CHAPTER I

INTRODUCTION

"Dharmartha kama moksanam

Arogyam mulam uttamam"

Caraka Samhita. 1, I, 15, (Geeta Iyengar, 2013)

The fundamental requirement of the body is good health in order to attain the four objectives of human existence, namely, acquisition of religious merits (dharma), wealth for living in comfort and generousness (artha), gratification of permissible pleasures and fulfillment of desires (kama), and lastly the Endeavour to obtain liberation from the shackles of mundane cycles of births and deaths (moksa).

No amount of wealth can be equal to health. Between the two, the choice is always with health, since wealth cannot be enjoyed without health, whereas wealth can be commanded if one has health. Health of the body means both physical and mental well-being. It is a sign of a peaceful state of the body and the mind when one is able to follow ethical codes, maintain moral standards and fulfill social obligations. (Geeta Iyengar, 2013)

1.1 INDIAN APPROACHES TO HEALTH CONCEPT

"Both body and mind is locations of diseases, as well as pleasures. The balanced use of body and mind is the cause of pleasures."

Caraka sutra 7/55 (Latha Sathis, 2012)

In India from the time immemorial, many great sages devoted their entire lives to studying the secrets of human nature and existence. They pursed this search with indefatigable striving and iron endurance. They completely withdrew themselves from the commotions of the world and concentrated all their efforts solely upon this pursuit. Ultimately, their dedicated efforts bore fruit. They discovered deepest secrets of life and the mysteries of being. They discovered a hidden most path leading upward to freedom and emancipation. Collectively, they named it yoga. (Swami Rajarshi Muni, 2001)

1.1.1 DEFINITION OF HEALTH – ACCORDING TO AYURVEDA

"Sama dosha, samagni, samadhatu malakriyah

prasannatma indriya manah swastha ityabhidhiyate"

Susruta Sutra 15/38 (Latha Satish, 2012)

One is in perfect health when there is balanced state of bio-chemicals, balanced state of metabolism, balanced state of body constituents, proper elimination of waste and whose mind, senses and soul are full of bliss.

Indian culture is concerned with health and healing which are essentially spiritual in nature. Fundamental to it is the idea that man must be regarded as a whole with no separation from his mind, body and soul. Balancing tridoshas by choosing an appropriate lifestyle, keeping in touch with nature, being aligned with one's own natural environment appropriately are widely recommended. The relation between lifestyle and holistic health is well recognized by healthcare professionals. A healthy lifestyle provides fit, energetic and reduced risk for disease based on the choices we make about our daily habits.

Good nutrition, daily exercise and adequate sleep are the foundations for continuing good health. Managing stress in positive ways for a longer and more comfortable life constitutes the plan for healthy lifestyle and living up to it. (Latha Satish, 2012)

1.2 HEALTHY WOMEN, HEALTHY WORLD

The health of families and societies are united to the health of women. The saying, Healthy Women, Healthy World represents the fact that as caretakers of family health, women play a vital role in preserving the health and well being of their societies.

A woman's health is her total well-being, not decided only by biological factors and reproduction, but also by effects of effort, nourishment, and nervous tension among others. Women's health concerns have achieved higher international visibility and renewed political commitment in recent decades. Targeted policies and programs have enabled women to lead healthier lives. (Latha, 1999)

1.3 INDIAN WOMEN'S HEALTH AND SOCIO-ECONOMIC DEVELOPMENT

Women in India constitute around 50% of the total population and comprise one-third of the labor force. It is, therefore, important that, when considering the economic development of the nation, this segment of the population is given due attention to health and in their socio-economic empowerment. India's first Prime Minister, Pandit Jawahar Lal Nehru, had stated, "In order to awaken the people, it is the women who has to be awakened. Once she is on the move, the household moves, the village moves, the country moves, and thus, we build the India of tomorrow."

Growth and living standards get a dramatic boost when women are given just a bit more education, political clout, and economic opportunity. The involvement of women in various activities generates supplemental income to support their families. (R. Kumar and Meenal Kumar, 2009)

1.4 IMPORTANCE OF HORMONAL BALANCE IN WOMEN'S HEALTH

For optimal health, appropriate hormone balance is essential. Millions and millions of women's health belonging to all age groups around the world are affected by some type of hormone imbalance. The hormonal changes inside the body are accountable for causing several psychological and physiological changes that women find difficult to deal with. When hormones are in balance, one feel good, look good, and have abundant sustainable energy.

Hormone imbalances can affect the lifestyles of women. When hormones are out of balance, one may experience a wide range of symptoms from mild to severe that can affect mood, energy, and may also lead to more serious conditions like irregular periods, fibroids, infertility, joint pains, obesity, diabetes, blood pressure, skin diseases, anemia, depression, osteoporosis, thyroid dysfunction and sheer tiredness after the daylong work are some of the common health problems faced by the women of today. These are only some of the common problems faced by women all over the world and there is much more to this list. All the problems faced by women need proper attention and timely treatment.

1. 5 SIGNIFICANCE OF THYROID HORMONE

In an adult human, normal operation of a wide variety of physiological processes affecting virtually every organ system requires appropriate amounts of

thyroid hormone. Governing all of these processes, thyroid hormone acts as modulator or gain control rather than all-or-none signal that turns the process on or off. In the immature individual, thyroid hormone plays an indispensable role in growth and development.

Its presence in optimal amounts at a critical time is an absolute requirement for normal development of the nervous system. In its role in growth and development too, its presence seems to be required for the normal unfolding of processes whose course it modulates but does not initiate. Indeed, deranged function of the thyroid gland is among the most prevalent of endocrine diseases and may affect as many as 4-5% of the population in the United States. "Brain cells have more T3 receptors than any other tissues which mean that a proper uptake of thyroid hormone is essential for the brain cells to work properly." Dr. Barry Durant-Peat field. (Goodman, H. Maurice, 2003)

1.6 STRUCTURE OF THYROID GLAND

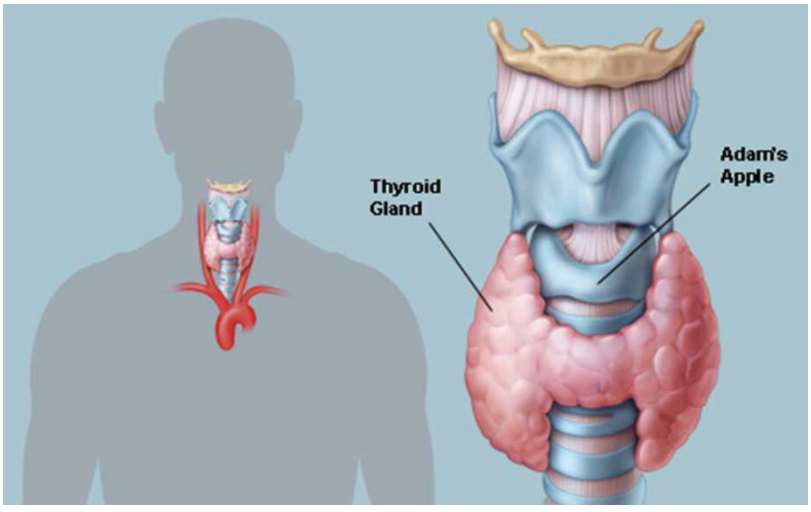

Figure 1: Thyroid Gland

The thyroid gland is located in the anterior neck, overlying the inferior border of the larynx; it is fixed to the anterior surface of the upper trachea by loose

connective tissue. It consists of two lateral lobes – one on either side of the trachea – connected by a narrow isthmus.

The gland is composed of spherical thyroid follicles that contain colloid surrounded by a layer of cubical follicular cells; these cells synthesize the thyroid hormones T4 and T3 Para follicular cells, located between the follicles, secrete the hormone thyrocalcitonin. (Straight A's in Anatomy & Physiology, 2007)

1.7 SYMPATHETIC AND PARASYMPATHETIC NERVES SUPPLY

The thyroid gland has an abundant supply of sympathetic and parasympathetic nerves. Some studies suggest that sympathetic stimulation or infusion of epinephrine or norepinephrine may increase secretion of thyroid hormone. (Goodman, H. Maurice, 2003)

1.8 FUNCTION OF THYROID HORMONE

The thyroid hormones control the metabolism of cells, which is their speed of activity. If there is too little hormone, the body cells work too slowly; too much results in them working too fast. Thyroid hormones regulate the rate of oxygen consumption. This metabolic action influences the utilization of the main components of food: sugars, protein and fat. Although thyroid hormones have a similar effect and influence the proper working of all body cells, their action is particularly evident in certain tissues and for certain functions. For example, the physical and brain development of a baby growing in the womb depends on the presence of the correct amount of thyroid hormones in the mother until the twelfth week of the pregnancy when the baby's own thyroid gland begins to function. In a child, too little hormone will slow up growth, whereas too much may make the child grow faster than normal. Thyroid hormones also have very noticeable effects on bone, fat, the heart, and

muscle amongst other organs. The thyroid makes two hormones. One is thyroxin which, because it contains four atoms of iodine, is also called T4.

The other is triiodothyronie which contains three iodine, is also called T3. Both these hormones are secreted into the bloodstream and carried round the body. In distant tissues the thyroxine is converted to triiodothyronine, and it is the triiodothyronine which actually influences the distant cells and is the so-called active hormone. Secretion of thyroid hormones is controlled by the pituitary gland. The pituitary is an endocrine gland the size of a grape which lies at the base of the brain. It secretes many different hormones, but thyroid – stimulating hormone, also known as TSH or thyrotropin, is the hormone that controls thyroid function. (Werner & Ingbar's, 2005)

1.9 HORMONAL IMBALANCE LEADING TO THYROID DISORDERS

Thyroid hormone balance is essential in order for the body to function properly. Some of the bodily functions that rely on thyroid hormone balance include energy regulation, growth, weight control, body temperature regulation, tissue restoration, carbohydrate, fat, and protein metabolism, digestion, blood flow, hormone secretion, and sexual function. Therefore, it is crucial for the thyroid to perform at an optimal level. Scientists now consider thyroid hormone one of the major "players" in brain chemistry disorders. And as with any brain chemical disorder, until treated correctly, thyroid hormone imbalance has serious effects on the patient's emotions and behavior. (Arem, Ridha, 2007).

1.10 WOMEN, STRESS AND THYROID HORMONE IMBALANCE

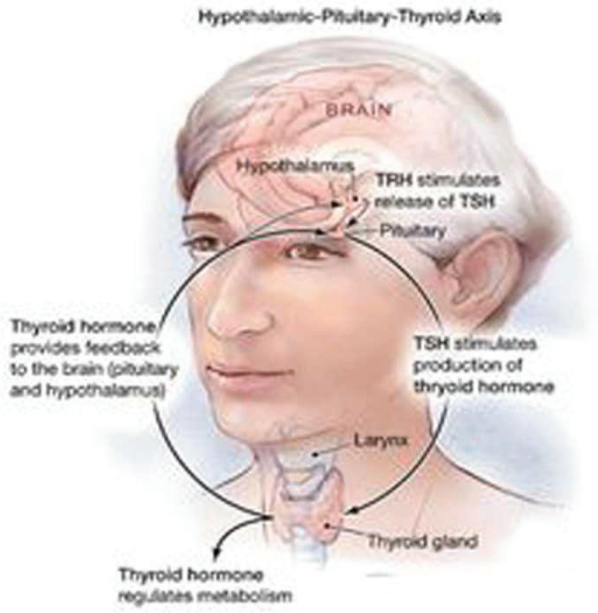

Figure 2: Hypothalamic – Pituitary - Thyroid Axis

Stress affects women's bodies in unique ways, which are not adequately covered in the realms of stress management books available. One early 2000 study reported by Time Health Media found that women were more likely than men to react to stress with a nurturing impulse, looking after others before themselves. (Rosenthal, M. Sara, 2005)

Stress and an inability to handle stress can precipitate the onset of a thyroid imbalance. Thyroid imbalance, in turn, impairs one's ability to deal with stress and makes one perceive trivial or annoying matters as more significant. If a person has been diagnosed with a thyroid imbalance, stress management techniques should be part of treatment program to maintain optimal physical and emotional wellness. If a person is genetically predisposed to a thyroid imbalance, stress management techniques may prevent the onset of an imbalance. Stress hormones actually put a physical strain on women's bodies, and can lower the resistance to disease.

Initially, stress hormones stimulate out immune system. But after the stressful event has passed, the overworked immune system can become suppressed, leaving women open to a wide variety of illnesses and physical symptoms. Once women are in a state of stress, the body adapts to the stress by depleting its resources until it becomes exhausted, which can leave them vulnerable to a host of physical symptoms, which indeed can be manifested as autoimmune disorders, fatigue and depression. Current statistics from the Duke Center of Integrative Medicine reveal that 90 percent of women ignore clear physical signs of stress. It is crucial to understand that a mental state or stress can trigger and worsen thyroid disease. Even though stress is not the only possible catalyst, it is in many patients an obvious one. Physicians Deepak Chopra, Andrew Weil, and Bernie Siegel have emphasized the importance of attitude and mind-related techniques (such as meditation and guided relaxation) to help avoid or overcome illness and have increased our understanding of the relationship between stress and illness. If one handles stress well, the response of the endocrine system is minimal and short-lived. But if one is stressed for a long time; experience major upheavals, setbacks, or traumas; or have difficulties coping with stress, the endocrine system becomes chronically challenged and causes health problems. One of the significant consequences of the endocrine system's response to too much stress or difficulty coping with stress is a disturbance of the immune system. There are differences in the physiologic responses to stress between women and men. These differences make women more vulnerable to autoimmune disorders. (Arem, M.D., Ridha, 2007)

Both underactive and overactive thyroid dysfunction is an autoimmune disorder. This means that the immune system is producing antibodies to our own tissues.

There is increasing evidence that when our digestion is not functioning properly and the food is not broken down fully in the gut, the incompletely digested proteins become immunogenic that is they are large enough for the immune system to recognize them as foreign entities and produce antibodies for protection. Unfortunately, the antibodies can cross-react with our own tissues and in this case attack the thyroid gland. (Swami Karmananda, 2006)

1.11 PREVALENCE OF THYROID DISORDERS

Thyroid problems are widespread around the world. It is estimated that more than 200 million people worldwide have thyroid disease. Thyroid complications can arise at any point during one's lifetime. Hypothyroidism is more common among women than men, with a female-to-male ratio of 10:1. (Vanderpump, 2005).

1.11.1 GENDER-SPECIFIC PREVALENCE OF THYROID DISORDERS

Current estimates suggest that thyroid disorders affects as many as 9% to 15% of the adult female population and a smaller percentage of adult males. This gender-specific prevalence almost certainly results from the underlying autoimmune mechanism for the most common forms of thyroid disease, which include both Graves' and Hashimoto's disease. (Klein and Danzi, 2007).

1.11.2 THYROID DISORDERS IN INDIA: AN EPIDEMIOLOGICAL PERSPECTIVE

Thyroid diseases are common worldwide. In India too, there is a significant burden of thyroid diseases. According to a projection from various studies on thyroid disease, it has been estimated that about 42 million people in India suffer from thyroid diseases. (Ambika Gopalakrishnan, 2011).

1.11.3 PREVALENCE OF HYPOTHYROIDISM

In the Whickham survey, the prevalence of newly diagnosed overt hypothyroidism was 3 per 1000 women. The prevalence of previously diagnosed and treated hypothyroidism was 14 per 1000 women, increasing to 19 per 1000 women when possible, but unproven, cases were included. The overall prevalence in men is less than 1 case per 1000. One third had been previously treated by surgery or radioiodine for thyrotoxicosis. Excluding iatrogenic causes, the prevalence of hypothyroidism was 10 per 1000 women, increasing to 15 per 1000 when possible, but unproven, case were included. This is comparable with other studies, including the Colorado and NHANE III studies, in which the prevalence of newly diagnosed hypothyroidism was 4 per 1000 and 3 per 1000, respectively. In Pescopagano, the prevalence of newly diagnosed overt hypothyroidism was 0.3% of 573 women and no subject had been diagnosed and treated for hypothyroidism. In Copenhagen, 6 per 1000 of the women and 2 per 1000 men had overt but undiagnosed hypothyroidism and 1% was taking T4. (Vanderpump, 2005)

1.11.4 PREVALENCE OF SUBCLINICAL HYPOTHYROIDISM

Among adult people in India, the prevalence of hypothyroidism has been recently studied. In this population-based study done in Cochin on 971 adult subjects, the prevalence of hypothyroidism was 3.9%. The prevalence of subclinical hypothyroidism was also high in this study, the value being 9.4%. In women, the prevalence was higher, at 11.4%, when compared with men, in whom the prevalence was 6.2%. The prevalence of subclinical hypothyroidism increased with age.

About 53% of subjects with subclinical hypothyroidism were positive for anti-TPO antibodies. This was a population-based study, which used cluster sampling strategy. (Ambika Gopalakrishnan, 2011)

Subclinical hypothyroidism or mild thyroid failure is a common problem, with a prevalence of 3% to 8% in the population without known thyroid disease. The prevalence increases with age and is higher in women. After the sixth decade of life, the prevalence in men approaches that of women, with a combined prevalence of 10%. Anti thyroid antibodies can be detected in 80% of patients with Subclinical hypothyroidism, and 80% of patients with Subclinical hypothyroidism have a serum thyroid stimulating hormone of less than 10 mI U/L. (Fatourechi, Vahab, 2009)

1.12 HYPOTHYROIDISM: A DECREASE IN THYROIDAL PRODUCTION

Hypothyroidism, a condition in which the thyroid gland does not make enough thyroid hormone, is the most common clinical disorder of thyroid function. It is most often caused by disorder of the thyroid gland that leads to a decrease in thyroidal production and secretion of thyroxine (T4) and triiodothyronine (T3), in which case it is referred to as primary or thyroidal hypothyroidism. Primary hypothyroidism is invariably accompanied by increased thyrotropin (TSH) secretion. (Brverman, LE and Utiger, Robert, 2005)

1.12.1 TYPES OF HYPOTHYROIDISM

Primary hypothyroidism is a condition described by the failure of the thyroid gland to synthesis adequate thyroid hormones. Primary hypothyroidism is always accompanied by increased thyroid-stimulating hormone (TSH) secretion.

Secondary and tertiary hypothyroidisms are described to as central hypothyroidism. The pathology of secondary hypothyroidism lies in the pituitary gland and its malfunction to produce thyroid-stimulating hormone (TSH). Tertiary hypothyroidism is caused by an insufficiency in the hypothalamus, which fails to adjust the pituitary gland through the secretion of thyrotropin-releasing hormone. Subclinical hypothyroidism (SCH) is defined as a serum thyroid-stimulating hormone (TSH) level above the upper limit of normal despite normal levels of serum free thyroxine (T4). (Brverman, Lewis E. and Utiger, Robert D., 2005)

1.13 SUBCLINICAL HYPOTHYROIDISM

The thyroid gland, a 2-inch-long, butterfly-shaped gland located just below the larynx (voice box), produces hormones responsible for one's metabolism (use of energy by the body). The pituitary gland, located at the base of brain, secretes thyroid-stimulating hormone (TSH), which makes the thyroid produce and release thyroxin, the main thyroid hormone. The pituitary is regulated by another area of the brain called the hypothalamus, which produces thyrotropin-releasing hormone (TRH). When thyroid function is too low, the pituitary increases its output of TSH to stimulate the thyroid to work harder. Subclinical (without obvious symptoms) hypothyroidism (low thyroid function) describes a situation in which thyroid function is only mildly low, so that the blood level of thyroxin remains within the normal range, but the blood level of TSH is elevated, indicating mild thyroid failure. An issue of The Journal of the American Medical Association includes an article reporting that subclinical hypothyroidism is associated with an increased risk of coronary heart disease, especially if the levels of TSH are very high (10 mU/L or more). (Pluta, 2010)

Subclinical hypothyroidism---also called mild thyroid failure---is a disease in which patients have an underactive thyroid. The primary cause of this condition is a disorder of the thyroid gland. These patients typically have significantly elevated levels of thyroid stimulating hormone (TSH), but normal levels of free thyroxin (T4) in the blood. Subclinical hypothyroidism is a relatively common syndrome.

1.13.1 CAUSES OF HYPOTHYROIDISM

Subclinical hypothyroidism is caused by the same disorders of the thyroid gland as those that cause overt hypothyroidism, which are listed below. (Adlin,Victor.,1998)

- Idiopathic
- Chronic autoimmune thyroiditis
- Treated Graves' disease
- Radioactive iodine therapy
- Subtotal thyroidectomy
- Antithyroid drugs
- Head and neck surgery
- Radiation therapy to the head, neck or chest area
- Iodine deficiency
- Medications: lithium, iodine, amiodarone (Cordarone)
- Secondary hypothyroidism (hypopituitarism)
- Congenital.

1.13.2 SIGNS AND SYMPTOMS OF HYPOTHYROIDISM

The clinical signs and symptoms of hypothyroidism are manifest when the disease is fully developed. But even in the subclinical stage, one or more of these findings may occur. Some studies suggest that patients with subclinical hypothyroidism do indeed have clinical manifestations of mild thyroid failure. (Adlin, Victor, 1998)

- Fatigue, loss of energy, lethargy
- Weight gain
- Decreased appetite
- Cold intolerance
- Dry skin, Hair loss
- Sleepiness
- Muscle pain, joint pain, weakness in the extremities
- Depression
- Emotional liability, mental impairment
- Forgetfulness, impaired memory, inability to concentrate
- Constipation
- Menstrual disturbances, impaired fertility
- Decreased perspiration
- Parenthesis and nerve entrapment syndromes
- Blurred vision
- Decreased hearing
- Fullness in the throat, hoarseness.

1.13.3 DIAGNOSIS OF HYPOTHYROIDISM

Modern blood testing is seen as an essential component in diagnosing hypothyroidism. Doctors measure the amount of thyroxin (T4) and triiodothyronine (T4) to assess how well the gland is working. Many doctors and researchers measure the amount of thyroid stimulating hormone (TSH) or thyrotropin in the blood stream. TSH is released when there is too little T4 so the more TSH the person has in his body the more underactive the thyroid (and the less TSH the more overactive your thyroid). (Budd, Martin., 2000)

1.14 ALTERNATIVE MODE OF TREATMENT

There has been growing awareness and interest in many non-conventional/alternative mode of treatment for ailments. Lifestyle factors have made scientists look for lifestyle oriented health management programs. The conventional medicine with its too much emphasis on disease oriented approach has neglected the 'person' or 'being.' Commercialism of healthcare and failures of pharmacological and invasive techniques has resulted in re-evaluating some of the traditional healing techniques. Some of the alternative healing techniques are striving to be accepted by the medical community. There was a growing attention in western science towards mind and its power to influence the body. Secondly, people were gathering evidence on the effects of yoga on emotional and physical conditions. The medical science wanted to include the new meaningful dimension of mind-body relation in disease and healing. The role of the mind as a corrective or healing procedure has been extensively studied in the treatment and management of diseases. The relaxation response, biofeedback procedure, hypnosis, Transcendental Meditation, Yoga, mindful meditation and many other alternatives have supported the view that taking support or control over the mind, health states can be altered. (Latha Satish, 2003).

Some of the best results in dealing with hypothyroidism are experienced by patients who see a practitioner versed in a complete system of alternative medicine. Bodywork can be quite helpful for unresolved hypothyroid symptoms, particularly if the therapist is familiar with the disease and is able to offer a combination of techniques. Medical studies have found various forms of massage and physical therapy to be effective in dealing with pain, depression, energy, insomnia and inflammation. (Shomon, Mary J., 2005)

1.14.1 MIND-BODY CONNECTION IN THYROID CONDITIONS

With thyroid conditions, the mind-body connection is not just part of the disorder; it is part of the treatment as well. The thyroid is the annex to the brain – the gland with which and through which the brain communicates. For this reason, it is very responsive to techniques that work on the body through the mind. If one has been diagnosed with a thyroid imbalance, stress management techniques should be part of the treatment program to maintain optimal physical and emotional wellness. Regular exercise relieves tension, anger and confusion. Exercise training is effective in improving mood, alleviating depression and anxiety, and also reducing the perception of stress. (Arem, Ridha., 2007)

Research shows that mind-body techniques are particularly useful in the stress-reduction areas, helping to reduce BP, pain, headaches, asthma and other illnesses with strong stress component. Mind-body techniques are also empowering, involving one in their own health care as an active participant. (Shomon, Mary J., 2005)

1.14.2 YOGA : MIND-BODY THERAPY

Mind-body therapy is a broad category that looks at everything from prayer to yoga to counseling to dance to breathing. Basically, they are all practices or therapies that seek to heal, establish a link between conscious thought and the body with the goal of affecting physiological processes, and trigger what's referred to as the "relaxation response." Research shows that mind-body techniques are particularly useful in the stress-reduction areas, helping to reduce BP, pain, headaches, asthma and other illnesses with strong stress component. Mind-body techniques are also empowering, involving one in their own health care as an active participant. (Shomon, Mary J., 2005)

In the mind-body approach to health, mind refers to our thoughts, attitudes and emotions which have an impact on the body. Constantly paying attention to these mental states and influencing them, one can alter their health states. (Latha Satish, 1999)

Yoga has traditionally involved the idea that bodily position and posture are basically linked to personality and emotion. Hatha yoga is that branch of yoga which includes a series of postures to stretch and strengthen each of the muscles and tendons that may have become shortened and contracted due to mental tension and faulty posture. Simultaneously, muscle groups which have become from disuse are also gradually strengthened. The posture a person takes is a reflection of his state of mind. In this sense, the physical state is an "embodiment" of a mental state. That is, the mental state takes physical form. Posture is a stance from which we face the world both physically and mentally. Mental tension is revealed by the body in many ways. When the body is tensed in this way, movements loose their natural fluidity and

become stiff. Therefore working with the body and posture as a way of promoting personal growth is natural and inevitable development in yoga. (Swami Rama, 2007)

Stress management should become a central part of any strategy for treating thyroid patients. Persons who have suffered thyroid imbalances are always on the brink of falling into an escalation cycle. Some need counseling and psychotherapy; others need antidepressants and anti anxiety medications. But everyone benefits from perfect thyroid balance and relaxation techniques, which will help avoid the overwhelming stress that kicks off the cycle. The brain has to show the thyroid and immune system that it is in control. A report presented in 1995 at the Eleventh International Thyroid Congress in Toronto showed that in patients with Graves' disease, stress could promote a relapse of overactive thyroid. (Arem, Ridha. 2007)

1.15 INTRODUCTION TO YOGA

Yoga is the study of functioning of the body, the mind and the intellect in the process of attaining freedom. It is the experience of one's self-acquired knowledge. Yoga is a philosophy, a way of life, wherein art and science meet. Yoga enhances the quality of one's life. It lifts up one's thoughts and enables one to face life's difficult situations happily and with equanimity, it teaches one to strive to achieve a goal in life, to cultivate friendliness, concentration, piety, contentment, joy and to discard what is non-essential, to cultivate good habits and to lead a righteous life. Yoga is disciplined action to achieve and attain final emancipation. The science of yoga consists of acquiring knowledge through observation and experiment. It is a science which deals with the body and the mind, whereby the rhythm of the mind is conquered by controlling the body. Through the practice of yoga the health and strength of the body and mind are acquired. Yoga frees one from life's sorrows and

from the diseases and fluctuations of the mind. It gives serenity and composure, an inward unity amidst the diverse struggles of life. It is the art of knowing oneself and knowing the eternal truth. (Geetha Iyengar, 2013)

In the physical plane, yoga means union of body and mind using the breath. At a deeper level, yoga means union of the mind and body complex with the conscience, or the self. At a much deeper level yoga means union of the Self with its Source. (Chandrasekar, N. 2012)

1.15.1 YOGA DARSANA

Yoga is one of the six fundamental systems of Indian thought collectively known as darsana; the other five darsana are nyaya, vaisesika, samkhya, mimamsa and Vedanta. The word darsana is derived from the Sanskrit root drs, which translates as "to see." Darsana therefore means "sight," "view," "point of view," or even "a certain way of seeing." But beyond these lie another meaning; to understand this one we must conjure an image of a mirror with which we can look inside ourselves. And in fact all the great texts introduce us to ways of seeing that create opportunities for us to recognize ourselves better. We look deeper inside ourselves as we come in terms with the teachings. As one of the six darsanas, yoga has its origins in the Vedas, the oldest record of Indian culture. It was systematized as a special darsana by the great Indian sage Patanjali in the Yoga Sutra. (T. K. V. Desikachar, 1995)

1.15.2 THE BASIC PREMISE OF PATANJALI'S TEACHING

It is that human mind is both the source of and solution to problems. If the mind is distracted or agitated then the person gets into trouble, but if the mind is focused and calm it helps to solve the problems encountered in everyday life.

Patanjali had a profound understanding of the way the human mind functions. He understood that the mind has many different dimensions and supports many different activities, states and functions. He also understood the multitude of influences that affect the mind. This influence in turn affects the mind's character, functioning and its qualities. Patanjali knew, for example, that the body influences the mind. If the body is tired or stressed so is the mind. If the body is relaxed and calm then the mind is relaxed and calm. He also understood the role of the breath in affecting the mind. When the breath is agitated, the mind becomes agitated. When the breath is smooth and steady, the mind is smooth and steady. Similarly, the food one eat, lifestyle, the company one keep, emotional state etc. all of these things affect the mind. In essence, what Patanjali grasped was that all aspects of the human system, the physical aspect, the breath, the intellectual aspect, the personality, the emotions are all interrelated. (Kausthub Desikachar, 2005)

1.15.3 NADIS AND CHAKRAS SYSTEMS OF YOGA

The yogis understand disease and illness in relation to the free flow or impediment of prana in the nadis. If prana is blocked at any point, there will be disease. Illness will also result if there is an excess or a deficiency of energy within the system. Health and well being result when prana is freely distributed and properly balanced in every dimension of our being. Yoga is effective in maintaining and restoring optimum health to the whole system precisely because yogic practices are specifically designed for the redistribution and harmonization of prana. (Swami Muktananda, 2007)

1.15.3.1 NADIS

The word nadi is derived from nad meaning a hollow stalk, sound, vibration and resonance. Nadis are tubes, ducts or channels which carry air, water, blood, nutrients and other substances throughout the body. All nadis originate from one of two centers, the kandsthana, a little below the navel – and the heart. Though Yoga texts agree about their starting points, they vary about where some of them end. Twelve digits above the anus and the genital organs and just below the navel, there is an egg-shaped bulb called the kanda.

From it 72, 000 nadis are said to spread throughout the body, each branching off into another 72, 000. They move in every direction and have countless outlet and functions. The Siva Samhita mentions 350, 000 nadis are there of which fourteen are stated to be important. The three that are most vital are the susumna, id and pingala. (B.K.S. Iyengar, 1991)

1.15.3.2 CHAKRAS

Chakra means a wheel, a ring. Chakras are flying wheels, radiating energy, located at vital centers along the spine, connecting the nadis to the various sheaths. To conserve the energies generated within the body and to prevent their dissipation, asanas and mudras, pranayama and bandhass were prescribed. The main chakras are: (B.K.S. Iyengar, 1991)

1. Muladhara (mula - source, adhara – support, vital part), situated in the pelvis above the anus.

2. Svadhisthana (seat of a vital force), situated above the organ of generation.

3. Manipuraka, situated in the navel.

4. Anahata – situated in the cardiac area

5. Visuddhi situated in the pharyngeal region.

6. Ajna situated between the eye-brows.

7. Sahasrara, which is called the thousand-petalled lotus in the brain.

It may be that these chakras correspond to the endocrine glands, which supply hormones and other internal secretions to the system. The muladhara and the svadhisthana chakras perhaps correspond to the gonads.

The abdominal organs like the stomach, spleen, liver, and pancreas perhaps correspond to the manipuraka chakra. The anahata chakra is the heart and the main blood vessels around it. The visuddha chakra may be the thyroid, parathyroid and thymus. The ajna, sahasrara may be the brain matter and the pituitary and pineal glands. (B.K.S. Iyengar, 1991)

1.15.4 ASHTANGA YOGA – THE EIGHT LIMBS

Patanjali calls his advice 'ashtanga yoga,' of the eight limbs of yoga. These are steps towards the goal, not sequential, but fully interrelated, each reinforcing the other. Patanjali has significantly described them as limbs because in any body the limbs that constitutes its growth in an organic proportionate and concurrent manner till full development is reached. (Krishna Raman, 1998)

"*Yoganganusthanad - asuddhiksaye*

Jnanadiptih - avivekakhyateh"

Yoga Sutra II, 28 (T. K. V. Desikachar, 1995)

The practice and inquiry into different components of yoga gradually reduce the obstacles such as misapprehension. Then the lamp of perception brightens and the

distinction between what perceives and what is perceived becomes more and more evident. Now everything can be understood without error. If the mind is cleared of the obstacles that cloud real perception there can be no errors or flaws in perception. Actions are freed from regrettable consequences. (T. K. V. Desikachar, 1995).

"Yamaniyamaasanapranayamapratyahara

Dharanadhyanasamadhayo stavagani"

Yoga Sutra II, 29 (T. K. V. Desikachar, 1995)

There are eight components of Yoga. These are:

1. Yama, our attitudes toward our environment.
2. Niyama, our attitudes toward ourselves.
3. Asana, the practice of body exercises.
4. Pranayama, the practice of breathing exercises.
5. Pratyahara, the restraint of our senses.
6. Dharana, the ability to direct our minds.
7. Dhyana, the ability to develop interactions with what we seek to understand.
8. Samadhi, complete interactions with the object to be understood.

1.15.5 THE MAIN ANGAS

Yogic philosophy looks at the body as being made up of three layers and five sheaths. Three layers are the causal body, the subtle body and a gross body. Every individual functions in mind, matter, energy and pure consciousness through five sheaths. They are annamaya kosha, which is dealt with by asanas. Pranamaya kosha is treated by pranayama. The manomaya kosha is worked on by meditation. Vijnanama kosha is transformed by studying the scriptures with sincerity and

discrimination. Once these goals are addressed, one reaches the anandamaya kosha. (B. K. S. Iyengar, 2001)

1.15.5.1 ASANA

Asana is the positioning of the body in various postures, with the total involvement of the mind and self, in order to establish communication between our external and internal selves. Asanas are one of the major tools of yoga. Their benefits range from the physical level to the spiritual. That is why yoga is called sarvanga sadhana, or holistic practice. The body is the abode of Brahman. It plays a vital part in attaining the four-fold aims of life. The sages knew that thought the body wears out, it serves as an instrument to attain realization and, as such, it has to be kept in good condition. Asanas purify the body and mind and have preventive and curative effects. They are innumerable, catering to the various needs of the muscular, digestive, circulatory, glandular, nervous and other systems of the body. They cause changes at all levels from the physical to the spiritual. Health is the delicate balance of the body, mind and spirit. By practicing asanas the sadhaka's physical disabilities and mental distractions vanish and the gates of the spirit are opened. Asanas bring health, beauty, strength, firmness, lightness, clarity of speech and expression, calmness of the nerve and happy disposition. He is free from dualities. (B.K.S. Iyengar, 1991)

"There is a specific asana, or pose, that is thought to be of great benefit to the thyroid. The half shoulder stand (viparit karani mudra) and shoulder stand position both invert and stimulate the thyroid gland." Stated in "Living Well with Hypothyroidism" a bestselling book by Shomon, Mary J., who is an American Health Activist, thyroid expert and author whose primary focus is thyroid disorders.

1.15.5.2 PRANAYAMA

Pranayama is a conscious prolongation of inhalation, retention and exhalation. Inhalation is the act of receiving the primeval energy in the form of breath, and retention is when the breath is held in order to savour that energy. In exhalation all thoughts and emotions are emptied with breath; then, while the lungs are empty, one surrenders the individual energy, 'I', to the primeval energy, the athma. The practice of pranayama develops a steady mind, strong will-power and sound judgment. Pranayama is not just automatic habitual breathing to keep body and soul together. Through the abundant intake of oxygen by its disciplined techniques, subtle chemical changes take place in the sadhaka's body. The practice of asanas removes the obstructions which impede the flow of prana, and the practice of pranayama regulates the flow of prana throughout the body. It also regulates all the sadhaka's thoughts, desires and actions, gives poise and the tremendous will-power needed to become a master to one. (B.K.S. Iyengar, 2008)

According to yoga, every cell, tissue, organ or system in the body is made to function independently and in coordination with the whole constitution, in relation and according to circumstances around. This functionality is feasible only with proper and uninterrupted supply of prana. Proper prana flow ensures smooth functioning of all the systems. If on the other hand, there is any block in the channels of prana flow or when prana is vitiated or dull, it produces malfunctioning of the constitution resulting in diseases or in other words when prana flow is maintained health is maintained. Even during diseased condition, the therapist job is to identify the block in the passage of prana and to remove the block. This enables proper prana circulation and health is restored. This is how yoga therapy is applied. (Chandrasekar N, 2012). "The most basic pranayama of all is deep abdominal breathing. There is

also a specific breathing exercise that is designed to help the thyroid and the throat chakra. The technique is breathe in through the nose, focusing the inhalation toward the back of the throat (Ujjayi). (Shomon, Mary J.,2005.)

1.15.5.3 DHARANA AND DHYANA

Dhr means to hold. The essential idea in the concept of dharana is holding the concentration or focus of attention in one direction. Dharana is the condition in which the mind focuses and concentrates exclusively on one point. In dhyana, one becomes involved with a particular thing, a link is established between self and object. In other words, one perceives a particular object and at the same time continuously communicates with it. Dharana must precede dhyana, because the mind needs focusing on a particular object before a connection can be made. Dharana is the contact and dhayna is the connection. (T. K. V. Desikachar, 1995)

Regular meditation or guided relaxation and imagery have notable effects on blood pressure, anxiety, chronic pain and can clinically reduce cortisol levels, a measure of the body's stress. Meditation training can help chronically ill patients to reduce symptoms and improve quality of life, and benefit the immune system. Researchers have also established by using magnetic resonance imaging that meditation actually activates certain structures in the brain that control the autonomic nervous system. (Shomon, Mary J., 2005)

1.15.6 HEALTH ACCORDING TO YOGA

According to yoga, any obstacle that prevents the realization of the self is an indication of physical indisposition causing a modification in the mental state-

chittavrtti. The aim of Yoga is to restrain both physical disturbances and mental modifications.

The obstacles or impediments are: sickness, inaction, doubt, delusion, carelessness, non abstention, erroneous conception; non-attainment, and instability in the sadhana, sorrow, dejection, restlessness and disturbed or unrhythmic breathing. These originate in the body or in the mind. Therefore, health means total freedom from physical and mental afflictions in order to achieve one's goal. Modern medical science is not at variance with the above definition and it agrees that the relationship between the body and the mind is intimate. (Geeta Iyengar, 2013)

1.16 YOGA AS TREATMENT MODALITY

Yoga is becoming popular in different parts of the world. For the restless mind, it gives solace. For the sick, it is a boon. For a common man, it is the fashion of the day to keep him fit and beautiful. Some use it for developing memory, intelligence and creativity. With its multifold advantages, it is becoming a part of education. Specialists use it to unfold the deeper layers of consciousness in their move towards perfection. Because of its rational basis, the modern medical system has replaced almost all the traditional systems of medicine in different parts of the globe. It has proved itself most effective in saving man from the fatal hands of contagious and infectious diseases. However, new widespread psychosomatic ailments are posing a great challenge to the modern medical systems. It is here that Yoga appears to make a vital contribution to the modern medical system. (Nagendra and Nagarathna, 2005)

Yoga is a form of medicine. The fact that it can prevent and cure many ailments has been accepted. Yoga has been used as a tool of psychological and

spiritual evolution and health for hundreds of years. It has given clear-cut guidelines both for preventive and cure. Today, more than ever, the need for preventive systems of medicine is being widely realized. The cost of medical care is rising all over the world.

Sophisticated diagnostic tools, now thought to be so necessary to assess even simple illnesses, are expensive to manufacture. Prescriptive drugs come in complicated combinations that add to the costs of production. Newer and more hitech hospitals and nursing homes are being set up. Preventive care is the only way by which this urgent problem can be effectively tackled. Yoga lays great emphasis to prevent illness and more important to preserve health. Yoga is the ideal form as it is totally non-invasive, gentle and soothing. Also it is most effective. There is no equipment needed. The practice of yoga instills confidence in a person, especially if recovering from an illness. Apart from the asanas and pranayama, the other precepts for good living laid down by patanjali reinforce a healthy body and mind. (Krishna Raman, 1998)

Yogic practices are effective for prevention of diseases. It lays great emphasis on strengthening inherent defensive mechanisms of human body and mind. It develops immunity and resistance in the human body and helps the body and the mind in attaining homeostatic balance. The strengthening of defense mechanism and the harmony between mind and body prevents onset of diseases. Yoga helps in channelizing the psychic energy (prana) effectively so that the permanent solution is arrived at by uprooting the cause of the problem. (MDNIY, 2010)

"In my never-ending quest for wellness – on a variety of levels – I have to say that yoga is one of the more satisfying, rewarding, and effective treatments I've

found for energy, reduction of muscle or joint pain, and peace of mind." (Shomon, Mary J., 2005)

1.17 THE NEED OF YOGA FOR WOMEN IN MODERN ERA

From a careful study of the features distinguishing woman from man, namely, her physical body, her changing physiological functions and emotional states, it follows that, if she chooses to adopt yogasana and pranayama as part of her way of life, they will be even meaningful and advantageous to her. Yoga helps woman to fulfill her tasks as well as to maintain her complexion, luster, and femininity. She no longer needs cosmetics, as proper blood circulation makes her skin glow. It is no exaggeration to say that yogic practices are ideally designed to help her in all conditions and circumstances of her daily life. The practice of yoga has a tremendous effect on character and makes one morally and mentally strong. The approach to life becomes more positive and tolerant. One becomes more thoughtful and discriminative and acquires intellectual clarity. (Geeta Iyengar, 2013).

A woman has to take care to be healthy in body and mind so that her family keeps well. She has to set the example of glowing health. To do so, she has to be aware of all that can go wrong with her, physically and mentally. Biologically, women age faster than men, and therefore they should preserve their health by adopting appropriate measures. Yoga is the ideal method. (Krishna Raman, 1998)

1.18 VARIED YOGIC PRACTICES

Yoga has changed into many different forms and styles over the last 5000 years, each with their own set of principles and purpose. There are several different approaches in yoga being taught and practiced today. Even though almost all of these

approaches are based on the same body, breath and mind connection, each type has a specific emphasis.

An approach to a particular issue differs from one type to other. Some type of yoga focuses more on inversions to address hormonal issues since emotion play a vital role and addressing through emotional balance. Some type of yoga focuses on chakra based approach.

1.18.1 YOGIC PRACTICES BASED ON CHAKRA MODEL

There has been a lot research conducted and is going on to find out the existence of energy fields, which the yogis termed as chakras. Research has also confirmed the existence of chakras. A researcher at University of California Los Angeles, Valerie Hunt, found that there are high frequency vibrations radiating from the seven energy fields. Hiroshi Motoyama, a researcher from Japan found that when a person directed his mental focus to individual chakras, he could increase the frequency of that specific area. Neuropharmacologist, Candance Pert, found a high concentration of a particular neuropeptide at the location of the chakras. Vasoactive intestinal peptide, a neuropeptide, is vital in regulating the neural immune switches between the brain and the immune system.

Each chakra has what is called a “trigger point” in the front of the body. When we concentrate on this point, it helps us to become aware of the chakra itself. The chakras influence the nervous and endocrine systems of the physical body through the association of each chakra with a specific nerve plexus and a particular gland. Through these physical counterparts, the chakras are also concerned with certain psychological attitudes, thus acting as a bridge between body and mind. Primarily these vortices of concentrated energy act as storage, amplification and

distribution centers for prana and their full functioning were vital both to our physical well-being and our spiritual unfoldment. (Swami Muktananda, 2007)

The thyroid is also related to vishuddhi chakra, the psychic centre which purifies the poisons of the body, vish, and turns them into amrit, the nector of immortality. Long before medical science ever knew about the existence of thyroid glands, the yogis had devised practices which not only maintained healthy glands and metabolism, but also formed part of a system of enlightenment. The good health of the neuroendocrine system was understood to be vital to higher awareness. Sarvangasana is the most well recognized asana for the thyroid gland. An enormous pressure is placed on the gland by this powerful posture. As the thyroid has one of the largest blood supplies of any body organ, this pressure has dramatic effects on its function, improving circulation and squeezing out stagnant secretions. Stimulation of the area draws the awareness to the area, and with attentive awareness comes prana, the vehicle of healing. This means that as we concentrate on the area, the sensory nerves are stimulated, setting relays within the brain into motion. As the whole process is health giving, the brain tends to readjust its regulatory centers and a corresponding readjustment of muscular states, blood flow and nervous activity in the neck area follows. Therefore, the practice of sarvangasana is useful in both mild hypo and hyper state, as its overall effect is to rebalance. The effects of sarvangasana are enhanced by feeling the normal breath moving in and out of the throat while in this position. After sarvangasana, one should perform matsyaana, and from sarvangasa can practice halasana, pashinee mudra, padma sarvangasana, and other variations. All these practices are positive influences for better health of the thyroid gland. At the same time, all these practices should be avoided in severe thyrotoxicosis, physical

debility or a much enlarged goiter, where medical therapy is obviously the first line of treatment to be given. (Swami Karmananda, 2006)

Vipareeta karani mudra, though not placing as much pressure on the thyroid gland area, is more powerful than sarvangasana because it incorporates ujjayi pranayama and awareness of psychic passages. Other effective asanas include surya namaskar, pawanamuktasana with emphasis on the head and neck exercises, yoga mudra, supta vajrasana, and all backward bending asanas, sirshapada bhumi sparsasana, kandharasan, grivasana, simhagarjanasana, pawanamuktasana is useful for initial therapy in severe thyroid disease and for older patients. The most effective pranayama for thyroid problems is ujjayi. It act on the throat area and its relaxing and stimulating effects are most probably due to stimulation of ancient reflex pathways within the throat area, which are controlled by the brain stem and hypothalamus. This practice also gives us direct access into the pranic and psychic networks, the substructure of metabolic activity. Ujjayi is the basis of vishuddhi shuddhi and ajapa japa, which are very powerful yogic practices and should be taught after the patient, has acquired the initial skills thoroughly. Nadi shodana prayayama is useful in rebalancing metabolism through its effect on ida and pingala. Bhastrika pranayama should be used in hypothyroid because of its heating effects, its ability to speed up metabolism. Jalandhara bandha applies pressure to the thyroid area and should be incorporated into pranayama cautiously and after the initial exercises have been mastered. Other bandhas can also be added to enhance the effects of pranayama. Of course, in the long run the most powerful techniques to tune not only the thyroid gland, but also the whole neuroendocine system, are the potent maha bandha, maha mudra, and maha bheda mudra. These can be mastered only by advanced yoga students. One of the most prominent precipitating factors in states of thyroid

imbalance is long-term suppression and blockage of emotional expression. Balancing of the emotions and giving a suitable outlet for their expression is an important part of yoga therapy for thyroid disease. Kirtan is one of the most useful means. Another is ajapa meditation in conjunction with ujjayi pranayama. (Swami Karmananda, 2006)

1.18.1.1 BALANCE OF CHAKRAS FOR GOOD HEALTH

Proper balance in the Chakras is essential for our good health. The key in balancing the emotional and mental states are balancing the chakras through yogic practices. Hyper or hypo secretion of the endocrine glands results in activating receptors in centers of the brain which exaggerate emotional states. In the same way, imbalanced mental or emotional state can also be caused by weak nervous system. Yogic practices help in regulate the function of neuroendocrine system and thus balance the chakras. Specific yogic practices can help in strengthening the endocrine glands and nerves associated with the particular imbalanced chakras. Yogis have found that certain diseases are connected to specific chakras and they have also found that cleansing, clearing and stimulating the chakra in relation to the illness through specific asanas, pranayama, mudra, bandhas can be a beneficial part of the healing process.

1.18.2 YOGIC PRACTICES BASED ON T. KRISHNAMACHARYA'S APPROACH

Tirumalai Krishnamacharya was born on November 18, 1888 in a village in the state of Mysore. He was born into a family that traces its roots back to the famous ninth-century South Indian sage Nathamuni, author of the Yoga Rahasya and the first teacher in the line of Vaishnava gurus. Krishnamacharya received his first instruction in Sanskrit and yoga from his father before becoming a pupil at the Brahmatantra Parakala Mutt in Mysore, one of the best known and most respected Brahmin

Schools. Enrolled at the age of twelve, he studied the Vedic texts and learned the Vedic rituals while simultaneously attending the Royal College of Mysore. At the age of eighteen he moved to Banaras, where he studied Sanskrit, logic and grammar at the university. Back in Mysore, he received thorough grounding in the philosophy of the Vedanta from Sri Krishna Brahmantantra Swami, the director of the Parakala Mutt. Then he went north again to study the Samkhya, India's oldest philosophical system and the one on which yoga is fundamentally based. In 1916 he went to the Himalayas where, at the foot of Mount Kailash, he met his teacher, Sri Ramamohan Brahmahari, a learned yogi who was living with his family near Lake Manasarovar in Tibet. Krishnamacharya spent more than seven years with this teacher, who exercised considerable influence over the direction he took in his life, giving him the great task of spreading the message of yoga and using his abilities as a healer and helper of sick people. From 1933 to 1955 Krishnamacharya taught yoga in a yoga school, Mysore and wrote his first book, Yoga Makarandam (Secrets of Yoga). (T.K.V. Desikachar, 1995)

1.18.2.1 T. KRISHNAMACHARYA'S APPROACH: VINIYOGA

The principles of yoga can be applied by the practitioners on others to bring about a multitude of desired effects on them. This is called application of yoga. In Sanskrit, it is called viniyoga. According to Yoga Sutra, the definition of viniyoga,

"Tasya bhumisu viniyogah"

Yoga Sutra III. 6 (Chandrasekar, N. 2012)

Application of yoga should be according to the constitution of the individual. Application of yoga should respect the individuality in every individual. No two

individuals are identical in all respects. Therefore, application of yoga should be individualized.

Yoga Rahasya elucidates the concept of viniyoga in

"Kala Desa Vayo Vrtti Sakthir Vikshya Vicaranat Yoga Prayogam…."

Chapter 1 verse 30 (Chandrasekar, N. 2012)

It says that the teacher who applies yoga should definitely ascertain and deeply introspect upon the time, place, age, occupation and strength of the individual.

"Tatra dyanajam anasayam"

Yoga Sutra IV .6 (Chandrasekar, N. 2012)

If yoga is applied after complete and comprehensive study of the individual, one can avoid unnecessary apprehension about the result of such application. (Chandrasekar, N. 2012)

T. Krishnamacharya gave women's health and well being prime importance as he considered women as repositories of our culture in determining the potentials of futures generations. He introduced the concept of 'vinyasa Krama' i.e reaching the goal intelligently in a stepwise manner. There are vast differences among individuals. Each individual has different physical capacities, work at different mental levels and their needs vary. There cannot be a standardized prescription of yoga for all such generalizations. Individual differ in their conditions over time, depending on the stages of life and states of functioning. Due to the complexity of the human body and mind and complexity involved in the environment in which an individual functions, there is a need to modify, alter or vary the approaches of yoga. The approaches in yoga can be many. The possibilities can be immense within each of the techniques of yoga and their combinations. Further the role of diet, type of instructions, place of

teaching, relationship with the teacher, quality of teaching, the experience of the student, and experience of teacher are contributing to yoga. He also used 'sounds and 'chanting' as therapeutic tools. Individual, age, stages of life, mental states, mental health conditions, body needs and occupation are the multiple factors which determine the type of yoga practice to be used. There is no single answer to get out of a problem. The relative emphasis on asana, pranayama, or meditation practices varies according to the dimensions mentioned above. (Latha Sathis, 1999)

Viniyoga, as the system is generally referred to in the West, was propagated by T.K.V. Desikachar, the son of Krishnamacharya. It focuses intensely on the breath, and incorporates pranayama techniques and chanting into asana practice, although both pranayama and chanting are also done in their own right. The postures are gentle, and students flow in and out of the poses, sometimes holding them, but only briefly. Because of the movements are never forced and the poses are not held for long periods of time, the risk of injury is extremely low, making this style particularly well suited for students with chronic disease. Therapy is always done one-on-one, though there are some group classes taught in the West. This insistence on individualized attention has to do with the belief that the program must be tailored to the character and life circumstances of the person. In their assessment of patients, teachers perform Ayurvedic pulse diagnosis to establish the student's constitution and help formulate the treatment plan. Perhaps their most important reason for teaching only private lessons is their conviction that the relationship between student and teacher is vital to healing. (McCall, Timothy., 2007).

1.19 OBJECTIVES OF THE STUDY

1. To find out whether there would be significant differences in physiological variables such as resting heart rate, systolic blood pressure, diastolic blood pressure and body mass index due to varied yogic practices among women patients of hypothyroidism.
2. To find out whether there would be significant differences in hematological variables namely thyroid stimulating hormone, high density lipoprotein, low density lipoprotein, triglycerides due to varied yogic practices among women patients of hypothyroidism.
3. To find out whether there would be significant differences in psychological variables such as self esteem, stress and anxiety due to varied yogic practices among women patients of hypothyroidism.
4. To find out whether there would be significant differences between varied yogic practices.

1.20 REASON FOR SELECTION OF THE TOPIC AND THE VARIABLES

Yoga is an excellent alternative form of healing that is very suited to the needs of women with hormonal imbalances. Various researches have proved the therapeutic significance of yogic practices in treating many diseases of women, but still there are major lack in researches that to which extent, the yogic practices will influence the selected physiological variables namely pulse rate, blood pressure and body mass index of women with thyroid hormonal imbalances. Hence, the investigator has chosen the above mentioned physiological variables for this research.

Women undergo various stages in her life from adolescence to motherhood, menopause and old age. These changes in body chemistry may cause emotional imbalance leading to hormonal imbalance and vice versa.

Scientific investigations done all over the world have brought out the therapeutic potential of yoga helping the women's changing needs in each phase of her life, but there is still a lack of researches about the outcome of yoga in women with thyroid hormonal imbalances. Hence, the investigator has chosen the hematological variables such as thyroid stimulating hormone, high density lipoprotein, low density lipoprotein, triglycerides for the present study.

Yoga has been accepted by researchers who have been dealing with mental health issues as one of the very effective tools in relieving various kinds of psychological illnesses. Yoga works on this by targeting the unmanaged stress, which is a main reason for chronic mental disorders. It is widely accepted through studies that yoga reduces stress responses by decreasing the sympathetic activity. While the researchers do not know to which extend yoga does this on the hormonal imbalance of women, the investigator has chosen the psychological variables namely self-esteem, anxiety and stress for this study.

The variables selected were based on the discussions with experts, availability of tools, feasibility of the criteria, and the relevance of the variables to the present study. Hence, the investigator selected the research entitled "Effect of varied yogic practices on selected physiological hematological and psychological variables among women patients of hypothyroidism."

1.21 SIGNIFICANCE OF THE STUDY

1. The present study might be useful for the yoga teachers, yoga therapist in understanding the therapeutic significance of the yogic practices in treating the thyroid hormonal imbalances of the women.
2. This study will provide additional evidence to the therapeutic benefits of yogic practices in treating various kinds of illnesses.
3. The present study will help yoga teachers and yoga therapist in planning a course to treat women with thyroid hormonal imbalances.
4. This study may also promote and create innovative thinking in the field of yoga training and therapy for further research.

1.22 STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effects of varied yogic practices on selected physiological, hematological and psychological variables among women with hypothyroidism.

1.23 HYPOTHESES

1. It was hypothesized that there would be significant differences on selected physiological variables namely resting heart rate, systolic and diastolic blood pressures, body mass index among women with hypothyroidism due to Yogic Practices based on Chakra Model (Group A) and Yogic Practices based on T. Krishnamacharya's Approach (Group B) than the control group.

2. It was hypothesized that there would be significant differences on selected hematological variables namely thyroid stimulating hormone, high density lipoprotein, low density lipoprotein, triglycerides among women with hypothyroidism due to Yogic Practices based on Chakra Model (Group A) and Yogic Practices based on T. Krishnamacharya's Approach (Group B) than the control group.

3. It was hypothesized that there would be significant differences on selected psychological variables namely self esteem, anxiety, stress among women with hypothyroidism due to Yogic Practices based on Chakra Model (Group A) and Yogic Practices based on T. Krishnamacharya's Approach (Group B) than the control group.

4. It was hypothesized that there would be significant differences between the Yogic Practices based on Chakra Model and Yogic Practices based on T. Krishnamacharya's Approach on selected physiological, hematological and psychological variables among women with hypothyroidism.

1.24 DELIMITATIONS

The de limitations of the present study are as follows.

1. The study was delimited only on women with sub-clinical hypothyroidism only;

2. Only forty five women with sub-clinical hypothyroidism were selected for this study.

3. Age of the subjects ranged from 35 to 50 years only;

4. The study was delimited for the women in Chennai city only;
5. The study was delimited to the selected dependent variables only; they are as follows:
   (a) Physiological variables
      1. Resting heart rate
      2. Systolic and diastolic blood pressures
      3. Body mass index
   (b) Hematological variables
      1. Thyroid stimulating hormone
      2. High density lipoprotein
      3. Low density lipoprotein
      4. Triglycerides
   (c) Psychological variables
      1. Self esteem
      2. Stress
      3. Anxiety

6. The study was delimited to the selected independent variables only they are as follows:

   a. Yogic Practices based on Chakra Model
   b. Yogic Practices based on T. Krishnamacharya's Approach.

1.25 LIMITATIONS

The present study is limited in the following aspects.

a. The other modes of treatment underwent by the patients were not taken into consideration.

b. Life style, diet, family heredity, medication motivation factors were not taken into consideration.

c. Environmental and climatic conditions, economical background were not taken into consideration. The day to day routine works were not considered.

1.26 MEANING AND DEFINITION OF THE TERMS

1.26.1 RESTING HEART RATE

The time from the end of one contraction to the end of the next contraction is a complete heart beat or pulse or cardiac cycle. The complete cardiac cycle takes less than one second (about 0.08 sec) in a normal adult at rest and it shortened by exercise. (Eva Lurie Weinerb, 1984).

1.26.2 BLOOD PRESSURE

Blood Pressure is the measurement of pressure of the blood flowing through blood vessels (called arteries) against the vessel walls. Arterial pressure is most commonly measured via a sphygmomanometer, which historically used the height of a column of mercury to reflect the circulating pressure.

1.26.3 BODY MASS INDEX

The Body Mass Index is a measure of body weight relative to height. It can be used to determine if people are at a normal weight, overweight, or obese. (Brian K. Alldredge, 2013)

$$\text{BMI} = \frac{\text{Weight (kg)}}{(\text{height (m)})^2}$$

1.26.4 THYROID STIMULATING HORMONE

Thyroid-stimulating hormone (also known as TSH or thyrotropin) is a peptide hormone synthesized and secreted by thyrotrope cells in the anterior pituitary gland, which regulates the endocrine function of the thyroid gland. TSH is produced by the pituitary gland and tells the thyroid gland to make and release the hormones thyroxine (T4) and triiodothyronine (T3). (Lewis E. Braverman and David S. Cooper, 2013)

1.26.5 HIGH DENSITY LIPOPROTEIN

High-density lipoproteins are the densest lipoproteins and are involved in the transport of cholesterol from cells back to the liver (reverse cholesterol transport). (Crook, Martin. 2012)

1.26.6 LOW DENSITY LIPOPROTEIN

Low density lipoprotein is a small cholesterol-rich lipoprotein containing only apoB. It represents about 70 percent of the total plasma cholesterol concentration. It can be taken by most cells, although mainly the liver. (Crook, Martin. 2012)

1.26.7 TRIGLYCERIDES

Triglycerides are fatty acid esters of glycerol and represent the main lipid component of dietary fat and fat depots of animals. (Cox, Rafael A. and García-Palmieri, Mario R. 1990)

1.26.8 SELF ESTEEM

Self esteem is defined as the attitude one holds toward themselves as an object. (McEachron-Hirsch, 1993)

1.26.9 STRESS

Stress arises when individuals perceive that they cannot adequately cope with the demands being made on them or with threats to their well-being. (R.S. Lazarus, 1966).

1.26.10 ANXIETY

Anxiety is a negative emotional state with feelings of nervousness, worry and apprehension associated with activation or arousal of the body. (Matt Jarvis, 1991).