



Yoga and Aviation

History of Medicine is one facet of the grand "biography of man". It is a narration of progress, which according to William Osler, "is a series of negations—the denial today of what was accepted yesterday; the contradictions of each generation of some part at least, of philosophy of the last; but all is not lost; the germ plasm remains a nucleus of truth, to be fertilised by men, often ignorant even of the body, from which it has come. Knowledge evolves, but in such a way, that its possessors are never in sure possession" (Kutumbiah).¹

In India, prehistoric medicine, as in most parts of the world, was more a form of animistic religion and magic. It was during the Vedic period that medicine parted company from religion and magic, and entered into an alliance with the philosophical system. Man's eternal quest for knowledge, enlightenment and peace had produced many great men in different fields all over the world.

Several systems of philosophy came out of Vedic Culture. Yoga is one of them. The ancient Indian seer Patanjali had codified and laid down the Yoga principles based on the Sankhya system of philosophy.^{2,3,4} The term Yoga is comprehensive and covers a wide ground. Generally in the Upanishads, Yoga is treated as a preliminary discipline for concentration and clarification of mental being.⁵ It is a method of restricting the natural turbulence of thoughts and is a form of mind control. It is in a way the process of self realisation and opens the unconscious parts of our being to feel the direct touch of cosmic consciousness.⁵

The Yoga system of Patanjali lays down a course of rigorous discipline for the development of an integrated personality. The method comprises of eight practical stages arranged in sequence. Hence it is also called Ashtanga (eight limbed). They are YAMA, NIYAMA, ASANA, PRANAYAMA, PRATYAHARA, DHARNA, DHYANA and SAMADHI. The first two consist of restraint and discipline. The third stage asanas consist of right posturing of the

body. PRANAYAMA is the control of breathing. ASANAS and PRANAYAMA aim at the perfection and control of the physical body. The second set of four exercises is concerned with the psychological dimensions of the personality—Withdrawal, Concentration, Meditation and complete tranquility. Thus the whole process of Yoga, comprised of certain physical, mental and moral disciplines, so as to attain its ultimate goal of uniting the individual soul and the oversoul or Cosmic Spirit.⁶

Under Yoga, there are several systems like Karma Yoga, Bhakti Yoga, Jnana Yoga, Tantric Yoga, Hatha Yoga, Abhyasa Yoga, Raja Yoga and others. In each of these, the emphasis is on certain aspects and each has its distinctive value. Hatha Yoga deals elaborately with bodily postures (Asanas) and techniques for health and longevity.

Unfortunately over the years, with the rise and fall of various civilisations, Yoga went into background. However, the last few decades have witnessed a renewed interest in Yoga and Meditation and such other techniques of the past. They have been studied in the light of present day scientific knowledge using modern techniques.

It was always thought that autonomic nervous system was not under voluntary control and it was impossible to condition the autonomic nervous system by other than classic Pavlovian techniques.

Various studies conducted on Yogis and people trained in Yoga/Transcendental Meditation have shown, that it brings about a sharp increase in alpha rhythm in EEG, a decrease in respiratory rate, Oxygen consumption, decrease in heart rate and blood pressure and an increase in the electrical resistance of the skin (Galvanic Skin Response GSR).^{7,8} There is also a dramatic drop in the level of lactate in the blood. In certain stages of Yoga, body metabolism has been brought down to almost half its normal rate.⁹

All these studies have shown conclusively, that it is possible to control a wide range of autonomic nervous system responses, including G S R, heart rate, blood pressure, vasomotor responses, Salivation and the relaxation of striated muscle.¹⁰ These techniques have been found to be of considerable benefit in the management of many diseases like hypertension, psychoneurosis and other psychosomatic disorders. Biofeed back techniques have come into vogue as a result of all this knowledge.

Recently workers in Aviation Medicine have studied the value of Yoga in aircrew and potential astronauts. There is every reason to believe, that Yoga helps to increase the G tolerance much more than the conventional physical training. Preliminary studies also suggest that it would be useful for overcoming at least partially, the effects of zero gravity and space sickness. These have prompted some workers in the field, to try the effect of regular Yoga training in Aero Space Medicine. Further studies on more air-crew are needed in this regard.

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