using enough pillows for upright support if needed at night. For some, sleeping on their back often led to mouth breathing so sleeping on the side was encouraged.⁶

The following graph illustrates that the quality of sleep for all participants improved during the course of the study.

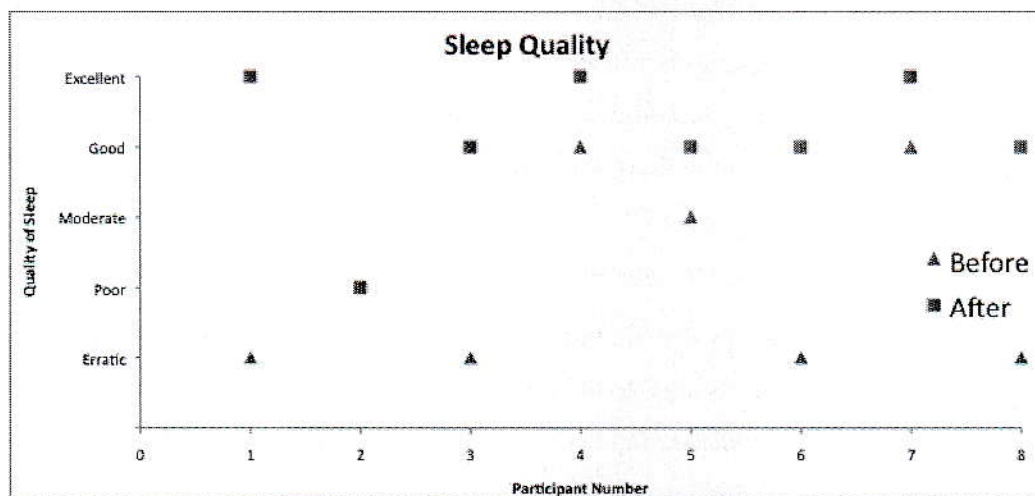


Figure 1: Sleep quality

At the commencement of the study, Andrea described her sleep as ‘disturbed’, the quality as ‘poor’, and ‘I am waking up drenched from head to toes and have to walk around naked with the chill to cool down’. Sleep was a major issue for Andrea at the start of the project. She had persistent migraines and was experiencing heavy night sweats as a result of menopause. During the study, Andrea saw her doctor about her menopausal symptom and commenced HRT.

At the end of the project, Andrea wrote: *‘Sleep improved as I am feeling energetic and use my energy through the day. The tiredness at night is a good tired.’*

Lucy described her sleep as poor at the beginning of the study and improved at the end. Most significantly, she had stopped taking a puff of Ventolin before sleep: *‘I don’t feel the need for Ventolin after my yoga practice – it must be about calming and deepening my breath? I am*

⁶ Interestingly, the Buteyko method suggests sleeping on the left-hand side.

sleeping much better. She was no longer troubled by the ‘looping thoughts’ that had led to periods of insomnia before the study.

Similarly, Belinda’s sleep patterns were ‘very disturbed and inconsistent’ at the outset of the program, with ‘lots of lists in my head.’ She was given a relaxation practice before sleep, but was not consistent with this, though sleep did improve a little. A pinched nerve in Belinda’s back also caused sleep to be broken towards the end of the program. Pacifying practices were given for this, but again, Belinda was inconsistent with all but her breathing practice. This example further illustrates the complexity of yoga therapy practice and emphasises the importance of continually checking in with individuals and adjusting and refining practices given.

4.6 Energy Levels

Ideally, yoga practices should give us the energy we need to perform our daily tasks and fulfil our responsibilities; they should not deplete us. Evening yoga practices, on the other hand, should have a relaxing function, releasing the worries and work of the day and preparing the body and mind for rest.

In relation to energy levels, participants were asked to identify the most appropriate response (excellent/good/moderate/poor/erratic) regarding their energy levels and general fitness, at the beginning and completion of the study. This information was also worded in the negative ‘have you felt a general lack of energy?’ on a scale from 1 being ‘not at all’ to 5 being ‘nearly all the time.’ Results are represented in the graph and elaborated on below.

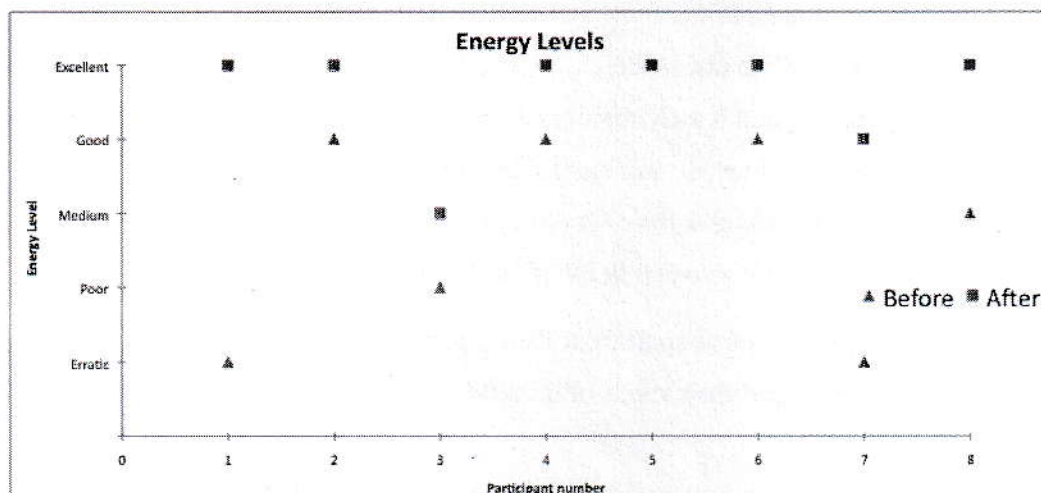


Figure 2: Energy levels

At our first consultation, Andrea circled 'erratic' for both her energy and fitness levels. During our final consultation, and in Andrea's written response to the final questionnaire, she stated that her motivation had increased because she was more aware of what she could do and felt much more energetic than she did at the beginning. In her own words: *'My energy levels soared'* and *'my energy levels have increased substantially. I now wake at 5am and not 8am, when I am tired at night it is a good tired.'* Also: *'my fitness has improved and I walk every day, work hard on the house or garden, as well as feel more focused at work.'*

Following her second consultation, Frances wrote: *'I went for an early morning walk this morning and found breathing so much easier and had more energy – I am sure it's due to the breathing exercises you gave me.'*

4.7 Awareness Levels

As noted in the 'Breath' section, all participants stated that they were more aware of their breathing by the conclusion of the study. For example, Andrea wrote: *'During the first week of my practice I noticed my breathing and noticed when I was wheezing... [I also realised that I had been] bowling through life without noticing life... The practice made me more mindful about how I was suffering [i.e. right hip pain and menopause]... and I started to adjust my posture at work. My memory was also improving.'* In the final questionnaire, Andrea also stated: *'I am more aware of how I literally hold my breath when I am stressed. I am more cognisant of my thinking and how it races. My breath tends to pause as I am processing thoughts. I am more mindful of this.'*

Kelly had very little awareness of her body and really struggled with her practice at the beginning of the study on all levels, especially linking the breath and movement. She tended to rush through her practice and it took some time for her to lengthen her breath beyond a 2-second inhale and 2–3 second exhale and made these comments after our third session: *'My stomach feels open and breathing is free. My chest is often locked in feeling... leading with the heart makes me feel I don't do much in life (I lead with the head).'*

The graph below demonstrates that apart from Delia, whose attention levels remained the same, all participants increased their levels of mindfulness and awareness during the course of the study.

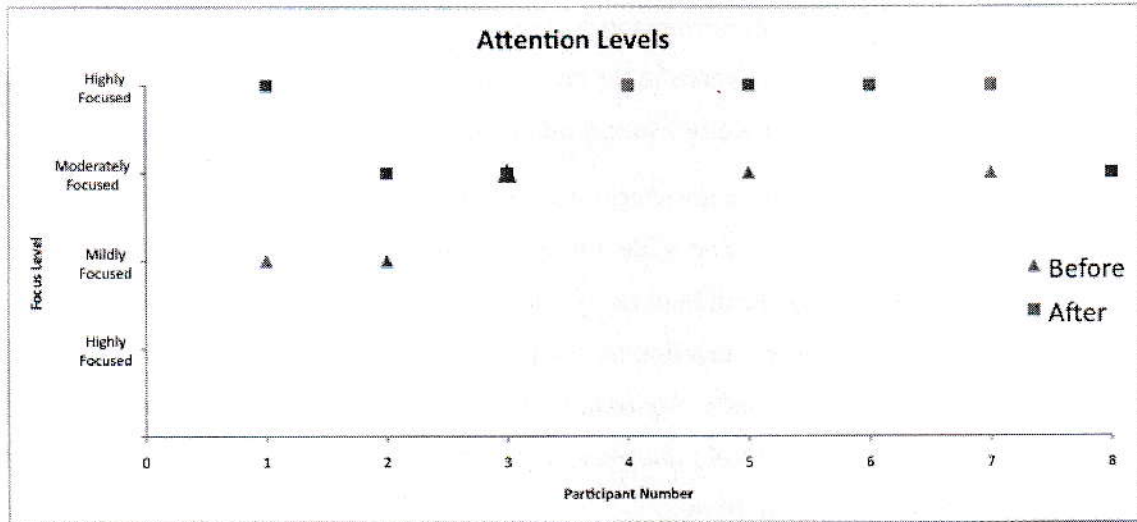


Figure 3: Attention levels

For example, Frances responded well to the IBM model and was able to integrate this into her daily practice, with increasing awareness as her practice became more established. Frances reported that she would commence her process of self-observation each morning in the shower. This became her first ‘check point’ – did her chest feel dry, fluidly, was there phlegm or tightness? If she found her breathing did not ease with the warmth of the shower, she would adjust her medication according to her asthma plan. After her shower, Frances would move to her yoga practice, again checking her starting point mentally, in her breath and physically – how was the pain today at the start of practice? (Frances had arthritis in the hips.)

During our last consultation, Frances made the following comment: ‘*This study has completely changed the way I breathe and the way I view my asthma each day.*’ She also claimed by the end of the study, that she was now much more conscious of working her body in a different way so that the yoga practices did not exacerbate the arthritic pain in her hips (previously she’d been practising *Surya Namaskara*, which had not been beneficial for her hips). Frances also stated that she’d become aware of new triggers by the end of the study (e.g. bushfires, air travel, stress).

Similarly, Kelly wrote the following after her third session: ‘*I’m wondering if there is one pose that is most helpful to do during the day at work (or at the park) when I feel my shoulders go into that locked place and I’m totally in my head in a panicked place (which makes the asthma, reflux worse)?*’

Seated or standing opening arm movements were given, lengthening both inhale and exhale. An internal chant with bringing peace to the heart space was given and at our last conversation, this was helping Kelly's racing mind to steady and slow.

Rosey, a nutritionist began this study shortly after a bad bout of asthma and allergy, which was not typical or usual for her. She wished simply to increase her level of fitness and motivation through yoga, as she did not enjoy 'exercise'. While her breathing did improve during this study, she was very surprised to find that she felt much more present and made this comment at our final interview *'My posture and the self I present to the world feels much more grounded and genuine. I feel I am more professional and would never have expected yoga to have made this change in me.'*

4.8 Mental and Emotional Wellbeing

Change is not a direct or even an indirect consequence of yoga or any other practice... The mind cannot observe its own changes. Something else observes these changes. For this reason, we describe the perusa (the consciousness) as the witness as well as the source of our action. If real clarity is present, we experience a quietness and peace within us.

It is evident in the graph below that all participants felt that their mental and emotional wellbeing improved as a result of the study. To begin with, the majority reported varying degrees of stress in their lives. For example, Delia said she was dealing with huge stress, anger and frustration issues.

Kelly initially described her emotional state as unstable, recognising that she was moody and often angry. After our second session she wrote: *'...really up and down emotionally, stress builds up and I can't let it go. I'm really good at intellectual stuff and ideas, but generally impatient, short tempered and jumpy and I struggle with PMT issues.'*

Although Lucy described herself as 'always emotionally stable' at the beginning of the study, she made these observations in our final interview: *'I feel much more balanced emotionally, I am less likely to get angry or frustrated with the teenagers I share my house with. And my partner recently made the comment "I really admire your calm reasonableness, even their mother would have reacted". Its interesting, I no longer feel connected to that emotion of anger.'*

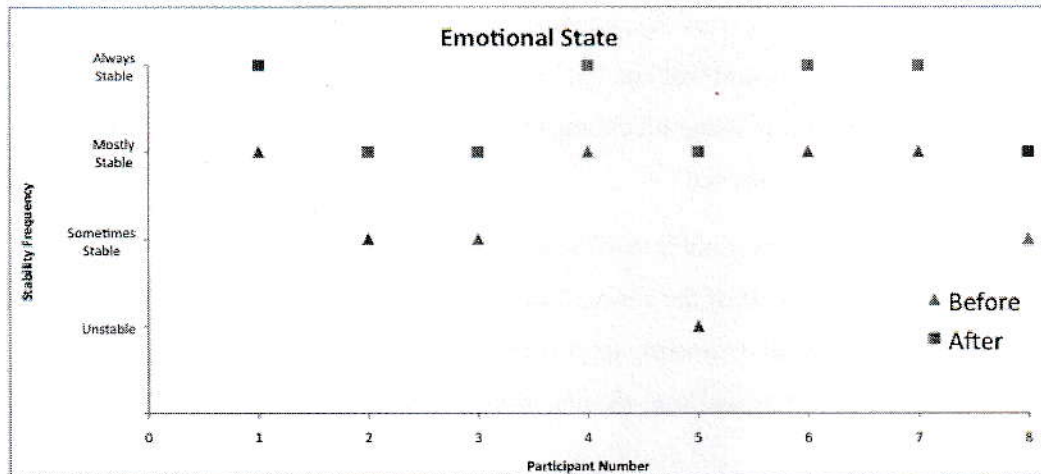


Figure 4: Emotional state

Towards the conclusion of the study, there was a marked improvement in emotional wellbeing – for all participants. At the third consultation, Andrea commented that she felt: ‘...more hopeful, had more energy and was aware of her own frustrations and need for control’. She also reported flow-on benefits in her communication and social interaction and said she felt: ‘more confident’.

I found it a little frustrating working with Belinda due to the number of cancellations regarding our consultations and the fact that she appeared never to put herself first (she had a demanding sales job and two sporting kids). I continued to receive apologetic emails from her, saying she did not have time to do the practices. Yet at the conclusion of the study, Belinda wrote: ‘I realise now, that this is all about me and about what I need to go through. I felt quite angry with my family and children and think learning to deal with stress through breathing and being able to identify when I am stressed.’ It was also Belinda who decided to make a big change at work and ask her employer for a less stressful position, claiming she would leave if it was not approved.

In relation to Delia’s emotional and mental wellbeing, she offered this towards the end of the study: ‘Bedlam in the household. I have many issues to tackle, but now feel able to tackle them with more detachment. People have come out of the woodwork with cards and kindnesses. I feel less guarded and questioning of people’s motives and feel this is a long journey. Generally, I am a good communicator, but have worn a mask... I felt a great deal of sadness and grief about the possibility of dying. And that this experience of lung cancer, has made ‘death seem much more real, like an albatross sitting on my shoulder.’ I now feel more philosophical, that I’m just doing the best I can... I now feel more able to let go of things’.

Kelly claimed that her social interactions, attention and motivation levels had improved heaps by the conclusion of the study and that she felt more able to do lots of relaxing and enjoy some happy, outside times (i.e. doing nice things with her daughter on the weekend) though was still working on her 'impatience'.

Lucy made this comment at our final interview in January 2013 and I feel it reflects what many participants felt at the end of the study: *'This study is not only about managing asthma, its about managing myself, about looking after myself each day. I feel I have achieved much more than I thought I would in realising the benefits of daily practice.'*

Chapter 5: Summary

'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'.⁷

This study was designed as a pilot to see whether the individual and very personalised practice of yoga, under the guidance of a yoga therapist, could reduce the severity, duration and frequency of asthma. This was a qualitative study and results were measured using questionnaires to assess asthma symptoms and severity as well as health and quality of life domains at the beginning and end of the six-month study. Comments from sessions and journal writings were also included where appropriate.

Participation was voluntary and free of charge, the participants' privacy was respected and the project was conducted ethically. Each student was given a yoga practice to do regularly at home and these practices developed over four face-to-face consultations during the course of the study. It was also my hope that this study would begin a dialogue between the medical profession and yoga therapists and lift the profile of yoga therapy in the general community.

As stated in my methodology 14 participants began this study between June and the end of August 2012, with six participants withdrawing from the study and eight completing it. Of the 14 who began the study, all had asthma diagnosed by a doctor, only six had an asthma plan. Of the eight who finished I found the following:

Improved breathing

A major emphasis of the early consultations was teaching or retraining students to breathe more deeply and comfortably. Each student's starting point was different and this was respected; practices proceeded step by step.

This involved changing life habits such as mouth breathing, shallow breathing, or using shoulders to 'brace' breathing. Conscious breathing became a tool they could pick up at any

⁷ World Health Organization definition of health, unchanged since 1948.

time, and for three participants replaced the habit of reaching for their reliever automatically at the first sign of tightness.

Acceptance

As participants became more mindful of their breathing and their triggers, they also became more accepting of asthma as a condition and less likely to dismiss or be irritated by their asthma.

Digestion

Although not a major focus of this study, three participants had irritable bowel and digestion problems; all reported some benefit from their practice in this regard.

Sleep quality

As Figure 1 indicates, all participants reported improvements in the quality and duration of their sleep with four participants showing significant improvement.

Energy levels

As Table 2 indicates, all participants report improvements in their energy levels, with two participants showing significant improvement.

Emotional wellbeing

All participants showed some improvement in the emotional state as indicated in Table 4.

Significance of Self-discipline and Commitment to the Practice

Students who embraced the regular practice of yoga showed the most improvement across all parameters. Not only did their breathing improve, but so did their capacity to observe changes in themselves.

Asthma Triggers and Compliance

This capacity to observe themselves more closely had an unexpected and positive outcome in relation to students' ability to monitor triggers for their asthma. All students commented they were far more aware of the impact of stress on their asthma and far less inclined to ignore the early warning signs. As a result, they became more compliant regarding their asthma medication and the importance of maintaining their preventer medication daily as directed, whether they had asthma plans or not.

Other Issues

All participants reported some positive changes in overall wellbeing and the practices helped those participants with sleep issues. They all had other co-morbid conditions in varying degrees, including migraines, sinus issues and arthritis. With the exception of one student who had severe migraine and menopausal symptoms, these conditions could be addressed to some extent in their practices, a true benefit of this personalised approach.

All participants reported that doing something each day for themselves was empowering, though this varied in direct response to the regularity and enthusiasm for the practice of each student. The relationship and trust that developed over time between the care seeker and the care provider was at the heart of this positive outcome.

As stated by Janikiraman, a yoga therapist and chronic asthmatic at the KYM, 'the goal should be to make the student emotionally strong'. Final interviews with the participants indicate that their practices achieved this, though this is always a work in progress (see Appendix).

Limitations

This was a pilot study only, and as such had various limitations, notably:

- six months was not long enough to indicate sustained improvement, or to take into account such things as seasonal variations for changes in asthma;
- this was a very small group, with only women completing the full program; and
- these women were all from a similar ethnic and socioeconomic background.

Future Research and Study

Longitudinal study

I would like to recruit and run another similar program of four appointments over three to four months to establish practice, followed by a six-monthly review for two years. This longer study would provide a clearer picture of whether the potential benefits of a personalised yoga practice give sustained improvement in breathing and reduce the frequency, severity and duration of asthma exacerbations. Health and quality of life would

also be assessed. A two-year study would reduce the impact of seasonal variation and other external factors that may influence asthma in the short term.

It may be possible to work with a medical researcher to develop a more extensive study on the individual practice of yoga for asthma and respiratory disease utilising quantitative methods such as spirometry testing at outset, mid point and completion of the program, as was my hope for the current project. However, it has been noted that although breathing may improve and asthma may reduce, this may not be reflected in spirometry readings. Ideally, this program could be auspiced by Asthma Victoria and conducted with the referrals and support of GPs and respiratory physicians.

I have considered applying for a grant so I am able to see the participants free of charge, as well as the possibility of enrolling in a postgraduate course with this project as the thesis. This way I would be able to get ethics approval through the academic institution as well as benefit from the academic guidance of a supervisor.

The following outlines the possible steps required for this to happen:

- on the basis of feedback from this current project, redesign the questionnaires for both asthma-specific and HQoL questionnaires, ensuring clear and measurable results as well as generally streamlining the data collection process;
- conduct information sessions for GPs, respiratory doctors and other interested professionals and participants; and
- conduct Information session for participants: at this time, interested parties would be provided with a project information folder and consent forms, and appointments would also be scheduled for the first meeting.

Studies on the Impact of Socio-economic Status on Asthma

Based on information in the *Asthma Australia* report, asthmatics of lower economic status are more inclined to be smokers with a less nourishing diet, and often have less of an understanding as to the impact of diet and lifestyle on overall health and wellbeing.

Group classes may be beneficial teaching simple breathing practices and gentle movement, as well as running discussion groups about the importance of diet, gentle exercise, good nutrition and adequate rest. Relaxation and stress reduction techniques could also be given.

And finally, my respiratory physician has suggested pursuing a new and interesting area: Vocal Chord Dysfunction. This is a condition that mimics asthma, so would aid in exploring the use of sound and chant as well as yoga and breathing techniques.

* * * * *

'Asthma should be inside your pocket, not you inside its pocket'

'Because of breathing, I am focused on myself.

I am present in this situation,

Aware of all the positives inside me, not the negatives.'

(Janakiraman, KYM, Chennai, March 2012)

Bibliography

Albietz J (2009), 'Buteyko breathing technique – Nothing to hyperventilate about', *Science-Based Medicine*, vol. 25, December.

Ampon RD, Williamson M, Correll PK & Marks GB (2005), 'Impact of asthma on self-reported status and quality of life: A population based study of Australians aged 18–64,' *Thorax*, September, vol. 60, no. 9, pp. 735–9.

Apfelbacher CJ, Jones C, Hankins M & Smith H (2012), 'Validity of two common asthma-specific quality of life questionnaires: Juniper mini asthma quality of life questionnaire and Sydney asthma quality of life questionnaire', *Health and Quality of Life Outcomes*, vol. 10, no. 97.

Australian Centre for Asthma Monitoring (ACAM) (2004), *Measuring the impact of asthma on quality of life in the Australian population*. Australian Institute of Health and Welfare, Canberra.

Australian Centre for Asthma Monitoring (2005), *Asthma in Australia*. Australian Institute of Health and Welfare, Canberra.

Australian Centre for Asthma Monitoring (2011), *Asthma in Australia*. Australian Institute of Health and Welfare, Canberra.

Balasubramaniam M, Telles S & Doraiswamy PM (2012), 'Yoga on our minds: A systematic review of yoga for neuropsychiatric disorder', *Frontiers in Psychiatry*, January, vol. 3, p. 117.

Benagh B (2000), 'Asthma answers', *Yoga Journal*, July, pp. 92–7.

Boulet L-P & Boulet M-E (2011), 'Asthma-related comorbidities', *Review of Respiratory Medicine*, June, vol. 5, no. 3, pp. 377–93.

Bowler SD, Green A & Mitchell CA (1998), 'Buteyko breathing techniques in asthma: A blinded randomised controlled trial', *Medical Journal of Australia*, December, vol. 169, no. 11–12, pp. 575–8.

Burgess JA, Matheson MC, Gurrin LC, Byrnes GB, Adams KS, Wharton CL, Giles GG, Jenkins MA, Hopper JL, Abramson MJ, Walters EH & Dharmage SC (2011), 'Factors in influencing asthma remission: A longitudinal study from childhood to middle age', *Thorax*, June, vol. 66, no. 6, pp. 508–13.

Burgess J, Ekanayake B, Lowe A, Dunt D, Thien F & Dharmage SC (2011), 'Systematic review of the effectiveness of breathing retraining in asthma management', *Expert Review of Respiratory Medicine*, December, vol. 5, no. 6, pp. 789–807.

Burton A & Thomas M (2006), 'Breathing therapies and bronchodilator use in asthma', *Thorax*, August, vol. 61, no. 8, pp. 643–5.

Cooper S, Osborne, J, Newton, S, Harrison, V, Thompson Coon, J, Lewis S & Tattersfield A (2003), 'Effect of two breathing exercises (Buteyko and pranayama) in asthma: A randomised controlled trial', *Thorax*, vol. 58, pp. 674–9.

Courtney R, van Dixhoorn J & Cohen M. (2008), 'Evaluation of a breathing pattern: Comparison of a Manual Assessment of Respiratory Motion (MARM) and respiratory

- induction plethysmography', *Applied Psychophysiological Biofeedback*, June, vol. 33, no. 2, pp. 91–100.
- Dalman, Imogen (2007), *Medical Science and Yoga*, January. Available at: <www.KHYF.com>.
- Desikachar, TKV (1995), *Heart of yoga: Developing a personal practice*, Inner Traditions International.
- Desikachar, TKV (2003), *Reflections of the Yoga Sutras of Patanjali*, (rev edn), Krishnamacharya Yoga Mandarim.
- Desikachar, Kausthub (2005), *The yoga of the yogi*, Krishnamacharya Yoga Mandarim.
- Desikachar, TKV with Craven, RH (1998), *Health, healing and beyond – Yoga and the living tradition of Krishnamacharya*, Aperture Publications.
- Desikachar, TKV with Desikachar, Kausthub & Moors, Frans (2001), *Viniyoga of yoga – Applying yoga for healthy living*, Krishnamacharya Yoga Mandarim.
- Desikachar, TKV & Rajagopalan, Arjun (2003), *The yoga of healing*, (1st pub. 1999), Krishnamacharya Yoga Mandarim.
- Douglass J, Goeman D, Aroni R, Thien F, Abramson M, Stewart K & Sawyer SM (2004), 'Choosing to attend an asthma doctor: A qualitative study in adults attending emergency departments', *Family Practice*, vol. 21, no. 2, pp. 166–72.
- Froeliger BE, Garland EL, Modlin LA & McClernon FJ (2012), 'Neurocognitive correlated of the effects of yoga meditation practice on emotion and cognition: A pilot study', *Frontiers in Integrative Neuroscience*, July, vol. 6, p. 48.
- Goyeche JR, Abo Y & Ikemi Y (1982), 'Asthma: The yoga perspective. Part II: Yoga therapy in the treatment of asthma', *Journal of Asthma*, vol. 19, no. 3, pp. 189–201.
- Holloway E & Ram FS (2004), 'Breathing exercises for asthma', *Cochrane Database of Systematic Reviews*, vol.1.
- Holloway EA & West RJ (2007), 'Integrated breathing and relaxation training (the Papworth method) for adults with asthma in primary care: A randomised controlled trial', *Thorax*, December, vol. 62, no. 12, pp. 1039–42.
- Juniper EF, Guyatt GH, Cox, FM, Ferrie PJ & King DR (1988), 'Development and validation of the Mini Asthma Quality of Life Questionnaire', *European Respiratory Journal*, July, vol. 14, no. 1, pp. 32–8.
- Kaminoff, Leslie (2006), 'What yoga therapists should know about the anatomy of breathing', *International Journal of Yoga Therapy*, no. 16.
- Kaminoff, Leslie (2007), *Yoga anatomy: Your illustrated guide to postures, movements and breathing techniques*, Human Kinetics.
- Lehrer P, Feldman J, Giardino N, Song HS & Schmalin K (2002), 'Psychological aspects of asthma', *Journal of Consultative Clinical Psychology*, June, vol. 70, no. 3, pp. 691–711.
- Lunardi AC, Marques da Silva CC, Rodrigues Mendes FA, Marques AP, Stelmach R & Fernandes Carvalho CR (2011), 'Musculoskeletal dysfunction and pain in adults with asthma', *Journal of Asthma*, February, vo. 48, no. 1, pp. 105–10.
- Lung Health Promotion Centre at the Alfred (2010), 'Lung health promotion at The Alfred Hospital', *Lung Health Matters!*, Melbourne.
- Manocha R, Marks GB, Kenchington P, Peters D & Salome CM (2002), 'Sahaja yoga in the management of moderate to severe asthma: a randomised control trial', *Thorax*, February, vol. 57, pp. 110–5.

- Marks G, Cohen M, Kotsirilios V, Luttrell C, Massie J, McGuire T, Mullins R & Slader C (2005), *Asthma and complementary therapies: A guide for health professionals*, Australian Government Department of Health and Ageing, Canberra.
- Marks G, Abramson MJ, Jenkins CR, Kenny P, Mellis CM, Ruffin RE, Stosic R, Toelle BG, Wilson DH & Xuan W (2007), 'Asthma management and outcomes in Australia: A nation-wide telephone interview survey', *Respirology: The Official Journal of the Asian Pacific Society of Respirology*, March, vol. 12, issue 2, pp. 212–19.
- Nagarathna R & Nagendra HR (1985), 'Yoga for bronchial asthma: A controlled study', *British Medical Journal (Clinical Research Edition)*, October, vol. 291, no. 6502, pp. 1077–9.
- O'Connor E, Patnode CD, Burda BU, Buckley D & Whitlock E (2012), Breathing exercises and/or retraining techniques in the treatment of asthma: Comparative effectiveness, *Comparative Effectiveness Reviews*, No. 71, Agency for Healthcare Research and Quality (US), September.
- Posadzki P & Ernst E (2011), 'Yoga for asthma? A systematic review of randomized clinical trials', *Journal of Asthma*, August, vol. 48, no. 6, pp. 632–9.
- Ram FS, Holloway EA & Jones PW (2003), 'Breathing retraining for asthma', *Respiratory Medicine*, May, vol. 97, no. 5, pp. 501–07.
- Sabina AB, Williams AL, Wall HK, Bansal S, Chupp G & Katz DL (2005), 'Yoga intervention for adults with mild-to-moderate asthma: A pilot study', *Annals of Allergy, Asthma and Immunology*, May, vol. 94, no. 5, pp. 543–8.
- Sathyaprabha TN, Murthy H & Murthy BT (2001), 'Efficacy of naturopathy and yoga in bronchial asthma – A self controlled matched scientific study', *Indian Journal of Physiology and Pharmacology*, January, vol. 45, no. 1, pp. 80–6.
- Sodhi C, Singh S & Dandona PK (2009), 'A study of the effect of yoga training on pulmonary functions in patients with bronchial asthma', *Indian Journal of Physiology and Pharmacology*, April–June, vol. 53, no. 2, pp. 169–74.
- Tais L & Gomieiro Y, Nascimento A & Giavina-Bianchi P (2011), 'Respiratory exercise program for elderly individuals with asthma', *Clinics (Sao Paulo)*, July, vol. 66, no. 7, pp. 1165–9.
- Thomas M, McKinley RK, Freeman E, Foy C, Prodder P & Price D (2003), 'Breathing retraining for dysfunctional breathing in asthma: A randomised controlled trial', *Thorax*, February, vol. 58, no. 2, pp. 110–15.
- Thomas M, McKinley RK, Freeman E, Foy C & Price D (2005), 'Prevalence of dysfunctional breathing in adults in the community with and without asthma', *Primary Care Respiratory Journal*, April, vol. 14, no. 2, pp. 78–82.
- Vedanthan PK, Kesavalu LN, Murthy KC, Duvall K, Hall MJ, Baker S & Nagarathna S (1998), 'Clinical study of yoga techniques in university students with asthma: A control study', *Allergy and Asthma Proceedings*, January–February, vol. 19, no. 1, pp. 3–9.
- Vempati R, Bijlani RL & Deepak KK (2009), 'The efficacy of a comprehensive lifestyle modification programme based on yoga in the management of bronchial asthma: A randomized controlled trial', *BMC Pulmonary Medicine*, July, vol. 9, p. 37.
- Weller, S (1995), *Yoga therapy*, Thorsons, London.
- Weller S (2003), *Yoga beats asthma: Simple exercises and breathing techniques to relieve asthma and respiratory disorders*, Thorsons, London.

Appendices

Appendix 1: Interim Report for Dr Mamatha Gandra, Director of Applied Research, KYM – Pilot study to investigate the impact of regular yoga practice on asthma in relation to breathing capacity, health and quality of life

Research Question

To evaluate the effect of Yoga practices on asthma sufferers, in relation to breathing capacity, health and quality of life (HQoL). This study will also consider whether regular personal practice of yoga helps to reduce the frequency, severity and duration of asthma exacerbations.

Two teachers with personal experience of the benefits of personal yoga practice in this tradition as well as extensive experience of teaching asthma sufferers were interviewed. The interview questions and responses follow:

1. **What postures/ modifications and breathing techniques are most beneficial for:**
a) children 8–18 years, b) early stages/mild wheezing and c) Advanced stages/ Chronic conditions?

General comments:

The most important thing is not to generalise, it all depends on the individual.

If the cause is genetic, then it will always be in you. Respect and accept this.

First see how the breath is, and the students' capacity

Encourage the student to consider his or her own personal triggers, cause e.g.. swimming in chlorinated pools, chocolate, cold things

Some find it hard to chant because of dryness or throat irritation, cough. Chant is not for everyone.

Others find it hard to inhale, and chant can help to regulate this

Warm water, sipping as needed throughout the practice may be advised

a) Children

Children are flexible, so anything can be tried.

Just postures, movement, can be enough, even without breathing instructions. Simple chants can be given.

Surya Namaskar with surya mantras (hram, hrim etc) can be given, if students are comfortable

b) Early stages/mild wheezing

Simple arm movements will open the chest, breathing give according to the student.

Never let the student strain, and be mindful of anything that may trigger wheeze.

Find what is comfortable, observe the student closely, allow the students to tell what triggers and don't be judgmental. Langhana based postures may be given, and almost always the diaphragm will be very tight, preventing full expansion and contraction of the lungs, chest

area. So students will be unable to do breathing properly and need to get the abdomen working first chant, aspirated vowels may help.

b) Advanced stages/ Chronic conditions

Regular monitoring is essential. Be vigilant with medications, have regular medical check ups, have an asthma plan organised.

Never ask the student to stop or reduce medications. This must be done with Doctors advice only. Discourage students from self-medicating

If possible bramhana form, postures to open the chest, extend the spine, even if just simple arm movements, or placing arms in an open supported position, so the student can relax.

If the case is very severe, for example the student has an oxygen cylinder, then the practice must be passive. ensure the back is supported, the student comfortable, avoid any pain or discomfort and chant for the student.

If the student cannot come to you, encourage them to stay in touch, regular monitoring and support from the teacher is so helpful

2. What are the common triggers in your experience?

- cold things, iced drinks, ice cream, Air Conditioning
- heavy food
- banana, okra can induce phlegm
- curd, especially at night
- swimming in chlorinated pools, chocolate

Students must be encouraged to understand their own triggers

3. What Ahara recommendations do you make?

Base this on the pulse but generally:

- Avoid cold drinks food, ice cream
- Warm, light, nourishing food
- Stay away from heavy, fried oily foods, have an early light dinner so the system is not overloaded at night.
- Some cannot take sour, or curd., chocolate
- Different climates affect people differently e.g. may wheeze in Chennai, but be fine in London, or a dry climate like Australia. And the reverse is true for others
- More pollution, more need for yoga.

4. What Vihara recommendations do you make?

Again this depends greatly on individual triggers:

- Get moving; be sincere in your practice, disciplined and regular
- Enjoy, but don't overdo, everything in moderation, within your own personal limits.
- While swimming may be beneficial for some, others may find chlorinated pools trigger wheeze
- Some find crowds, festivals; busy public places will bring on wheeze, asthma

6. Do care seekers come with pulmonary function testing, spirometry?

Occasionally

7. Can you make any comments or generalisations on the following with regard to asthmatics?

a) Body

Asthmatics may have developed kyphosis as a body pattern to 'help' them breathe.

b) Pulse/pariksa

Do not brand kapha

Can be induced by pitta too/ janaikiramen

Generally vata and kapha/ padmini

c) Breath

Difficulty on exhale/ Difficulty on inhale

Which do you address first?

The first job is to relax the person,

Normal abdominal breathing first, then work on the exhale

Often asthmatics breath the wrong way, drawing tight on the inhale. It is very important to relax this area of the diaphragm/ chest

It is the sea of emotions, and has to relax

d) Mind, Personality, Emotions

e.g. Agitation, fear, insomnia

Stress is a major contributing factor, often not even aware of stress

As asthma is partially psychosomatic, fear will often be there e.g. 'after I climb the stairs, will I be able to teach/talk'

Asthmatics are often sensitive types

'Can be the brooding type, keep everything inside, to themselves, thinking 'why me' ..then you start hurting yourself'

Others may want to do everything fast, to accomplish lots of things, to take on too much.

And being too lazy, inactive can also induce

The goal should be to make the student emotionally strong.

Asthma should be inside your pocket, not you inside its pocket

Janakiraman

Janakiraman has had asthma since childhood, and like many in the west has had experience of other traditions of yoga, including strong disciplined practices, with inversions, everything.

He even practiced all the kriyas.

But it wasn't until he came to KYM that he found sustained relief from the frequency and severity of his asthma..

We discussed the different approaches of other traditions, and the way breathing is taught at KYM (not inhale to abdomen, then exhale abdomen, or 'full yoga breath' as it is often called)

I feel this is fundamental difference and the reason why breathing in this tradition gives sustained help to asthma sufferers

I asked Janakiraman to comment on this:

'Because of breathing, I am focused on myself.

I am present in this situation,

Aware of all the positives inside me, not the negatives'

Special thanks to Padmini Narayan and Janakiraman for sharing their experiences with me.

Thanks to Dr Latha Satish, Dr Mamatha Gandra, and the Research department for allowing me to have access to a small part of the vast experience and resources and of the KYM.

This is a rushed report and I do not feel it does adequate justice to the subject. Indeed it raises further questions and I wish I had more time here to follow through,

Sincerely,

Deborah Robertson

27 March 2012

Appendix 2: Introductory Letter

14 Hannan Street
Williamstown 3016

25 June 2012

Thank you for agreeing to participate in the Yoga Therapy **Pilot Study to Investigate the Impact of Regular Yoga Practice on Asthma** that I am undertaking.

Please find attached an Information Sheet about the study and a Consent Form. Once you have read the Information Sheet, and signed the Consent Form, feel free to e-mail (debyoga@bigpond.net.au) or call (0488 978 818) me if you have any questions. Alternatively, I will contact you shortly to arrange our first individual session (please allow 90 minutes for this session).

Sessions can be arranged during weekdays, evenings and weekends and will be held at two locations (depending on what is most convenient for you):

Williamstown Yoga
109 Douglas Parade
Williamstown

Agama Yoga
(upstairs at the Carmelite Hall)
216 Richardson Street
Middle Park

At our first session, we will arrange dates and times for the following three individual sessions. Please feel free to bring along any relevant medical reports if you feel it would be beneficial.

Thank you for your time and I look forward to speaking with you soon.

Yours sincerely

Deb Robertson

Appendix 3: Consent Form

Research Project: **Pilot Study to Investigate the Impact of Regular Yoga Practice on Asthma**

Researcher's name & contact details: **Deb Robertson**

Email: debyoga@bigpond.net.au

Phone: 0448 978 818

Mentor/supervisor's name & contact details: **Barbara Brian**

Email: visokava@yahoo.com.au

This Research Project is designed to conform to the guidelines established by the National Health and Medical Research Council and the National Statement on Ethical Conduct in Human Research.

I have read the Information Sheet and the nature and purpose of the Research Project is clear to me. I understand and agree to take part.

- I understand the purpose of the Research Project and my involvement in it.
- I understand that I may withdraw from the Research Project at any stage and that this will not affect my status now or in the future.
- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.
- I understand that the data will be password protected and stored in a digital format for seven years at 14 Hannan Street, Williamstown, Victoria 3016, Australia. Access will be limited to the researcher, her mentor/supervisor Barbara Brian, as well as the assessment panel at the Krishnamacharya Healing Yoga Foundation (www.KHYF.org).

Name of participant.....

Signed..... Date.....

I have provided information about the Research Project to the research participant and believe that he/she understands what is involved.

Researcher's signature Date.....

Appendix 4: Information Statement

Pilot Study to Investigate the Impact of Regular Yoga Practice on Asthma

Thank you for taking the time to read this Information Sheet. You are being invited to participate in a pilot study that is explained below.

What is an Information Statement?

This document tells you about the research project. It explains to you clearly and openly all the steps and procedures of the project. This information will help you to decide whether or not you would like to take part in the research.

Please read this Information Statement carefully. You can ask me questions about anything it contains. You may want to talk about the study with your family, friends or a health care professional.

Participation in this research project is voluntary. You can withdraw from the project at any time without explanation.

If you would like to take part in the project, please sign the Consent Form at the end of this Information Statement. You will then be given a copy of both documents to keep.

What is the Research Project about?

There is plausible evidence that specific Yoga practices can support asthma sufferers and enhance breathing capacity and quality of life. This research study aims to demonstrate that individualised Yoga practices – reviewed and refined over time with the guidance of a Yoga Therapist (in the tradition of the Krishnamacharya Yoga Mandir (KYM): <http://www.kym.org>) – result in improved breathing capacity, health and wellbeing.

Asthma is a common chronic disease that causes episodes of wheezing, chest tightness and shortness of breath. This is due to widespread narrowing of the airways within the lungs and obstruction to airflow. The underlying problem is usually inflammation of the air passages, which overreact by narrowing too often and too much in response to a range of triggers. Asthma affects people of all ages. Those with asthma report impacts on the physical, psychological and social domains of quality of life.

Asthma is all about the breath. The breath is the thread that links the body and the mind. While there have been numerous research studies undertaken to investigate the benefits of the Buteyko breathing technique (BBT) and the 'Papworth Method' in the management of asthma, there has been less formal research into the benefits of Yoga.

This research study will endeavour to investigate the degree to which various Yogic practices – including pranayama (breathing), gentle asana (movement), chanting, meditation and relaxation, in conjunction with Western medicine – have an impact on asthma sufferers. Just as Western medicine treats each person as a unique individual and prescribes precise and specific remedies, participants in this research study will be provided with an individualised Yoga program according to their needs.

The study will be conducted at Williamstown Yoga, 109 Douglas Parade, Williamstown and at Agama Yoga Centre, 216 Richardson Street, Middle Park.

Who is the Researcher?

Deb Robertson is a Yoga Therapist in the final year of her studies with the KYM and is currently under the mentorship of Barbara Brian at Agama Yoga. She is also a qualified Yoga Teacher.

What do I need to do to be in this Research Project?

To participate in this project, you will need to come to Williamstown Yoga or Agama Yoga Centre for **four Individual Consultations** of between 60–90 minutes over a period of three months from July–September 2012.

Individualised Yoga Therapy Program

During the four visits, the researcher will develop, monitor and continually refine an individualised Yoga Therapy program to suit your needs and requirements. This program will be developed with you to ensure that you are comfortable with the content and length of the practice. You will then be asked to practise this yoga program at home as often as possible.

Questionnaire

At the first session, you will be asked to complete a questionnaire. The questionnaire will ask about frequency and severity of asthma episodes as well as quality of life, home environment and your feelings. This questionnaire will also be repeated at the conclusion of the study.

Record Keeping / Journalling

During the three-month period of the research project, you will be asked to keep a record of your individualised yoga practice at home, as well as any additional issues/events that may affect your health and wellbeing during this period.

What are the possible benefits for me?

- Five individualised yoga therapy consultations with a Yoga Therapist/Teacher at no cost to you.
- Your own individualised yoga therapy program to take home and practice.
- An ongoing relationship with a Yoga Therapist if you desire.
- Specific techniques to support your physical, emotional and mental wellbeing.

What are the benefits for other people in the future?

We hope that this research may help us to advise future asthma sufferers how to reduce the severity and frequency of asthma attacks by practicing specific and appropriate Yoga techniques, and to improve overall health, wellbeing and quality of life.

What are the possible risks, side-effects and/or discomforts?

There are no known possible risks or side-effects, as the Yoga Therapy practices are very gentle and recognise each individual's starting point. However, with any new learning there can be a period of adjustment. Individuals will also remain under their health practitioner's care.

What will be done to make sure your information is confidential?

This research project is designed to conform to the guidelines established by the National Health and Medical Research Council and the National Statement on Ethical Conduct in Human Research.

The information we collect from you will remain confidential. We will use your information only for this research project. Only the researcher involved with this project, Barbara Brian (Deb's mentor) and the KYM assessment panel will be able to access this information. We can disclose the information only with your permission, except as required by law.

The information will be re-identifiable. This means that we will remove your name and give the information a special code number.

The information will be kept in a locked filing cabinet at the researcher's home. All electronic files that contain results from the data will be password protected.

The results may be presented at future Yoga Therapy conferences, however the results will not identify any individuals and will show only group information.

Will I be informed of the results when the Research Project is finished?

Yes! You will be sent a summary of the results at the end of the study. This will be around September 2012. These results will be of group findings. No information that identifies an individual will be released. If you would like more information about the project, or if you need to speak to the researcher at any stage, please contact:

Deb Robertson: debyoga@bigpond.net.au / 0448 978 818.

Appendix 5: Asthma Questionnaire 1

Pilot study to investigate the impact of regular Yoga practice on asthma in relation to breathing capacity, health and quality of life.

Have you been told by a doctor that you have asthma? Yes / No

Do you have an asthma action plan, which has written instructions of what to do if your asthma becomes worse? Yes/ No

In the 12 months before trial, have you:

- a) had symptoms of asthma
- b) taken medication, or extra medication for asthma
- c) visited your GP, or respiratory specialist for asthma
- d) been hospitalized for asthma
- e) felt that your asthma was out of control

Are you aware of any triggers for your wheezing or asthma? For example:
Diet, Lifestyle, Environment

Have you ever been taught breathing exercises before? For example: Physiotherapy, Buteyko, Yoga.

Do you smoke? Currently / previously / never

Physical symptoms

Have you had symptoms of asthma in the last 12 months? Please circle:

- Wheezing or whistling in the chest
- Chest tightness
- Cough
- Coughing up sputum
- Shortness of breath during usual activities
- Shortness of breath during strenuous activity
- Waking at night with asthma

Has your wheezing or asthma restricted your daily activities in the last 12 months?
Not at all / slightly / moderately / severely / extremely severely

Mental and emotional wellbeing

On a scale of 1 -5 with 1 being 'not at all' and 5 being 'nearly all the time', please consider these questions:

Have you felt a general lack of energy?	1 - 2 - 3 - 4 - 5
Have you felt sad or depressed?	1 - 2 - 3 - 4 - 5
Have you felt frustrated with yourself?	1 - 2 - 3 - 4 - 5
Do you feel asthma interferes with your social life and your interactions with others?	1 - 2 - 3 - 4 - 5
Do you feel asthma is controlling or restricting your life?	1 - 2 - 3 - 4 - 5

Appendix 6: Research Questionnaire



Date: _____

Full Name:

Date of Birth:

Occupation:

Gender:

Height:

Weight:

Email:

Phone

(home/mobile)

Address:

City, Postcode:

**Medical
History:**

Please list any prior surgeries or major illnesses.

Medication(s):

Please list any medications that you are currently taking.

**How did you
hear about this
study?**

Please respond to all the relevant sections below based on your own self perception.

Energy Level:

Excellent / Good / Moderate / Poor / Erratic

Fitness Level:

Excellent / Good / Moderate / Poor / Erratic

Sleep Onset:

Easy Onset / Late Onset / Inconsistent

Sleep Duration: *< 6 hrs or 6-8 hrs or 9-10 hrs or > 10 hrs*

Sleep Continuity: *Continuous / Not Continuous / Disturbed*

Quality of Sleep: *Excellent / Good / Moderate / Poor / Erratic*

Bowel Movement: *Regular / Irritable / Constipated / Erratic*

Appetite: *Excellent / Good / Moderate / Poor / Erratic*

Meal Schedule: *Regular / Irregular / Erratic*

Menstrual Cycle: *Regular / Irregular / Erratic / Not applicable*

Children?

If children, type(s) of delivery: *Normal [] / Caesarian [] / Not applicable*

Exercise Habits:

Relaxation: *Always relaxed / Mostly relaxed / Sometimes relaxed / Not at all relaxed*

Confidence Level: *Always confident / Mostly confident / Sometimes confident / Not confident*

Emotional State: *Always stable / Mostly stable / Sometimes stable / Unstable*

Motivation: *Excellent / Good / Moderate / Poor / Very poor*

Attention Level: *Highly focused / Moderately focused / Mildly focused / Highly distracted*

Social Skills: *Excellent / Good / Moderate / Poor / Very poor*

Family History:

Mother: *Asthma / Obesity / Arthritis / Diabetes / Cardiac Problems / Depression / Others _____*

Father: *Asthma / Obesity / Arthritis / Diabetes / Cardiac Problems / Depression / Others _____*

Sleep Duration: *< 6 hrs or 6-8 hrs or 9-10 hrs or > 10 hrs*

Sleep Continuity: *Continuous / Not Continuous / Disturbed*

Quality of Sleep: *Excellent / Good / Moderate / Poor / Erratic*

Bowel Movement: *Regular / Irritable / Constipated / Erratic*

Appetite: *Excellent / Good / Moderate / Poor / Erratic*

Meal Schedule: *Regular / Irregular / Erratic*

Menstrual Cycle: *Regular / Irregular / Erratic / Not applicable*

Children?

If children, type(s) of delivery: *Normal [] / Caesarian [] / Not applicable*

Exercise Habits:

Relaxation: *Always relaxed / Mostly relaxed / Sometimes relaxed / Not at all relaxed*

Confidence Level: *Always confident / Mostly confident / Sometimes confident / Not confident*

Emotional State: *Always stable / Mostly stable / Sometimes stable / Unstable*

Motivation: *Excellent / Good / Moderate / Poor / Very poor*

Attention Level: *Highly focused / Moderately focused / Mildly focused / Highly distracted*

Social Skills: *Excellent / Good / Moderate / Poor / Very poor*

Family History:

Mother: *Asthma / Obesity / Arthritis / Diabetes / Cardiac Problems / Depression / Others _____*

Father: *Asthma / Obesity / Arthritis / Diabetes / Cardiac Problems / Depression / Others _____*

Current Needs:

Please list the current list of health conditions which has brought you to Yoga Therapy.

Expectations:

Please list your expectations from the yoga therapy process that you are about to begin.

Belief in Yoga:

Participant's Declaration and Informed Consent:

I agree that the above information provided by me is correct and complete. I also agree to provide further information that my Yoga Therapist may require during both the Consultations and the Yoga Therapy sessions that will follow. I have been fully informed of the Yoga Therapy process by the Yoga Therapist, and am willingly undertaking this with my ample consent.

Signature of Participant:

Date:

Appendix 7: Final Asthma Questionnaire

Pilot study to investigate the impact of regular Yoga practice on asthma in relation to breathing capacity, health and quality of life.

Clinical Data

In the 3 -6 months of this trial, have you:

- f) had symptoms of asthma
- g) taken medication, or extra medication for asthma
- h) visited your GP, or respiratory specialist for asthma
- i) been hospitalised for asthma
- j) felt that your asthma was out of control

If your doctor or respiratory specialist has reviewed you during the time of this study, could you briefly outline any changes in your medications, or your peak flow, lung function tests or any other relevant information:

Have you been aware of any of your usual triggers for your wheezing or asthma?
Or perhaps you have noticed possible new triggers?
Consider: diet, lifestyle, environment, stress

Physical symptoms

Have you had symptoms of asthma in the 4 -5 months of the study? Please circle:

- Wheezing or whistling in the chest
- Chest tightness
- Cough
- Coughing up sputum
- Shortness of breath during usual activities
- Shortness of breath during strenuous activity
- Waking at night with asthma

Has your wheezing or asthma restricted your daily activities in the months of the study?
Not at all / slightly / moderately / severely / extremely severely

Mental and emotional wellbeing

Please answer these questions openly; even if you feel yoga did not "work" in your situation, all your feedback is most valuable:

Could you comment on any changes in your day to day breathing, and your awareness of your breath during and after this study?

Could you also comment on any changes you may have observed during and post the study in the following areas:

- Energy levels
- Fitness
- Sleep
- Digestion/bowels

- Motivation
- Attention levels
- Emotional state
- Communication and social interaction
- Relaxation and stress indicators

Your Yoga Practice

Were you able to practice regularly? If not what were the reasons or barriers to regular practice?

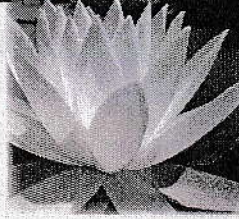
Please indicate roughly how often you were able to practice a week

Any further comments?

Again, during the period of this study, on a scale of 1 -5 with 1 being "not at all" and 5 being "nearly all the time", please consider these questions:

- | | |
|---|-------------------|
| Have you felt a general lack of energy? | 1 - 2 - 3 - 4 - 5 |
| Have you felt sad or depressed? | 1 - 2 - 3 - 4 - 5 |
| Have you felt frustrated with yourself? | 1 - 2 - 3 - 4 - 5 |
| Do you feel asthma interferes with your
social life and your interactions with others? | 1 - 2 - 3 - 4 - 5 |
| Do you feel asthma is controlling or restricting your life? | 1 - 2 - 3 - 4 - 5 |

Appendix 8: Flyer



FREE YOGA for asthmatics

During June 2012, free individual yoga therapy consultations are being offered as part of a pilot study investigating the impact of regular yoga practice on asthma.

What's in it for you??

- A series of four yoga therapy consultations at no cost to you.
 - Specific techniques, including gentle movement, breathing practices and relaxation, to support your physical, emotional and mental well-being.
- Your own individualized yoga therapy program to take home and practise.
 - Ongoing relationship with a Yoga Therapist if you desire.

The researcher, Deb Robertson, has been practising yoga for over 20 years and has found yoga to be fundamental in assisting her own journey with asthma, allergies and arthritis. She is a Yoga Therapist in the final year of her studies with the Krishnamacharya Healing Yoga Foundation (www.KHYF.org), and she is also a qualified Yoga Teacher.

If you are interested and for more information, contact Deb:
debyoga@bigpond.net.au 0448 978 818

'Yoga Therapy is a step-by-step approach that can help bring you back towards a state of healing and well-being. Yoga Therapy is a complementary therapy and Yoga Therapists are happy to work with doctors and other complementary therapists towards these goals'

– Deb Robertson.