

Tuning into the Planet

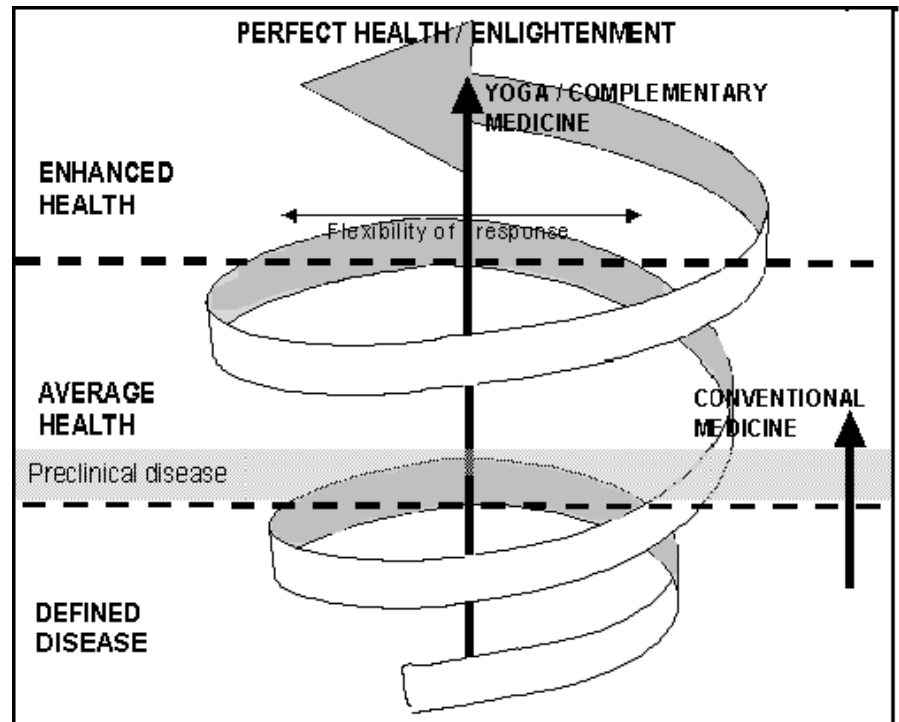
with Yoga and Meditation

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By virtue of its holistic philosophy, yoga offers many health-enhancing techniques which have often been singled out and practised in isolation from the "whole-istic" spiritual path of yoga. In the west, yoga postures are commonly used as a physical activity while specific yoga techniques are sometimes used for their health benefits as a therapy. Very often it is for these reasons that people first come to experience "yoga". However, some people progress to a deeper understanding and practice of yoga as a path to enhanced health and enlightenment, bringing freedom from disease, repetitive thoughts and behaviours and a lasting sense of inner peace and happiness, despite the stresses and strains of modern life.



The Spectrum of Health

Yoga has its roots in the ancient Hindu healing science known as Ayurveda. The term 'yoga' is derived from the Sanskrit term 'yuj' meaning 'joining', or 'that which joins'. In the traditional terminology it is the joining of Jivatma, the individual self or consciousness, with Paramatma, the universal consciousness, through a system of development which addresses the physical, mental, emotional, intellectual, and spiritual layers of the personality[1].

Yoga for enhanced health

While the ultimate goal of yoga is "union" or self-realisation, there are many yoga practises, even taken in isolation that that have been shown to be effective to promote health and treat disease. In the now classic book, Light on Yoga[2], BKS Iyengar lists "curative asanas for various diseases". Detailed postures and yogic practices are listed for

some 88 diseases or health conditions, illustrating that in yogic philosophy, practices such as kriya (cleansing), pranayama (breathing), asana (postures) and meditation have long been used in the treatment of illness. Some of the conditions for which Iyengar prescribes yogic practices are arthritis, asthma, back pain, high blood pressure, bronchial disorders, epilepsy, diabetes, coronary artery disease and sciatica.

To test this from a western medical perspective, we did a "keyword search" of Pubmed[3], an online medical research database in June 2004 and found considerable recent research into yoga for stress, high blood pressure, heart disease, asthma, depression, carpal tunnel syndrome, diabetes, epilepsy and back pain. In just one example, the now famous Dean Ornish Lifestyle Heart Trial[4] [5] found

that intensive lifestyle change based around the principles of integral yoga could reverse heart disease. The Ornish program consisted of a low fat vegetarian diet, three hours per week exercise, stress management activities including relaxation meditation, breathing exercises, and guided imagery, as well as twice weekly group support meetings. This lifestyle approach can be described as the 'SENSE' approach to health which includes Stress management, Exercise, Nutrition, Social and spiritual interaction and Education[6]. Whether clinically ill or in average health, the application of yoga lifestyle increases our "flexibility of response" to further enhance health at every point in the spectrum of health (see above).

Meditation is part of yoga

Yoga includes the mental discipline of meditation which offers profound physiological and

psychological benefits. Whether focusing on a single thought, object or mantra (Dharana) or defocussing to achieve a thoughtless state (Dhyana), meditation is an integral part of the yoga path to self-realisation.

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While there are many different systems of meditation and different philosophies that accompany them, any single-minded endeavour may be considered a meditation. Anytime you are involved in an activity that totally absorbs your awareness so that you seem to “lose yourself in the moment” you can consider that activity to be akin to meditation. During such an activity it is common to not only lose your sense of self, but to also lose your sense of time. These activities, which are in line with the yogic practice of dispassionate awareness seem to enhance the overall experience of life when included as part of a daily routine.

As well as having psychological benefits, the practice of meditation initiates predictable and reproducible changes in physiological functioning. These include a reduction in heart rate, blood pressure, oxygen consumption and stress hormones[7,8]. There are also distinctive EEG changes associated with meditation and these include a greater coherence and synchrony across the brain and a tendency for increased activity in the alpha/theta frequencies (around 8 hertz) [9,10]. This altered EEG activity results in the brain adopting similar frequencies to the electromagnetic frequencies that occur around the planet called Schumann Resonances.

Tuning into the planet

Schumann Resonances are naturally occurring electromagnetic waves that travel freely around the planet as a result of global lightning. They are named after Professor W.O. Schumann who proposed the existence of such waves and calculated their main frequency[11]. These resonances occur in the non-conducting cavity between the relatively conducting boundaries formed by the ionosphere (which forms the upper atmosphere above around 50 kilometers) and the surface of the earth consisting mainly of seawater.

Lightning discharges within the earth-ionosphere cavity produce electromagnetic radiation of many different frequencies most of which rapidly dissipate as they spread away from the source. Those frequencies that correspond to wavelengths of similar dimensions to the circumference of the earth however, are able to propagate several times around the planet before undergoing significant attenuation. As there are approximately 100 lightning strikes per second on the planet there are many such waves undergoing phase addition and cancellation resulting in an incoherent superposition of waves producing a frequency spectra known as Schumann resonances. These resonances have been found to occur at 8, 14, 20, 26, 32, 38 Hz with the principle component at around 8 Hz[12].

“It is interesting to speculate that during meditation the brain appears to harmonise with planetary electromagnetic activity”

The production of Schumann resonance may be likened to the tone produced when a hammer strikes a bell. When a hammer strikes an unfashioned piece of metal, the resulting clang contains many different frequencies that dissipate rather quickly. However, if the metal sheet is fashioned into the shape

of a bell, particular frequencies will naturally resonate with the shape of the structure producing a characteristic sound. This distinctive tone, is made up of distinct resonant frequencies that may reverberate for some time.

It is interesting to speculate that during meditation the brain appears to harmonise with planetary electromagnetic activity. The correlation between planetary and cerebral electromagnetic activity however, must be noted merely as an association because it is almost impossible to prove a causal connection between the two. This association becomes even more interesting when it is realised that the vast majority of global lightning is concentrated over the three main rainforest areas of the planet. These areas, located in Southeast Asia, sub-Sahara Africa and the Amazon basin tend to have thunderstorm activity in the late afternoon and as they are distributed fairly evenly around the globe, maintain a constant level of lightning activity that in turn, maintains the global Schumann Resonance[13]. It is therefore possible that when we meditate we have a subconscious connection to the greatest life force on the planet - the planetary rainforests.

Meditation seems to have a homeostatic effect on the body and on consciousness. By finding a still point in consciousness other extraneous thoughts are expelled and the mind gets a chance to free itself from mundane concerns. After meditation the mind gains a renewed sense of focus and perspective. Finding that still point in consciousness enables us to obtain the most mental flexibility, just as our flexibility of response increases as well-being is enhanced (see Figure 1).

Yoga as a path to peace

Anecdotally, the most common reasons for starting yoga are to keep in shape, to deal with stress or to manage a health or medical condition. Whatever the reason for first attending, it is not usually

the same reason people keep coming back. Many first time yoga students are surprised by the sense of peace that descends on them during the class. It is this gradual unfolding of the gift of yoga that happens in yoga classes across Australia, as people discover that yoga is more than just asanas. It is adherence to moral codes (the Yama and Niyama) which are like the 10 commandments of yoga, learning to control the breath (Pranayama) and through it, the very life force by which we exist, and it is learning to sublimate the emotions (Pratyahara) or, "how to feel an emotion without being controlled by it".

“Just as physical postures and breathing practices may help individuals transcend the limits of their physical bodies, so too the path of yoga may enable individuals to transcend their own identities”

Mastery of yoga is not limited to the mastery of asanas, pranayama, and dhyana. Yoga offers parallel paths to self realization known as Bhakti (devotion), Karma (action) and Jnana (philosophy). For example, Karma yoga involves performing acts of selfless service with no thought of recompense or personal gain. Such acts have been recently popularised by the saying "perform random acts of kindness" and by the film "Pay it Forward" which encourage performing selfless acts for no apparent gain. Of course personal gain may be an inevitable result, as it is often acknowledged that whatever you give out you will receive back ten-fold.

Just as physical postures and breathing practices may help individuals transcend the limits of their physical bodies, so too the path of yoga may enable individuals to transcend their own identities. The practice of yoga and meditation seems particularly relevant today when the world seems to be torn by the clash of ideologies and religions.

Furthermore as a person's individual practice develops it is likely that they will become more adept and more in tune with their own state of being. They are likely to become more 'centred' and more at peace with themselves and the world around them, bringing enhanced peace at a personal, community and global level.

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References:

1. Nagarathna, R, Nagendra, HR. Integrated Approach of Yoga Therapy for Positive Health. Swami Vivekananda Yoga Prakashana, 2001.
2. Iyengar BKS. Light on Yoga. Harper Collins Publishers 2001.
3. National Library of Medicine. Pubmed. <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>
4. Ornish D, et al. Can lifestyle changes reverse coronary heart disease? The Lifestyle Heart Trial. Lancet 1990; 336(8708):129-33.
5. Ornish D, et al. Intensive lifestyle changes for reversal of coronary heart disease. JAMA 1998; 280(23):2001-7.
6. Cohen, M. Integrative Medicine, Principles of Practice In Cohen, M. (Editor) "Holistic Health in Practice", Australian Integrative Medicine Association, Clayton, May 2003 ISBN 0 9750572-0-0.
7. Peng CK, et al. Heart rate dynamics during three forms of meditation. Int J Cardiol. 2004 May;95(1):19-27.
8. Vyas R, Dikshit N. Effect of meditation on respiratory system, cardiovascular system and lipid profile. Indian J Physiol Pharmacol. 2002 Oct;46(4):487-91.
9. Lutz A, et al. Long-term meditators self-induce high-amplitude gamma synchrony during mental practice. Proc Natl Acad

Sci U S A. 2004 Nov 16;101(46):16369-73. Epub 2004 Nov 08.

10. Aftanas LI, Golocheikine SA. Non-linear dynamic complexity of the human EEG during meditation. Neurosci Lett. 2002 Sep 20;330(2):143-6.

11. Schumann W.O. Über Die Ausbreitung Sehr Langer Elektrischer Wellen Und Der Blitzenladung Um Die Erde (Propagation of Very Long Electric Waves and of Lightning Discharge Around the Earth). Z. Angew. Phys., Vol. 4, pp. 274-480, 1952.

12. Sentman D.D. Volland H. Schumann Resonances. Handbook of Atmospheric Electrodynamics Volume 1. No. 11, pp. 267-295, 1995. Boca Raton, CRC Press.

13. Orville R.E., Henderson R. Global Distribution of Midnight Lightning. Mon. Weather Rev. Vol. 114, pp. 2640.