"The Physical, Mental and Emotional Impacts of Transcendental Meditation"

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INTRODUCTION

This paper discusses the discovery, through scientific research, of the effects of the Transcendental Meditation technique (TM) on the human body and quality of life. Over 500 studies have been completed at 210 different universities and research institutions in 27 countries. This paper explores three specific areas including the physical, mental and emotional and the resultant corresponding benefits.

The technique of TM was revived in 1958 by Maharishi Mahesh Yogi, a physics graduate of Allahabad University in India. His teacher, Swami Brahmandanda Saraswati, was a Shankaracharya[1] in Northern India.

The actual practice of TM involves a simple technique of sitting in a comfortable position with eyes closed and silently, effortlessly repeating a mantra. This is done twice daily; twenty minutes each morning and twenty minutes again in the evening.

TM allows the meditators attention to go from the gross, surface level of ordinary thought to increasingly subtle levels, until finally the subtlest level is reached and thus "*transcended"*, i.e. the meditators attention goes to the source of thought.

Historically physiologists only recognised three states of consciousness; waking, sleeping and dreaming. Demetri Kanellakos, senior research engineer at Stanford Research Institute in California in a paper presented at Sanford University on January 27 1970, summarised the situation as follows:

"The human nervous system can exist in different sates and can change from one state to another state in a short time. For each of the major states of the human nervous system, a different set of physiological and biochemical conditions exist. The major states of the nervous system that have been suggested up to now are 1) the wakefulness state; 2) the state of deep sleep; 3) the dreaming state".(1)

Research later conducted by Wallace proposes that TM produces a fourth major state of consciousness – "restful alertness" or "transcendental consciousness". (2). It is within this state that research has been conducted and the ensuing impacts and effects of the practice of TM measured.

The Effects of Transcendental Meditation on the Physical Body

TM is purely a mental technique involving neither physical movements nor alteration of the physiology. However, multiple scientific studies conducted since the early 1970's have provided compelling insights into the physical benefits of practicing TM.

[1] A position of highest spiritual authority

With each shift in the state of consciousness there is a shift of biochemical functions of the body including metabolic rate, heart rate, cardiac output, skin resistance, and brain waves.(3)

Many researchers have found that through regular practice of the Transcendental Meditation technique, the physiology becomes more relaxed outside of meditation as well. Baseline levels of respiration rate, heart rate, plasma lactate, and skin resistance are all lower. The autonomic nervous system, which regulates vital internal processes, becomes more stable, integrated, and adaptable, as indicated by its increased ability to recover rapidly from the effects of stress. Medical researchers have found a reduction of important cardiovascular risk factors such as high blood pressure and serum cholesterol. Large health insurance studies have found that people practicing the Transcendental Meditation and TM-Sidhi programs, in all age groups combined, display a 50% reduction in both inpatient and outpatient medical care utilization compared to controls. Hospitalization is 87% lower for heart disease and 55% lower for cancer.(4)

Robert Keith Wallace's research showed marked reductions in oxygen consumption, carbon dioxide elimination and arterial lactate concentration; the decreases in heart rate, respiration rate and base excess, rapid rise in basal skin resistance and the abundance of electroencephalographic (EEG) alpha wave activity and synchrony in central and frontal derivations. (5)

For this paper I have selected the following areas of focus; Respiratory; Physical Performance; Aging;

RESPIRATORY – Decreased oxygen consumption in TM may lessen metabolic demands for oxygen, thereby reducing symptoms of hypoxemia (lack of oxygen). Allison measured decreases in the rate of respiration during TM to as low as four breaths per minute with no compensatory over breathing at any time. This is helpful to asthma patients, by reduction air-flow and the need to overcome airway resistance. (5)

Studies by Allison; Corey; Dhanaraj and Singh; and Bakker replicated Wallace's earlier findings of reduced oxygen consumption and reduced respiration rate during the TM technique. (6)

The results of respiratory studies printed in 1973, stated that 94% of the patients tested showed improvements in airway resistance during the period in which they were practicing daily. (7)

PHYSICAL PERFORMNCE – Tests conducted in early 1970's through the practice of TM produced significant increase in the growth of several athletic abilities, notably speed, agility, coordination and reaction time. These improvements were at a level normally achieved only after 4-6 months of preparatory training. The tests of the physiological efficiency also showed cardiovascular efficiency, vital capacity and blood haemoglobin all increased significantly (8)

AGING - In early 1978, Wallace researched the effects of meditation on human aging. He used three markers; blood pressure, near-point vision and hearing threshold – all of which typically decline as people age. He was able to show that all improved with the practice of TM thus indicating that biological age was being reversed. (5)
Later in the early 80's D Jay Glaser conducted research on hormonal association with aging, namely DHEA (dehydroepiandrosterone) which is secreted by the adrenal cortex and circulates in the bloodstream in quantities thousands of times greater than either oestrogen and testosterone. Higher levels of DHEA appear in younger people and it is the only hormone that sequentially declines with age. Accelerated stress lowers the reservoir of DHEA whilst high DHEA levels are associated with reduced incidence of coronary artery disease, breast cancer, and osteoporosis. Glaser took 328 experienced meditators and compared their levels of DHEA to those of 1,462 non-meditators. In all the women's groups the levels of DHEA were higher among meditators; the same was true for eight of eleven men's groups. Overall, Glaser estimated that the TM group's DHEA levels were equivalent to those of people five to ten years younger. (9)

Other research has found meditating individuals in their mid-50s have a biological age twelve years younger than their chronological age and people beginning the practice even at 80 years of age live longer and are healthier and happier than controls of the same age. Meditators over 40 years old also have approximately 70% fewer medical problems than others in their age group. (4)

The Effects of Transcendental Meditation on Mental Ability

During the Transcendental Meditation technique, early (sensory) components of the brain's response to somatosensory stimuli are more widely distributed across the cortex, indicating greater participation of the whole brain in the response to a stimulus and suggesting that unused brain reserves are being mobilized.(4)

Brain functioning becomes more orderly, as indicated by the growth of physiological correlates of creativity and intelligence, such as shorter latencies of cognitive evoked potentials, faster paired H-reflexes, increased EEG coherence, shorter inspection time, and faster choice reaction time.(4)

Basic memory processes improve with the practice of TM. School children who practice the Transcendental TM shows Improvements in general intelligence and reaction-time (which are correlated with intelligence) measured by psychometric tests and choice reaction time.(4) Meditation technique significantly improved in their basic skills in mathematics, reading, language and study skills within a semester. Studies of elementary school students, high school students, college students, and adults have found significant increased IQ scores compared to non-meditating controls over the same period. (4)

In 1976 research showed benefits for college students practicing TM included: improved short-term memory, ability to focus attention, and spontaneous organization of memory. (11)

Subjects practicing TM in research completed in 1972 and 1973 by Donald E. Miskiman, B.Sc. (Hons.) (Of the Graduate Department of Psychology, University of Alberta, Edmonton, Alberta, Canada), displayed superior learning ability. The results also indicated that the meditation enhances the organisational ability of the mind, a quality important to the memory and abstract thinking. Speed and accuracy of complex perceptual-motor performance involving adaptive flexibility are also greater in subjects practicing TM technique. (8)

The Effects of Transcendental Meditation on Emotions and Attitude

The TM technique provides the body with a deep state of rest, which reduces the impediments to motor performance such as anxiety and susceptibility to stress and muscle tension. It also leads to the development of positive psychological characteristics that are associated with efficient motor performance, such as field independence, extroversion and adaptability. (8)

"The "emotional seat" of the brain is found in the core limbic structures such as the amygdala, hippocampus and limbic cortex. It is believed by neuroscientists to contain 85-95% of the neuropeptide receptors." (12)

To understand the impact on the emotional effects of TM we look at the functions of neuropeptides and receptors. This in turn has also enabled scientists to evaluate what happens to the body in conditions of stress. When stress prevents the molecules of emotion (a molecule found on the surface of cells in the body and brain called the *opiate receptor)* from flowing freely where needed, the largely autonomic processes that are regulated by peptide flow, such as breathing, blood flow immunity, digestion and elimination, collapse down to a few simple feedback loops and upset the normal healing response. Meditation is a tool to get the peptides[2] flowing again, returning the body and the emotions to health. (12)

Psychological, behavioural and emotional testing on TM practitioners suggests enhancement of personal development. A carefully controlled study by Kenneth E. Friend, Ph.D. replicated and extended previous findings of increased job satisfaction and performance, improved relationships with co-workers and colleagues and significant increases in ambition and outlook. (13)

[2] Peptides are tiny pieces of proteins, consisting of a string of amino acids. When there are approximately 100 amino acids in the chain, the peptide is considered to be a polypeptide; 200 amino acids and it is called a protein.

The practice of the Transcendental Meditation and TM-Sidhi program also increases broad comprehension and improves the ability to focus sharply (field independence). Through regular practice, the physiology becomes habituated to sustain the experience of restful alertness at all times. This is the best means of reducing anxiety, depression, and anger, whilst also more adept at seeing another person's perspective, yet they (the meditator) cannot easily be swayed by social pressure to do something which they judge to be wrong. (4)

Creativity increases, as measured by tests of both verbal and pictorial fluency, flexibility, and originality. Perception becomes more accurate and less driven by preconceptions and misconceptions. A ten year longitudinal study following meditating college students after they graduated found significant increases on holistic measures of self development (ego development) compared to data sets for graduates of three control universities matched for gender and age. The meditators reached higher levels of moral reasoning, autonomy and integration than has ever been seen before in any other group. Transcendental Meditation technique is unparalleled in its ability to fully develop the unique potential of the individual. This technique makes a person more self-sufficient, more spontaneous, more productive, better able of meet challenges, and more capable of warm interpersonal relationships. (4)

“Transcendental Consciousness is the experience of one’s “higher Self”, and through regular practice of the Transcendental Meditation program, the Self becomes a stable internal frame of reference, providing an unshakable anchor to life even during dynamic activity. They are also shown to reach higher levels of moral reasoning, autonomy, and integration than has ever been seen in any other group. In short, individuals practicing TM tend to perceive the world more positively and holistically.” (4)

CONCLUSION

The common link corresponding between all three areas (physical, mental and emotional) is motivated by a congruent contributing cause that results from regular practice of Transcendental Mediation – de-excitement or de-stressing of the mind. By creating peace in the mind osmotically permeates into a peaceful body, peaceful soul and peaceful society.

The findings in TM research programs decrease stress is validated by physiological changes such as decreased cortisol (the major stress hormone), decreased muscle tension, normalization of blood pressure, increased autonomic stability, and increased EEG coherence. At the same time, a variety of psychological changes also indicate decreased stress, including decreased anxiety and depression, decreased post-traumatic stress syndrome, and increased self-actualization.

Stress reduction is also demonstrated by the sociological changes, such as decreased hostility, increased family harmony, and reduced criminal behavior in incarcerated felons. Research even extends the concept of stress reduction to the ecological level. Studies have found that the reduction of stress in meditating individuals creates an influence of harmony in the environment.

Transcendental Meditation is a simple practice that is easily learned and only requires 40 minutes each day. The results of studies, research and papers examined in this document are a compelling discussion in the benefits of implementing this technique into our lives. It also raises the question that if the impacts are so “good” with no negative side effects, why is this not taught in every school and practiced and supported in corporations and households?

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