CHAPTER – II REVIEW OF LITERATURE

To live is not sufficient. We need also the joy of living; and the joy of life requires health. Above all we need the health which embraces, body, mind and soul”.

- Alexis Carrel

“Life expectancy is a purchasable commodity. The price is high, but the terms of payment are very reasonable & within reach of every person who is willing to excise self control!”

- Dr. S. J. Singh.

2.1. Introduction

In India the elderly with 7.7 percent of total population, face a number of problems such as poverty, illiteracy, and inadequate health care. Policies and measures must aim at protecting the personal dignity of the older people Caring for the elderly can be emotional trying for both the cared and the caregiver. On the one hand, the caregiver rues the fact that a healthy individual has metamorphosed into a sickly senior, on the other the parent or senior citizen feels that he has lost his place of authority and sense of independence and is emotionally drained 1. In India, the elderly suffer from both communicable as well as non-communicable diseases. This is exacerbated with impairment of vision and hearing. Elderly people are highly prone to mental morbidities, due to ageing of the brain 2.

In fact, the elderly are more prone to fall prey to depression and other psychological problems. The sufferers of chronic diseases in elderly along with elderly related diseases like Alzheimer’s, Parkinson’s disease, and dementia has become a big challenge. Whatever the scientific advancement, which has been helpful to prolong life, is not able to add quality to life in India because out of the 81 million elderly in India, a staggering 51 million are poor. As many as 90% of the Senior citizens have worked in the unorganized sector, which means they have no pensions, provident fund or gratuity to take care of their financial needs after retirement 3.

The disease trends are shifting and so is the need for its remedial measures. 1960’s it was various epidemics of infectious diseases, due to which there was invention
of antibiotics and vaccines which to great extent controlled it & we see the life span has been increased. In 1970-80’s diseases like cancer was a great challenge; however at present it is still a challenge due to other reasons like high cost of treatment, non-availability of treatment, side effects & its complications & for large Indian population about 70% of our population is not getting medical facilities. The elderly are equal sufferers in this situation because of urbanization the youth from rural areas are migrating in search of better jobs & leaving the elders to suffer from various difficulties, even for their basic needs. Apart from the above problems in this millennium, we find HIV, AIDS, re-emergence of infectious and contagious diseases which are posing a great threat.

The demography on population still shows India is growing at the same time graying population is increasing tremendously, the number of the elder aged above 80 yrs are also increasing. The number and intensity of chronic disease sufferers are increasing. The chronic disease are taking an epidemic proportion & added to this Alzheimer’s, Parkinson’s disease, dementia, stroke, and debilitating arthritic condition is also increasing tremendously. The situation is very chaotic at present because people are trying to seek various remedial measures to their disease. We see of late, there is shift towards naturopathy & yoga treatment. Yoga is gaining popularity world over. We would like to evaluate the reasons for this shift, which would reflect the merits & demerits of the situation and work towards the strategies to improve the conditions or suggest suitable measures. In the light of the above problems we will try to examine and review the conditions the literature related to this problem.

2.2. Theories on Ageing Changes:

Senescence is the synonym of aging or “old age”. In biology, senescence is the combination of processes of deterioration which follow the period of development of an organism. The word senescence is derived from the Latin word senex, meaning “old man” or “old age”.

Cellular senescence is the phenomenon where normal diploid differentiated cells lose the ability to divide. This phenomenon is also known as replicative senescence, the “Hayflick phenomenon” due to which cells either senesce or self-destruct (programmed cell death). This sort of genetic changes affect a variety of
physiological processes, including the efficiency of DNA repair, antioxidant enzymes and rates of free radical production. Senescence of the organism gives rise to the Gompertz-Makeham law of mortality, which says that mortality rate rises rapidly with age.

Theories on ageing have been divided between the programmed and stochastic theories of aging. Programmed theories imply that aging is regulated by biological clocks operating throughout the life span. This regulation would depend on changes in gene expression that affect the systems responsible for maintenance, repair and defense responses.

**Stochastic theories:** blame environmental impacts on living organisms that induce cumulative damage at various levels as the cause of aging, examples which range from damage to DNA (deoxyribonucleic acid), damage to tissues and cells by oxygen radicals widely known as free radicals, countered by the even better known antioxidants, and cross-linking.

The earliest aging theory was the Rate of Living Hypothesis posited by Raymond Pearl in 1928, based on the idea that fast basal metabolic rate corresponds to short maximum life span (much as a rapidly running machine will experience more damage from wear and tear).

**Reliability theory:** suggests that biological systems start their adult life with a high load of initial damage. Reliability theory is a general theory about systems failure- it allows researchers to predict the age-related failure kinetics for a system of given architecture (reliability structure) and given reliability of its components. Reliability theory predicts that even those systems that are entirely composed of non-aging elements (with a constant failure rate) will nevertheless deteriorate (fail more often) with age, if these systems are redundant in irreplaceable elements. Aging, therefore, is a direct consequence of systems redundancy.

**The Cross-Link theory:** This theory, proposed by Johan Bjorksten, Ph.D. states that so-called “cross-linking agents” hamper normal cell reactions by tying molecules together. In our cells a large number of smaller molecules have very specific functions; everything works fine as long as every molecule does its job. The cross-linking agents can link two or more of these molecules together with...
strong bonds. When this happens, the molecules can no longer do their work and since they are connected to other molecules, they just sit there and clutter up the cells, interfering with normal reactions. The major causes of cross-linking in the human body are oxidation products from cigarettes, from polluted air and from alcohol metabolism. It is interesting to note that various health risks appear as actual causes of aging in humans and animals.

The Cybernetic Theory: by J. Still, M.D. suggests that aging is due to an increasing loss of control by the nervous system over all functions of the body. If there is a loss of control, it must be due to some kind of change in the nervous system, and that’s where the most fascinating research in aging is now taking place. The neuro-endocrines, from the hypothalamus to the pituitary and the thyroid, trigger the release of many hormones that control the functioning of the body. An imbalance of certain chemicals, called neurotransmitters, in the neuro-endocrines is a result of the aging process. There are a number of neurotransmitters, but the most important ones appear to be serotonin, norepinephrine and dopamine.

Rowe and Kahn in 1987 popularized the “successful ageing” they did not agree to the earlier authors understanding of ageing, had been exaggerated the extent to which health disabilities, such as diabetes or osteoporosis, could be attributed exclusively to age, and also the homogeneity of samples of elderly people. They argued that there needs to be distinction between pathologic and non-pathologic ageing, and distinguish between “normal aging” (marked by high risk of illness) and “successful ageing” (marked by low risk of disability and high cognitive and physical functioning). They define “successful ageing” more specifically as consisting of three components:

1. Low probability disease or disability;
2. High cognitive and physical function capacity;
3. Active engagement with life.

Aldwin & Gilmer (2004) were in favour of the term “Optimal ageing” rather than “successful ageing”. They argue that the latter term is too likely to obscure how many elderly people do suffer some health determinants, and also note the cultural diversity in approaches to death that complicate usage of a term such as
“successful ageing” noting how, in Western Europe and Northern America, people may approach death may suffer from approaches taken in other countries.

2.3. Health & Sickness in Old age:-

Health is defined as “A state of complete physical, mental, social & spiritual well being and not merely the absence of disease or infirmity.” Lately, this statement has been modified to include the ability to lead a “socially and economically productive life.” Overall health is achieved through a combination of physical, mental, emotional and social well being, which together is commonly referred to as the Health Triangle. In 1986, the WHO, in the Ottawa charter for Health Promotion, said that the Health is “a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities”. Health is dependent on their biology, environment, lifestyle and healthcare services. Though, scientific & technological advancement have improved our health but it depends on intelligent of life style choices of the individual and society.

Health care services to different strata of people in the society are very important. All the technological excellences of the medical field should equally be benefitted by the individuals of the society. Preventive and Promotive health should be given equal emphasis to see a social well being situation. The Lalonde report suggested that there are four general determinants of health which he called: -Human biology, environment, life-style and health care organization. Thus health is maintained through the science and practice of medicine, but can also be improved by individual effort, at physical level, mental level, social level, emotional level & spiritual level.

2.3.1. Physical Health in Old Age:

At physical level the individual can maintain their health by understanding the basics of physical body, its function & maintenance. To maintain physical health we need to understand the important aspects of physical fitness-agility, balance, body composition (muscles, bones, water etc), co-ordination, flexibility, muscular strength, endurance and speed. It is ability to perform or to be productive and prevent the debilitating disease or life-threatening diseases. Many diseases are
directly caused due to lack of proper physical exercise and movements. But, as one ages there is deterioration of physical fitness factors, but by constant and regular efforts, it can be maintained very well.

In Physical Health, as a preventive care, the individual should prevent the onset of chronic diseases, which are mainly due to wrong life-styles. Wrong life-style includes, wrong eating and sleeping, smoking, addiction to drinks & drugs, lack of physical exercises etc. All these aspects are within the reach of the individual control & can be modified according to age, place and individuals requirement scientifically so that physical health and wellness are within the individual reach.

2.3.2 Mental Health in Old Age:

Sound Mind in a Sound Body or vice versa, are integral part of total health. However, mental health is also dependent on social harmony, family relation and sound or independent financial status. As age advances the cells in the brain starts declining gradually. This results in memory loss and other mental disorders.

Mental health is “the successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adopt to change and cope with adversity.” Good mental health is not just the absence of mental health problems. Although different cultures have differing expectations for health, many of the following characteristics are likely to be present in individuals with good mental health 14.

- A sense of well-being and contentment,
- A zest for living-the ability to enjoy life, to laugh and have funResiliency-being able to deal with life’s stresses and bounce back from adversity,
- Self realization-participating in life to the fullest extent possible, through meaningful activities and positive relationships,
- Flexibility-the ability to change, grow, and experience a range of feelings, as life’s circumstances change,
• A sense of balance in one’s life-between solitude and sociability, work and play, sleep and wakefulness, rest and exercise etc.

• A sense of well-roundedness-with attention to mind, body, spirit, creativity, intellectual development, health, etc.

• The ability to care for oneself and for other,

• Self confidence and good self esteem

Mental Health Problem- can be a short term reaction to a stressor such as loss, painful event, illness, medication etc., if the situation does not abate or if the symptoms of distress are interfering with other aspects of life, assistance from a mental health professional may be needed.¹⁵

Mental Illness specific to old age are Alzheimer’s disease, Parkinson’s disease & Dementia. Alzheimer’s disease is a disorder of pivotal importance to older adults, strikes 8-15% of people over the age of 65 (Ritchie & Kildea 1995). It is one of the most feared mental disorders because of its gradual, yet relentless, attack on memory. Memory loss however is not the only impairment, symptoms like cognitive deficits in language, object recognition, and executive functioning. They also have behavioral symptoms like – psychosis, agitation, depression and wandering which are common and impose tremendous strain on care givers. Diagnosis is challenging because of the lack of biological markers, insidious onset, and need to exclude other causes of dementia.¹⁶ The further challenge in the identification of Alzheimer’s disease is the widespread societal view of “senility” as a natural developmental stage. The prevalence of dementia, most of which is accounted by Alzheimer disease nearly doubles with every 5 yrs of age after 60 (Jorm et al, 1987).

2.3.3. Social Health and Old Age:

Defining Social Health: Twadle (1974) sees health as being defined more by social than physical criteria. He views health and illness as being a continuum between the perfect state of health and the perfect state of illness (death). While ‘normal’ health and illness fall somewhere between the two extremes, what may be considered a healthy state for one person may be considered unhealthy by another.¹⁷
The social psychology researchers say that the basic premise of the health belief model is that the likelihood of engaging in preventive health behavior is influenced by certain belief about given condition rather than by objective facts.

The individuals take preventive health action only when there is following four conditions:

1. The individual feels susceptible or vulnerable to a certain disease or condition;
2. The individual feels that contracting the disease would have serious consequences;
3. The individuals believes that taking the preventive action would effectively reduce susceptibility to the disease (or at least reduce the seriousness if contracted) and that the action would not involve serious barriers (e.g., inconvenience, expense, pain or trauma);
4. One or more cues or triggers for action (e.g., media attention, advice from others, a physician reminder, or an illness of a family member or friends occurs (Chen and Land, 1986). All these perceptions can be influenced by severe non health factor including demographic (age gender, social class, race/ethnicity, socio psychological (personality, peer and reference group pressure, and structural (knowledge about the disease, prior contact with the disease) factors

2.3.4. Spiritual Health

It has many dimensions & forms. There is no yardstick or any gauge to measure. The beliefs and wisdom is purely individualistic. But, it is not referring to religious blind beliefs. But, certainly the beliefs & action which elevates oneself as Sri Aurobindo says that one should raise or elevate himself from mere animal instinct to man/human, from man/human to superhuman, from super human to Divine level and from Divine level to Divinity itself. Spirituality should bring wellness as well as social harmony. It should guide the individual to achieve the wellness & the belief should support & guide in times of crisis.

2.3.5. The Sick Role

One of the most fundamental concepts in medical sociology, was first introduced by Talcott Parson in a 1948 journal article but elaborated upon in his 1951 book,
"The Social System", Parson emphasized "that illness is not simply a biological or psychological condition, and it is not simply an unstructured state free of social norms and regulation. When one is ill, one does not simply exit normal social roles to enter a type of social vacuum; rather, one substitutes a new role - the role - for the relinquished, normal roles". The sick role is also a social role, characterized by certain exemptions rights and obligations and shaped by the society, groups and cultural tradition to which the sick person belongs. (Fox, 1989:17).

Parson viewed sickness as a type of deviant behavior - illness as a deviance - in that it is a violation of role expectations. Functionalist theorists (like Parsons) are concerned about the impact of deviant behavior upon society and parts of society. Sickness is assessed as being dysfunctional for the family because when one member is sick and relinquishes normal responsibility, other members are required to pick up the slack and many become overburdened in so doing. In addition, sickness is dysfunctional for society.

The Role of medicine as an instrument of social control, many believe that powers of the medical institution have now expanded far beyond areas of genuine expertise. This has led to a medicalization of deviance, a concept that has two primary meanings. First an increasing number of behavior and conditions are being interpreted in medical terms, giving the medical profession increased powers in determining what is normal and desirable behaviors and second, medical profession is understood to be the proper mechanism for controlling, modifying and eliminating these "undesirable" deviant behaviors.

Social control refers both to the ability of individuals and groups to regulate themselves (internal control) and to measures taken by outsiders to regulate an individual or groups to regulates an individual or group (external control). One expression of the autonomy that professional groups so earnestly desire is the license to be self-regulatory and to be allowed to rely on internal control mechanisms.

Medical sociology encompasses public health, and medicine, community health education, education of health professionals and health care administration. The key topics cover social epidemiology, social stress, health, illness and sick behavior, medical education and socialization of physicians, physician patient
relationship, and health care system. After, the invention of germ theories, many thought that all diseases and illnesses could be eradicated, but the concept of considering ‘whole person’ was fading. According to Hippocratic, “the importance of inner harmony and moderation in life, the mind-body connection, and the importance of person – oriented medicine, were lost in the rush to identify micro-organism culprits and methods of conquering them” 22.

The concept of social stress tries to deal with the cause of stress, mediating effects and outcomes. It is a specific bodily response to unease situations caused to the individual. Stress has been the major cause for many of the diseases. Cannon described a “fight or flight” reaction; when circumstances offered opportunity for success (or there was no choice), human would fight: in the face of overwhelming odds, humans sought flight. The physiological reaction was termed stress, and the trio of responses (alarm, adaptation syndrome (Green and Shellenberger, 1991). Later Selye pointed out that in our daily lives everybody experiences stressful situations. These situations upset our body’s equilibrium – our homeostasis and make is more susceptible to mild diseases and illnesses. If stressful situation persist over an extended period of time, the body’s resources become depleted, and more severe disease or illnesses or even death may result 23.

The social stressors have macro perspectives – social forces & large-scale social organization & micro perspective – where people function on a day – to day basis on the other hand. The social stressors can be identified in two areas – (1) specific life events (2) Chronic Strains Life Events are important specific events or experiences that interrupt individual’s usual activities and require some adjustments. There are anticipated life events such as marriage, divorce, transfers, the beginning and end of school or college, festivals etc. and unanticipated life events such as death of loved ones / sudden failure, sudden loss of a job, learning of terminal illness, natural disasters like tsunami, earth quakes, accidents etc. The second major type of stressor – is chronic strains – which are enduring problems, conflicts, threats, constant financial constraints that many people face in their daily lives. Pearlin (1989) has recommended that focus be placed on “problems that arise within the boundaries of major social roles and role sets”. The coping up strategies consists of responses which have been learned through socialization experiences and evolve overtime as particular technique and they may work or fail to modify
the stress levels. People use various strategies to prevent, avoid or control emotional distress (Pearlin & Schooler, 1978)\textsuperscript{24}.

Individuals with positive attitude can better cope up with the given stressful situations individuals, who think that they can control their destiny can cope up better than those who think that their life is controlled by luck, fate or others outside themselves. Kobasa (1979) refers to hardiness; an individual who exhibit a strong commitment to work, family and other social causes and interests, accept challenges and has a feeling of personal control over life are the individual who cope up better \textsuperscript{25}.

**2.3.6. Sick Role & Social Health**

Health and illness are so much dependent on the social factors and obviously during stressful events, to cope up with them there is great need of social support. Those who get positive social support can cope better physically and mentally and maintain their self-esteem and feeling of contentment. There are three specific mechanisms through which social support directly or indirectly affects health: (1) Behavioral mediators (which encourage an individual to engage in or to change behaviors such as quitting cigarette smoking) ; Psychological mediators (which help relax the fight or flight response or strengthen the immune system). It helps in release of happy hormones which enhances the immune system for e.g. Studies show that the laughter sessions conducted in the park, helps in the release of endorphins, serotonin. These two hormones are helpful in prevention and treatment of various psychosomatic and geriatric problems. But there are many situation where the social support is reduced, due to unavoidable conditions and it carries an extra burden on the stressors e.g. in case of unemployment \textsuperscript{26}.

Stress can cause distress through wide variety of pathways. If they are not alleviated or mitigated, it can lead to various disturbances and disorders like emotional disturbances can create insomnia, tension headaches, phobias, hysteria, alcoholism, learning disabilities, drug abusers etc.

It can also lead to psychosomatic illnesses like hypertension, coronary heart disease, ulcers, colitis etc and worsening of organic illness such as epilepsy, migraine, rheumatic arthritis etc and stress can a be a major precipitating factor to
worsen the disease consequences. The uncontrolled stress increases the likelihood of psychological morbidity to physical morbidity and mortality\textsuperscript{27}.

People in the lower social classes have higher rates of psychological distress and mental health problems than the affluent. They are more exposed to stressful life events and less resources to deal with those events or situations. Women have higher rates than men of psychological distress and depression, all over the world. Various studies have shown that due to care giving role and financial problems there is higher levels of distress. The elders due to changing social atmosphere are affected with lot of stressful events, which in turn is affecting their health and increasing the morbidity of chronic illnesses. In the present scenario, they have very less coping strategies, more so due to financial situations\textsuperscript{28}.

The gender differences also affects with coping strategies. Rosenfield says “Low power implies less actual control over the environment and theirs lower perceptions of personal control with diminished assessments of their ability to act on and affect their social world, individuals experience greater psychological distress. Thus women have higher rates of anxious and depression symptoms because their positions of lower power produce lower actual control and theirs lower perceived control than those of men\textsuperscript{11}. Employment affects stress level differently for women than men; as men are exempted from their household tasks and child rearing, women who have more stress are of lower and middle class. The elders due to changing social atmosphere are affected with lot of stressful events, which in turn is affecting their health and increasing the morbidity of chronic illnesses. In the present scenario, they have very less coping strategies, more so due to financial situations\textsuperscript{29}.

2.4.1. Diseases of Old Age:

There are certain specific diseases which are found commonly in the elderly population, evident by many studies and surveys.

\textbf{Alzheimer's disease (AD)} a chronic, degenerative, dementing illness of the central nervous system. It is most common cause of dementia a condition that involves personality change, emotional instability, disorientation, memory loss, loss of
verbal abilities and an inability to care oneself. Other specific symptoms of AD include intellectual impairment, depression, agitation and delusions$^{30}$.

It affects people aged 65, 2-3%, while 25-50% of people aged 85 have symptoms of Alzheimer's and even greater number have some of the pathological hallmarks of the disease without the characteristic symptoms. Some studies on this shows that it can be prevented with certain behavior, dietary intakes, environmental exposures, and disease to the likelihood of developing Alzheimer's varies in quality and its acceptance by the medical community. It is important to understand the intervention that reduce the risk of developing the disease and which probably may not alter once its progression becomes apparent$^{31}$.

**Risk Reducers:**

- Persons suffering from high blood pressure, high cholesterol, or diabetics are prone to damage of blood vessels in the brain. If this disease are under control or prevented, Alzheimer's can be prevented.
- Regular Physical exercise.
- Intellectual stimulation (playing chess, crossword) etc.
- Diet rich in micro-nutrients (Mediterranean diet) with fruits, vegetables and low in saturated fat, supplemented with B vitamins in particular folic acid
- Curcumin (Turmeric)
- Omega – 3 fatty acids, especially Decosahexenoic acid (DHA, often found in fish oil – flax seeds, sunflower seeds.)
- Fresh fruit and vegetables high in the polyphenol antioxidant (berries, apples, grapes, broccoli, legumes like kidney beans etc.)
- Vitamin E, Vitamin C
- Cholesterol lowering drugs$^{32,33,34}$.

As there is no sure cure for this disease, it is better to resort to occupational and lifestyle therapies by modifications of living environment and lifestyle.

**Mental Disorders** – Among the commonly used categories of mental disorders are – Anxiety disorder – phobias, panic disorder, obsessive compulsive disorder; Depression – a mental disorder with a lasting altered mood (excessive sadness or hopelessness) for no obvious external cause; Abuse or dependence on alcohol or drugs; Schizophrenia – a mental disorder characterized by delusions, hallucinations, thought disturbance and possibly withdrawal from social
relationships; Anti-social personality disorders are manifested in superficial charm, refusal to accept guilt substance abuse and inability to accept responsibility. With the possible exception of anxiety and mood disorders the highest rates of mental illness are among members of the lowest socio economic class. The possible high prevalence is due to genetic predisposition; social stress – experienced by the economically poor as a result of deprived and difficult living situations and lack of resources; research does indicate that mental problems tend to prevent upward social mobility. Men suffer more of personality disorders and women rates of moods and anxiety disorders. These differences are caused by both biological and socio cultural factors.

**Urinary Incontinence in Elderly** – is one of the major disabilities of the elderly. Correctable factors, such as chronic constipation, diuretic therapy, infections and treatable bladder outflow impairment need to be excluded. Often there is a combination of factors including, for example, difficulty in getting to the toilet, and dementia. It is important to see the conveniences – the availability of commodes and toilets is essential. Incontinence and its treatment is a matter of major importance. In elderly, urinary tract obstruction is more common in men owing to the frequency of bladder outflow obstruction.

**Parkinson's disease:** (PD) is a chronic persistent disorder of part of the brain. It mainly affects the way the brain co-ordinates the movements of the muscles in various parts of the body. It mainly develops in people over the age of 50. It becomes more common with increasing age. About 5 in 1000 people in their 60s and about 20 in 1000 people in their 80s have PD. It affects both men and women.

Some regular healthy habits will help keep the symptoms/ disease progression under control. Good exercises, nutrition diet, participation, avoid driving, change of medication if side effects are visible but regular medication, alterations with the daily activity, instruments and furniture’s like slightly high chair to low couches, Velcro instead of laces or buttons, using walking stick etc are helpful & rehabilitating. Studies show that some vitamins like co-enzyme Q10 and other chemicals may reduce the damage.
2.4.2. Chronic Diseases: - A disease, which is long lasting and recurrent. The term chronic describes the course of the disease, or its rate of onset and development. It lasts more than 3 months & still persists. By treating chronic diseases, health can be maintained but complete cure or reversal is very difficult for e.g. arthritis, chronic obstructive pulmonary disease, renal failure, heart problems, certain cancers, diabetes, and blood pressure. In a developed country like America itself there are 133 million people suffering from one or other chronic medical conditions. Treating these chronic diseases needs not only the medicines but lifestyle changes, 60% between ages of 18-64, 90% if seniors have at least one chronic disease & 77% of them have two or more chronic diseases. (Gerard Anderson, “The Growing Burden of Chronic Disease in Americans”, Public Health Reports/May-June 2004/volume 119)

Diabetes Mellitus (DM)

In diabetes mellitus, the body neither does not produce enough nor does not properly response to insulin, a hormone produced in the pancreas. Insulin enables cell absorb glucose in order to turn it into energy. In Diabetes the body either fails to properly respond to its own insulin, does not make enough insulin, or both. This causes to accumulate in blood, often leading to various complications. There is type I DM- results from the body’s failure to produce insulin, which needs hormone insulin in the injection form for its treatment. Type II DM- results from insulin resistance, a condition in which cells fail to use insulin properly, sometimes combined with relative insulin deficiency. Diabetes and its treatments can cause many complications like chronic renal failure, cardiovascular disease, retinal damage, several types of nerve damage (neuropathy) gangrene. Proper management of diabetes through lifestyle changes is very essential to avoid complications38.

It may be interesting to note here what Prof. Paul Bastenie, M.D., Ph.D., of the Ecole de Medicine in Brussels, Belgium, has to say in Pfizer’s ‘Diabetes Rounds’ 1973: “During World War II, diabetes disappeared in most of the patients who had the maturity-onset type of the disease. And it disappeared not only in terms of urine that was sugar free, but also the blood sugar tests became normal again. Then when foods become plentiful, these same people became fat again, and after the war they had many opportunities to eat as much good food as they wanted. So,
diabetes recurred.” What is true of diabetes is true of many other diseases. ‘Good Food’ is bad food; indulging in gustatory delectation of the goodies, harms our health.

India, already the diabetic capital of the world, is heading towards a diabetic explosion, with 70 million people to be affected by 2015, a decade ahead of expectations. Fuelling the alarming trend is the rise in diabetes prevalence in rural areas.

According to Diabetes Atlas published in 2007, there are 246 million diabetics across the world, with 80% of them in the developing and under developed countries. India according to these statistics has 40.9 million diabetics, closely followed by China with 39.8 million diabetics. It was predicted that by 2025, India will have 69.9 million people and China will have 59.3 million people with diabetics39.

**Hypertension:** - A chronic medical condition in which the blood pressure is elevated. There are two types of high blood pressure, essential (Primary) & Secondary. Essential or Primary hypertension means that no medical cause can be found to explain the high blood pressure. It is common and it is triggered by stress, & tension, wrong life style, smoking etc. If it persists for long time, it can damage or affect heart, kidneys, eyes and brain (stroke). The normal pressure 115/75 or 120/20 or 110/70mm Hg. The risk of heart problems increases with every raise in blood pressure of 20/10 mm Hg (Guyton and Hall (2005) Text book of Medical Physiology (7th ed) Elsevier- Saunders P. 220 ISBN:0-7216-0240-1 OCLC 213041516.

**Heart Diseases** are wide term used to define different diseases affecting the heart. It is leading cause of death, even in many developed countries. In US itself every 34 seconds one person is killed due to heart problem. In our country coronary artery disease, Ischemic heart diseases, congenital heart disease, hypertensive heart disease sufferers are more in number. The main causes being life style- lack of exercises & proper nutrition, hypercholesterolemia, hypertension, diabetes mellitus, hyper-homo- cysteinemia etc. Hence, life-style interventions are essential to prevent the heart diseases40.
In 2006, a calorie restriction study on humans was published in the *Journal of the American College of Cardiology*. Some 25 individuals have been voluntarily eating a nutritionally balanced diet providing at least 100 percent of the RDA for each nutrient, but average only 1,671 calories a day, for a period ranging from three to 15 years. The study showed that people who eat low-calorie, balanced diets have healthy hearts and youthful vigor at a time they would be expected to show signs of ageing.

A recent study on 400 men by the *National Institute of Ageing*, US showed calorie restriction decreases atherosclerosis (hardening of arteries) by 40%, improves insulin sensitivity, reduce basal metabolic rate (BMR) and decreases free radicals (which lead to ageing). The key is to restrict only calories intake and not the nutrients i.e. proteins, vitamins, minerals and phyto-chemicals.

Anecdotal data of places with a high percentage of centenarians supports the relation between calorie restriction and longevity. The Okinawa region of Japan has an estimated 50 centenarians in every 100,000 people – one of the highest ratios in the world. A low calorie intake (60% of the RDA in Japan) and only 25% of the average intake of sugar by a Japanese was reported in schoolchildren in Okinawa more than 40 years ago. Later studies confirmed a 20% calorie restriction in the adults of Okinawa as compared to mainland Japan. Their diets were rich in green leafy vegetables, soya, and some fish providing adequate amounts of nutrients, essentials vitamins and minerals. The people there almost never overeat. This impressive longevity data has been attributed to their low-calorie and high-nutrient diet.

**Respiratory Diseases**- is the term for diseases of the respiratory system. They range from mild and self-limiting such as common cold to life-threatening such as bacterial pneumonia or pulmonary embolism. They are common & important cause of illness and death. In elderly, the lung function reduces & they are more prone for this type of common to complicated problems. Bronchitis, asthma, frequent cold cough, excessive phlegm etc are common to this age.

**Urinary Incontinence (UI):** It is an involuntary leakage of urine. It is common & distressing problem, which may have profound on quality of life. Urinary Incontinence almost always results from an underlying treatable medical condition.
Stress urinary incontinence, urge incontinence, due to enlarge benign prostate enlargement tumors, kidney stones, due to blocked urethra & due to aging are common among the elderly population. Some can be treated with exercise, reducing weight & diabetic condition, operating for prostate enlargement etc.

**Arthritis:** is a group of conditions involving damage to the joints of the body. The most common form, Osteoarthritis (degenerative joint disease) is a result of trauma to the joint infection of the joint of trauma to the joint, infection of the joint or age. Other arthritis forms are rheumatoid arthritis, psoriatic arthritis, which are autoimmune diseases and gouty arthritis osteoporosis (deficiency of Calcium in the bones) are common to the elderly population. Main clinical symptoms are pain, inflammation, stiffness which disables the routine activity of daily living and pain management is very challenging as the dosage goes on increasing or it may not respond to the tablets/injections. Surgical remedial measures are very costly and also not very successful. The causes are ageing & precipitated due to overweight, over use/under use of joints, lack of proper exercise and nutrition.

2.5.1. Indian System of Medicine.

India has a rich traditional knowledge of medicine and health, which is centuries old heritage. The history is of 5000 yrs B.C., where there are references in Rig-Veda and Atharvana - Veda on health and disease. They were used extensively used and even to this day they are very effectively used. Earlier, the kings patronized the systems and the individual proponents spread the knowledge of medicine through Guru-Shisya Parampara.


The unique feature of our ancient systems is that they are holistic in nature. They consider a human being in totality and take into consideration various facets related to the life like environment, social conditions, mental aspects, the climatic changes and its impact, ecological balances and its impact, biological, physical as well as mental conditions. These systems are equally capable of treating many
diseases & promote health. It has quite number of analysis and strategies for prevention of diseases.

2.5.2 Ayurveda (Science of Life) – deals elaborately with measures for healthful living during the entire span of life and its various phases. It also has wide range of therapeutic measures to combat illness. A perusal of several classical treatises of Ayurveda indicates presence of two schools of physicians and surgeons and eight specialities. Due to impact of Mughals and Britishers, it was neglected. It gained its momentum and in 1920, the Indian National Congress demanded Government Patronage for Ayurveda and Provincial Governments began to grant assistance. 1947, first Health Ministers’ conference, resolved that Ayurveda should be developed and put to use for providing Medicare to the people.

It believes health or sickness depends on the presence or absence of a balanced state of the total body matrix including the balance between its different constituents. Both the intrinsic and extrinsic factors can cause disturbance in the natural equilibrium giving rise to disease. It may be due diet, seasonal, incompatible actions of body and mind, improper exercise etc. The treatments are through various herbs, decoctions, bhasms, rasayanas etc, to bring back the balance.

2.5.3 Unani System of Medicine – it was introduced in India by the Arabs and Persians sometime around the eleventh Century. Today, India is one of the leading countries in so far as the practice of Unani medicine is concerned. It has the largest number of Unani educational, research and health care institutions. It was first developed in Greece. In 1921 College for Ayurvedic and Unani Tibbia College was established. The basic theory of Unani system is based upon the well-known four-humour theory VIZ – blood, phlegm, yellow-bile and black bile. The type of treatment involves the use of naturally occurring drugs, mostly herbal. Drugs of animal and mineral origin are also used. Natural drugs are preferred than the synthetic ones because they are locally available and have far less after effects on the body.

2.5.4 Siddha System of Medicine: is one of the oldest systems of medicine in India. The term ‘Siddha’ means achievement and the ‘Siddhars’ were saintly figures. Eighteen Siddhars seem to have contributed towards the development of
this medical system. This system of medicine developed within the Dravidian Culture, which is of the pre-vedic period. The principles and doctrines of this system, both fundamental and applied, have a close similarity to Ayurveda, with specialization in Iatro chemistry. According to this system the human body is the replica of the universe and so are the food and drugs irrespective of their origin. It also believes in the five basic elements namely earth, water, fire, air and sky of which the human body is composed of and human body as a conglomeration of three Humours (vatam, pittam and kapham), seven basic tissues - rasa, rakta, mamsa, meda, asthi, majja and shukra and the waste products of the body such as faces, urine and sweat. The equilibrium of humors is considered as health and its disturbance or imbalance leads to disease or sickness.

2.5.5 Homeopathy System of Medicine: It has been recognized as one of the National Systems of Medicine. Its primary emphasis is on therapeutics but plays a significant role in preventive, promotive and rehabilitative aspects of health care. The word is derived from Greek – words, Homois – similar, pathos – suffering means treating diseases with remedies, usually prescribed in minute doses, which are capable of producing symptoms similar to the disease when taken by healthy people – “Like Cures Like”. This assumes that every symptom syndrome is the reaction of the defense mechanism of human body against the disease causing agents. The symptoms are the expressions through which the body tries to regain its lost balance. The goal of the treatment should be to further strengthen these defense systems or regaining balance rather than suppressing them. Therefore, the correct Homeopathic remedy can only be such a drug which can produce the symptomatology of the patient.

2.6.1. Ancient Indian Concept of Ageing

Our ancient scriptures from Vedas to Upanishads we have finest values of life and death. All human beings are culturally and socially so accustomed, he / she tries to recognize each and every aspect of life and death spiritually.

Many concepts of life and death are brought out beautifully and portrayed so intricately as the essence of life and dharma which is beyond any religion but called as Sanatana Dharma – One such essence we find in this sloka or mantra
mentioned in many places in Rig Veda, Yajur and Sama Veda and is esteemed as a rare gem.

Let us invoke the luminous power of the maha Mrtyunjaya mantra –

Tryambakam yajamahe sugandhimputivardhanam
Urvarukamiva bandhanan mrtyor muksiyamamratat
We worship Tryambaka, the fragrant One
And the Increaser of nourishment.
May HE release me, like a cucumber from its stem.
From the bondage of death
But not from immortality.

It is the great vision of the Great sage Vasishtha, have said to be the seer of this Mantra, which is in the verbal form. Earlier Scriptures essences were in the mantra or aphorism Form, as it is like formula in today’s world. If unraveled each one is potent tool for something which is inexplicable by common man.

It needs the vast knowledge of that time literature and the knowledge of other scriptures to unravel the hidden deep – rooted understanding. If an individual try to understand the essence of life, as brought out in this mantra, we can really think positive in life

And not fearing for disease and death, instead one can take positive steps to deal with it. Many people try to use them to escape the situation or the reality, but instead it should be used to prepare for life and death in dignified manner.

वयो यथाष्टूलमेव त्रिविधम्-बालं, मध्यं जीवंमिति (बौद्धविश 8/132)
वयस्तु त्रिविधं, बालं मध्यं वृद्धंमिति (सूरसं २० 3५/२१)
वयास्त्रिविधं बालं मध्यं वृद्धं च। (अर्थसं २०९ ८/२४)
The life span is divided into three stages baalawastha (childhood), madhyamawastha (adult age) and Vruddhawastha (old age). Kasyapa has classified age into three groups, garbha, bala and kumara and again into three groups i.e. yauwana, madhyama and vrdhha. In other words after classifying the age of childhood separately into three, the remaining span of life is divided into yauwana etc three stages.

Harita has classified age into four subdividing middle age into two i.e. yauwana and middle.

बालवस्था (Childhood)

Childhood age lasts up to sixteen years. During this span the dhatus are immature, hair on face and avilla are not grown, body is soft and cannot withstand troubles, bala (strength), is not fully developed.

मध्यमावस्था (Middle Age)

Charaka and Vagbhata keep the age limit of this life span up to sixty years, while Susruta, Kasyapa and Harita to seventy years.

वृद्धावस्था (Old Age)

This age starts after sixty or seventy years and is dominated by Vayu.
2.6.2. Natural and Yoga Remedies.

Our ancient scriptures are embedded with the knowledge of Life Sciences, which holds relevant even to this date and in future also. They have perennial benefits on the whole of human race, and are not pertaining to any religion or sect. Hence, they are appealing to all and due to which it has gained popularity all over the globe. There are various references dealing to daily living as well treatment regimen during sickness.

Some of the references are as follows

1. ओम् तच्चबुद्वङ्गहिता पुरस्ताच्चुकमुच्चरस्।
   पर्यामशर्तः शतं जीवमशर्तः शतं भृणुपामशर्तः
   शतं प्रबायमशर्तः शतमदीना: स्यामशर्तः शतं
   भूयशचशर्तः शताल॥

   It is believed that for longevity salutation to the Sun God, early in the morning is the sure solution/ remedy.

2. विष्णु शरस्य पितरं पर्जन्यं शतवृष्ण्यम।
   तेना ते तन्ते शाङ्गः पृथिव्या ते निषेधां बहिष्टा अस्तु बालिति॥
   विष्णु शरस्य पितरं मित्रं शतवृष्ण्यम।
   तेनाते तन्ते शाङ्गः पृथिव्या ते निषेधां बहिष्टा अस्तु बालिति।
   विष्णु शरस्य पितरं वरूणं शतवृष्ण्यम।
   तेना ते तन्ते।
   विष्णु शरस्य पितरं वरूणं शतवृष्ण्यम।
   तेना ते तन्ते।
   विष्णु शरस्य पितरं सूर्यं शतवृष्ण्यम।
   तेना ते तन्ते।
   अथर्ववेद 9/3/9-5

   The five Great Elements – Akasa, Vayu, Prithvi, Aap, Teja protects and sustains our life and health and they are the lord of Health.

3. शान्तो देवीरमिष्टे आपो भवनु पीतये।
   शंयोशिरस्त्रवन्तु न।
   यजुर्वेद 36/12

   Water is believed to be the only means which fulfils desire, removes illness, given of ultimate happiness, protector of life.

4. अमृतोपस्तरणमसि, अमृताधिदानमसि।
   आश्वलायनगृह्यसूत्र 1/24/12,21

   Water is believed to be the source of nectar. It is rejuvenator of life.

5. अपाश्रीवसं सविता साविषष्ट॥
   ऋग्वेद 10/100/8

   Sun rays is very important for good health. Exposing to raising sun is important.
6. **उद्यन्युणों नुदता मृत्युपराशान्। अथववेद 17/1/30**

Exposure to sunlight can bring mastery over the cycles of death. He is reinforced with vital energy - the life force.

7. **रहित्विन निर्देवनु काहावां ततोदरात।**
   यक्षापां सर्वां विवं विरुजल्ल्यां त्वत्त।
   उदरासो वलोम्यो नय्य हदयादहि। यक्षान्न सर्वाः
   यस्मानं विरुजल्ल्यां मूर्घ्यानं प्रत्यार्णिः।
   अहिःसत्त्वरनमया नविन्नतु वहार्विलम।
   यस्मान हदयदपुर्णवनत्त्वित्तो वीकासा।
   अहिःसत्त्वरनमया नविन्नतु वहार्विलम।
   यस्मान पार्श्वं उपकर्णनु विकोन्तं पृष्टि। अहिःसत्त्विः
   यातिरिक्तरूपर्वमंगवप्रक्षणासु ते। अहिःसत्त्विः
   यस्मान गुण्यं अनुपस्पत्त्वन्तत्र गोहत्त्वद्वित्ति च। अहिःसत्त्विः
   यस्मान मध्यमो निखर्यत्ति परापि विरुजल्ल्यति च। अहिःसत्त्विः
   येवज्ञाि यद्यन्न यक्षानसो रोणांसतां।
   यक्षापुर्ण विवं विमोरणां मुर्वत।
   विनयन्वय विद्यार्थी वातीकारसां वाल्ने। यक्षापुर्ण
   उद्यनाधिकर्षिमिः शीर्षणं सोमानीस्वश्रेष्ठेश्च। अथववेद 6/8/11-20,22

8. **अपचित: प्रपाति सुपृणों वसतीरस्व।**
   सर्य: कृणांतु श्चेष्टं चद्रन्या चोहपोत्वत्त।
   एनेको श्यान्योक्ता कृणांका रोहिणी है।
   सर्वसम्रापणं नामार्कीर्चिरेतना। अथववेद 6/83/1-2

One who follows the sun therapy especially exposing body to raising sun is free from all the physical and mental problems.

9. **उदगाद्यामालिद्यो विश्वेष्व महसा सह।**
   द्रिष्टन्तं महार सर्वयम्मो अहं द्विषते रघम।

Exposure to raising sun is beneficial remedy for cardiac ailments and Vitiligo (skin problem).

10. **द्वान्ते धार्माकानाः धातूनां हि यथा मल।**
    तथेक्ष्टिवर्णाणां द्वान्ते दोषा: प्राणस्य निग्रहात।
    प्राणायाममेंद्रेदु दोषान।.......
    मनुसृति 6/71-72

According to manu smriti believed that the effect of Pranayama is one of most powerful remedy in removing impurities from body and five senses.
The element air is the treasure of nectar. For longevity and to maintain ideal health one has to intake air in the form of breathing.

The wind, the hot sun, rain and the outcome of their purification tools the water is highly beneficial for maintenance of good health.

From the Brahman, which is the self, was produced Aakasha (space), from Aakasha emerged air; from air, the fire; from fire was created water. From water sprang up earth. From earth were born the herbs.

Yoga way of life and natural life has the same base. Our seers had found a lifestyle which could keep the individuals happy and healthy, surroundings unpolluted and blossoming with natural beauty and build an ideal society of harmony, love and happiness. Modern life style with excessive needs of the individuals, wasteful usage of non renewable resources and exploitation of natural surroundings is leading to individual unrest, polluted atmosphere and deteriorated quality of life in the society. Modern scientists and thinkers have started changing their approach to an ecological approach or a wholesome systems’ approach, which is more nearer to the yoga way of life or natural way of life.

Upanishad, the quintessence of Vedas have much lucid understanding of Vedas and the concepts have been brought to much more light are in Smrithis and Bhagavad Gita.

There are various concepts and discussion of mind control in the Yoga Sutras of Patanjali, Hatha Yoga Pradipika by Svatamram and also in Bhagvad Gita. Elaborate understanding on diet and mind is found in Bhagvad gita.
There are prayers to invoke self healing forces of body and mind and philosophy of life. They urged to live life full of energy and health for hundred years. One such prayer in Yayur veda (36.34) is thus:-

May we see hundred autumns; May we live a hundred autumns;  
May we hear a hundred autumns; May we speak well for a hundred autumns;  
May we hold our head high for hundred autumns; Yes, even beyond a hundred autumns; For the quality of life it prayed;  
May I have voice in my mouth; Breathe in my nostrils,  
Sight in my eyes, hearing in my ears  
Hairs that has not yet turned gray, Teeth that have not yet decayed and great  
Great strength in my arms, May I have power in my things,  
Swiftness in my legs and stead fastness in my feet, May all members be uninjured and my Soul unconquered”. (Yajur veda 36, 34)

“OM ! Worshipful ones; may our ears; Hear what is auspicious. May we see auspicious things with our eyes. With steady limbs may we enjoy one allotted span of life in perfect health and strength”

2.7.1. Yoga – History and Development

The term yoga has its verbal root Yuj in Sanskrit. Yuj means joining yujiyate anena iti yogah. Yoga is that which joins. In the traditional terminology it is joining of jivatma with paramatma, the individual self with the SELF. The origin of yogic concept goes back to vedic period, Vedas is the saga of knowledge; the Upanishads – the quintessence of the Vedas and yoga – one of the shaddarshanas (six philosophies). There are four Vedas –Rigveda, Artharvaveda, Saamaveda, Yajurveda. The main ten Upanishads are: Isha, Kena, Katha, Mundaka, Mandukya, Prasna, Aitareya, Taithiriya, Chandogya, Brhadraranyaka. Upanishads form the essence of Vedas called Vedanta. A need to portray the essence of Upanishads, the life giving message for humanity is fulfilled by Smrittis. According to Upanishads, our original state is one of pure experience devoid of thoughts – a state of Silence.It is a state of Bliss, Freedom, Knowledge and Creativity. The Upanishads also propound that this original state of silence is also the Casual State of entire creation, Brahman. All those who are in search of greater
and more permanent happiness and bliss, those who seek knowledge, those who want to be totally free and who aspire to become more and more creative will have one single aim-to reach the silence state, which is the core concept of Yoga. Our ancient Sanatana Dharma was based on this concept of existence. The development of these concepts into various streams, practices and techniques have been ever evolving, according to the need and benefit of the mankind. In this regard we find Jnana Yoga, Karma Yoga, Bhakti Yoga, Raja Yoga, Hatha Yoga, Tantra Yoga, Kundalini Yoga, Mantra Yoga, Shabda Yoga etc. All these culminate into one basic or primary need of need, that is the evaluation of the mankind from animal level to human level, from human/man to superhuman level, from superhuman level to Divine man and from Divine man to Divinity which is the natural evolution of our existence, which is possible through yogic concepts. 

Yoga originated in India several thousand years ago. Its founders were great saints and sages. They gave rational and scientific interpretations of the system. Yoga today is no longer restricted to hermits, saints, sages and it has taken its place in our everyday lives and has aroused a worldwide awakening and acceptance in the last few decades. The techniques have been re-oriented, researched to suit to modern sociological conditions and to the understanding of modern physiologists—to bring the necessary patho-physiological conditions in the individual body-mind. It has been deemed as body-mind soul medicine.

Definitions of Yoga, according to Patanjali is- “Yoga Citta Vritti Nirodhah”- by controlling the mind, we reach our original state.

“Tada druste svarupe avasthanam” then the seer establishes himself in his casual state. This is the technique of the mind control” prescribed by Patanjali. In Yoga Vasista one of the best tests on Yoga, the essence of Yoga is beautifully portrayed thus:

“Manah Prasamanopayah Yoga Ityabhidhiyate” –Yoga is a skilful methodological trick to calm process and not a brutal, mechanical, gross effort to stop the thought in the mind.

Yoga concept is also well explained in the Bhagavad Gita—“Yogah Karmasu Kausalam” (Gita 2.50).
Yoga is dexterity in action. The dexterity is in maintaining relaxation and awareness in action. Relaxed action is the process and efficiency in action is an outcome. Thus, Yoga is skillful science of gaining mastery over the mind. Yoga is normally and traditionally conjectured and popularly known as a process or technique to reach the ultimate state of perfection. By yoga man can go into the higher state of consciousness & learns to stay in a very calm, poise and in a balanced/equilibrium state. Patanjali, a great sage restated yoga philosophy and practice for the man of his own period in the form of yoga sutras (aphorism) which has the references & essence from Vedas & Upanishads. These sutras became the easy way for the practitioners/Sadhaks to follow. The original commentators on these sutras were Bhoja & Vyasa. We also simultaneously see the development of Yoga through another treatise called “Hatha Yogapradipika” “Geranda Samahita” written by Svatmaran. In this treatise there is more practical aspect of Yoga as well as yogasanas (postures), pranayama, diet etc, whereas in Patanjali’s yoga sutras we find the one line aphorisms which are subtle but systematic in approach. The Ashtanga Yoga (8 limbs of Yoga) is very easy steps to achievement of perfection through yoga. The eight limbs of Yoga are: - Yama - Ahimsa, Satya, Brahmacharya, Asteya, Aprigraha; Niyama- Saucha, Santosha, Tapa, Swadhyaya, Iswarapranidhana; Asana- postures; Pranayama – breathcontrol; Pratyahara- control of senses; Dharana- concentration; Dhayana – meditation and Samadhi- blissful state.

At present apart from the traditional yogic concept and its practices, we find for the upliftment of mankind newer sets have emerged but like the various streams of yoga, which apparently look different in practices and techniques but culminate into one stream i.e. the human perfection and peace and in this regard, we find - Brahma Kumari Isvariya, Preksha Dhayana, Vipassana Meditation- based on Buddhist Philoshophy, Osho, Art of Living etc. There are many new age gurus, who are propagating the art and science of yoga to the masses. The western world is attracted to these concepts & practices for health & peace.

Cultivation of correct psychological attitudes is of high significance in Yogic Therapy. Yoga has an important bearing, direct & indirect on the genesis of not only psychosomatic and chronic-metabolic and other disorder, but also of infectious ones.
There is no ideal drug or method has so far been discovered in science which would destroy or neutralize the offending factors alone but would not harm the normal tissues. No wonder than that, after the so-called cure, the person is left more debilitated and handicapped and with much less of his own inherent powers of resistance and immunity. According to Yoga, mind has a very significant role to play not only in psychosomatic diseases, but also in every other form of disease, including the acute ones. Mind, when it is disturbed, may make the body prone to attacks by external organisms by lowering general resistance and also lack of in-co-ordination between various organs thus lowering the efficiency of the body. Yoga ages ago has come with the concept of psycho-physiological mechanism of the whole process and also suggested ways & means to set them right. Yoga as a first tenet helps the behavior to be developed into the structural pattern as much as the structural pattern directs the behavior of the body over the mind. It is hence that Yoga lays a special emphasis on cultivation of correct psychological attitudes.

Pranayama is of primary importance in Yoga. It influences the neuro-anatomic grounds; one could expect a possibility of an integration of autonomic and cerebral-spinal impulses, the involuntary and voluntary nervous mechanisms through the control of respiration. It affects the very pathways of the impulses through the brain, resulting into a constant steadiness and balance of mind.

Modern medicine which has alleviated pain and saved millions from many epidemic and viral diseases has found that a whole gamut of new ailments, viz, psychosomatic ailments and psychiatric problems is now torturing man. This new development has again posed a challenge to the medical world. There is a lot of emotional instability and struggle, dichotomy between couple, generation gap increases between the aged/elders and the youth. Hence, the whole family is in distress and misery due to the vagaries of life. The restlessness at individual level has percolated into family and the resultant social ills at the collective level.

Every mans one single common direction for all our activities are directed towards getting happiness, more and more happiness, avoiding or, if possible, eliminating
all misery. This central theme of seeking more happiness and lessening the agony, pain and misery is knit into all our lives. Thus in the whole life, whether we recognize it or not is in built around this theme. It is this natural urge in man which forms a common goal of life for all human beings. Yoga is a process of gaining control over the mind. It is a skillful methodological trick to calm down the mind from its distress, anxiety & tension.

2.7.2 Scientific Studies in Yoga:

There are number of scientific studies in yoga in the management of chronic diseases, elderly related problems, efficacy on the individual body system etc, which are published in Indian index journals as well as international index journals. Some of the references are being discussed here.

Improving economy and health in developing countries like India, has increased the life span and changed the emphasis from communicable to non-communicable diseases. This is likely to increase the prevalence of movement disorders and, age-related diseases like Parkinson's disease (PD). Parkinson’s disease is a chronic progressive and currently incurable neurological illness associated with significant functional disability. The prevalence increases with age, from one per 100 below the age of 60 years to 20 per 1000 over the age of 85 years. The crude prevalence rates (per 100,000 population) of major neurological disorders with 95 per cent confidence intervals (95% CI) and age adjusted rates (AAR) based on US 2000 population showed 45.82 (95% CI 29.64-67.63 and AAR-71.64) Parkinsonism. Various risk factors of Parkinson's disease in Indian population are found to be male gender, family history of Parkinson’s disease, past history of depression of up to 10-year duration and well water drinking of more than 10-year duration. In the early stages of Parkinson's disease medication enables patients to remain functionally independent. With progression, however, drug treatment becomes less effective, motor symptoms worsen, and dependency increases.

Anxiety, Depression disorders and symptoms are frequent in Parkinson’s disease (PD). Seventy-five percent of the patients with PD exhibited present generalized anxiety disorder (GAD) or panic disorder. Onset of anxiety typically preceded the appearance of Parkinsonian motor symptoms. most investigators who have assessed patients with idiopathic PD have observed that anxiety symptoms tend to appear after the diagnosis of PD. The actual prevalence rates are uncertain as...
anxiety in PD has not been studied extensively. However, estimates suggest that up to 40% of PD patients experience substantial anxiety. In another study, 29% of PD patients had a DSM-III-R anxiety disorder, but 40% had significant anxiety symptoms in the absence of a formal diagnosis of an anxiety disorder. Panic disorder is the most frequent anxiety disorder in PD with a reported prevalence rates varying from 13 to 30%. However, PD patients experiencing panic attacks or other forms of episodic anxiety may not always fulfill the diagnostic criteria for panic disorder. One study showed that panic attacks were present in 14.3% of patients, whereas only 3.6% suffered from DSM-IV panic disorder. Generalized anxiety disorder (GAD) has been reported in up to 11% of PD patients. One single study reported a prevalence of social phobia (or social anxiety disorder) of 15% in a small sample of PD patients, but no other studies on social phobia were identified. Although obsessive and compulsive symptoms and behaviors are reported in PD, the prevalence of obsessive-compulsive disorder is not significantly higher in PD than in control populations.

Anxiety in PD is associated with increased subjective motor symptoms, more severe gait problems and dyskinesias, as well as with freezing and on/off fluctuations. Anxiety symptoms in PD patients have also been shown to have a negative impact on health related quality of life.

Depressive symptoms commonly occur in Parkinson’s disease (PD), affecting approximately 40% of patients in cross-sectional studies. Several studies have shown frequency and severity of depression and cognitive impairments in Parkinson's disease (PD). Lieberman et al suggested that in patients with PD depression occurs independently of dementia, and that depression is not a prelude to cognitive impairments. Portin and Rinne, in an eight to 10 year longitudinal study, found that 70% of a series of 79 patients showed a significant deterioration of cognitive function. Poor response to levodopa, impairments in activities of daily living (ADLs) and predictors of cognitive decline. In a longitudinal study by Starkstein SE et al., 1990 examining the influence of depression on cognitive decline in patients with PD showed that depressed patients (as defined by a Hamilton depression scale (HDS) score > 7) showed a significantly more severe cognitive decline than non-depressed patients.
Depressive symptoms have also been recognized to be a major determinant of health-related quality of life in PD, and can affect functional ability, cognitive function, and caregiver quality of life. Many psychotherapeutic interventions such as cognitive behavioral therapies, self-education programs, stress management, dealing with negative thoughts, and appropriate use of social supports have shown short-term improvements in global ratings of mood.

Yoga as a complementary and mind-body therapy is being practiced increasingly in both Indian and western populations. It is an ancient Indian science that has been used for therapeutic benefit in numerous health care concerns in which mental stress was believed to play a role. Important facets of a yoga program such as relaxation and mental awareness are known to alter the perceptions, and mental responses to both external and internal stimuli, slow down reactivity and responses to such stimuli and instill a greater control over situations in the participants. This could be particularly useful in numerous health care concerns where stress is believed to play a role. Several research studies over the years have shown the effect of yoga in numerous health problems where mental stress was believed to play a role. Yoga practices have shown to reduce airway sensitivity and improve pulmonary functions and decrease medication score in asthmatics. Yoga has been used in rehabilitating patients with arthritis in elderly population. It has been found to retard progression of coronary artery disease and control blood glucose levels in NIDDM. It has also been found useful in pulmonary tuberculosis, in preventing epileptic seizures, improving pregnancy outcomes.

Various yoga practices such as asanas, Shavasana, pranayama and meditation are now recognized as relaxation techniques comparable to many behavioral modification techniques like biofeedback and progressive muscular relaxation based on the famous work of Wallace (1970) who showed that the practice of Transcendental Meditation (TM) brings about signs of overall psychophysiological relaxation. Anxiety neurosis recognized as an exaggerated form of stress response with sympathetic hyper-reactivity, could therefore benefit through any one of these relaxation therapies. Studies have shown reduction in self-report anxiety symptoms, heart rate, urinary level of VMA and a rise in galvanic skin resistance in 19 patients with generalized anxiety neurosis after 8 weeks of pranayama practice. Mindfulness based stress reduction has also shown to
reduce stress, anxiety, depression, panic and also the panic of agoraphobia. Earlier studies have shown beneficial effects with yoga intervention in modulating depression in both healthy volunteers and those with established psychiatric diagnoses of depression. It has also been found useful in subjects with obsessive compulsive disorder and schizophrenia. There are also several reports of the use of TM in the rehabilitation of drug abusers and alcoholics. These studies show the utility of yoga for a broad range of psychiatric problems. These effects could be attributed to both stress reduction and personality changes at the behavioural level.

Hypertension, a chronic disorder can create many side effects and risk factors and impact on Kidneys, eyes, heart, brain. The main risk factors will be on heart. Coronary artery disease or congestive Cardiac failure etc. can be of a serious problem to the elderly. Non-invasive and non-drug management is always safe method of management. Various Yoga techniques are helpful in the management of this problem. Relaxation techniques can reduce the stress levels and its impact in hypertensive’s. Biofeedback technique & imagery technique similar to yoga relaxation technique is helpful to reduce blood pressure & stress. Hypercholesterolemia is also one of risk factors for coronary heart disease. Reduction of high cholesterol through diet a lifestyle changes is evident with Dean Ornish’s works. Yoga relaxation is also very helpful in reducing high cholesterol by behavioral modification, bio feedback technique, mind body therapies where yoga relaxation techniques is one of the component. Stress induced diabetes are type II diabetes in elderly is further triggered by stress and affects the coronary arteries creating blockage. As age progresses it is difficult to go for invasive techniques and high diabetic condition can be one of the major risk for invasive techniques. Yoga techniques are safe in the management of these problems and reduce the risk factors. Diabetes is another chronic condition, which triggers the coronary artery disease. Yoga help to control diabetes and coronary artery disease. Osteo arthritis is common to both male and female elderly, where as rheumatoid arthritis affects the male elderly, apart from those females who were already suffering from their younger days. Medicines are not much helpful in this disease. There are severe side effects due to medication.
Yoga techniques is helpful in Osteo arthritis, rheumatoid arthritis and in cases where the musculo-skeletal strength, flexibility, pain, inflammation, loss of grip strength etc are the severe form of symptoms. Also, pain in low back, neck becomes more and there is problem with gait, and often prone for fall, injury & fractures.

Many studies on this non-drug management has shown that there is relief in many chronic diseases and reduce the cardiovascular target –organ response to elevated or abnormal pressure – the retina, brain, heart, kidneys and nervous system. Even the other risk factors like hypercholesterolemia also have reduced. Thus the side-effects and the diseases complications has been considerably reduced.

The comprehensive approach of yoga therapy has shown in many researches statistically significant results in mental illness along with medicines, psychotherapy and counseling. Yoga is a part of treatment in many centers like NIMHANS, where the recovery and rehabilitation of patients are good.

2.8.1 Naturopathy- History and Development

The Healing Science is as old as man. In the earlier books there is mention of extensive use of Nature’s finer forces of air, earth, water and sun. In the excavation of the Indian cities Harappa & Mohenjo-Daro suggests that in early India there was use of massive swimming pool equipped with steam baths, mud application, etc. In 18th C European Spas were booming. The complaints for which Spa treatment was most commonly and successfully used were skin diseases, rheumatism, gout, and debility. Bathing varied according to the ailment Cold baths and sudden immersion were used for the feverish condition Tepid baths were recommended for the debility.

The modern methods of Nature Cure however originated mostly in Germany & developed in USA. Each master in the field developed his own method in his own way, and the whole mass of knowledge was later collected under one name- Naturopathy. The credit for the name, Naturopathy, goes to Dr. Benedict Lust and hence he is called Father of Naturopathy.

Nature Cure of modern times with various treatment modalities evaluated scientifically and got its popularity as Kuhne’s treatment methods in Germany and
other European countries. Later it developed well in USA. In India, due to Gandhiji’s interest in Nature Cure, it spread to every nook and corner and got established in India, as one of the Indian System of Medicine\textsuperscript{144}.

**Hippocrates:** - Father of modern medicine in 460 B.C. advocated great amount of natural healing remedial measures. Hippocrates said diseases were a part of the order. It could be cured by natural means. He stressed two ways of preserving health and preventing disease- by ensuring a healthy environment, and personal habits.

**The School of Salerno** (900-1811 A.D.): Medieval ages in European countries preached the Health Clubs of Salerno (The Regimen Sanitatis Salernita). They preached, for refreshments bracing cold water wash first from bed you arise; Rest after food; cool not too soon the body when in heat etc. To cure consumption, they recommended goats/camels milk. In fever or headache, the patient should shun the diet. Grapes, prunes, cherries & figs are highly useful for stomach disorders.

**Paracelsus Magic into Sciences:** Paracelsus a German introduced mineral baths and was one of the first to analyze them. Paracelsus writings include description of arm baths, leg baths, & highly specialized forms of water application for various symptoms & ailments.

**John Wesley:** John Wesley advocated natural and healthful living of the 18\textsuperscript{th} C. His famous books are “Primitive Physic or an Easy and Natural Method of Curing Most Diseases”. In Wesley’s prescription hydrotherapeutic treatments and diet regimen were highly favored. But the most significant & original contribution of John Wesley to the healing sciences has been that of electricity. He wrote in the English language a Treatise on Electricity-“Pioneer use of Electricity.”

**Vincent Priessnitz** (1799-1851) - He popularized and laid foundation for water cure- healing virtues of cold water, applied inwardly and outwardly. Dr. Wright of America popularized it further.

**Sebastian Kniepp** - He brought about remarkable healings by the use of water. He was called “Priest who heals with water”. He taught, the world that water of different temperatures, variously applied to the system, will dissolve the morbid matter in the blood, having the cleansed blood to experience a free circulation. His
book “My Water Cure” greatest books in the realm of natural healing and is a wonderful volume which deals with preventing and treating disease through water applications.

Arnold Rickli: - from Austria popularized the air and Sun therapy. Pure air is the most important condition in life for our bodies, whether in health or disease. His maxim was “water is good, but air is better and light is the best of all.” He wrote a book “Atmospheric Treatment” and said that he used to take sun bath for an hour and then swim for a while to cool his body increased his strength & vitality & light and air had good effect on the nerves. He had established air-cure center at Veldes in Oberkram Austria in 1848, which was first of its kind. Rickli had cured Finsen, of his lupus. His follower Rollier, started world-renowned Sun and air Sanitarium at leysin, in Switzerland.

Emanuel Felke : He advocated & popularized the treatment of Earth & Diagnosis from the Eye (Iri-diagnosis). He said clay, or earth has radiant energy and its retention of warmth and moisture of given temperature was a quality to be appreciated. He said, “Most disease is due to violation of Nature’s Law in our common habits of living. The fundamentals principles of true healing must consist in a return to natural habits of living.”

He believed that the mud-treatments & contact with mud would bring faster healing & recuperation. His, another contribution to the field of Naturopathy is the Science of Iridology-diagnosis through Eyes (Iris). The important discovery of the changes in the Iris in health & disease was observed by Ignaz Peczely of Hungary & he popularized this science by observing the Iris.

Louis Kuhne: He propounded the theory of Unity of Disease-the foreign matter, which says that there is one cause for disease that is foreign matter which is unutilized & un-eliminated by the body & the cure lies in the elimination of the foreign matter. He was also an exponent of facial diagnosis. He believed that only cleanliness through flushing of toxins help in curing the disease. In his Doctrine of the Unity & Oneness of All Disease has been very ably explained by Louis Kuhne in his lengthy thesis entitled “The New Science of Healing”.

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**Adolf Just** (1838-1936):- He has written “Return to Nature” which profoundly influenced Mahatma Gandhi that he not only adopted Nature Cure as his philosophy of life, but was also impelled to found a Nature Cure Centre for the relief of the suffering in a village named Uruli Kanchan, near Pune, where he himself acted as a physician. Adolf Just lived for 98 years by following, preaching, teaching & treating several in Germany and neighboring countries. He propagated Natural living and Natural Healing.

**Dr. John H Tilden** (1851-1940): He was medical doctor by profession, but gave less medicine and preached & practiced his theory of cleaning the body of toxic poison and then allowing Nature to make the cure, teaching his patients how to live so as not to create a toxic condition and to retain a healthy body free of disease. He popularized his philosophy in USA and Australia through his magazine “The Stuffed Club”, changed it to “The Philosophy of Health” and once again changed to “Health Review & Critique”.

**Niels Reberg Finsen** (1860-1904): He was first to demonstrate the value of treatment by the actinic or ultraviolet rays. Though, he had degree of Doctor of Medicine, his main interest was effect of sunlight on health. His discovery & advocacy of the negative light treatment for smallpox and his discovery on actinic rays, which has germ killing action of sunlight, are worth mentioning. He also found the physical & chemical properties of blue, violet & ultraviolet rays. He also used red & ultraviolet rays for lupus treatment. He established Finsen Light Institute in Copenhagen. He received Nobel Prize in medicine in 1903 for his discoveries on physical & chemical properties & its therapeutic values of life.

**Dr. Henry Lindlahr**: Dr. Henry Lindlahr was M.D.in medicine and N.D (Naturopathy). He wrote five great works on Naturopathy -1. The Philosophy of Nature Cure 2. The Practice of Nature Cure and 3. The Lindlahr Cook Book. He himself was cured of his diabetes by Father Kneipp’s treatment of Diet & Water cure. He established Lindlahr Sanitarium. His main theory, “The primary cause of germ activity is in the morbid soil in which bacteria feed, grow and multiply.” His mastery of style earned him the name of “The Kepler of Medical Science.” According to him “Nature Remedies are the best.” His books are the text books for the students of BNYS (Bachelor of Naturopathy & Yogic Sciences).
Dr Kellogg: - John Harvey Kellogg (1852-1943) Medical doctor had great interest in the healings of natural therapeutics before he graduated into medicine. After his graduation he applied his medical & scientific knowledge to know better the healing mechanism of natural element, mainly the water cure. He wrote in many scientific journals “The Use of Water in Health & Disease”, The Proper Diet for Man”. He popularized water cure so much that till mid 19th century Water cures were everywhere. In 1851, there were some fifty water-cure resorts or “The Water Cure Journal & Health Reform”. In his Sanatorium he improvised the administration of hydropathical methods into experimentation and clinical observation, used only on prescription. He also adopted and popularized vegetarianism. Although with hydrotherapy he popularized light therapy and electrotherapy. He wrote “Rational Hydrotherapy” in 1900, it is a scientific treatise on Water Cure and even to this date it is the major text on hydrotherapy for the students of Naturopathy. His other books are “The Art of Massage; & “Light Therapeutics” “apart from his number of scientifically experimental articles in journals.

Dr. Benedict lust: - He was born in Germany and was ailing with many diseases. He then got treated by Kneipp methods of water cure and diet. Then he went to America to popularize Kneipp Cure in New York City. He then graduated from Osteopathic College & Homeopathic Medical College and was licensed in Florida as an M.D. He practiced Naturopathy and he wanted to bring all the drugless healings under this healing, hence he purchased the word “Naturopathy” by Dr. John H Scheele who had first coined it in 1895 and committee which met in 1901 decided on all issues related to drugless healing. In the committee all the drugless healings from Metaphysical subjects to all five great elements related therapies like hydro, mud, massage, osteo, diet, helio, chromo etc was included. He was editor of “Naturopath” magazine for more than 3 decades. The definition of “Naturopathy” was passed by the United States Congress on February 1931 without a dissenting vote.

2.8.2. Indian Naturopathy & its Development:-

The practice of naturopathy is as old as Nature itself. In earlier days, all the natural elements were used for therapeutic purpose & also as part of some rituals. Applications of mud poultices for the skin & stomach disorders were in great
practice. Water treatment like hot or cold cloth compresses, packs (patti’s) hot fomentation with small round vessels, steam inhalation, sweating treatments in fever or myalgia etc, were prevailing. In the diet therapy upavasa & patya were an integral part of the treatment as well as household routine of every Indian. Though, the herbal remedies & Ayurveda system was growing with pharmacopeia, simultaneously the natural remedial measures were also much in vogue. However, due to the impact of allopathy the Indian Systems of medicine especially natural remedies was forgotten. It got its revival from 1875 onwards. Some of the contributors who rekindled and developed this natural remedial measure into a scientific system of medicine were western especially European Naturopaths and Doctors. As an added advantage it was the growth of technological excellence in the medical field, which enhanced its creditability to great extent

Shri Krishna Swaroop(1868-1932)- propagated in northern India. He was practicing lawyer; he was impressed by Louis Kuhne’s work and asked his permission to publish his works in Hindi & Urdu. He established Healing Institute based on Kuhne’s method and popularized these methods.

Dr. Atma Ram Krishna Bhagwat (1891-1978) was a military surgeon. He travelled extensively to European Countries – Germany, Mesopotamia, Turkey and was very impressed with the naturopathy treatments. He came back to India & left the military surgeon post & practiced nature cure treatment; he also looked after Gandhi ji’s Nature Cure Ashram at Uruli Kanchan, Maharashtra from 1946-1948.

Dr. Vegiraju Krishnaramraju he propagated nature cure since 1934 established hospital in Bhimavaram in1944. He also influenced Gandhiji and Acharya Vinobha Bhave with his work. He advocated all the branches of naturopathy (mud, hydro, colors, sun, diet, nutrition, and acupressure) treatment in his centre. He had also established a college but it does not exist now.

Mahatma Gandhi was a firm believer, ardent follower and very strong propagator & practitioner of nature cure. He was deeply influenced by Adolf Just’s book “Return to Nature”. He advocated nature cure treatments on himself as well as to his families and got convinced & started preaching it. He also took treatments from Dr. Dinshah Mehta, Nature Cure Sanatorium Pune, which is now National Institute of Naturopathy (under Govt. of India). He established Nature Cure Ashram in
Uruli Kanchan near Pune, Maharashtra. He wrote “Diet & Diet Reforms, “Key to Health”, “Nature Cure”, “Moral basics of Vegetarianisms” “Ramanama” etc books. He firmly believed that to Indian Socio economics conditions, nature cure is the best system of medicine\textsuperscript{46}.

**Acharya Lakshman Sarma**- from Tamil Nadu popularized Naturopathy. He authored many books “Practical Nature Cure” and was founder editor to “Life Natural Magazine” which is being published even till date by his followers. He founded Indian Institute of Natural Therapeutics & Sarma’s Nature Cure Sanatorium. He was the first man to find the spinal bath tub, which is very important treatment in naturopathy hospitals for spinal problem, hypertension etc. He authored many more books & his work had influenced Swami Sivananda, Kaviyogi Shuddhanada Bharti, and Dr. Jeese Mercer etc.

The other famous contributions to naturopathy field are: - Dr. Bhamgara, Dr. S.J. Singh & Dr. Jussawala were doctors from London Naturopathy College. They popularized Naturopathy in Mumbai, Delhi and Lucknow. Dr. Hiralal, Dr. Mahaveer Prasad Poddar, Puccha Venkataramaih, Dr.Sitaram Jindal and Dr. Sivaram popularized this system so much that in each & every part of India hundreds of patients were treated and it was the time of revolution in the history of Indian Naturopathy, due to this impact many hospitals were opened. The first college, affiliated Osmania University, Hyderabad was started by doctor couple Dr. Venkata Rao and Dr. Vijayalaxmi in 1970’s. Renowned hospitals like-Institute of Naturopathy and Yogic sciences (INYS) Jindal’s at Bangalore, Kayakalp in Rajasthan, Nature Cure Hospitals in Jaipur, Calcutta, and Kerala were started. Slowly about 12 colleges affiliated to respective University like other systems of medicine have been started in Tamil Nadu, Karnataka, Andhra Pradesh, Madhya Pradesh, and Chhattisgarh awarding BNYS degree. Compared to the growth and the popularity of pre-independence period with other systems of medicine, the post- independence period is slow. However, the Govt. is taking keen interest and has established National Institute of Naturopathy (NIN) in Pune and Central Council for Research in Yoga and Naturopathy (CCRYN) in New Delhi, Which takes care of funding for Naturopathy & Yoga related activities and research. The colleges are bringing out qualified BNYS (Bachelor in Naturopathy & Yogic Sciences) graduates, who are spread in India & abroad\textsuperscript{147}. 

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2.8.3. Naturopathy Treatments

Naturopathy is a system of medicine as well as a way of living. It is a system of man building in harmony, with constructive principles of Nature on physical, mental, moral and spiritual planes of living. Health is normal and constitutes a harmonious vibration of the elements and focus composing the human entity at the physical and mental level in conformity with the constructive principles of nature as applied to individual life. Disease is abnormal and unharmonious vibration of the elements and forces constituting the human entity. The primary cause of disease is violation of Mother Nature's laws. Most of the health scientists are of the view that many diseases from which mankind is affected are the outcome of wrong life styles, food habits and increasing pollution in the environment. It is a very old science of healing and method of living and has great promotive, curative and rehabilitative potentials.

The modern therapeutic methods applied in Naturopathy are: **Hydrotherapy** (water therapy) – applied to the body in different temperatures, modes and methods, produces several types of physiological effects. When it is applied in diseased conditions it brings the balance in physiological conditions, as the circulation, the toxic elimination, nutritional absorption etc happens.

It has various types of analgesic effect, anti-inflammatory effect, anti-pyretic effect, sudorific effect, purgative effect, laxative effect, etc., depending upon the applications and the patho-physiological conditions. Some of the applications are – hip bath, spinal bath, steam bath, gastro – hepatic pack, full wet sheet pack, steam inhalation, chest pack, affusions and hot foot bath etc.

**Mud therapy** – clean mud is selected for therapeutic purpose and it has same physiological effects as hydraulic applications. It is applied directly and in the packs form or in the poultices form to various parts of the body, as per the patient's condition.

**Natural Dietetics and Nutrition**: is very important part in the treatment. It is believed that 90% of the diseases due to wrong dietary habits and if corrected about 90% of the diseases are cured or managed with diet therapy.
Nutrition is an important factor for the body; each cell needs macro and micro nutrients for its normal function. Diet therapy helps in cleansing of the body cells and hence better absorption of nutrients and better function of the organs, parts and the body as a whole. It is advocated in three phases – viz – Eliminative Stage – where therapeutic fasting (concept of akasa tatwa) in suggested depending on patients condition from 3-9 days or even up to 30 days. Mahatma Gandhi was strong believer in this system. In the Soothening Stage – patients are given fruits, raw salads, sprouts, juices, etc and in Constructive Stage, they are slowly brought to cooked diet and gradually their calories, are increased up to their needs and the diseased conditions, so that they can maintain them during the follow-up period at home. During treatment period the body gets lots of micro-nutrients and nourishment so that body is cleansed and rejuvenated150.

Helio and Chromo therapy – therapeutic application to the body by the use of sun and seven colors (VIBGYOR) of the sun rays. Direct early morning sun rays exposure or chromo bath with specially designed chromo cabin consisting of blue, yellow, green and red glasses. Each color has various therapeutic values depending upon the duration, precautions etc., which helps to bring in the needed pathophysiological changes.

Massage Therapy, Osteopathy & Chiropractic:

All these therapies work on the same principle as acupressure and acupuncture. Osteopathy is a system of healing based on the theory that many diseases are associated with disorders of the musculo-skeletal system. Diagnosis and treatment of these disorders involve palpation, manipulation and massage. Chiropractic is also a manipulative method on spine to treat the sub-luxation of the spine – in turn to treat the disorders related to nervous system and circulatory system. Massage is a proven ancient remedy for relaxation reducing stress, tension, depression and anxiety. Though it was part of life style, it can be very well used as therapy. Various types of therapeutic massage techniques are used with different types of oil; even medicated oil is used to bring physiological changes which act as cleanser, tonic, rejuvenating and relaxing effect. Research has shown that massage in secretion of serotonin – which is a happy hormone. In the manipulative therapies – various techniques like reflexology, acupressure, magneto-therapy, chiropractic and osteopathy techniques are used151.
2.8.4. Scientific Studies in Naturopathy:

In West and in European countries treatment effects of individual therapies have been evaluated. Physicians at the medical center at Divonne-les-Bains in France made a comparative study of 109 patients suffering from clinical depression. Of this group 78 were given spa therapy (hydro therapy) and the other 31 served as control subjects. After six months period, patients were evaluated for depression. The results showed a significant reduction in depression, a lower consumption of anti-depressants and 20% reduction of benzodiazepines among patients who were given spa therapy, when they were compared with the control group. In some parts of Czechoslovakia, spas provided treatment for nervous disorders152.

Various treatment modalities have different patho-physiological effects on different body system. The different modalities are hydrotherapy- the treatments by different temperatures of water in different modes of application. Mud therapy has similar effect of hydrotherapy on the body. Sun and Chromo baths helps to increase the metabolism and is helpful in reducing weight, reduce blood sugar levels, improve circulation, and induce sleep. (1) Research in mud, helio and chromo-therapy - There is much importance given to mud therapy in Naturopathy. Body is the via media for mind, mud applications on the body works wonders and the psychological effects and patho-physiological effects are more or less on the same principles. Mud therapy - application of mud at the river / sea basin, sitting and sleep for therapeutically effects on wet mud was in much vogue in the past e.g. Dead sea mud application for skin and stress disorders (skin diseases are also psychosomatic in nature). Helio and Chromo therapy works on the principle of the electromagnetic energy of colour which affect the pituitary, pineal glands and hypothalamus, all of which have a profound influence on the bodily system153.

Different colours in various intensity effect on the physiological aspects of body, and mind, which heals, Relaxes, renews the spirit and balances energy levels. Blue and green colour rays (helio or electro rays) are helpful in anxiety, insomnia manic depression psychosis (MDP)154. Earlier, sun and moon charged water (ashoodhaka) was used for therapeutical purpose in skin & mental illness.

Hydrotherapy is extensively used in naturopathy to bring various patho-physiological changes in the body. In earlier days the spas treatments were very
useful. They used common public places, where natural mineral water was available or they induced herbal or chemical spas for people to bath with skin diseases, like sulphur water spas. Special designed tubs started in 18th C with medicated water effect for skin problems, fevers, sleeplessness etc. Immersion baths helps to improve the autonomic nervous functions, which in turn controls the stress related disorders. The glandular function improves by hot sulphur spring baths, with patients who are suffering from psychosomatic illnesses. Beta Endorphin is a hormone, when secreted help to elevate the mood; it is also called the happy hormone. Hot Spring baths help in evaluation or secretion of these hormones.

Natural Immersion baths are helpful for people who are suffering from Parkinson's disease, and in Depression anxiety. Water therapy baths are cost effective treatment, which reduces pain, inflamed for all types of arthritis, which is a degenerative ageing disease. Turmeric and ginger, which is an age old remedy of Indian household was found beneficial for pain & swelling management in osteoarthritis patients. Even the acupressure to specific points is helpful in the management of osteoarthritis patients.

Nutrition can powerfully influence cognition, emotion and behaviour. The effects of classical nutritional deficiency diseases upon mental function constitute only a small part of a rapidly expanding list of interfaces between nutrition and the mind. Deficiency of nutrients can alter brain function and lead to depression, anxiety and other mental disorders. Nutrient deficiencies can have a profound influence on the brain and mood.

Behavioural Effects of some Vitamin Deficiencies (Sources: M. Murray and Pizzone, Encyclopedia of Natural Medicine, Prime Publishing)

<table>
<thead>
<tr>
<th>Vitamin (B)</th>
<th>Deficiency Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiamin (B1)</td>
<td>Korsakoff's Psychosis, mental depression, apathy, anxiety, irritability.</td>
</tr>
<tr>
<td>Riboflavin (B2)</td>
<td>Depression, irritability</td>
</tr>
<tr>
<td>Niacin (B3)</td>
<td>Apathy, anxiety, depression, hyperirritability, mania, memory deficits, delirium, organic Dementia, emotional liability.</td>
</tr>
<tr>
<td>Biotin</td>
<td>Depression, extreme lassitude, somnolence.</td>
</tr>
<tr>
<td></td>
<td>Vitamin</td>
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<td>-------</td>
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</tr>
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<td>5)</td>
<td>Pantothenic Acid</td>
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<tr>
<td>6)</td>
<td>Folic acid</td>
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<tr>
<td>7)</td>
<td>Vitamin B12</td>
</tr>
<tr>
<td>8)</td>
<td>Vitamin C</td>
</tr>
</tbody>
</table>

Acupressure and Reflexology also works on the same principles. Almost all the symptoms of psychosomatic ailments, anxiety, stress, depression can be very well brought under control. Acupressure also is helpful in pain management. Elderly patients are affected with stroke: the acupressure with specially manufactured equipment can help to release the stiffness of the muscles in stroke cases.

Sleeplessness is one of the underlying causes for stress, psychosomatic disorder and depression. Acupressure helps to improve the quality of sleep. Acupressure is safe, economical, and there are no side effects. Patients can also learn and do for themselves and hence it is the best self-help-technique for self-health-sufficiency.

The bio-magnetic is a science dealing with the application of magnetic fields to living things. Magnetism is a component of electro magnetism, one of the four fundamental forces of nature (the others being gravity, nuclear forces and radioactive forces). In terms, health is defined as a state of harmony between the magnetic fields of different cells and groups of cells in the human organism. The purpose of magnet therapy is to regulate the electromagnetic activity of diseased cells. The magnetic field creates a certain amount of electromotive force within the blood and humors (body fluid). This electromotive force generates an electrical current which acts to increase the ion count in the cells. The magnetic field also acts upon the ion element of the blood (hemoglobin) and activates circulation of blood.

It ionizes the protoplasm and activates metabolism when earth has this magnetic force and our body and mind is a part of the whole, we generally respond to it. Geomagnetic activity has influenced the history of life on Earth. Both Soviet t & American cosmonauts, on their return to Earth have suffered from psychiatric disturbances, calcium, metabolic defects and may be other psychological
disturbances. Magnetic treatments are used to treat ailments of depression, sleeplessness; anxiety etc. A double-blind clinical study was done in Japan in 1990 with Magnetized mattress pads to treat insomnia and other sleep disorders. Electromagnetic brain stimulation of varying types has been used with success in the treatment of depression-raised serotonin levels just like Prozac but did it quicker and without any side effects. A new form of electronic for depression called RTMS (Repetitive Transcranial magnetic stimulation) is receiving increased interest from scientists for the treatment of depression.

Studies done in the National Institute of Mental Health (NIMH) America and National Institute of Neurological Disorders have shown that magnetic stimulation is same way as electroconvulsive therapy (ECT) but without its side effects. Some studies also show that the Tibetan monks used magnets to relieve depression.

2.8.5. Alternative Therapy in the West

It is now recognized that millions of people use alternative healers every year. In the most widely cited study to date (Eisenberg et al. 1993), it was estimated that Americans made 425 million visits to providers of unconventional therapies in 1990 – a number that exceeded that of visits to all primary care physicians (388 million). A 1997 study discovered that 42% of American adults had used some form of alternative care in the previous year and that almost three-fourths thought demand for alternative care would be moderate to strong in the future (Landmark Health Care Poll, 1997). When Oxford Health Plans included use of alternative care in its benefit package, between 40-50% saw an alternative care provider in the first year (Kilgore 1998).

Many Health Maintenance Organizations around the country have now begun including coverage for alternative practices. Total expenditures for unconventional therapies in 1990 were 13.7 billion, three-quarters of which (10.3 billion) were paid out-of-pocket by the patient. This sum approximates the total amount (12.8 billion) that was paid out-of-pocket in the same year for all hospitalizations. The most common problems for which unconventional therapies are used are back problems, allergies, and arthritis.
Ten Most Common Reasons to see an Alternative Healer.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Reporting Condition</th>
<th>Used Alternative Healer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back problems</td>
<td>20%</td>
<td>36%</td>
</tr>
<tr>
<td>Allergies</td>
<td>16%</td>
<td>9%</td>
</tr>
<tr>
<td>Arthritis</td>
<td>16%</td>
<td>18%</td>
</tr>
<tr>
<td>Insomnia</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>Sprains, Strains</td>
<td>13%</td>
<td>22%</td>
</tr>
<tr>
<td>Headache</td>
<td>11%</td>
<td>27%</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Digestive Problems</td>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>Anxiety</td>
<td>10%</td>
<td>28%</td>
</tr>
<tr>
<td>Depression</td>
<td>8%</td>
<td>20%</td>
</tr>
</tbody>
</table>


Use of Alternative Therapies

<table>
<thead>
<tr>
<th>Type of Therapy</th>
<th>Used Therapy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbal therapy</td>
<td>17</td>
</tr>
<tr>
<td>Chiropractic</td>
<td>16</td>
</tr>
<tr>
<td>Massage</td>
<td>14</td>
</tr>
<tr>
<td>Vitamin Therapy</td>
<td>13</td>
</tr>
<tr>
<td>Homeopathy</td>
<td>5</td>
</tr>
<tr>
<td>Yoga</td>
<td>5</td>
</tr>
<tr>
<td>Acupressure</td>
<td>5</td>
</tr>
<tr>
<td>Bio feed back</td>
<td>2</td>
</tr>
<tr>
<td>Acupuncture</td>
<td>2</td>
</tr>
<tr>
<td>Hypnotherapy</td>
<td>1</td>
</tr>
<tr>
<td>Naturopathy</td>
<td>1</td>
</tr>
</tbody>
</table>
Most of them are using both the treatments, - conventional as well as alternative for chronic back pain they are using chiropractic at the same time they are using conventional therapy for the same problem & other disorders. Several studies have discovered that most persons who follow the dual model of care and they do not inform their medical doctor that they are also seeing an unconventional healer even if it is for the same complaint. It is believed that the treatments offered by alternative healers often are enhanced by the greater support that develops with patients. Maddocks (1985) contends that alternative healers are more sympathetic than medical doctors to minor but nagging conditions that can trouble an individual. Most of the alternative healing practices involve more talking and more touching, both often given-short shrift by the medical doctor. They are giving four times more time than MDs per patient: doing a better job of avoiding medical jargon; and providing warmer, more relaxed treatment settings. In 1992 United States Senate established the Office of Alternative Medicine (OAM) within the National Institutes of Health to evaluate the effectiveness of unconventional medical practices. In the early 1970s, Acupuncture took America by storm – Although it quickly became very popular with patients, orthodox medicine did not accept its theoretical foundation & acted to restrict its practice. Some of the scientific studies have proved the efficacy and now it is widely used and in many places there is reimbursement of its treatment. Apart from this faith healing or, spiritual healing is being practiced. Curanderismo and Native American healing practices both are very much a part of their respective cultures and religious belief system. World over this trend of dual-care system is prevailing.

In India, where there is history of 5000 years of successful, scientific treatments were available should be practicing it as mainstream therapies rather than being called alternative. These are our basic systems of medicines. The present infrastructure, pharmaceutical company back-up has upheld the conventional treatment hold in medical field. America has started Institute for complementary and Alternative Medicine, many research has been initiated in this regard. In UK, there are Osteopathy Colleges. Many centers of naturopathy in the name of no medicine clinic or natural hygiene center / clinic and so on are running successfully in the west.
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