Stress : Today's doctor is apt to see chronic cardiovascular diseases, respiratory disorders, acid peptic disorders, irritable bowel syndrome, muscular and skeletal disorders etc., all of which have connections to stress. Recent evidences from the field of psychoneuro-immunology suggest that the onset and course of even cancer can be attenuated or exacerbated by psychosocial factors. (Adler, 1981).

The concept of stress evolved more or less, independtly in biological and psychological traditions but attempts to integrate these perspectives have been slow (Baum et al., 1981. Cannon, 1935; Franken hauser 1975; Mason 1975; Selye 1956 / 1976b).

Baum A (1990) discussed the nature of stress and defined it as a negative emotional experience accompanied by predictable, biochemical, physiological and behavioural changes that are directed toward adaptation either by manipulating the situation, to alter the stressor or by accomodating its effects.

Chronic stress is not limited to situations in which stressor persists for long periods of time. Responses may habituate before a stressor disappears or may persist long beyond the physical presence of the stressor. (Baum A 1990).

Stress is considered as events (Holmes and Rahe 1967; Rahe 1975), as responses (Selye 1956) and as transactional issues (Lazarus, 1966).

Stressors :

Psychological stress as a state of affairs arises when people percieve a situation as being a problem which demands from them a significant cost and they react in such a way as to tax or exceed their coping behaviour (Ostell 1991).

The events / situations that place greater than routine demand and evoke stress reactions in an organism are called stressors. Stressors initiate a process by which they are recognized and response to them is generated. The goal of this Process is to remove or reduce the pressures or threats causing stress or the unpleasautness associated with it.

Physical Stressors :

There are various studies showing heat / cold, noise, vibrations, personal health / accidents / victim of violence etc., as stressors.

Surwit et al., (1984 & 1985) showed hyperglycemia in response to restraint and shaking (vibration) and conditioned stressors in the ob/ob mouse. Heat as a form of stress is studied by many scientists (Marya et al., 1988; Collin et al., 1968, Itoh. S. 1954; Kanter, 1955; Macfarlance et al., 1958, Pierce, 1945; Prince, 1956; Robertson, 1976). Acute heat stress can lead to an ill effect on the body (Malse, 1984; Dikshit, 1980; Malhotra et al., 1976; Banerjee et al., 1977; Kennon, 1979; Pichan et al., 1988).

Cold exposure is a potential stressor. People lining in temperate (cold) regions are exposed to temperature extremes, (Ramsey 1982; Sundaresan et al., 1990. Roth et al., 1988, Yahata et al., 1987).

Noise from any source proved to be harmful (Prabhakaran et al., 1988). There was significant rise in total serum cholesterol level exposing the rats to noise stress (Ramsey, 1982; Prabhakaran et al., 1988). Increase in blood pressure and decrease in GSR and reaction time alongwith behavioural changes in workers of thermal power station due to noise stress (Saha et al., 1996).

Premenstrual syndrome as being stressful in females reported by Masani (1982), Basu (1984), Shalanah (1963) Frank (1931) Jeffcoate (1975) Mehta and Chakravarty (1993) and Das et al., (1997).

Stress related changes were found in people who suffered from a disaster or accidents. (Baum A. & Fleming, 1993, Baum 1987, Baum et al., 1983, 1990, 1986, 1989).

In the present study a group of physical stressors included excessive heat, cold, noises vibrations and personal illness, accident and victim of violence. Amongst these excessive noise is having highest percentage of occurance (26.50%) in normals while personal illness, accidents or victim of violence is having highest percentages in somatic ailment group. On comparision of percentages of these in normals and somatic ailment group, all show significant difference to a lesser or greater extent. (Table - 3).

When compared, the percentages of a group of physical stressor, subjects with LBP and / or Arthritis, Headache and/or migraine show very significantly high percentages ($P < 0.001$) Subjects with URI and/or asthma, skin related problems and diabetes are also having significantly higher percentages compared to that of normals. Though the percentages of these stressors are more in other groups, they are nonsignificant. (Table 5).

Family Stressors :

There are some evidences that domestic stress plays a causal role in depressive sympatomatology (Barnett and Gotlib, 1988, Rounsaville et al., 1980).

Adjustment is a process by which a living organism maintains a balance between, its needs and the environmental conditions that influence the satisfaction of these needs. (Khan & Hussain, 1990).

In a study consisting heart patients, asthmatics, peptic ulcer patients, gastritis patients and normals, Khan and Hussain (1990) showed that all the groups of patients were more maladjusted in all five areas (social, emotional, health, home (Family) and financial) of adjustment than normals.

Reiser et al., (1951) found family and marital maladjustments in malignant hypertension.

According to Lazarus (1961) failure of adequate adjustment leads to deviant behaviour and manifests itself in the form of

physiological damage, causing psychosomatic disease. Close relationship between maladjustment and psychosomatic ailments was found by many researchers. (Healy 1915, Alexander, 1950; Graham, 1962, Lipton et al., 1966, Olds, 1970; Ariyo et al., 1973; Kidson, 1973 and Theil et al., 1973).

Phelan et al., (1991) studied the relationship of acute and chronic work and home related stressors to stress related disorders in male and female, married and unmarried, low socio economic group and high socio economic group. Older and younger etc. Suppression of in vitro immunity was been found among people with poor marital relationships and care takers of disease victims (Kiecolt Glaser et al., 1987).

Present study demonstrates the percentage distribution of family stressors in normals and somatic ailment group. The family stressors suggested were sharing of work load, differnet values, different life styles, distribution of money / assets, key position in the family, lack of recognition, short tempored nature of any family member, illness or death of any family member and staying away from the family. Out of all these, stressors like short tempored nature of any family member carries highest percentage in normal subjects, while illness or death of any family member carries highest percentages in subjects with somatic ailments. All the stressors of this group are significantly high in subjects of SAG than normals. (Table - 3).

Table 5 shows percentage distribution of family stressors in subjects with LBP and/or arthritis, headache and/or migraine, URI

and/or asthma found to be having highly significant difference P < 0.001). And significantly high % are also found in Hypertension and/or ht. problems skin related problems and diabetes, while that of subjects with ulcer and/or GIT problems and sex related problems are not significantly differ from normals.

Job the Career related Stressors :

Frequently studied occupational stressors include workload (Ivancevich et al., 1982) role overload (Green haus et al., 1987) .and relationship at work (Bechr 1981).

Caplan et al., (1975) conceptuatlized stress in terms of chromic workplace difficulties or strains.

Work related psychosocial stressors originate in social structures and processes, affect the human through psychological processes and influence health through emotional, cognitive, behavioural and physiological mechanisms (Levi, 1990).

The disturbance in automatic system was reported in workers of thermal power station (Saha et al., 1996).

Anxiety and other related symptoms get attenuated in response to the exam stress. (malathi et al., 1997). Palan and Chandwani (1989) reported decrement in mood during the first year of madical school in students. Smith et al. (1982) also found the test anxiety and psychosomatic symptoms in college students. Bijlani et al., (1983 and 1986) studied that the biochemical changes in medical students before examinations.

Situations requiring emotional expressiveness or subordination to women is more stressful in men (Eisler and Skidmore, 1987), While situations calling for detachment in intimate relationship or assertiveness and situations involving possible victimization is more stressful in women at work (Gillespie and Eisller, 1991).

Sharma and Rao (1974), in their study of ulcer patients found marked disturbance in occupational adjustments.

Reviews of research into occupational stress have identified a no. of pressures in the work environment including role strain (Role conflict, role ambiguity). Overload (Employment demands), underutilization of skills at work, inequity, lack of control, (Cooper and Marshall, 1976, French et al., 1982).

Occupational stress is a causal factor in physical diseases (Margolis et al., 1974).

In the present study, service class and business people are more in somatic ailment group than normal group. (Table 1).

Table 3 shows % distribution of individual stressor in two groups. The area of job and career related stressor covers the stressors like, examination, interview, training, over work, pending work, deadliness, poor promotion chances, competition power struggle, conflicts with superior / subordinates / colleagues, lack of recognition and transfer. The stressor, pending work becomes the highest score maker in both the groups, normals as well as somatic ailment group. Percentages of this area in LBP and/or arthritis, Headache and/or migraine, URI

and/or asthma, and ulcer and/or GIT problem groups show significantly higher values than normals, while other groups do not have significant difference.

Socio-economic Political and environmental stressors :

The social environment is viewed as having both detrimental and salutary effects on health (Cassel, 1975) Changing social environments are thought of as precursors to biological changes that place persons at risk for illness (Holmes and Rahe 1967; Cohen et al., 1992).

Martin (1987) called attention to the need to consider background stressors such as international tensions, socio economic pressures, high rate of unemployment, inter group tensions, racial and sexual discrimination, objective concern about aging, and stigmated stressors that originate in taboo issues.

Gore (1978) studied the effects of unemployment on health responses and found that there was more somatic and affective symptoms in unemployed with low social suport.

Public speaking was found to be associated with stress related changes (Moss, 1970; Taggart et al., 1973).

Emissions and waste products of the energy systems made by us threaten the biosphere and our health, as do pollutants in depleting the ozone layer or certain toxic chemicals in physical and psychological damage (Baum and Fleming, 1993).

Chemical pollution is associated with chromic stress (Gatchel and Newberry, 1991).

The level of stress is independent of age, sex, educational qualification and marital status of the respondent but is dependent on income level. When income is not sufficient an individual will not be able to satisfy his needs, which results in building up of stress (Rajeshwari, 1992).

Individual stressors from the group of socio economic, political and environmental stressors are listed in table 3. They are, unemployment, less income against demands, technical change, high cost of living, public speaking, taxes, poor services, beurocracy, and pollution. Environmental pollution is being the highest scoring stressor in somatic ailment group while. Public speaking is the stressor which has highest percentages in normal subject. In the present study unemployment as stressor occupies almost equal place in both the groups.

Gore (1978) and Martin (1987) found unemployment as causative factor for stress related somatic and affective symptoms. Other stressors of this area are having significantly higher percentages in subjects with somatic ailments. Several other researchers also indicated these stressors to be common in stress related disorders viz. Mass, 1970; and Taggart et al., 1973; (Public speaking) Baum and Fleming, 1993; and Gatchel and Newberry 1991; (Environmental pollution) and Rajeshwari, 1992 (Low income).

Table 5 shows that percentages of SEPE stressors are very significantly higher in subjects with LBP and/or arthritis and hypertension and/or heart problems. Their percentages are also significantly more in subjects of headache and/or migraine group, URI and/or asthma group, skin related problems, ulcer and/or GIT problems and diabetes group. They are non significant in subjects with sex related problems as compared to the normals.

Ax (1958) concluded on the basis of several physiological variables that the response patterns of fear and danger resembled those produced by injection of adrenaline and combination of adrenaline and noradrenaline respectively.

Shanmugam and Kaliapran (1982) found that asthmatic patients were poor in emotional and health adjustment as compared to ulcer patients and normals.

In the self assessment proforma of the present study emotional stressors listed are, insecurity guilt fear, deprivation of love/hate, dissatisfaction, short tempored nature and lack of assertiveness / self expressiveness. Short tempored nature of oneself is being the top scorer stressor in both the groups, followed by insecurity guilt fear. All these stressors are highly significantly more in subjects with somatic ailments compared to normals. (Table 3).

From table 5 it seems that this area of stress covers more percentages of subjects in LBP and/or arthritis, headache and/or migraine, URI and/or asthma subjects. ($P < 0.001$) Percentages of subjects indicating this area of stressors in hypertension and/or

heart problems, Skin related problems ulcer and/or GIT problems and diabetes are also significantly higher than normals. Though the percentage of this is high in subjects with sex related problems, the difference is non significant. This may be due to less member of subjects in the particular group.

Stress Reactions :

A consequence of being in a state of psychological stress is the arousal of various stress reactions in the form of disturbances of cognition, emotion and behaviour which can lead to deterioration in a person's psychological and physical health (Amkraut and Solomon, 1975; Levi, 1990; Baum et al., 1982).

Psychological Stress Reactions :

Knudson and Wilson (1985) reported 80% of farmers experrenced the stress related symptoms. The most frequently reported symptoms were headaches, fatigue, and sleeplessness.

Walker and Walker (1988) found the most frequently reported stress symptoms which included, chronic fatigue, forgetfulness, loss of temper, concentration difficulties, back pain and sleep distruptions.

Weigel (1981) collected self reported reactions to stress from lowa farm residents. A number of stress reactions were reported including physical discomfort, emotional outbursts, inability to relax mental confusion, depression anxiety and excessive fatigue.

Morley et al., (1983) reported loss of appetite as reaction to psychological stress. CRH released by HPA axis may be a mediator of stress related frod intake (Levine et al., 1982 and Morley et al., 1982; 1983).

Delay in gastric emptying (sympathetic activation) decreases food intake (Hunt, 1980; McHugh and Moran, 1979). Obese patients were more likely to report eating when they were depressed, anxious, or angry and more likely to gain weight during negative emotional periods (Rand and Stunkard, 1978).

Certain behavioural and neurological symptoms are caused by premenstrual stress such as, headache, malaise, nervousness, irritability, emotional instability decreased ability to concentrate etc. (Masani, 1982; Basu.1984; Shalanah, 1963; Mehta and Chakravarti 1993).

We listed 27 psychological (behavioural) stress reactions. (Table 4), which included, sleep disturbance, easy fatiguability, loss of appetite, excessive eating, smoking drinking and indulgence in sex, loss of libido, frigidity, impotence, absenteesm, nervourness, tension, irritability / short temper, fear, anger, dissatisfaction, depression / crying, restlessness, poor concentration, poor memory, poor decision power, though block, too many thoughts at a time, inferiority, frequent mistakes and poor interpersonal relationship.

We found high occurance rate of all these psychological stress reactions in somatic ailment group. Some of them, like excessive eating, smoking drinking and indulgence in sex,

frigidity, impotence absenteesm and frequent mistakes are not significantly different when compared with normals.

Rest of the Psychological reactions are highly significantly more than in normals in Somatic ailment group. (Table 4). Our study supports the reports of other researchers, Knudson and Wilson (1985) Sleeplessness, Walker and Walker, 1988. (Forgetfulness, loss of temper, concentration difficulties and sleep disruptions) Weigel, 1981 (Emotional outbursts, rotlessness, mental confusion depression, anxiety. and Masani, 1982 Basu 1984, Shalanah, 1983; Mehta and Chakravarti 1993) malaise, nervousness, irritability, emotional instability, and poor concentration).

Table 6 shows the occurance of these reactions in subjects with LBP and/or arthritis, headache and/or migraine, URI and/or asthma and skin related problems is significantly more than normal subjects, while in other somatic ailment groups they are not significantly different from those indicated by normals.

Physiological stress reactions :

Stress is known to stimulate limbic areas and Pathways projecting from these areas to the hypothalamus stimulate CRH secretion into pituitary adrenal axis (Koob and Bloom, 1985). Students also suggest the glucocortionids are the adrenal steriods that mediate and/or modulate range of responses to stress (Giralt et al., 1987; Makara, 1985).

Bodily responses during stress appear to be among most likely aspects of stress related process to affect health; cardiovascular changes leading to heart disease vascular damage; hormonal and immune system changes can contribute to development and progression of cancer and HIV diseases; and other physiological consequences of extended stress are likely to affect the person in important ways (Schneiderman, 1983; Soloman and Temoshock, 1990).

Physiological reactions depend on the appraisal of situation by the individual, how it will be stressful to himself or herself. (Lazarus and Folkman, 1984).

Annoyance interference with speech, hearing impairment, reduction in efficiency, fatigue, cardiovascular effects along with behavioural effects are associated with noise stress (Saha et al., 1996).

Lazarus (1984) described a way of linking events with outcomes a process by which something happening outside translates into bodily changes that can make people ill.

Stress response consists of a sequence of physiological changes involving almost all body parts and systems to differential extents, and such responses are characterized by extensive and intensive changes to autonomic effectors including heart rate, rate of stomach and dusdenal movements, and the gastric and adrenal fland secretions. These changes are precipitated at metabolic level through an integrated series of neurohumoral and endscrine alterations (Rose, 1985).

Psychosomatic symptoms have the potential for allowing persons to deny responsibility (Snyder and Smith 1982). Smith et al. (1982) found test. Auxious student reporting psychosomatic symptoms in order to protect themselves from poor performance.

Palan and Lakhani (1991) discussed a case of stress related hemoptasis on the basis of Wilder Plutchik's and Rossi and Cheek's state dependent Memory-learning behaviour theory (1968).

Psychological stressor precipitate and/or potentiate hot flushes (Gannon et al., 1987; Molnar 1975, 1979; Swartzman, 1984). Casper et al., (1979) noted the patterns of physiological changes as a stress response; increased sweating decrease in finger temperature (Hot and Cold flushes) Rather, the pattern is more consistent with a centrally mediated thermoregulatery mechanism, implicating the presptic nucleus (Judd, 1986, Gardon & Heath 1986) an area of hypothalamus involved in thermal (Adair, 1977) and Hormonal (Pfaff and McEven 1983) regulation.

The role of limbic system in emotional responding is well documented (Carlson, 1977 p. 449). The physical symptoms associated with stress include muscle tension, headache (Arena et al., 1985; Gannon et al., 1987) and chronic low back pain (Feuerstein, 1986).

An exhaustive list of physiological stress reactions given (Table 4) to the subjects to identify and report on their own reactions. This included headache, throbbing pain in head, heavyness in head, pain / watering in eyes, blurring of vision,d ryness of mouth, increased respiration, increased pulse, feeling

of heart beats, increased sweating, cold hands / feet pain in chest, belching, tromors in hands / feet, twitching of eyelids, muscular stiffness, muscular pains, teeth grinding, heavyness in limbs, unsteady voice, speech difficulty, hot and cold flushes, ringing in ears, nausea vomiting, disturbance in abdomen, loose motion, constipation frequent micturition, urgency of micturition, amenorrhoea and menorrhagia. Amongst all these, headache and feeling heart beats are the top scorer physiological stress reactions in normal group. All these reactions are significantly more in somatic ailment group except pain / watering in eyes, cold hands / feet, belching and speech difficulty. headache and muscular pains have highest percentages amonst subjects with somatic ailments.

Percentages of physiological stress reactions of subjects with LBP and/or arthritis, headache and/or migraine, URI and/or asthma, hypertension and/or ht. problems, skin related problems and ulcer and/or GIT problems, are significantly more than normals, while that of subjects with sex related problems and diabetes are not significant, perhaps due to small number of subjects in these two groups.

Saha et al., (1996) reported interference with speech as associated physiological stress reaction to noise stress. Palan, and Pouribh (1995) also reported speech difficulty as reaction to psychological stress, in their study. In the present study this reaction is not significantly more in somatic ailment group.

The present study goes pardllel with results of other researchers for their descriptions of physiological stress reactions such as, headache (Masani, 1982; Basu 1984; Shalanah, 1963; Mehta and Chakravarti, 1993).

Knudson and Wilson, 1985; Arena et al., 1985, Gannon et al., 1989) increased sweating (Cusper et al., 1979). Cardio vascular effects (Saha et al., 1996 and Rose, 1985) hot and cold flushes (Casper et al., 1979; Gannon et al., 1987; Molnar, 1975 and 1979 and Swartzman, 1984). Muscle tension (Arena et al., 1985 and Gannon et al., 1987) Fatigue (Saha et al., 1996 and Weigel, 1981) chronic low back pain (Feuerstein, 1986) and Walker and Walker, 1988) psychosomatic symptoms (Smith et al., 1982), disturbance in GIT (Rose 1985) and physical discomfort (Weigel 1981).

Psychosomatic Illnesses :

Researchers have suggested various roles which stressful life events play in the expression of physical and psychological illnesses. Stress may effect illness directly by its impact on the neuroendocrine or immune systems (Jemmett and Locke, 1984; Krantz et al., 1985) or indirectly through a deleterious effect on health behaviours and compliance with prescribed medical regimens (Fisher et al., 1982).

A positive, albeit small, correlation has been found between stress and a variety of disorders including heart disease, leukemia, multiple sclerosis, cancer, arthoritis, migraine headache, ulcers, AIDS. Infections diseases, and other physical illnesses and symptoms (Grant et al., 1974; Dohrenwend and

Dohrenwend 1974; and Baum, 1990). A patient with the tendency to experience psychological distress as physical symptomatology is called a psycho somatic patient (DSM III R).

CHD and hypertensive patients are more reactive to stress than nonpatient controls (Fredrikson and Mathews, 1990; Krautz and Manck, 1984).

Rheumatrid arthritis is chronic and late onset psychosomatic disorder because prolonged and recurrent exposure to stress disrupts the efficiency of HPA axis to modulate cortisol secretion and hypercortisolism becomes a pathophysiological syndrome of such disorders (Vashist et al., 1990).

Bradley (1979) and Hinkle and Wolt (1952) reported that diabetics hand high level of stress.

As reported by Mishra and Pandey (1996), the diseases like IBS, bronchial asthma and rhematrid arthritis are very much associated with stress factors. Prolonged and aggravated muscle response under stress is the root cause of etio pathology of rhamatrid arthritis. Increased bronchs constriction and mucosal oedema are the principal factors in the pathogenesis of bronchial asthma.

Table 2 shows the percentages of occurance of various somatic ailments amongst the group of subjects with somatic ailment. It shows that somatic ailments like low back pain and/or arthritis, URI and asthma and headache and/or migraine, followed

by hypertension and/or ht problems, skin problems and ulcer and GIT problems are common ailments in our groups of subjects.

As the stress level in terms of stressors and stress reactions are found to be significantly higher in the subjects with different types of somatic ailments (Except sex related problems) we propose that stress should be having a definite relation with the physical illness reported by them. (Table 5 and 6). The some is indicated by several workers via. Grant et al. (1974); Dohren Wend and Dohrenwend (1974); Jemmett and Locke, (1984); Krantz et al., (1985); Fisher et al., (1982); Krantz and Manck, 1984); Vashist (1990); Fredrikson and Mathews (1990); Bradley, (1979); Hinkle and Wolf (1952) Baum, (1990) and Mishra and Pandey (1996).

Cardiovascular Parameters :

Increases in Pulse rate and blood pressure are important sympatho adrenal responses to physiological stressful experience. When outcome is unpredictable or in conditions of fear, there is an increase in adrenaline secretion (Chakravarti 1984).

Stress act directly or indirectly upon the centres of brain stem leading to increase in sympathetic tone, increase in blood vessel contraction raising periferal resistance and thus increase in blood pressure. (Shankar 1994).

Increase in Systolic blood pressure due to stress (SBP) could be attributed to increased release of plasma epinephrine (Schmid, 1989), increase in DBP could be due to the effect of epinephrine (Ganonz, 1993).

Increase in heart rate in stress is probably due to increase in plasma epinephrine and nor epinephrine (De Boer et al., 1988) by their action on the B, receptors of heart.

Influence of yogic techniques on cardio vascular activity is reported by many researchers Yoga raises the arousability of the cerebral cortex (Datey, 1975) and help in decreased impulses to hypothalamus, decreasing sympathetic tone and causes decrease in pulse rate and blood pressure.

Decrease in pulse rate upon practice of Yoga is probably due to increase or optimization of parasympathetic activity while decrease in blood pressure may indicate decrease sympathetic tone and peripheral resistance (Consequently) Gopal et al., 1973).

Datey et al., (1969) Udupa and Singh (1972) also suggested that Yogic aractice decrease HR probably due to increased vagal tone together with decreased sympathetic discharges.

Sex :

Men are 2 to 3 times more likely to develop CHD them women (Truett et al., 1967; Wingard et al., (1983). Polefrone and Manuck (1987) and Saab (1989) have explained that men are hyperreactive to stresses relative to women due to constitutional differences. Female sex hormones may attenuate cardiovascular reactivity to stressors.

Men exhibit larger blood pressure increases than do women and these differences could contribute to differential rates of hypertension and heart disease among men and women. Men exhibit

greater secretion of catecholamines than do women during acute stress. Ratliff et al 1990; Dembroski et al., 1985; Manuk et al., 1978; Stoney et al., 1987).

Differences in levels of sex harmones appear to be related to differences in behaviour, affect and cognition. They directly influence psychophysiological responses to behavioural stress (Wormald, 1977; Mathews, 1989 and 1990).

In table 7 a and b we find that the pulse rate is 78.67 + 7.04 per min. in normal males as compared to 77.96 + 3.33 per min in normal females while in somatic ailment group the pulse rate in female is 79.57 + 7.15 per min. And in males of the same group it is 78.01 + 7.69 per min. B.P. records in normals 117.29 + 9.47 mm Hg. and DBP 77.22 + 6.48 mm Hg in sitting posture and 113.14 + 9.19 mm Hg and 73.37 + 6.44 mm Hg and DBP 75.20 + 5.92 mm Hg. in sitting posture and 108.08 + 8.31 mm Hg and 71.16 + 5.90 in lying down posture in females) and in subjects with somatic ailments (SBP 125.64 + 10.52 and DBP 86.49 + 7.88 mm Hg. in sitting posture, and 121.82 + 11.30 mm Hg and 81.85 mm Hg in lying down posture in males, and SBP 118.65 + 12.78 mm Hg and DBP. 80.63 + 9.14 mm Hg in sitting posture and 114.85 + 12.79 mm Hg. and 75.44 + 9.32 mm Hg in lying down posture in females) reveal the sex difference.

Comparision of SBP and DBP of somatic ailment group shows highly significantly more values than normals. Table.

Age :

An important factor contributing to stress related disease processes may be inabilities to cope with varying with environmental demands (Folkman et al., 1987; Rodin, 1986).

Reductions in HR response with advancing age have been found by some investigators (Barnes et al., 1982; Ditto et al., 1987; Garwood et al., 1982; Ginter et al., 1986). Whereas other investigators have observed either no differences (Matthews and Stoney, 1988) or increased HR changes (Palmer et al.,1 979).

BP responses have been variable, showing increases in reactivity with age in some studies (Barnes et al., 1982). Ditto et al., 1987; Garwood et al., 1982; Palmer et al., 1979) but not others (Gintner et al., 1986; Matthews and Stoney, 1988).

Baseline systolic blood pressure (SBP) and diastolic blood pressure increased with age. (Steptoe et al., 1990).

The present study shows increase in pulse rate with advancement of the age in normal subjects (77.14 + 7.00 per min in subjects below 30 years of age, 77.24 + 7.7 per min in age group between 31 to 45 years and 82.29 + 8.9 per min in subjects with more than 45 years). But, on the other hand, in the subjects with somatic ailments PR shows reduction with age. (81.04 + 8.16 per min in subjects below 30 years of age, 78.16 + 6.96 per min in age group between 31 to 45 years and 78.3 + 6.75 in subjects with age more than 45 years).

PR of subjects with somatic ailment group was significantly higher in age below 30 years, than that of normals, while in the group with age above 45 years it is lesser than in normals, but the difference is non significant. (Table 8a, b & c).

Blood pressure shows gradual increases with an advancement of age in both the groups, normals as well as somatic ailment group. (Table 8a, b and c) SBP of in subjects with age below 30 years show significantly high in sitting posture. When compared with normals, but not in lying down posture. DBP in lying down posture of all the 3 age groups in somatic ailment group shows significantly higher values, while in sitting only 2 groups - below 30 years of age and between 31 to 45 years of age have significantly higher values than in normals.

Stress and Pulse Rate :

The relationship between task difficulty and increase in heart rate was observed by, Carroll et al., (1986) Kahneman et al., 1969, Schnore, 1959 and Surwit et al., (1990). Malathi et al., (1997) have also reported increased heart rate during examination. Table 18 indicates highly significant increase in pulse rate prior to examination, in medical students.

Basal (pre traing) pulse rate of normals and subjects with somatic ailments do not have significant difference (Table 9) in the present study.

Worker	Year	Condition/Group	Observation
Schnore	1959	Task difficulty	Increase HR
Kahneman et al.	1969	Task difficulty	Increase HR
Caroll et al.	1986	Task difficulty	Increase HR
Surwit et al.	1990	Task difficulty	Increase HR
Malathi et al.	1997	Exam stress	Increase PR
Present study	1997	Exam stress	Increase PR
Present study	1997	Somatic ailments	No difference

Yogic Techniques and Pulse Rate :

Several workers have found decrease in heart rate pulse rate after short term or long term yoga practice (Nayar et al., 1979), maini et al., 1978; Gupta et al., 1989; Chinna et al., 1968; Wenger and Bagchi, 1961; Raju et al., 1986 and Wallace 1970).

Decrease in HR was also observed in hypertensives (Chhager et al., 1989) Teller et al., 1988, 1984) and in asthma patients (Jha et al., 1993; Telles et al., 1989; No change in pulse was found by Sah Rajvi (1979) and Sachdeva (1980).

In the present study after one month yoga training in medical students, pulse rate was found to be decreased very significantly (91.47 + 14.48 per min. to 81.42 + 10.28 per min). The highly significant fall in pulse rate (PR) was observed in normal subjects of present study, within one month, and it

continued steadily during the follow up periods of 2 and 3 months. (Table 12) Similarly fall in PR was found in the subjects with somatic ailments (Table 13).

Worker	Year	Condition/Group	Observation
Wenger & Bagchi	1961	Yoga Practice (short term or long term effect in healthy volunteers)	Decrease HR/PR
Chinna et al.	1968	Yoga Practice	Decrease HR/PR
Wallace	1970	Yoga Practice	Decrease HR/PR
Maini et al.	1978	Yoga Practice	Decrease HR/PR
Nayar et al.	1979	Yoga Practice	Decrease HR/PR
Rizvi	1979	Yoga Practice	No change
Sachdeva	1980	Yoga Practice	No change
Telles et al.	1989	Yoga Practice Hypertensives	Decrease HR
Raju et al.	1986	Yoga Practice	Decrease HR
Telles et al.	1984	Yoga Practice Hypertensive	Decrease HR
Chhager et al.	1989	Yoga Practice Hypertensive	Decrease HR
Gupta et al.	1989	Yoga Practice	Decrease HR
Telles et al.	1989	Yoga Practice Asthmatics	Decrease HR
Jha et al.	1993	Yoga Practice Asthmatics	Decrease HR
Present study	1997	Yoga practice normals and somatic ailment group	Decrease PR

Stress and Blood Pressure :

Studies based on effects of various types of stressors such as noise stress (Saha et al., 1996, Johnson and Hanson, 1977; Park 1994; Oritz et al., 1974; Andren, 1983; Eggertsen 1984; Armario et al., 1984; Schmid et al., 1989 and De Boer et al., 1988), Psychological stress (Surwit et al., 1990), task difficulty (carroll et al., 1986; Kahneman, et al., 1969 and Schnore, 1959). Premenstrual stress (masani, 1982; Basu 1984; Shalanah 1963, and Mehta and Chakravarti 1993) and examination stress (Malathi et al., 1997) have shown increase in Blood pressure.

Contrasting reports also have been published on the effects of stress on blood pressure (Tomei et al., 1991; Sanden and Axelsson, 1981; and Beli et al.,1 984).

The present study demonstrated highly significant increase in B.P. before examination (Table 18). Systolic and diastolic BP values are very significantly higher in subjects with somatic ailments and hypertensive and ht problems. These are also found significantly higher in subjects with headache and/or migraine, DBP in sitting of URI and/or asthma subjects and subjects of miscelleneous group was also found significantly higher than normals. (Table 9).

Worker	Year	Condition/Group	Observation
Oritz et al.	1974	Noise stress	Increase BP
Johnson & Hanson	1977	Noise stress	Increase BP
Andren	1983	Noise stress	Increase BP
Eggertsen	1984	Noise stress	Increase BP
Armario et al.	1984	Noise stress	Increase BP
De Boer et al.	1988	Noise stress	Increase BP
Schmid et al.	1989	Noise stress	Increase BP
Park	1994	Noise stress	Increase BP
Saha et al.	1996	Noise stress	Increase BP
Surwit et al.	1990	Psychological stress	Increase BP
Carroll et al.	1986	Task difficulty	Increase BP
Kahneman et al.	1969	Task difficulty	Increase BP
Schnore	1959	Task difficulty	Increase BP
Masani	1982	Premenstrual stress	Increase BP
Basu	1984	Premenstrual stress	Increase BP
Shalanah	1963	Premenstrual stress	Increase BP
Mehta & Chakravarti	1993	Premenstrual stress	Increase BP
Malathi et al.	1997	Examination Stress	Increase BP
Temei et al.	1991	Stress	No change
Sanden & Axelsson	1981	Stress	No change
Beli et al.	1984	Stress	No change
Present study	1997	Examination stress, somatic ailment	Higher BP

Yogic Techniques and Blood Pressure :

Decrease in blood pressure after various types of Yogic techniques and/or meditation has been reported by many researchers (Bhargwa et al.,1 988; Schwartz, 1973; Sachdera 1980; Chinna et al., 1968; Nayar et al., 1979; Maini et al., 1978 (Allison, 1970; Wallace, 1971). Gopal et al., (1973) reported decrease in Diabtolic BP but no change in systolic BP after Yoga practice.

Studies on effects of Yogic techniques in patients also suggested that yogic techniques help in reduction in BP in hypertensives (TM and BP Chitra, 1979; Patel 1973) relaxation techniques - Schaphro, 1969; Patel 1973; 1975; Latha and Kaliappan, 1991; Yoga practice - Datey et al., 1969 Sharma 1994, Kunder and Basavreddy, 1994; Shanker and Bhanot, 1994; Patel 1973 and Latha and Kaliappan, 1991).

Sah Razvi (1979) could not find change in BP after practice of Yoga training.

The present study shows very significant reduction in systolic and diastolic blood pressure in both, sitting and lying down postures after practice of yoga within one month, in subjects with somatic ailments (Table 13). Normals do not show significant decrease in systolic BP after practice of yoga, while significant decrease in diastolic BP (sitting) after 2 and 3 months of yoga practice was found (Table 12).

A group of medical students (n = 36) also showed highly significant decrease in systolic and diastolic BP after one months yoga training (Table 19).

Worker	Year	Condition/Group	Observation
Bhargawa et al.	1988	Yogic practice	Decrease BP
Schwartz	1973	Yogic practice	Decrease BP
Sachdeva	1980	Yogic practice	Decrease BP
Chhina et al.	1968	Yogic practice	Decrease BP
Nayar et al.	1979	Yogic practice	Decrease BP
Maini et al.	1978	Yogic practice	Decrease BP
Allison	1970	TM	Decrease BP
Wallace	1971	TM	Decrease BP
Gopal et al.	1973	Yoga practice	Decrease DBP No change in SBP
Chitra	1979	T.M. in hypertensives	Decrease BP
Patel	1973	T.M. & Yoga hypertensives	Decrease BP
Patel	1975	Relaxation hypertensives	Decrease BP
Schapiro	1969	Relaxation hypertensives	Decrease BP
Latha & Kaliappan	1991	Relaxation (bio-feedback) yoga & pranayam in hypertensives	Decrease BP
Datey et al.	1969	Yoga relaxation hypertensives	Decrease BP
Sharma	1994	Yoga practice	Decrease BP
Kunder & Basavreddy	1994	Yoga practice	Decrease BP
Shankar & Bhanot	1994	Yoga practice	Decrease BP
Rizvi	1979	Yoga practice	No change
Present study	1997	Yoga in medical students, normals & somatic ailment group	Decrease BP

Respiratory Parameters :

Emotional arousal leads to ACTH secretion, associated sympathetic stimulation will cause the release of adrenaline and noradrenaline which produce hyperventilation by a direct effect on the brain (Whelan and Young, 1953; Young 1957). Aitken et al. (1977) reported that emotional arousal probably prounces gama activity in respiratory muscle which involuntarily changes respiration.

The sensation of breathlessness can accompany increase in respiratory frequency and volume. Mezey and Copper (1961) showed that anxious patients hyperventilate for unit O2 extraction and have a raised O2 consumption.

If auxiety can be reduced and confidence gained by mastery of distress the patients are less disabled by Intermittent hyspones, Behaviour therapy (psychotherapy airms to do just that (Dudley et al., 1988).

Yoga trained persons seem to be able to utilize efficiently larger amount of liberated energy for work at the low levels of exercise, thus decreased O2 consumption and postponement of fatigue (Salgar, 1975).

The energy spent by the body can be measured by the amount of O2 consumption by the body per min or indirectly by measuring the rate of respiration, HR minute ventilation, blood pressure and temperature of the body. (Rai and Ram, 1993).

Usually breathing is not a conscious event and is regulated automatically by bulbo pontine respiratory control mechanism. Which are modulated by suprapontine mechanisms in the conscious being. The pneumotaxic centre is supposed to relay suprapontine massages which promote voluntary inspiration and expiration (Samson Wright 1982).

During practice of pranayamic breathing the lungs and chest inflate and deflate to fullest possible extent and muscles are made to work to maximal extent (Joshi et al., 1992 and Belman, 1988). The lung inflation near to total lung capacity is a major physiological stimulus for the release of lung surfactant (Hildebran 1981) and prostaglandin into alveolar spaces (Smith, 1976). Which increase the lung compliance and decrease bronchiolar smooth muscle tone.

During daily practice of pranayamic breathing the basic activity of bulbopontine complex is modified in such a way as to slow down its rythm by voluntary pronlonging the phase of inspiration and expiration by stretching to their fullest extent thus making respiratory apparatus to work to maximal extent (Joshi et al., 1992).

More prolonged exhalation and efficient use of abdominal and diaphragmatic muscles trains the respiratory apparatus to get emptied fully and filled completely and efficiently thus also increases vital capacity. Negative pressure created in adbominal and thoracic cavities raises the diaphragm at a higher level than normal excursion, helps in efficient movement leading to increase

vital capacity. The removal of undue tension from skeletal muscle due to practice of Yogic techniques helps the thorax to relax better than before and increase the vital capacity (Anand, 1961).

The yogic discipline of pranayamna is claimed to have tonning effect on Cardio pulmonary system (Gopal et al., 1975, Karambelkar et al., 1968). Various workers have recorded significant variations in different autonomic parameters and improved cardio respiratory efficiency following pranayamic breathing (Bhargwa, 1988; Datey 1969; Dhanaraj, 1974; Ghurote, ,1971; Gopal 1972, 1973, 1975; Nayar 1975; Robert and Herpert, 1972; Schwartz 1973; Udupa, 1963, 1971, 1972, 1973).

Yoga trains respiratory centres to suspend the breath for quite a long time due to shift of ANS towards parasympathetic side (Udupa 1972) Yogic breathing leads consciously persistently overriding the usual stimuli of respiratory centres leading to increase BHT (Bhole, 1967). It may be due to increased respiratory musculature to regular practice of yogic exercise).

Kapalbhati - short powerful strokes of exhalation in quick succession with contraction of abdominal and diaphragmatic muscles train the subject to make full use of these muscles in breathing. It also helps in removal of secretions of bronchial tree, clearing up respiratory passages and alveoli making room for more air, thus increases the vital capacity and FEV.

Increased FEV, might be due to significant increase in VC. Increase in MVV (MBC) due to improvement in respiratory mechanism

and strethening of respiratory muscles due to regular practice of yogasana and yogic breathing (Makwana et al., 1988).

Greater lung volumes, decrease in frequency and amplitude of involuntary contractions of resphating muscles lessen the discomfort of breath holding (Whzelow 1987). During yoga practice one consciously and constantly overrides the stimuli to the respiratory centres thus acquiring some degree of control over the respiration. Improved cardio pulmonary endurance might be responsible for prolongation of BHT. It is also possible that yoga training might alter the responsiveness of medullary and/or systematic arterial chemoreceptors with consequent prolongation of breath holding (Madan mohan, 1992).

Deep sea divers and Scubadivers who Practice breath holding maneuvers, also show decreased responsiveness to CO2. (Stanescu, 1981). Yoga practice produces a wakeful hypometabolic state (Wallace, 1971), characterized by decreased O2 consumption thus ablouring breath holding for a longer period.

Increased TV and decreased RR due to bandhas which increase expansion of the thorax, area of thoraeic cavity, and negative pressure within the pressure checking the accumulation of CO2 in and around the respiratory centers and thereby increase breath holding.

In addition development of respiratory musculature to regular practice of yoga, causes increased muscle endurance and delays the onset of their fatigue, thus increases BHT and 40 mm evsurance (Joshi et al., 1992).

Respiratory efficiencies can be altered in patients when there is little abnormality (Black, 1969). Increased MEP due to yoga training which in proves the strength of expiratory muscles. Agamas are known to increase skeletal muscle strength. Kapalbhati exercises expiratory muscles (Swami, 1981) Increase in 40 mm endurance suggests an improed cardio respiratory endurance.

The practice of pranayama beneficially alters the autonomic drive during a breath hold. Increased tolerance to higher PCO2 and low PO2 achieved due to training could also prolong BHT (Joshi et al. 1992).

Yoga training might alter the responsiveness of medullary and/or systemic arterial chemoreceptors with consequent prolongation of BHT. (Madanmohan et al., 1992).

All the pulmonary function tests are diagnostic in nature, and quantitative measures of various aspects of pulmonary functions, and help in finding out the efficacy of various therapies.

Static and dynamic respiratory parameters :

Stress :

We could not find studies showing the deviations in pulmonary function in stressful situations and stress related disorders. We tried to find out the relationship between the respiratory functions and stress (Situational and chronic as in case of stress related somatic ailments). Stress, as mentioned earlier, has its effects on all over the body and respiratory

apparatus is no exception to it. The present study shows that the respiratory parameters like RR. (Significant increase in subjects with somatic ailments LBP and/or arthritis, and, URI and/or asthma). RMV (Significantly increased in URI and/or asthma) and VC FEV FEV % & MBC (significant decrease in almost all the subjects with different types of somatic ailments) are having their indications in stress related somatic ailments.

Non significant differences are found in TV (subjects of somatic ailment groups) RR and and RMV (in all the subjects excepts that of URI and/or asthma and LBP and/or arthritis for RR). could be due to the adjustment (adaptation) to the stress related changes. (Table - 9).

Yoga :

Yoga practice helps in an improvement in the ventilatory function as reported by many researchers. Such as decrease in RR and increase in TV. (Gopal, 1973; Chhinna et al., 1968; Nayar et al., 1979; Shah Rizvi, 1979; Bagga et al., 1980; Stanescu et al., 1981; Bhole 1967; Wenger and Bagchi, 1961; Pratap, 1969; Satyanarayana et al., 1992, Udupa et al., 1975; Joshi et al., 1990; Gore 1982; Kasamatsu and Hirai, 1971; Decrease in RMV (Wallace, 1970; Allison, 1970; Stanescu et al., 1981; Bhole, 1982; Gore 1982; Raju et al., 1986). Increase in VC, FEV, & FEV % (Brahmachari et al., 1980, Telles et al., 1989; Gupta, 1989, Rizvi et al., 1979; Joshi et al. 1990; Pandey et al., 1989; Makwana et al., 1988) and MBC / MVV (Brahamachari et al., 1980; Joshi et al. 1990; Makwana et al., 1988) in health and disease.

Contrasting results are also there viz., Sachdeva et al., 1981; (no change in TV, RR and RMV) and Gopal et al., 1973 (No change in MBC and FEV %).

The present study shows significant improvement in the respiratory functions (Volumes and capacities) in normal subjects as well as subjects with somatic ailments after one month training of yogic techniques and its practice for one and two more months after training. (Table 12 and 13). Respiratory rate is significantly decreased in medical students. Who underwent one month yoga training (Table - 19).

Respiratory efficiency :

Stress :

Muscular stiffness is one of the physiological stress reaction found to be high in stress related somatic ailment group. It also affects the respiratory ascessory muscles and hence, might be causing the decrease in pulmonary efficiency.

The present study shows that respiratory efficiencies like peak expiratory flow rate, (Significant, lower in all the somatic ailment groups except hypertension and/or heart related problems) BHP (No significant difference in all the groups) 40 mm Hg endurance (Significantly low values in subjects with somatic ailments LBP and/or arthritis and, headache and/or migraine group) and MEP (no change in all the groups) have their relation to some extent with stress. (Table - 9).

Yoga :

It has been reported that yogis are capable of remarkable feats of endurance (Karambelkar, 1968; Vakil, 1950) and controlling their autonomic functions (Chhinna 1974, Kothari, 1973). The practice of yoga improves cardio respiratory efficiency (Udupa 1972; Gopal et al., 1973). Gore & Gharote (1981). Pandey et al., (1989) and Gupta (1989) could see the improvement in Peak expiratory flow rate in asthmatic patients after yoga practice. Rizvi et al., (1979) Bhole & Karambelker (1971), Bhole (1976), Nayan et al. (1973), Madan Mohan (1997, 1993), and Jha et al., (1993) reported increase in BHT in normals, while Gupta (1989) reported the same in asthma patients after yoga practice. No change in BHT was observed by Sachdeva et al., 1980, and in MEP by Gopal et al., (1973) even after 3 and 6 month of yoga practice.

In the present study we found improvement in all the respiratory efficiency tests in normals and subjects of somatic ailment group even after one months practice of yoga (Table 12 & 13).

Worker	Year	Condition/Group	Observation
Wenger and Bagchi	1961	Yogic practice	Decrease RR & Increase TV
Bhole	1967	Yogic practice	Decrease RR & Increase TV
Chhinna et al.	1968	Yogic practice	Decrease RR & Increase TV
Pratap	1969	Yogic practice	Decrease RR & Increase TV
Kasamatsu & Hirai	1971	Yogic practice	Decrease RR & Increase TV
Gopal	1973	Yogic practice	Decrease RR & Increase TV
Udupa et al.	1975	Yogic practice	Decrease RR & Increase TV
Nayar et al.	1979	Yogic practice	Decrease RR & Increase TV
Rizvi	1979	Yogic practice	Decrease RR & Increase TV
Bagga et al.	1980	Yogic practice	Decrease RR & Increase TV
Stanescu et al.	1981	Yogic practice	Decrease RR & Increase TV
Gore	1982	Yogic practice	Decrease RR & Increase TV
Joshi et al.	1990	Yogic practice	Decrease RR & Increase TV
Present study	1997	Yogic practice (Normals and somatic ailment group)	Decrease RR & Increase TV
Sachdeva et al.	1981	Yogic practice	No change

contd...

contd...

Allison	1970	Yogic practice	Decrease RMV
Wallace	1970	Yogic practice	Decrease RMV
Stanescu et al.	1981	Yogic practice	Decrease RMV
Bhole	1982	Yogic practice	Decrease RMV
Gore	1982	Yogic practice	Decrease RMV
Raju et al.	1986	Yogic practice	Decrease RMV
Present study	1997	Yogic practice (Normals, and somatic ailment group)	Decrease RMV
Sachdeva et al.	1981	Yogic practice	No change
Rizvi	1979	Yogic practice	Increase VC, FEV_1 & FEV_1 %
Brahmachari et al.	1980	Yogic practice	Increase VC, FEV_1 & FEV_1 %
Makwana et al.	1988	Yogic practice	Increase VC, FEV_1 & FEV_1 %
Gupta	1989	Yogic practice	Increase VC, FEV_1 & FEV_1 %
Pandey et al.	1989	Yogic practice	Increase VC, FEV_1 & FEV_1 %
Telles et al.	1989	Yogic practice	Increase VC, FEV_1 & FEV_1 %
Joshi et al.	1990	Yogic practice	Increase VC, FEV_1 & FEV_1 %
Present study	1997	Yogic practice (Normals and somatic ailment group)	Increase VC, FEV_1 & FEV_1 %
Gopal	1973	Yogic practice	No change FEV_1 %

contd...

Brahmachari et al.	1980	Yogic practice	Increase MBC/MVV
Makwana et al.	1988	Yogic practice	Increase MBC/MVV
Joshi et al.	1990	Yogic practice	Increase MBC/MVV
Present study	1997	Yogic practice (Normals & somatic ailment group)	Increase MBC/MVV
Gopal et al.	1973	Yogic practice	No change
Gore and Gharote	1981	Yogic practice Asthma patients	Increase PEFR
Gupta	1989	Yogic practice Asthma patients	Increase PEFR
Pandey et al.	1989	Yogic practice Asthma patients	Increase PEFR
Present study	1997	Yogic practice (Normals & somatic ailment group)	Increase PEFR
Bhole & Karmbelkar	1971	Yogic practice	Increase BHT
Bhole & Karmbelkar	1972	Yogic practice	Increase BHT
Nayar et al.	1973	Yogic practice	Increase BHT
Rizvi et al.	1979	Yogic practice	Increase BHT
Madan Mohan	1992	Yogic practice	Increase BHT
Jha et al.	1993	Yogic practice	Increase BHT
Madan Mohan	1993	Yogic practice	Increase BHT
Bhole	1976	Yogic practice Asthma Patients	Increase BHT
Gupta	1989	Yogic practice Asthma Patients	Increase BHT
Sachdeva et al.	1980	Yogic practice	No change
Present study	1997	Yogic practice (Normals & somatic ailment group)	Increase BHT
Gopal et al.	1973	Yogic practice	No change in MEP
Present study	1997	Yogic practice	Increase in MEP

Fasting Blood Glucose :

Antani (1987) suggested that stressor requiring active coping process typically stimulate the sympathe adrenomedullary pathway resulting in increase in glucose utilization. Passive coping in contrast, stimulates hypothalamo-pituitary adreno-cortical system resulting in cortico steriod elevation and little immediate impact on glucose.

Impairment in the stress hormone response which causes glycogen to be converted to glucose, could interfere with the epinephrine induced increase in blood glucose level observed in normal subjects. (Gonder, Federic et al., 1990).

Two possible explanations are given about how stress might elevate bl. glucose level. Stress may have a direct physiological effect e.g., high levels of anxiety might increase stress hormone levels and raise blood glucose level. Alternately stress might alter some aspects of self management of diet, exercise or another health behaviour, which might have an impact on bl. glucose level. (Halford et al., 1990).

Cortisol (Gluco corticoids) is a stress hormone, which acts in the liver for gluco neogenesis, causes rise in the blood sugar under stressful conditions. Stress induced discharge of adrenaline is also responsible for the process of liver glycogenolysis. Hyperglycemia indicates the mobilization of the carbohydrate stores of the liver, thus an adequate supply of fuel for the active muscles is ensured. (J. Mishra, 1990).

The stress enhances the activity of the cortico - hypothalomo - hypophyseal sympatho adreno cortical axis resulting into increased liberation of catecholmines and corticoids in circulation. This causes increased hepatic glyco genolysis and gluconeogenesis thus increasing glucose in peripheral circulation (Selye, 1937).

The chronic life stress appears to have long term effects on metabolic control, even as long as 2 years after the stressor have occured (Harris et al., 1990).

Maladaptive coping and lack of family support are significant correlates of poor metabolic control (Delamater et al., 1990).

Non diabetic subjects have reported consistent blood glucose increases with apprehension stress. (Surgery and examination; Sharda et al., 1975), mental arithmatic (Bauman et al., 1973), a mental vigilance task (O'Hanlon and Horvath, 1973), and physical stress of surgery (Allison et al., 1969; Halter and pflug, 1980).

Using an animal model the Ob/Ob mouse surwit and Feinglos (1984, 1985) have shown hyperglycemia in response to restraint and shaking (Vibration) and conditioned stressors.

The psychological stress can decrease glycemic control (Hinkle et al., 1950).

In the study, effect of psychogenic stress on biochemical changes in rats, J. Mishra reported an increase in the bl. sugar level. (J. Mishra, 1990). Vitck et al., (1989) could associated the accident as stressful condition and hyperglycemia.

Blood glucose was found to be increased in conditions like. IBS (irritable bowel syndrome), asthma, and it was significantly increased in the condition of arthritis. (Mishra and Pandey, 1996; Sapolsky et al., 1986).

In the present study, blood glucose level in the subjects with somatic ailments found to be significantly higher ($P < 0.001$) when compared with normals (157.05 $\pm$ 57.89 mg % in SAG and 109.00 $\pm$ 26.30 mg % in normals Table - 11).

Worker	Year	Condition/Group	Observation
Sharda et al.	1975	Surgery and exam stress	Increase BG
Bauman et al.	1973	Mental arithmatic	Increase BG
O'Hanlon & Horvath	1973	Mental vigilance task	Increase BG
Allison et al.	1969	Physical stress of surgery	Increase BG
Halter and Pflug	1980	Physical stress of surgery	Increase BG
Surwit & Feinglos	1984 & 1985	Restraint & (vibration) and conditional stressors	Increase BG
J. Mishra	1990	Psychogenic Stress	Increase BG
Vitck et al.	1989	Accident	Increase BG
Mishra & Pandey	1996	IBS, Asthma arthritis	Increase BG
Sapolsky et al.	1986	IBS, Asthma arthritis	Increase BG
Present study	1997	Somatic ailments	Increase BG

After the practice of yogic techniques for more than 2 months, subjects of both the groups, subjects with somatic ailments as well as normals, show significant decrease in blood glucose levels. (109.00 ± 26.30 mg % to 95.69 ± 21.56, 151.05 ± 57.89 mg % to 131.57 ± 54.02 mg in normals - Table 16 and mg % in subjects with somatic ailments ($P<0.001$) Table 17).

Decrease in blood glucose level after 3 months of yoga practice was observed by other researchers also (U. Sachdeva, 1980; T. Srikrishna and U. Sachdeva, 1980 Rao et al., 1980; Tandon et al., 1989).

T. Gupta et al., 1979; Tandon et al., 1989, reported that Yoga practice helps in reduction of blood sugar level in diabetics.

Chitra R. (1979) had shown the effect of Transcondental meditation on diabetes which helps in decrease of blood sugar level. Nagendra and Nagarathna (1994) and Gore (1994) had shown the importance of yogatherapy for diabetes. Reduction in blood sugar level (191.7 ---> 134.1 mg %) was found by Gore (1994) Acharya et al., (1994).

Backon (1988) showed that forced left nostril breathing significantly decreases the blood glucose level.

Worker	Year	Condition/Group	Observation
U Sachdeva	1980	Yogic practice	Decrease BG
Rao et al.	1980	Yogic practice	Decrease BG
T Shrikrishna & Sachdeva	1980	Yogic practice	Decrease BG
Tandon et al.	1989	Yogic practice	Decrease BG
Chitra R.	1979	TM	Decrease BG
Nagendra & Nagarathna	1994	Yogic therapy in Diabetes	Decrease BG
Gore	1994	Yogic practice in Diabetes	Decrease BG
Acharya et al.	1994	Yogic therapy in Diabetes	Decrease BG
Backon	1988	Left nostril breathing	Decrease BG
Present study	1997	Yogic practice (normals & somatic ailment group)	Decrease BG

Serum Cholesterol :

The mechanism by which stress raises serum cholesterol is uncertain. It is likely to be related to the enhanced activity of hypothalamo hypophyseal axis resulting in increased liberation of catecholamines and corticosteroids. This might lead to a rise in blood cholesterol as epinephrine is also known to mobilize lipids from adipse tissue. It is an adaptive mechanism to maintain the adrenal cholesterol for the enhanced secretion of adrenal steroids. Further cholesterol output from the liver may also be modulated either directly or indirectly due to stress.

Increased cholesterol is indirect and manifested though the activation of ANS and the HPA axis and resultant release of catecholamines from Adrenal medula (Ramsey, 1982), may play a part in the mobilization of lipids from the fat stores which might enhance the cholesterol synthesis (Prabhakaran et al., 1988).

During prolonged stress, ACTH and Adrenal glucocorticoid secretion is increased (Rose, 1981). Cholesterol is the precussor for gluco corticoid synthesis, both at rest and under stress (Borkowski, 1967).

Bijlani et al., (1986) demonstrated that during stress the ACTH deplets adrenal cholesterol making steroidogenesis critically dependent on plasma cholesterol.

The tension caused significant increase in total cholesterol can be attributed to increased mobilization of cholesterol as it is a potential source for the adrenal steroid hormones. (Sharda et al., 1975).

Increase in serum cholesterol by 17 to 48%, before exam was noted by Agarwal (1989) in medical students. In another study he pointed out the cholesterol increase, induced by preoperative stress and suggested that lipid metabolism is directly related with mental tension.

A significant rise in total serum cholesterol level shown in rats after exposer to noise stress. (Prabhakaran et al., 1988) and in rabbits (Ramsey, 1982).

Taggart et al., (1973) reported no change in blood chloesterol concentration in the subjects prior to public speaking.

Gore (1978) studied the effects of unemployment on health responses and found that there was increased cholesterol and more somatic and affective symptoms.

Lalitha et al., (1988) showed in their study effect of flickering light stress on biochemical parameters that light stress caused increase in serum cholesterol level in rats. Bijlani et al., (1985) showed examination stress sane and Kulkarni (1978 & 1981). Post operative stress, and Bhalla et al., (1985) anxiety, as responsible for increased cholesterol level in their subjects. Chakravarti et al., (1984) found such increase in arolested in residents of high attitude.

As a result of chronic psychological stress, there was increase in total cholesterol in conditions like bronchial asthma and rhematoid arthritis when compared with the normals (Mishra and Pandey, 1996; Supobtay et al., 1986).

In a group of subjects with somatic ailments the present study also shows a significant difference ($P < 0.001$) in cholesterol level compared to narmals (148.36 $\pm$ 41.92 mg % in Subjects with somatic ailments. and 119.17 $\pm$ 38.07 mg % in normals (Table 11).

Worker	Year	Condition/Group	Observation
Sharda et al.	1975	Tension	Increase total cholesterol
Prabhakaran et al.	1988	Noise stress (Rats)	Increase total cholesterol
Ramsey	1982	Noise stress (Rabbits)	Increase total cholesterol
Agarval	1989	Exam stress	Increase total cholesterol
Agarval	1989	Preoperative stress	Increase total cholesterol
Taggart et al.	1973	Public speaking	No change in cholesterol
Gore	1978	Unemployment stress	Increase Serum cholesterol
Lalitha et al.	1988	Flickering light (Rats)	Increase total cholesterol
Berger et al.	1980	Psychological stress	Increase Serum cholesterol
Bijlani et al.	1985	Exam stress	Increase Serum cholesterol
Sane & Kulkarni	1978 &1981	Post-operative stress	Increase Serum cholesterol
Bhalla et al.	1985	Anxiety	Increase Serum cholesterol
Chakravarti et al.	1984	High altitude residents	Increase Serum cholesterol
Sapolsky et al.	1986	Psychological stress in bronchial asthma & rhematoid arthritis	Increase Serum cholesterol
Mishra & Pandey	1996	Psychological stress in patients	Increase Serum cholesterol
Present study	1997	Somatic ailment group	Increase Serum cholesterol

There was a significant decrease in blood cholesterol level ($P < 0.001$) in both the groups (Somatic ailment and normals) after more than 2 months practice of yoga techniques (119.17 $\pm$ 38.07 mg % to 109.02 $\pm$ 22.52 mg % in normal subjects Table 16, and 148.36 $\pm$ 47.96 mg % to 133.02 $\pm$ 41.92 mg subjects with somatic ailments - Table 17).

Yoga practice is known to achieve a stable autonomic balance, a relative hypo metabolic state and also improvement in physical efficiency (Shanker Rao 1978, Selvamurthy et al., 1983).

Gupta et al., (1979) reported a decrease in cholesterol level in diabetic patients after yoga practice, Khanna (1989) found 19% - 37.8% decrease in cholesterol after 3 months of yoga practice in hypertensive subjects (26) as well as in normals (20).

Selwamurthy et al., (1983, Karambelkar et al., (1977, 1981) and Udupa et al., (1971) had shown decrease in cholesterol level in their subjects of both the sexes after yogic techniques of varied period.

Worker	Year	Condition/Group	Observation
Gupta et al.	1979	Yoga practice in diabetics.	Decrease SCh.
Khanna	1989	Yoga practice in hypertensives and normal subjects	Decrease SCh.
Udupa et al.	1971	Yoga practice	Decrease SCh.
Karambelkar et al.	1977 1981	Yoga practice	Decrease SCh.
Selvamurthy et al.	1983	Yoga practice	Decrease SCh.
Present study	1997	Yoga practice (normals & somatic ailments)	Decrease SCh.

Galvenic Skin Resistance :

The GSR device senses the resistance or impedence of the body to the possible of Galvomic current. A small current is passed through the tissue via electrodes placed across the palm or fingers. The flow of current or change in voltage dropped aross the tissue is amplified and may be displayed on a meter calibrated in Ohm (resistence). The origin of the GSR response is still unclear. It is generally believed that the GSR is a measure of sweat gland activity. Human skin resistance may range from 5 KOlm to over / Meg. Ohm / Cm2. Transient responses following stimulation have a latency of about 2 sec. and reach a peak after 5 seconds followed by a slow return to baseline.

Evidence concerning electrodermal activity is inconsistant, but, silver, montagna, and koracan, (1964) reported a reduction

in number of spontaneously active sweat glands with age in both sexes, and decreased activity hence higher GSR value has also been described in aged people. (Shmannian et al., (1968). The skin conduction level had been found its definite relationship with task difficulty (Carroll et al., 1986; Kahneman et al., 1969 and Schnore, 1959).

There is decrease in GSR due to the anxiety status. Anxiety tension or stress acts via hypothalamo hypophysial system (Matathi and Parulkar 1992).

Changes in skin resistance are a measure of sweat gland activity and are related to the sympathetic nervous system. Normally sweat glands offer a low resistance to the current. Sweat glands being moderated by the hypothalamus reticular formation and cerebal cortex reflect the activity of different areas of the (MS related to the individuals arousal and awareness. Hence, the changes in activity of sweat glands are closely related to one's level of tension or relaxation. (Woodworth and Schlosberg, 1971).

Saha et al., (1996) reported that there was significant decrease in GSR in workers in thermal power station due to noise stress, when compared with control group. Prabhakaran, et al., (1988) also found the similar type of decrease in GSR due to stress and suggested that the increased sympathetic activity caused by the stress. Due to premenstrul stress decrease in skin resistance was observed by many (Masani, 1982, Bask, 1984; Shalanah, 1963, Mehta & Chakravarti, 1993).

In the present study the preexam mean GSR value is significantly less than the post exam mean GSR value 176.75 ± 88.50 KOhms and 281.36 ± 177.35 KOhms - Table 18). group of medical students was given training of yogic techniques for one month and again the GSR was recorded. It shows significant increase in GSR value, suggesting decrease in sympathetic activity. (197.77 ± 103.26 KOhms and 335.02 + 191.24 KOhms - Table 19). Malathi et al., (1997) also could see the decrease in auxiety level and increased GSR in medical students after yoga training.

Hartt and Udupa (1977) also reported the increase in GSR after Yoga practice, which might be due to changed peripheral vasodilation and sweating activity.

Telles et al., (1989) demonstrated the increase GSR and decrease in heart rate and suggested that it is a shift in the homeostasis mechanisms towards normalcy after yoga practice in asthmatics. Chinna et al., (1968) also reported the increased GSR values in yogis after practice of yogic techniques Usha Sachdeva (1980) found increase in GSR alongwith improvement in anxiety and depression in 16 subjects after 2 months yoga practice, and conclude that yoga practice benefits in anxiety and depression by changing autonomic responses and behavioural state of the individuals.

The study (Aruna B. 1989) revealed possibilities of yoga being capable of influencing psychophysiological mechanism for better homesstasis on a unique and individual basis.

A group of subjects (n=39) with somatic ailments was studied for varied functions including GSR. There is a significant difference ($P < 0.01$) in GSR value of these subjects when compared with normals (n = 30) (471.71 ± 177.10 KOhms in Normals and 340.26 + 172.28 in SAG subjects - Table 10).

Worker	Year	Condition/Group	Observation
Malthi and Parulkar	1992	Anxiety (Exam)	Decrease GSR
Saha et al.	1996	Noise stress (workers)	Decrease GSR
Prabhakaran et al.	1988	Psychological stress	Decrease GSR
Masani	1982	Premenstrual stress	Decrease GSR
Basu	1984	Premenstrual stress	Decrease GSR
Shabanah	1963	Premenstrual stress	Decrease GSR
Mehta & Chakravarti	1993	Premenstrual stress	Decrease GSR
Malathi et al.	1997	Exam Stress	Decrease GSR
Present study	1997	Exam stress somatic ailment group	Decrease GSR

After the practice of yoga and meditation for 2.3 months, the same was increased significantly, in both the groups (471.71 ± 177.10 KOhms to 530.71 ± 163.03 KOhms in normals (Table - 14) and 340.26 ± 172.28 KOhms to 470.60 ± 163.30 KOhms in subjects with somatic ailments with $P < 0.001$ - Table 15). Telles et al., (1994) reported increase in GSR due to decrease in sympathetic

tone to palmar sweat glands and ataneous blood vessels. Reduced mental stress or arousal caused the increase in GSR after yoga practice in healthy volunteers.

Pranayama has been shown to influence the vagal tone and decrease sympathetic activity. (Founder burk Janes, 1977; Lysebeth, Andre Van, 1979).

Pratap (1967); Wallace (1970); Nagendra and Nagarathna (1984) and Selvamurthy et al., (1983) have reported increase in GSR after the practice of yogic techniques in auxious subjects and students and normal healthy subjects for a period of varied lengths.

Panjwani et al., (1995) had shown 55.5 % and 83.4% increase in GSR values in 32 epilepsy patients after 3 months and 6 months of Sahaja yoga practice.

Laurie (1976) had shown the importance of T. M. In increasing the GSR. Rai et al., (1988), worked with Sahaja yoga techniques in stress related disorders and Morse et al., (1977) compared meditation, hypnosis and relaxation techniques where they found increase in GSR in their subjects.

Wenger and Bagchi (1961) also have reported increase in skin resistance after yoga practice.

Worker	Year	Condition/Group	Observation
Hartt and Udupa	1977	Yoga practice	Increase GSR
Telles et al.	1989	Yoga practice	Increase GSR
Chinna et al.	1968	Yoga practice	Increase GSR
Suchdeva U.	1980	Yoga practice	Increase GSR
Telles et al.	1994	Yoga practice	Increase GSR
Pratap	1967	Yoga practice	Increase GSR
Wallace	1970	Yoga practice	Increase GSR
Nagendra & Nagarathna	1984	Yoga practice	Increase GSR
Selvamurthy	1983	Yoga practice	Increase GSR
Panjwani et al.	1995	Sahaja yoga	Increase GSR
Laurie	1976	TM	Increase GSR
Rai et al.	1988	Sahaja yoga	Increase GSR
Morse et al.	1977	Meditation, Hypnosis and Relaxation Tech.	Increase GSR
Wenger & Bagchi	1961	Yoga practice	Increase GSR
Present study	1997	Yoga practice (Normals and somatic ailment group)	Increase GSR

Reaction Time :

The study of reaction time spans more than century. It provides an indirect index of the processing capability of the CNS and also a simple means of determining sensory motor performances. Stress affects the health of an individual which affects the mind and the thought process. Reaction time has been

shown to be facilitated by reasonable degree of initial muscle tension. (Freeman and Kendall, 1940). Currently muscle tension tends to be regarded as an index of the level of cortical arousal (Welford, 1980). The increased sympathoadrenal response is also associated with an increase in alertness (Chakravarti, 1984) and decrease in reaction time.

Reaction time appears to be relatively independent of socio cultural influencies and its potential advantage for the study of mental function, therefore, is that it might provide a relatively straight forward means of objectively investigating individual differences inferred to be relevant to more complicated forms of behaviour. (Nettle beck T. 1980).

RT can provide an interesting the index of the processing capability of the CNS (Geraldine, et al., 1981). It can also reflect the effects of brain damage, mental disorders and other psychopathologies (King, 1969 and 1975; Neuechterlein KH 1977, Malathi and Parulkar, 1990).

RT has physiological significance and is a simple, nonivasive test, sensitive, reproducible and inexpensive test which involves central brain mechanisms and may prove a valuable method for determing the effect of stress and stress management tool.

Saha et al., (1996) and De Boer et al., (1988) found decrease in RT as an effect of noise stress. Broadbent noted no change in simple tasks like reaction time whereas Finkelman et al., (1979) reported degradation of information processing

performance. Stress causes decrease in RT, shown by Prabhakaran et al., (1988). Premenstrual stress leading to poor attention and performance. Which may prolong the RT. Masani, 1982, Basu 1984, Shalanah, 1963, Mehta and Chakarvati, 1993, Das et al., (1997) studied the effect of premenstrual stress on reaction time and found significant increase in reaction time.

RT is a simple means of determining sensory motor association and performance of an individual (Lofthus, 1981, Shenvi and Balasubramanian, 1994). Prolongation of RT could be attributed to modulation in neurotransmitters involved due to hormonal fluctuations hence affecting sensory motor association and processing capability of CNS. (Das et al., 1997).

Saha et al., (1996) explained decrease in RT due to stress as catecholamine release which are associated with increase in alertness by decreasing the threshold of RAS (Retionlar Activating system) and thereby shortening the reaction time. (Ganong 1993). Prabhakaran et al., (1988) also presumed that this effect was due to activation of hypothalamo sympathetic adrenal axis and resultant release of catecholamines from adrenal medulla due to stress.

In the present study with a situational stress it is seen that exam stress produces decrease in RT in the subjects seven days prior to exam. When compared with the data of RT seven days after exam. (249.53 $\pm$ 66.39 mSec. and 311.86 $\pm$ 81.49 mSec. Table 18).

Worker	Year	Condition/Group	Observation
Saha et al.	1996	Noise stress	Decrease in RT
Prabhakaran et al.	1988	Psychological stress	Decrease in RT
Masani et al.	1982	Premenstrual stress	Decrease in RT
Basu	1984	Premenstrual stress	Decrease in RT
Shabanah	1963	Premenstrual stress	Decrease in RT
Mehta & Chakravarti	1993	Premenstrual stress	Decrease in RT
Das et al.	1997	Premenstrual stress	Increase in RT
Madan Mohan et al.	1984 1992	Diabetes (pts.)	Increase in RT
Present study	1997	Exam stress	Decrease in RT

Malathi et al., (1997) found a significant improvement in the choice reaction time after the practice of yoga and meditation in medical students.

In the present study there is significant decrease in reaction time in medical students after one months yoga training (324.58 $\pm$ 91.96 mSec and 280.83 $\pm$ 81.41 m Sec. Table 19).

The effect of reaction time by reticular facilitation is primarily on the central integrative time (Chakravarti, 1984). The training could have accelerated the concentration power of subject. As one reaches to optimal arousal beyond this there is

no further increase in arousal state (Welford, 1980, Malathi and Parulkar, 1989).

The effect of yoga on CNS mechanisms could be due to (i) greater arousal and faster rate of information processing and (ii) improved concentration power and ability to ignore and/or inhibit extraneous stimuli.

Yoga practitioners are known to have better attention and less distractibility, result into decrease mental fatiguability an on increase in performance quotient (Udupa 1972).

Madanmohan et al., (1984 and 1992) reported decrease in auditary and visual reaction times. (26 and 37%) after 3 months of yoga practice in 27 volunteers. They also showed increased reaction time in diabetic patients.

Worker	Year	Condition/Group	Observation
Malathi et al.	1997	Yoga & Meditation in medical students	Decrease in RT
Madan Mohan et al.	1984 1992	Yoga Practice	Decrease in ART VRT
Present study	1997	Yoga Training (one month)	Decrease in RT

Weight :

Stress caused the CRH secretion which is associated with inhibitory effect on growth hormone and thyroid hormone. (Chrousos and Gold, 1992). It is also associated with auorexia

nervosa, (86 & 89) hyperthyroidism (89) and malnutrition (90) (Kamilaris et al., (1989); Gold et al., 1986; Kaye et al., 1987; and Malozowski et al., (1990). They also reported stress related pathological eating behaviours. In the present study we studied two different psychological stress reactions : loss of appetite and excessive eating. Where we found loss of uppetite having significantly more occurance in subjects with somatic ailments compared to normals while excessive eating, having non significant difference. (Table 4).

Reports regarding the stress related weight gain or loss are also contradictory. Walker and Walker (1988) could observe 30.8% weight gain / loss as stress symptoms in formers. Abraham and Gogate (1989) studied stress behaviours in rat and found decrease in body weight. Das et al., (1997) could find increased body weight in females during prementrual stress. The present study also shows different pattern in weight, though having more weight in subjects with somatic ailment, it is significant in total subjects, subjects of hypertension and/or heart problems, headache and/or migraine and URI and/or asthma group, while other 2 groups have non significant difference. (Table 9).

Yoga is cleared to have normaley in the body thus optimises the body weight. Reduction in body weight was reported by Nagarathna and Nagendra (1984) Telles et al., (1993 & 1994). Satyanarayana (1992). After practice of yogic techniques as short term or long term effect. In the present study, normals show significant decrease in weight after 3 months yoga practice,

while subjects with somatic ailments show significant decrease in weight even after one month of yoga practice. (Table 12 & 13).

Temperature :

Hot flushes may reporesent a useful condition for examining a variety of treatment principles applicable to a range of psychosomatic conditions (Swartiman et al., (1990) This as physiological stress reaction was found to be higher in somatic ailment group than normals (Table 4). Relaxation reverses the condition produced by the stress experience (Beischer and Osullivan, 1972). Response to stressful stimuli is a catabolic process where energy expenditure beaches to maximum and thereby increases the body temperature indirectly. Casper et al., (1979) explained that increase in temperature and sweating was produced as a result of sympathetic activity caused by stress. Swartzman et al., (1990) also reported increased temperature due to menopausal stress. In the present study oral temperature of medical students seven days before examination was found to be significantly higher than that of after seven days of examination. (Table 18).

Though it is explained that yoga produces a hypometabiolic state in the body, researchers have reported, increase in body temperature either during practice just after practice of in different type of yogic practice. (Green et al., 1970; Bhatnagar et al., 1978; Benson et al., 1982; and Satyanarayana et al., 1992). In the present study we did not observe any change in temperature in medical student after one month yoga training (Table 19).

Techniques for Management of Stress :

Some people might be able to decrease their stress by altering environmental stressors, such as work or social situations. Others might benefit from structured treatments, several techniques are used for the management of stress and as adjunct in the therapy of psychosomatic ailments, such as cognitive behaviour techniques (Hollon and Najavits, 1988), assertiveness training, (Linehan et al., 1979) or stress inoculation training (Meichenbaum, 1975). These treatments might be expected to lower unnecessary medical utilization. When people realise that they are not coping well in some areas of their lives, they usually try to improve matters by various means (Ostell, 1991).

Yoga is the only other method besides psychoanalysis that attempts to reorganize personality structure through integrated, holistic system of self culture, which aims at the harmonious development and health of body and mind complex (Sahasi and Pandit Shambhunath, 1989).

Yoga, an Indian indigenious system of psycho-somatic development is claimed to produce closer inter relationship between body and mind and helps to maintain a perfect homestasis in both. Yoga helps in homeostasis, brings abont almost normalcy in our psychophysiological functioning, so that there is less tendency towards psychosomatic imbalances in the face of external & internal influences as a consequences of stress and strain of every day life (Selvamurthy, Sahasi and Shambhunath 1984).

Training in yoga and meditation help in reduction of stress. There is psychological healing and physiological recovery in cancer patients (Lerner et al., (1987). Meditation techniques like Zen and T. M. have come to be used as adjuncts to psycho - therapy (Goleman, 1971; Deatherage, 1975; Engler, 1984).

Yoga training appears to improve the conscious control of autonomic adjustment. It helps in increase in blood flow and decrease in O2 consumption, decrease neuromuscular excitability, and increase threshold to stimuli (Bhatnagar, 1979). A combined practice of several asanas have been shown to bring about a considerable improvement in cardio pulmonary functions, adrenocortical functions and a number of metabolic corrections in addition to remarkable psychological and neurophysiological improvement (Udupa, 1975).

Several workers have found yoga training to be useful for prevention of stress disorder (Rai et al., 1988) and Panjwani et al., 1995). reduction in auxiety level (Bhatt, 1982; Mishra, 1982, Sahasi, 1984); reduction of hypertension symptoms and blood pressure (Chhinna et al., 1968; Datey et al., 1969 and 1975, Gopal et al., 1973; Schwartz, 1973, Sachdeva, 1980, Bhargva et al., 1988, Latha and Kaliappan, 1991, Shanker and Bhanot 1994, Kundar and Basav, 1994); reduction in use of medication and severity of asthmatic attacks and establishment of feeling of freshness in breathing (Monjo and Rabira, 1985; Gore, 1982; Nagendra and Nagarathna 1985, 1986 and 1991; Brahmachari, 1980); reduction in consumption of medication in diabetes mellitus (Nagendra and Naga rathna 1983; Tandon et al., 1989); improvement

in various kind of pain problems, viz. headache (Kalpana, 1983; Latha and Kaliappan, 1987 and 1992); low back pain (Dharma prakash, 1983; Kabat, 1989); neck and shoulder pain (Kabat, 1982.

Nagendra and Nagarathna (1983); Dharma prakash (1983) and Lakshmi Kanthan et al., (1978) suggested application of yoga in IHD.

Yoga has been suggested as a better tool for stress management. (Debey and Harmesh kumar, 1986; Grover et al., 1990; Heibronn, 1992; and Walia et al., 1993).

Table 20 of the present study, based on the levels of initial assessment of subjective feelings on various parameters like, general physical health, appetite sleep, pain problem, thinking, mood / emotion, mental state, self confidence, motivation and interest, concentration and memory, shows significant differences in all the parameters, in somatic ailment group than normals. Percentage level ranges from 57.77 % to 79.80 % in normals while 41.88% to 64.30% in subjects with somatic ailments. Pain problem in normals have 59.71 $\pm$ 24.07% while in somatic ailment group 69.49 + 20.13%.

The feedback data after 3 - 6 months of yogic techniques is shown in table 21. It shows percentages of improvement in the above mentioned areas based on subjective feelings of normal subjects as well as subjects with somatic ailments. Though all the areas of subjective estimate of well being, are not covered by all the subjects, the percentages of improvement are more than 40% in normals and more than 45% in subjects with somatic

ailments. Other than these, absenteesm, smoking clumsiness and interpersonal relations are the areas added in the feedback proforma. Subjects of normals included beliet relaxation, speech, faith in God, organisation and body weight (gain or loss). Other than the items of the scale. The somatic ailment group has further included self awareness, scrembling, tension of journey, fear, tobacoo, and drug reduction for showing their improvement in particular areas. Thus yogic techniques are proved to bring normalcy back to its optimum level in normals as well as in subjects with somatic ailments.