

CHAPTER-II

REVIEW OF RELATED LITERATURE

The review of literature is instrumental in the selection of the topic, formation of hypothesis and deductive reasoning leading to the problem. It helps to get a clear idea and supports the finding with regard to the problem under study. The review of literature is instrumental in the formation of hypotheses and to get a full picture of what done with regard to the problem under study. Such a review brings about a deep and clear perspective of the overall field. Now a day the educational program of any type is characterized by reforms and innovative ideas. It seems to be necessary one to formulate such a reviews of various scholars' works. We can bring out a deep insight and clear perspective of the overall field in such reviews. Such collected review have been presented in logical order, in order to importance and in sequence of merit. This chapter is a step to get full picture of what has been done and said with regard to the problem under study. The review of literature in given as follows.

2.1 STUDIES ON YOGA

Sclavo M. (2001) documented in their study, "Cardiovascular risk factors and prevention in women: similarities and differences that epidemiological evidence shows that among women, the incidence of all, including less severe, coronary events is still increasing. However, owing both to diminished lethality as well as the reduction in the rate of acute myocardial infarction, mortality has globally decreased. The strong association observed between mortality and major cardiovascular risk factors as well as between their temporal changes and the occurrence of coronary disease makes the undertaking of multifactorial

prevention strategies, including the formulation of risk charts for asymptomatic women and men, necessary. In spite of the proved detrimental effect of estrogen deficiency on LDL- and HDL-cholesterol, on arterial smooth muscle cell proliferation and on insulin secretion and in spite of the data of numerous observational studies and of the HERS trial (all, however, with methodological limitations), clinical evidence does not justify widespread estrogen prescription, not even for purposes of secondary prevention. Besides, the dosages and the route of administration are still subject of debate.

Tenzin Kyizom et.al. (2006). The object of the study in Influence of Pranayamas and Yoga-asanas on Serum Insulin, blood glucose and lipid profile in type 2 diabetes A distinguishable feature of type 2 diabetes besides hyperglycaemia and deranged lipid profile is an impaired insulin secretion, peripheral insulin resistance and obesity which have become a major health concern worldwide. India with an estimated 31 million diabetics in 2000 and 79 million by the yr 2030 has the highest number of type 2 diabetes in the world. In this study, we aimed to see if Yoga-asanas and pranayamas have any influence in modifying certain biochemical parameters. Sixty patients of uncomplicated type 2 diabetes (age 35-60 yrs of 1 – 10 yrs duration) were divided into two groups: Group 1 (n=30): performed yoga along with the conventional hypoglycaemic medicines and group 2 (n=30): patients who only received conventional medicines. Duration of the study was 45 days. Basal recordings of blood glucose (fasting and post-prandial) lipid profile and serum insulin were taken at the time of recruitment and the second reading after forty five days. Results showed a significant improvement in only few parameters, thus suggesting a beneficial effect of Yoga regimen on these parameters in diabetic patients.

Bijalani, (2000) The objective of the study was to study the short-term impact of a brief lifestyle intervention based on Yoga on some of the biochemical indicators of risk for cardiovascular disease and diabetes mellitus. The variables of interest were measured at the beginning (day 1) and end (day 10) of the intervention using a pre-post design. The study is the result of operational research carried out in our Integral Health Clinic (IHC). The IHC is an outpatient facility which conducts 8 day lifestyle modification programs based on Yoga for prevention and management of chronic disease. A new course begins every alternate week of the year. The study is based on data collected on 98 subjects (67 male, 31 female), age 20-74 years. The subjects were a heterogeneous group of patients with Hypertension, coronary artery disease, diabetes mellitus, and a variety of of this illness. The intervention consisted of asana (postures) Pranayama (breathing exercises) relaxation techniques, group support, individualized advice, lectures and films on the philosophy of Yoga and the place of Yoga in daily life, meditation, stress management, nutrition and knowledge about the illness. The out some measures were fasting plasma glucose and serum lipoprotein profile. These variables were determined in fasting blood samples, taken on the first and last day of the course. Fasting plasma glucose, serum total cholesterol, low-density lipoprotein(LDL) cholesterol, very-LDL Cholesterol, the ratio of total cholesterol to total cholesterol to high density lipoprotein (HDL) Cholesterol, and total tr-iglycerides were significantly lower, and HDL cholesterol significantly higher, on the last day of the course compared to the first day of the course. The changes were more marked in sub sects with hyperglycaemia or hypercholesterolemia. The observations suggest that a short lifestyle modification and stress management education program leads to favourable metabolic effects within a period f 9 days.

Sharpe, (2005) The objective of the study is use of complementary and alternative medicine for weight control in the United States. The purpose was to assess the prevalence and correlates of complementary and alternative medicine use for weight control. A list assisted random-digit-dialled telephone survey of adults was conducted in the fall of 2002 (n=11,211). The focus of the study was complementary and alternative medicine (CAM) use, of this than dietary supplements, in the previous 12 months. The sample of respondents was drawn from the total non-institutionalized U.S. adult population residing in telephone-equipped locations. The sampling procedures were designed to obtain adequate representation of Hispanic and non-Hispanic black respondents. Data from the total sample of 11,211 were weighted to achieve an estimate of the U.S. population. Analyses focused on 372 people who had used CAM within the previous 12 months. Result of the total 3.3. % (n=372) had used a CAM therapy in the previous 12 months. Heights adjusted odds ratios for CAM use were found among respondents who were exercising for weight control: using a lower carbohydrate, higher protein diet; using a non-prescription weight loss products; overweight physically active; and most satisfied with one's body (adjusted for age, race, gender, education, and city size). The most often used therapies were Yoga (57.4%), meditation(8.2%), Acupuncture(7.7%) and massage(7.5%), and Eastern martial arts((5.9%) . CAM users used CAM therapies on their own (62.6%) in a group setting (26.8%) or with a CAM practitioner (10.6%). The use of CAM therapies of this than dietary supplements for weight loss was relatively low. The most popular therapy was Yoga, and the majority of CAM users used CAM therapies on their own. Persons who had used of this weight loss methods had greater odds for using CAM in the previous 12 months, suggesting that CAM use is often added to of these weight-loss strategies.

Kristal, (2002) Yoga practice is associated with attenuated weight gain in healthy, middle-

aged men and men. Yoga is promoted for weight maintenance, but there is little evidence of its efficacy. To examine whether Yoga practice is associated with lower mean 10 year weight gain after age 45. Participants included 15,550 adults, aged 53 to 57 years, recruited to the Vitamin and lifestyle(VITAL) cohort study between 2000 and 2002. Physical activity (including Yoga) during the past 10 years, diet, height and weight at recruitment and at ages 30 and 45. All measures were based on self reporting and past weight was respectively ascertained. Multiple regression analyses were used to examine covariate-adjusted association between Yoga practice and weight change from age 45 to recruitment, and polychotomous logistic regression was used to examine associations of Yoga practice with the relative odds of weight maintenance (within 5 %) and weight loss (>5%) compared to weight gain. Result Yoga practice for four or more years was associated with a 3.1-lb lower weight gain among normal weight (BMI<25) participants (9.5 lbs versus 12.6lbs) and an 18.5 – lb lower weight gain among overweight participants (-5.0 lbs versus 13.5lbs) (both P for trend<.0001). Among overweight individuals, 4 + years of Yoga practice was associated with a relative odds of 1.85 (95% confidence interval(CI) 0.63-5.42) for weight maintenance (within 5%) and 3.88 (95% C 1.30-9.88) for weight loss (>5%) compared to weight gain (P for trend .026 and .003, respectively).Regular Yoga practice was associated with attenuated weight gain, most strongly among individuals who were overweight. Although causal inference from this observational study is not possible, results are consistent with the hypothesis that regular Yoga practice can benefit individuals who wish to maintain or lose weight.

Tenzin Kyizom et.al. (2006). The object of the study in Influence of Pranayamas and Yoga-asanas on Serum Insulin, blood glucose and lipid profile in type 2 diabetes A distinguishable feature of type 2 diabetes besides hyperglycaemia and deranged lipid profile is an impaired insulin secretion, peripheral insulin resistance and obesity which have become a major health concern worldwide. India with an estimated 31 million diabetics in 2000 and 79 million by the yr 2030 has the highest number of type 2 diabetes in the world. In this study, we aimed to see if Yoga-asanas and pranayamas have any influence in modifying certain biochemical parameters.

Udupa, (2004) This study reports the effects of Yoga training on cardiovascular response to exercise and the time course of recovery after the exercise. Cardiovascular response to exercise was determined by Harvard step test using a platform of 45 cm height. The subjects were asked to step up and down the platform at a rate of 30/min for a total duration of 5 min or until fatigue, whichever was earlier. Heart rate (HR) and blood pressure response to exercise were measured in supine position before exercise and at 1,2,3,4,5,6,7, and 10 minutes after the exercise. Rate pressure product ($RPP = (HR \times SP)/100$) and double product ($Do P = HR \times MPO$), which are indicators of work done by the heart were also calculated. Exercise produced a significant increase in HR, systolic pressure, RPP & Do P and a significant decrease in diastolic pressure. After two months of Yoga training exercise induced changes in these parameters were significantly reduced. It is concluded that after Yoga training a given level of exercise leads to a milder cardiovascular response, suggesting better exercise tolerance.

Vyas, Rashmi et.al. (2002) In this study, respiratory functions, cardiovascular parameters and lipid profile of those practicing Raja Yoga meditation (short and long term mediators) were compared with those of non mediators. Vital capacity, tidal volume and breath holding were significantly higher in short and long term mediators than non mediators. Long term mediators had significantly higher vital capacity and expiratory pressure than short term mediators. Diastolic blood pressure was significantly lower in both short and long term mediators as compared to non mediators. Heart rate was significantly lower in long term mediators than in short term mediators and non mediators. Lipid profile showed a significant lowering of triglycerides and serum cholesterol in short and long term mediators as compared to non mediators. Lipid profile of short and long term mediators was better than the profile of non mediators' in spite of similar physical activity. This shows the Raja

Yoga meditation provides significant improvements in respiratory functions, cardiovascular parameters and lipid profile.

Halamek et.al. (2003) postulated that the variability of the phase shift between blood pressure and heart rate fluctuation near the frequency of 0.10HZ might be useful in assessing autonomic circulatory control. Methods and Results: WE tested this Hypothesis in 4 group of subjects: 28 young, healthy individuals; 13 elderly healthy individuals; 25 patients with coronary heart disease and 19 patients with a planned or implanted cardio vertex-defibrillator (ICD recipients). Data from 5 minutes of free breathing and at 2 different, controlled breathing frequencies (0.10) and 0.33 Hz) were used. Clear differences ($P < 0.001$) in variability of phase were evident between the ICD recipients and all of this groups. Furthermore, at a breathing frequency of 0.10Hz, differences in baroreflex sensitivity ($P < 0.01$) also became evident, even though these differences were not apparent at the 0.33Hz breathing frequency. Conclusions; The frequency of 0.10Hz represents a useful and potentially important one for controlled breathing, at which differences in blood pressure-RR interactions become evident. These interactions, whether computed as a variability of phase to define stability of the blood pressure-heart rate interaction or defined as the baroreflex sensitivity to define the gain in heart rate response to blood pressure changes, are significantly different in patients at risk for sudden arrhythmic death. In young versus older healthy individuals, only baroreflex gain is different, with the variability of phase being similar in both groups. These measurements of short term circulators control might help in risk stratification for sudden cardiac death.

Usmanov et.a. (2008) The purpose of the study was to identify the Iron deficiency anaemia is a frequent finding in many patients was congestive heart failure (CHF). heart

failure (CHF). To assess the effect of intravenous (i.v) iron on the anaemia of CHF patients and on cardiac remodelling. New York HEART Association (NYHA) classification and renal function. Methods: thirty two patients with well treated CHF which was NYHA class III-IV and with haemoglobin(Hb) persistently <11g/dl, were treated with i.v. iron over 26 weeks. Echocardiograph, haematological and renal parameters were measured at the beginning and end of the study. Intravenous iron causes a marked increase in haemoglobin in anaemia CHF patients, and an improvement in cardiac remodelling and NYHA classification.

Liambes et.al. (2008) Conducted a study on the effect of nonsurgical periodontal treatment, with or without systemic administration of doxycycline, on the metabolic control of patients with type 1 diabetes. Sixty type 1 diabetes subjects with moderate to severe periodontitis were measured and blood samples were obtained to evaluate glycosylated haemoglobin (Hb A_{1c}). Group 1 (30 patients) was treated with scaling, root planning, and chlorhexidine rinses for 3 months in conjunction with systematic administration of doxycycline (100 mg once a day for 15 days). Group 2 (30 patients) received the same periodontal treatment but without the use of doxycycline. The paired student t-test was used to detect differences between glycosylated haemoglobin means before and 3 months after periodontal treatment in group 1 and group 2 separately.

Haines T.H. (2004) Identified 70 eligible studies including 1 observational study, 26 uncontrolled clinical trials, 21 nonrandomized controlled clinical trials, and 22 RCT's. Together the reported results of these studies indicate beneficial changes overall in several IRS-related indicators of CVD risk, including glucose tolerance and insulin sensitivity, lipid profiles, anthropometric characteristics, blood pressure, oxidative stress, coagulation profiles, sympathetic activation, and cardiovascular function, as well as improvement in several clinical endpoints.

2.2 STUDIES ON RELATED TO WOMEN DISORDERS

Nidhi, R., Padmalatha, V., Nagarathna, R., and Ram, A.(2012). Effects of a Holistic Yoga Program on Endocrine Parameters in Adolescents with Polycystic Ovarian Syndrome. *International Journal of Gynaecology and Obstetrics*, Ninety (90) adolescent (15-18 years) girls from a residential college in Andhra Pradesh who satisfied the Rotterdam criteria were randomized into two groups. The yoga group practiced a holistic yoga module, while the control group practiced a matching set of physical exercises (1 hour/day, for 12 weeks). Anti-müllerian hormone (AMH-primary outcome), luteinizing hormone (LH), follicle-stimulating hormone (FSH), testosterone, prolactin, body-mass index (BMI), hirsutism, and menstrual frequency were measured at inclusion and after 12 weeks. Mann-Whitney test on difference score shows that changes in AMH ($Y=-2.51$, $C=-0.49$, $p=0.006$), LH, and LH/FSH ratio (LH: $Y=-4.09$, $C=3.00$, $p=0.005$; LH/FSH: $Y=-1.17$, $C=0.49$, $p=0.015$) were significantly different between the two intervention groups. Also, changes in testosterone ($Y=-6.01$, $C=2.61$, $p=0.014$) and Modified Ferriman and Gallway (mFG) score ($Y=-1.14$, $C=+0.06$, $p=0.002$) were significantly different between the two groups. On the other hand, changes in FSH and prolactin postintervention were non significantly different between the two groups. Also, body weight and **BMI** showed non significantly different changes between the two groups, while changes in menstrual frequency were significantly different between the two groups ($Y=0.89$, $C=0.49$, $p=0.049$). A holistic yoga program for 12 weeks is significantly better than physical exercise in reducing AMH, LH, and testosterone, mFG score for hirsutism, and improving menstrual frequency with nonsignificant changes in body weight, FSH, and prolactin in adolescent PCOS.

Nidhi, R., Padmalatha, V., Nagarathna, R., and Amritanshu, R. (2011). Prevalence of polycystic ovarian syndrome in Indian adolescents. They prospectively studied 460 girls aged 15 to 18 years from a residential college in Andhra Pradesh, South India, who underwent clinical examination. Out of which 72 girls with oligomenorrhea and/or hirsutism were invited for biochemical, hormonal, and ultrasonographic evaluation for diagnosis of PCOS by Rotterdam criteria. PCOS was defined as the presence of any two of the three features: (1) Oligo/amenorrhea: absence of menstruation for 45 days or more and/or ≤ 8 menses per year. (2) Clinical hyperandrogenism: Modified Ferriman and Gallway (mFG) score of 6 or higher. (3) Polycystic ovaries: presence of >10 cysts, 2-8 mm in diameter, usually combined with increased ovarian volume of >10 cm³, and an echo-dense stroma in pelvic ultrasound scan. Out of 460 girls, one (0.22%) had oligo/amenorrhea with clinical hyperandrogenism, 29 (6.30%) had oligomenorrhea with polycystic ovaries, one (0.22%) had polycystic ovaries with clinical hyperandrogenism and 11 (2.39%) had oligomenorrhea with polycystic ovaries in the presence of clinical hyperandrogenism. Thus 42 (9.13%) girls satisfied Rotterdam's criteria for PCOS, which increased to 50.46 (10.97%) when imputed data were included. Prevalence of PCOS in Indian adolescents is 9.13%. This draws attention to the issue of early diagnosis in adolescent girls.

S. Shanthi, Psycho Physiological effect of Vethathiri Maharishi's Kayakalpa Yoga on PCOS. The following variables were analysed among five participants with age limit between 20 and 30. Used single group with twelve weeks of Maharishi's Kayakalpa yoga practise. Intervention group participated in a 1-month Vethathiri Maharishi's style of yoga practice. To facilitate and guide home practice for the participants and were given an audio recording. Group sessions were held twice per week. They were regulated by the

yoga instructor through phone and direct communication with spritual diary was maintained. Doing vethathirimaharishi'skayakalpa yoga PCOS get cured.

Ram Nidhi, VenkatramPadmalatha, Raghuram Nagarathna, Ram Amritanshu. Effect of Yoga Program on Quality of Life in Adolescent Polycystic Ovarian Syndrome: A Randomized Control Trial. Polycystic Ovarian Syndrome (PCOS) is a common female endocrine disorder challenging feminine identity which is likely to impact their quality of life. The aim of this study was to evaluate the effect of yoga on PCOS specific quality of life in adolescent girls with PCOS. Ninety adolescent (15–18 years) girls from a residential college in Andhra Pradesh, who satisfied the Rotterdam criteria, were randomized into two groups. The yoga group (n = 37) practiced a holistic yoga module while the control group (n = 35) practiced a matching set of physical exercises (1 h/day, for 12 weeks). PCOS specific quality of life was measured at inclusion and after 12 weeks. Mann-Whitney on difference score showed that the changes in all domains were significantly different between the two groups ($p < 0.05$) except for infertility ($p = 0.675$). Wilcoxn signed ranks test showed yoga group observed greater improvement in emotional disturbances (effect size; Y:1.52, E: 0.72), body hair (effect size; Y: 1.02, E: 0.32), weight (effect size; Y: 0.96, E: 0.33) and menstrual problem (effect size; Y: 1.24, E: 0.64) domain as compared to the exercise group. Yoga program for 12 weeks is significantly better than physical exercise in improving PCOS quality of life in adolescent girls with PCOS.

Nidhi Ram, Effect of yoga on perceived stress and positive and negative emotions in adolescent polycystic ovarian syndrome: A randomized control trial. Polycystic Ovarian Syndrome (PCOS) is a common female endocrine disorder challenging feminine identity which is likely to have a significant effect on their emotions and perception of

stress. The objective of the study was to evaluate the effect of the yoga program on perceived stress and emotions in comparison to that of a matched physical exercise regimen. Ninety adolescent (15–18 years) girls from a residential college in Andhra Pradesh, who satisfied the Rotterdam criteria, were randomized into two groups. The yoga group (n=37) practiced a holistic yoga module while the control group (n=35) practiced a matching set of physical exercises (1 h/day, for 12 weeks). PCOS specific quality of life was measured at inclusion and after 12 weeks. Mann-Whitney on difference score showed that the changes in all perceived stress ($p=0.001$), negative affect ($p=0.024$) and positive affect ($p=0.005$) were significantly different between the two groups. Twelve weeks of a holistic yoga program in adolescent PCOS is significantly better than physical exercise program in reducing perceived stress and negative affect along with the increase in positive affect.

LIMOSIN F, ADES J. Psychiatric and psychological aspects of premenstrual syndrome service de psychiatrie du professeurrouillon, hôpital albert-chenevier, 40, Rue De Mesly, 94000 Créteil. Abstract numerous, but heterogeneous studies have been performed about premenstrual syndrome, with finally a lack of credibility and interest among practitioners. more recently with the diagnosis criteria generalization, psychiatrists were more concerned about this syndrome, because of anxiety and mood symptoms involved in social impairment and need of medical care. In 1983 in the United States, the national institute of mental health conference devoted to this topic proposed the first diagnosis criteria, requiring a prospective and daily assessment of the symptoms. In 1987, the American psychiatric association, in the DSM iii-r, introduced the late luteal phase dysphoric disorder diagnosis that became in 1994 in the DSM iv the premenstrual dysphoric disorder, with the same diagnosis criteria. In the literature, prevalence rates are veryheterogeneous according to the diagnosis criteria used and to the populations studied.

One of the most relevant criteria is the induced impairment, such as avoidance of social activities, or search for medical care. Lifetime prevalence is thus estimated between 75 and 85% if considering the report of one or several symptoms, between 10 and 15% in case of medical care request, and between 2 and 5% in case of social activities interruption. To distinguish isolated complaints from a disabling disorder, self-questionnaires are the best way of assessment in a so complex and changing disease. Most of the epidemiological studies found a positive correlation between the premenstrual dysphoric symptoms and the lifetime major depressive disorder diagnosis. However, recent prospective studies failed to find an association between premenstrual syndrome and an increased risk of major depression. On the other hand, some studies showed that the premenstrual period is a risk period for associated psychiatric disorders exacerbations, as the obsessive-compulsive disorder, more severe alcohol intakes in case of alcoholism, symptoms increase in schizophrenics, or higher rates of suicide attempts. The most widely studied and frequently blamed etiopathogenic hypothesis is the serotonin dysregulation. Serotonin is particularly involved in expression of irritability and anger, but also in occurrence of depressive symptoms and specific food cravings, precisely found in the premenstrual dysphoric disorder. Among their different effects, estrogens increase the density of serotonin receptors and enhance the sensitivity to serotonin agonists. Moreover, some studies found a significantly different response to d-fenfluramine, a serotonin agonist, in women with premenstrual dysphoric disorder. In psychoanalytical theories the premenstrual syndrome was associated to a "femininity complex", to an ambivalent pregnancy desire, and to unconscious conflicts relating to sexual preference. In this context, Karen Horney, who took a great interest in the premenstrual period, was radically opposed to the Freudian theory of feminine sexuality, in particular the negation of the female sex. For Karen Horney, the "desire of penis" is

more expressive of the woman's spite not to share the sexual, but also political, social and cultural benefits fallen to men. To understand the premenstrual period feelings it is also necessary to take into account the personal history of the woman and the psychosocial factors involved, as the social and cultural beliefs, and the mother-daughter communication. Medical Care's are necessary when symptoms constitute a severe and disabling disorder. Among non-psychiatric treatments, progesterone was the most widely prescribed treatment, but relating to recent performed studies, it failed to prove its efficiency in such an indication. In the same way, the efficiency of the contraceptive pill was not demonstrated. The most prescribed psychiatric treatments are serotonin re-uptake inhibitors and benzodiazepines. first studies showing serotonin re-uptake inhibitors efficiency in premenstrual dysphoric disorder were performed in the beginning of the nineties, with clomipramine and fluoxetine, and later fluvoxamine, paroxetine, sertraline and citalopram. Studies having compared the efficiency of antidepressants according to their serotonin activity (paroxetine or sertraline versus maprotiline, that is a selective noradrenaline re-uptake inhibitor), showed that serotonin re-uptake inhibitors were significantly more efficient on all symptoms than maprotiline, that was not more efficient than placebo. Low doses of clomipramine (10 to 50 mg per day) seem to be sufficient and it appears also preferable to prescribe an intermittent treatment because of a possible tolerance effect, susceptible to be warned by phases free of treatment.

Alprazolam (2010) was the most studied benzodiazepine in this indication. Most studies were positive, using daily posologies of 0.25 to 4 mg during the 6 days preceding the menses, with improvement of irritability, **anxiety** and depressive mood. The general practitioner frequently carries out psychological support, in particular in case of mild symptoms without consequences. Nevertheless, underestimate a more severe psychological suffering is a risk, firstly because there is no systematic interrelationship

between the somatic symptoms intensity and the psychological distress, and secondly because premenstrual period is a special emotionally moment to put in evidence psychological or relational disruption. All kinds of psychotherapy can be relevant, even though the training of relaxation techniques is particularly suitable in such an indication. In conclusion, and in spite of the generalization of the diagnosis criteria in the international psychiatric classifications as the DSM, the premenstrual syndrome remains a complex and polymorphous disorder. The premenstrual syndrome was considered for a long time like a somatic disease, but now the psychiatric symptoms severity justifies most often the medical cares. In order to distinguish some isolated and mild complaints, of a disabling disorder, the standardized prospective auto-assessment is the most relevant method. Finally, intermittent prescription of serotonin re-uptake inhibitors appears to be the most effective treatment, the previously used hormonal treatments not having made proof of their efficiency in such an indication.

INNES KE, SELFE TK, TAYLOR AG. Menopause, the metabolic syndrome, and mind-body therapies. Center for the study of complementary and alternative therapies, University of Virginia health systems, Charlottesville, VA 22908-0905, USA. Abstract cardiovascular disease risk rises sharply with menopause, likely due to the coincident increase in insulin resistance and related atherogenic changes that together comprise the metabolic or insulin resistance syndrome, a cluster of metabolic and hemodynamic abnormalities strongly implicated in the pathogenesis and progression of cardiovascular disease. A growing body of research suggests that traditional mind-body practices such as yoga, tai chi, and qigong may offer safe and cost-effective strategies for reducing insulin resistance syndrome-related risk factors for cardiovascular disease in older populations, including postmenopausal women. Current evidence suggests that these practices may reduce insulin resistance and related physiological risk factors for

cardiovascular disease; improve mood, well-being, and sleep; decrease sympathetic activation; and enhance cardiovascular function. However, additional rigorous studies are needed to confirm existing findings and to examine long-term effects on cardiovascular health.

TCHERNOF A, et al (2006) Menopause, central body fatness, and insulin resistance: effects of hormone-replacement therapy. Clinical pharmacology and metabolic research unit, University of Vermont, Burlington 05405, USA. Abstract in addition to being associated with termination of reproductive life in women, the menopause coincides with an increase in several co morbidities including cardiovascular disease. This increase in the prevalence of cardiovascular disease in the postmenopausal years has been partially attributed to adverse effects of estrogen deficiency on plasma lipid-lipoprotein levels and Thyroid problem like TSH on the cardiovascular system, although other factors are contributing. Central body fatness and insulin resistance are components of a cluster of metabolic abnormalities which also increases the risk of cardiovascular disease. This review summarizes studies that have examined the effects of the menopause transition and of estrogen-replacement therapy on central body fatness and insulin resistance. Review of cross-sectional studies suggests that the menopause transition is associated with an increase in abdominal and visceral adipose tissue accumulation, as measured either with dual x-ray absorptiometry or computed tomography. These results appear to be independent of the aging process and total body fatness. In general, cross-sectional studies using circumference measurements did not find any significant effect of the menopause. Longitudinal studies also support that accumulation of central body fatness accelerates with menopause. The effects of the menopause on insulin resistance appear to be moderate, if any, although available studies are clearly insufficient to draw firm conclusions. The majority of interventional studies support the notion that hormone-

replacement therapy attenuates the accumulation of central fat in postmenopausal women, compared with control or placebo-treated women. Retrospective comparisons of hormone users and nonusers also support a protective effect of hormone replacement on fat distribution. Moderate effects of estrogen therapy were found on insulin resistance in postmenopausal women, although long-term, controlled trials using accurate measurements of insulin sensitivity are lacking. Treatment with progestins exerts moderate deleterious effects on insulin sensitivity, which may be attributable to the partial androgenicity of progestins used. It is concluded that part of the increased incidence of cardiovascular disease in postmenopausal women may be attributable to increased central body fatness. Therapies aiming at preventing these changes in fat distribution such as hormone-replacement therapy, diet or exercise are likely to provide long-term cardiovascular and metabolic benefits for women's health.

INNES KE, SELFE TK, TAYLOR AG. Menopause, the metabolic syndrome, and mind-body therapies. From the center for the study of complementary and alternative therapies, university of virginia health systems, charlottesville, va. Abstract cardiovascular disease risk rises sharply with menopause, likely due to the coincident increase in insulin resistance and related atherogenic changes that together comprise the metabolic or insulin resistance syndrome, a cluster of metabolic and hemodynamic abnormalities strongly implicated in the pathogenesis and progression of cardiovascular disease. A growing body of research suggests that traditional mind-body practices such as yoga, tai chi, and qigong may offer safe and cost-effective strategies for reducing insulin resistance syndrome-related risk factors for cardiovascular disease in older populations, including postmenopausal women. Current evidence suggests that these practices may reduce insulin resistance and related physiological risk factors for cardiovascular disease; improve mood, well-being, and sleep; decrease sympathetic activation; and enhance

cardiovascular function. However, additional rigorous studies are needed to confirm existing findings and to examine long-term effects on cardiovascular health.

2.3 STUDIES ON PHYSICAL FITNESS VARIABLES

Alpert et. al. (1990) had investigated the effects of aerobic exercise on a sample of 24 preschoolers. Thirty minutes of aerobic exercises were provided daily for a period of 8 weeks for a group of 12 children while the remaining 12 children engaged in freeplay on the school playground. The children were given pretests and posttests on the following measures: a submaximal exercise test on a pediatric bicycle (baseline and three workloads), an agility test, a health knowledge test, a self-esteem scale, and an observational measure of their gross-motor activity. Despite comparability on pretests, significant group X repeated measures effects suggested that the aerobic exercise group showed decreases in heart rate at all three workloads as well as increases in agility and self-esteem following the exercise program. These findings suggest that cardiovascular fitness, agility, and self-esteem can be facilitated in preschoolers by an aerobic exercise program.

Reddy and Kumar (2001) conducted a study on yogasanas and aerobic dance and their effects on selected motor fitness components in girl subjects. The speed, shuttle run, agility, sit and reach to test flexibility and 9 min run/walk to test cardio respiratory endurance were conducted for control, yogasana and aerobic dance groups. The training was given for a period of 12 weeks with 10 subjects in each group. The data were analysed by 't' test, analysis of co-variance and post hoc test was done with Scheffes test. It was concluded that the practice of Yogasana improved significantly the speed, agility, **flexibility** and cardio-respiratory endurance, while practice of aerobic dance also improved significantly the above factors and there was no difference in between

yogasanas and aerobic dance groups after training with regard to the speed, agility, flexibility and cardio-respiratory endurance.

Maity and Samanta (2001) conducted a study on the effect of calisthenics and yogasanas on motor fitness status of fifth grade girls. Pre test and post test scores of Oregon Motor Fitness test obtained from the calisthenics group, yogasana group and control group were analysed by using 't' test after 12 weeks training. It was concluded that (i) improvement of motor fitness as assessed on Oregon Motor Fitness Test after 12 weeks of treatment justified the fact that both the programmers of calisthenics and yogasana were effective in developing motor fitness of fifth grade girls. (ii) Calisthenics exercise programme was found superior to yogasanas in improving performance in each individual test item of Oregon Motor Fitness test except crossed arm – curl ups.

Tiken, Kosana, Joy and Inaobi (2002) have conducted a study on influence of specific yoga and aerobic exercise on physical fitness of SAI (NERC IMPHAL) STC Athletes. 30 boys and 30 girls from SAI NERC Imphal were divided into two groups according to their mean age and height of 17.5 years and 15 years and 172.8 cms and 156.4 cms respectively. Training was given twice in a week for four months. Vertical jump to test explosive power, push ups and sit ups to test strength endurance, sit and reach to test flexibility, 50 yards dash to test speed and 12 min run walk to test endurance were conducted for aerobic exercise and yoga group before the training and after the two months and four months of training. It was concluded that (i) Improvement of physical fitness assessed on three selected physical fitness tests after four months of yoga and aerobic had justified the fact that both yoga and aerobic exercise were effective in developing physical fitness and (ii) in yoga and aerobic exercise groups, boys were found superior to girls group in sit and reach (flexibility) and 12 min run – walk (endurance), 50

yards (speed).

Tran, Holly, Iashbrook, Amsterdam (2001), had conducted a study on the effect of hatha yoga practice elicited improvement on the health – related aspects of physical fitness. Ten healthy, untrained volunteers (nine female and one male), ranging in age from 18-27 years, were tested on muscular strength and endurance, flexibility, cardiorespiratory fitness, body composition and pulmonary functions. Training was given two days in a week for a period of eight weeks. It was found out that regular hatha yoga can elicit improvement in the health – related aspects of physical fitness. The effect of yoga training on reaction time, respiratory endurance and muscular strength was investigated by Madan Mohan et al.(1993). Twenty seven subjects were given yoga training for 12 weeks to test the visual and auditory reaction time, maximum expiratory pressure, maximum inspiratory pressure, 40 mm kg test, breath holding time after expiration, breath holding time after inspiration, and hand grip strength. It was concluded that yoga practice for 12 weeks results in significant reduction in visual and auditory reaction times and significant increase in respiratory pressures, breath holding time and hand grip strength.

Lohan and Rajesh (2002) studied the effect of asanas and pranayamas on physical and physiological components of boys between age group 12-16 years. One hundred and twenty subjects were equally divided into asana, pranayama, combined and controlled groups. Ten weeks training programme was given to test the abdominal strength, speed, agility, power and endurance by using AAPHER Youth fitness test battery and blood pressure, heart rate, vital capacity and pulse rate. Pre test and post test scores were analysed by using ANACOVA. It was concluded that physical and physiological fitness was improved by the training of selected yogic exercise. The combined group of asanas

and prayanama showed significant improvement in the physical and physiological fitness parameters.

Chan, et al. (2001) made a study to determine the relationship between the psychometric profile and health related fitness of Chinese youths in Hong Kong. They selected 1,615 Chinese school boys as subjects. The physical self description questionnaire suggested by Marsh et al (1994) was used to provide psychometric profiles. Anaerobic fitness estimated from mile run, flexibility scores from sit and reach test, push up scores, curl up scores and percentage of body fat were also collected as health related fitness factors. The results indicated that health related fitness is highly related to psychometric items such as perceived sport competence, perceived activity level, perception of body fat and global physical self concept. These results indicated the promotion of psychometric self perception of youth. The fact that male adolescents have more positive physical self perception than female signify the need to reevaluate the social values concerning physical fitness and perception that were placed on youth.

Madan Mohan, et al. (2003) conducted a study on effect of yoga training on handgrip, respiratory pressures and pulmonary function, i.e. maximum expiratory pressure (MEP), maximum inspiratory pressure (MIP), forced expiratory volume (FEV), forced expiratory volume in first second (FEV1) and peak expiratory flow rate (PEFR). 20 school children in the age group of 12 to 15 years were given yoga training (asanas and pranayamas) for 6 months. 20 age and gender-matched students formed the control group. Yoga training produced statistically significant ($P < 0.05$) increase in HGS and HGE. MEP, MIP, FEV, FEV1 and PEFR also increased significantly ($P < 0.001$) after the yoga training. In contrast, the increase in these parameters in the control group was statistically insignificant. Our study shows that yoga training for 6 months improves lung

function, strength of inspiratory and expiratory muscles as well as skeletal muscle strength and endurance. It is suggested that yoga be introduced at school level in order to improve physiological functions, overall health and performance of students.

Harinathet. al.(2004) had conducted the study on Effects of Hatha yoga and Omkar meditation on cardiorespiratory performance, psychologic profile, and melatonin secretion. Thirty healthy men in the age group of 25-35 years volunteered for the study. They were randomly divided in two groups of 15 each. Group 1 subjects served as controls and performed body flexibility exercises for 40 minutes and slow running for 20 minutes during morning hours and played games for 60 minutes during evening hours daily for 3 months. Group 2 subjects practiced selected yogic asanas (postures) for 45 minutes and pranayama for 15 minutes during the morning, whereas during the evening hours these subjects performed preparatory yogic postures for 15 minutes, pranayama for 15 minutes, and meditation for 30 minutes daily, for 3 months. Orthostatic tolerance, heart rate, blood pressure, respiratory rate, dynamic lung function (such as forced vital capacity, forced expiratory volume in 1 second, forced expiratory volume percentage, peak expiratory flow rate, and maximum voluntary ventilation), and psychologic profile were measured before and after 3 months of yogic practices. Serial blood samples were drawn at various time intervals to study effects of these yogic practices and Omkar meditation on melatonin levels. Yogic practices for 3 months resulted in an improvement in cardiorespiratory performance and psychologic profile. The plasma melatonin also showed an increase after three months of yogic practices. The systolic blood pressure, diastolic blood pressure, mean arterial pressure, and orthostatic tolerance did not show any significant correlation with plasma melatonin. However, the maximum night time melatonin levels in yoga group showed a significant correlation ($r = 0.71$, $p < 0.05$) with well-being score. These observations suggest that yogic practices can be used as

psychophysiological stimuli to increase endogenous secretion of melatonin, which, in turn, might be responsible for improved sense of well-being.

2.4 STUDIES ON PHYSIOLOGICAL VARIABLES

R.K. Wallace (1992) In a study of 95 female Japanese university students, Cusumano and colleagues demonstrated comparable, significant reductions over time in blood pressure among men receiving 3 weekly training sessions in either Hatha Yoga or progressive muscle relaxation. Overall, these studies demonstrated a 4.9% to 24.2% decline in diastolic blood pressure and a 2.6% to 21.3% decline in systolic blood pressure with Yoga, with the magnitude of change varying with the study design and sample population.

Peter Lang (1997) studies from 6 countries including 24 controlled studies. Over 75% of these studies report improvement in blood pressure with yoga or yoga based interventions. In a cross sectional study of healthy middle-aged men with similar lifestyle characteristics, Vyas and colleagues found those with both short-term and long-term experience in Raja Yoga meditation had reduced diastolic blood pressure compared with those who were naïve to meditation of the 36 remaining studies evaluating change in baseline blood pressure with Yoga and Yoga-based programs, only 8 studies found no evidence of improvement, including a small German study of changes in healthy young female practitioners during a single Yoga session, of the 10 uncontrolled studies, of the 12 randomized controlled trials, and of the RCTs. Of the 4 uncontrolled and nonrandomized controlled trials with negative findings, all were small studies of healthy young Indian men that demonstrated no change in blood pressure, but an improvement in heart rate and / or this indicates of cardiovascular function 2 of the 4 studies included active Yoga asanas. RCTs yielding negative results included a 6 week study of healthy

British elderly and a 3 month study of healthy Indian boys that demonstrated no impact on blood pressure, but a significant reduction in heart rate and increase in heart rate variability in participants completing a Yoga program compared with those receiving an aerobic exercise program or no intervention.

Elson Barry(2004) In contrast, 28 eligible intervention studies published between 1970 and 2004 reported a beneficial effect of Yoga and Yoga-based programs on Blood pressure change. These include 8 uncontrolled studies of healthy and hypertensive adults, all but one of which were conducted in India. Most of these studies were small, with only including 25 participants or more. Among nonrandomized controlled trials, 9 studies of healthy adults with hypertension and / or CAD have demonstrated significant reductions in blood pressure among participants who completed a Yoga-based intervention relative to controls receiving an exercise, enhanced usual care, or no intervention. Likewise, 11 RCTs of healthy adults and patients with hypertension of this CVD risk factors have demonstrated significant blood pressure declines among subjects receiving a Yoga based intervention various controls receiving usual care, enhanced usual care with diet and exercise, social contact, place therapy, or no active intervention.

Marian Garfinkel et.al. (2004) The object of the study is Yoga as a complementary therapy by broadening Yoga's application beyond stress-related ailments to include preventative and curative therapies, physicians today have an advantage in treating patients illness and disorders. Specifically, Yoga therapy complements patient's traditional medical treatment of osteoarthritis and of this bone and joint disorders. Following anatomical guidelines, Yoga teachers can adapt postures (asana) to ensure patient's organs, joints, and bones are aligned to achieve physiologic changes. Recent studies performed by this author assessing the effect of yoga therapy on rheumatic diseases, such as osteoarthritis, and repetitive strain injuries, such as carpal tunnel

syndrome, showed that Yoga therapy caused physiologic changes, relieved pain and improved motion.

Krista, (2005) the object of the study is Yoga practice is associated with attenuated weight gain in healthy, middle-aged men and men. To examine when this Yoga practice is associated with lower mean 10-year weight gain after age 45. Participants included 15,550 adults, aged 53 to 57 years. Recruited to the Vitamin and Lifestyle (VITAL) cohort study between 2000 and 2002. Physical activity (including Yoga) during the past 10 years, diet, height, and weight at recruitment and at ages 30 and 45. All measures were based on self-reporting, and past weight at was retrospectively ascertained. Multiple regression analyses were used to examined covariate-adjusted associations between Yoga practice and weight change from age 45 to recruitment and polychotomous logistic regression was used to examine associations of Yoga practice with the relative odds of weight maintenance (within 5%) and weight loss (>5%) compared to weight gain. Yoga practice for four or more years was associated with a 3.1-lb lower weight gain among normal weight (BMI<25) participants (9.5lbs versus 12.6lbs) and an 18.5lb lower weight gain among over weight participants (-5 lbs versus 13.5lbs) (both P for trend <.001). Among over weight individuals 4 + years of Yoga practice was associated with a relative odds of 1.85(95% confidence interval (CI) 0.63 – 5.42) for weight maintenance (within 5%) and 3.88(95% CI 1.30-9.88) for weight loss (>5%) compared to weight gain (P for trend .026 and .003, respectively). Regular Yoga practice was associated with attenuated weight gain, most strongly among individuals who were overweight. Although casual inference from this observational study is not possible, results are consistent with the hypothesis that regular Yoga practice can benefit individuals who wish to maintain or lose weight.

Marieke Van Puymbroeck, (2006) The object of the study is A phase I Feasibility

study of Yoga on the Physical Health and Coping of Informal Caregivers family and friends who provide unpaid care to an individual with a disease or disability (known as informal care givers) experience numerous threats to their physical health as a result of providing care. In spite of evidence that participation in physical and leisure activities can be health promoting, informal caregivers have reported diminished or completely absent leisure participation. Hatha Yoga has documented therapeutic benefits, including reduced anxiety, as well as improved muscle strength and endurance and flexibility. The purpose of this study was to determine the feasibility of conducting an 8 week Yoga program with informal caregivers, and together pilot data on the effects of Yoga on the physical fitness and coping of informal caregivers. Caregivers were randomized into a Yoga intervention (n=8) or control group (n=9). The Yoga sessions were 2.5 hours/week for 8 weeks and consisted of a variety of pranayama (breathing) and asana(postures) activities and were by a certified Yoga Instructor. Four caregivers (two in each group) dropped out of the study. After the conclusion of the 8 week Yoga program, lower body strength increased significantly for those in the Yoga group and of this notable trends occurred in terms of coping. Upper body strength and aerobic endurance. Caregivers in the control group experienced in a Yoga program may receive some benefits. Future studies are encouraged to test the efficacy of yoga as an intervention for caregivers.

Guarracino (2006) Yoga participation is Beneficial to Hypertension control and positive quality of life. The objective of this study was to evaluate the effects of hatha and relaxation yoga on Blood pressure, and quantity of life. Seventy healthy men and men aged 18 years or order completed a survey. A statistically significant body mass index for Hypertension (30.0) was observed ($P<001$). A significant lower systolic blood pressure was detected in the 1 to 4 year Yoga participant group as compared to less than 1 year Yoga group ($P<023$). The mean total mood disturbance score was 5.04, indicating the

survey participants scored a positive mood state. Hatha and relaxation Yoga had a statistically significant role in, Hypertension and mood.

MadanMohan,(2008) The object of the study was designed to test where this Yoga training for six weeks duration modulates sweating response to dynamic exercise and improves respiratory pressures, handgrip strength and handgrip endurance. Out of 46 healthy subjects (30 males and 16 females, aged 30-45 yrs) 23 motivated subjects (15 male and 8 female) were given Yoga training and the remaining 23 subjects served as controls. Weight loss following Harvard step test (an index of sweat loss), maximum inspiratory pressure, maximum expiratory pressure, 40 mm endurance, handgrip strength and handgrip endurance were determined before and after the six weeks study period. In the Yoga group, weight loss in response to Harvard step test was 64+/-30g after Yoga training as compared to 161+/-133g before the training and the difference was significant(n=15 male subject, p<0.0001). In contrast, weight loss following step test was not significantly different in the control group at the end of the study period. Yoga training produced a marked increase in respiratory pressures and endurance in 40 mm Hg test in both male and female subjects (p<0.05 for all comparisons). In conclusion, the present study demonstrates attenuation of the sweating response to step test by Yoga training. Further this Yoga training for a short period of six weeks can produce significant improvements in respiratory muscle strength and endurance.

Chiriac S, et.al. (2002) made a study on “The beneficial effect of physical training in hypertension” and reported that Hypertension is present in epidemic proportion and is associated with a markedly increased risk of developing numerous cardiovascular disorders. All current treatment guidelines emphasise the role of nonpharmacological interventions, physical activity included, in the treatment of mild to moderate hypertension. In patients with diabetes, cardiovascular disease or with stage 2 or 3

hypertension, drug therapy should be initiated first. Dynamic exercise of moderate intensity, 50-75% VO₂max, (e.g. brisk walking, cycling) for 50-60 minutes, 3-5 times per week, is preferable to vigorous exercise because it appears to be more effective in lowering blood pressure. In addition to reducing hypertension, physical activity improves other cardiovascular risk factors.

Makwana et.al. (1988) selected 25 normal male volunteers undergoing a ten weeks course in the practice of yoga have been studied by some parameters of ventilatory functions tests. The observations recorded at the end of ten weeks of the course have shown improved ventilatory functions in the form of lowered respiratory rate, increased forced vital capacity, FEV₁, maximum breathing capacity and breath holding time, while tidal volume and %FEV₁, did not reveal any significant change. Thus, a combined practice of yoga seems to be beneficial on respiratory efficiency.

S Mukhopadhyaya et al (2001) Effect of yogic exercises on physical and mental health of young fellowship course trainee A study was undertaken to observe any beneficial effect of yogic practices during training period on the young trainees. 54 trainees of 20-25 years age group were divided randomly in two groups i.e. yoga and control group. Yoga group (23 males and 5 females) was administered yogic practices for the first five months of the course while control group (21 males and 5 females) did not perform yogic exercises during this period. From the 6th to 10th month of training both the groups performed the yogic practices. Physiological parameters like **heart rate**, blood pressure, oral temperature, skin temperature in resting condition, responses to maximal and sub maximal exercise, body flexibility were recorded. Psychological parameters like personality, learning, arithmetic and psychomotor ability, mental well being were also recorded. Various parameters were taken before and during the 5th and 10th month of

training period. Initially there was relatively higher sympathetic activity in both the groups due to the new work/training environment but gradually it subsided. Later on at the 5th and 10th month, yoga group had relatively lower sympathetic activity than the control group. There was improvement in performance at submaximal level of exercise and in anaerobic threshold in the yoga group. Shoulder, hip, trunk and neck flexibility improved in the yoga group. There was improvement in various psychological parameters like reduction in anxiety and depression and a better mental function after yogic practices.

Monika Mourya, et al (2009) Breathing exercises practiced in various forms of meditations such as yoga may influence autonomic functions. This may be the basis of therapeutic benefit to hypertensive patients. Design: The study design was a randomized, prospective, controlled clinical study using three groups. Subjects: The subjects comprised 60 male and female patients aged 20-60 years with stage 1 essential hypertension. Intervention: Patients were randomly and equally divided into the control and other two intervention groups, who were advised to do 3 months of slow-breathing and fast-breathing exercises, respectively. Baseline and postintervention recording of blood pressure (BP), autonomic function tests such as standing-to-lying ratio (S/L ratio), immediate heart rate response to standing (30:15 ratio), Valsalva ratio, heart rate variation with respiration (E/I ratio), hand-grip test, and cold pressor response were done in all subjects. Results: Slow breathing had a stronger effect than fast breathing. BP decreased longitudinally over a 3-month period with both interventions. S/L ratio, 30:15 ratio, E/I ratio, and BP response in the hand grip and cold pressor test showed significant change only in patients practicing the slow-breathing exercise. Both types of breathing exercises benefit patients with hypertension. However, improvement in both the sympathetic and parasympathetic reactivity may be the mechanism that is associated in

those practicing the slow-breathing exercise.

Barnes, et al (2004) studied the “Impact of meditation on resting and ambulatory blood pressure and heart rate in youth”. Researchers at the Medical College of Georgia, in Augusta, GA, investigated the effects of meditation on blood pressure and heart rate in youth. 73 middle school students were randomly assigned to either a meditation group (N = 34) or a health education control group (N = 39) group. The meditation group meditated for 10 minutes at school *and* after school (at home) every day for 3 months. Blood pressure and heart rate were measured pre-test and post-test (after the 3 months). Ambulatory measurements were recorded over 24-hour periods at pretest and post test every 20 minutes during self-reported normal waking hours and every 30 minutes during self-reported normal sleep hours. Students in the meditation group showed a significant decrease in resting blood pressure, daytime ambulator blood pressure after school, and daytime ambulatory heart rate after school. These findings demonstrate the potential beneficial impact of meditation on blood pressure and heart rate in the natural environment in healthy normotensive youth.

Madanmohan Udupa K., et al (2004). “Modulation of cardiovascular response to exercise by yoga training” This study reports the effects of yoga training on cardiovascular response to exercise and the time course of recovery after the exercise. Cardiovascular response to exercise was determined by the Harvard step test using a platform of 45 cm height. The subjects were asked to step up and down the platform at a rate of 30/min for a total duration of 5 min or until fatigue, whichever was earlier. Heart rate (HR) and blood pressure response to exercise were measured in the supine position before exercise and at 1, 2, 3, 4, 5, 7 and 10 minutes after the exercise. Exercise produced a significant increase in HR, systolic pressure and a significant decrease in diastolic pressure. After two months of yoga training, exercise-induced changes in these

parameters were significantly reduced

2.5 STUDIES ON PSYCHOLOGICAL VARIABLES

Hismann-C (1983) A review of the 747 identified papers that used HADS was performed most factor analyses demonstrated a two-factor solution in good accordance with the HADS subscales for Anxiety (HADS-A) and depression (HADS-D), respectively.

The correlations between the two subscales varied from .40 to .74(mean .56). Cronbach's alpha for HADS-A varied from .68 to .93(mean.83) and for HADS-D from .67 to .90(mean.82). In most studies an optimal balance between sensitivity and specific was achieved when caseness was defined by a score of 8 or above on both HADS-D. The sensitivity and specific for both HADS-A and HADS-D of approximately 0.80 were very similar to the sensitivity and specific achieved by the General Health Questionnaire (GHQ). Correlations between HADS and of this commonly used questionnaires were in the range .49 to .83. CONCLUSIONS: HADS was found to perform well in assessing the symptom severity and causes of anxiety disorders and depression in both somatic, psychiatric and primary care patients and in the general population.

James Raubet.al.(2001) In a study of 4105 normal intensive young adults, Mathews and colleagues report that an exaggerated blood pressure response to the cold pressure test or certain standardized forms of Psychological stress and study skills predict the subsequent development of hypertension over 13 years. An increase in blood pressure is an expected physiological response, and It remains uncertain whether exaggerated response relate to the pathogenesis of the disease. Nevertheless, these results raise the possibility that this type of stress test might be used to identify individuals at risk for hypertension, providing improved opportunities for primary prevention.

Necklemann.D (2003) The objective of this study was to test the reliability and validity of the Iranian version of the European Organization for research and Treatment of Cancer(EORTC) Quality of Life Questionnaire (QLQ-C30). The English-Language version of the questionnaire was translated into Persian(Iranian Language), and its final form was approved by the EORTC study Group on Quality of Life before it was used in this study. The questionnaire was administrated at two time points to a consecutive sample of 168 newly diagnosed breast cancer patients, and almost all of them(99%) found the questions easy to understand and acceptable. Crohnbach's alpha coefficient for multi-item scales (to test reliability) ranged from 0.48 to 0.95 at base line and from 0.52 to 0.98 at follow-up administration of the questionnaire. Validity was inter-scale corrections were statistically significant in the expected direction. Known-group comparison analysis showed that all functioning and symptom scales discriminated between subgroups of patients differing in clinical status as defined by their performance status and disease stage. In general, the findings of this study indicate that the Iranian version of the EORTC QLQ –C30 is reliable and valid measure of quality of life in cancer patients and can be used in clinical trials and studies of outcome research in oncology.

Diane Morse (2003) A cross-sectional study with a structured interview. Setting Emergency department(ED) in an urban academic medical centre. Participants: adult patients and visitors. Interventions: Educational materials and community resource information. Results: 51 patients and 71 visitors (N=122) met the inclusion criteria and consented to enrollment during a 2 week study period. Of the participants, 71% were female and 29% were male. Sixty-five (53%) of the participants noticed the literature or cards. Ten (8%) read the materials. Seven (6%) retained a copy of the literature. Nineteen (16%) of the participants acknowledged knowing someone who could benefit from the

information. Nine (7%) revealed that some of the information was new to them. Conclusions: Placing intimate partner violence resource pamphlets and cards in a medical setting is one means of educating the community and promoting violence prevention.

Michael T. Smith, (2005) In this study four meta-analytic reviews support the efficacy of pharmacotherapy and behavior therapy for the treatment of insomnia, no meta-analysis has evaluated whether these treatment modalities yield comparable outcome during acute treatment. The authors conducted a quantitative review of the literature on the outcome of the two treatments to compare the short-term efficacy of pharmacotherapy and behavioral therapy in primary insomnia. Chronic insomnia is highly prevalent in cancer patients. Cognitive-behavioral therapy (CBT) is considered the treatment of choice for chronic primary insomnia. However, no randomized controlled study has been conducted on its efficacy for insomnia secondary to cancer. Using a randomized controlled design, this study conducted among breast cancer survivors evaluated the effect of CBT on sleep, assertiveness assessed both subjectively and objectively, and on hypnotic medication use, psychological distress, and quality of life.

Kenneth M.A. Macmahon (2004) Results of 3840 studies identified, 37 reported employment status and some measure of mental or physical impairment associated with disability. Most patients with CFS in these studies were unemployment. In 122 studies, the employment status control subjects were also available. Only depression seemed to be associated with unemployment in patients with CFS. No of this measureable impairment seemed to be consistently associated with disability or work outcomes. Only cognitive behavior therapy, rehabilitation, and exercise therapy interventions were associated with restoring the ability to work. No specific patient characteristics were identified as best predictors of positive employment outcomes. No quantitative syntheses of results were performed.

Beddoe A.E. (2008) To examine published evidence on the effectiveness of mind body interventions during pregnancy on received stress, mood and prenatal outcomes. Twelve out of 64 published intervention studies between 1980 and February 2007 of healthy, adult pregnant men met criteria for review. Studies were categorized by type of mind-body modality used. Progressive muscle relaxation was the most common intervention; Of this studies used a multimodal psycho education approach or a Yoga and meditation intervention. The research contained methodological problems, primarily absence of a randomized control group or failure to adequately control confounding variables. Nonetheless there was modest evidence for the efficacy of mind-body modalities during pregnancy. Treatment group outcomes included higher birth weight, shorter length of labor, fewer instrument-associated births, and reduced perceived stress and anxiety. There is evidence that pregnant women have health benefits from mind-body therapies used in conjunction with conventional prenatal care. Further research is necessary to build on these studies in order to predict characteristics of subgroups that might benefit from mind-body practices and examine cost effectiveness of these interventions on prenatal outcomes.

J.ALLEN (2006) from a total of 82 identified studies, 20 randomized controlled trials met our criteria. The studies included 958 subjects total (397 experimentally treated, 561 controls). No serious adverse events were reported in any of the included or excluded clinical trials. Serious adverse events are reported in the medical literature, though rare. The strongest evidence for efficacy was found for epilepsy, symptoms of the premenstrual syndrome and menopausal symptoms. Benefit was also demonstrated for mood and anxiety disorders, auto immune illness, and emotional disturbance in neoplastic disease. The results support the safety and potential efficacy of meditative practices for treating certain illness, particularly in no psychotic mood and anxiety disorders. Clear and

reproducible evidence supporting efficacy from large, methodologically sound studies is lacking.

K.N.Utupa (1971) Eligible studies investigating the influence of yoga on measures of oxidative stress, including 2 uncontrolled clinical trials, 2 nonrandomized controlled clinical trials, and one RTC. All but one of these studies was conducted in India, and all provide evidence that Yoga may reduce oxidative stress in both healthy populations and those with chronic IRS- related disorders. In uncontrolled studies of Indian adults with uncomplicated diabetes mellitus, or hypertension, investigators demonstrated significant reductions in malonyldialdehyde (MDA), a circulating product of lipid per oxidation, following a 40-day yoga training course and a 12-week Yoga lifestyle intervention, respectively. In agreement with these findings, nonrandomized controlled trials have shown significant reductions in MDA and of this markers of oxidative stress in healthy young men completing a 10-week to 5-month Yoga training program relative to matched untrained controls. Observed changes in of this oxidative Stress indicates includes increases in antioxidants and ant oxidative enzymes, and reductions in free radicals. Offering further support for a direct effect of Yoga on oxidative stress. Sharma et al. documented significant improvement in several of these indicates among trained participants during a single Yoga session when compared with controls during rest. Similarly, in RCT of 44 Thai patients with CAD, Jatuporn et al. found those receiving a 4 month Yoga-based lifestyle modification program but no medication showed significant increases in blood antioxidants relative to usual care controls, although MDA levels did not differ between groups.

M.A. Wanger (1972)⁷ Studies reviewed above offer support for a possible beneficial influence of Yoga oxidative stress and coagulation profiles, at least in certain populations. Limitations of these studies include lack of appropriate comparison groups,

small sample sizes, possible selection bias or uncontrolled confounding by lifestyle and of this factors, lack of randomization, inadequate information regarding the study population, subject selection, intervention, or analytic methods, multiple interventions, and problems with data analysis or presentation. In addition blinding of outcome assessment was not well-reported from primarily sympathetic to parasympathetic. Key changes, reviewed briefly below, include significant reductions in respiratory and heart rate, in cortisol concentrations, catecholamine levels, and remain activity, in skin conductance, and in cardiovascular response to stress, as well as significant increases in **Adjustment** variability and bar reflex sensitivity.

Raub.J.A. (2002) numerous studies have investigated the effects of Yoga on markers of sympathetic/parasympathetic activation and cardiovascular function. The search identified a total of 42 studies from 6 countries, including 2 cross-sectional studies, 15 uncontrolled clinical trials, 16 nonrandomized controlled trials, and 9 RCTs. Although some studies have yielded inconsistent results, over 85% offer some evidence that Yoga promotes a reduction in sympathetic activation, enhancement of cardiovascular function, and a shift autonomic nervous system balance.

Roney – Dousal (1999) 27 Studies investigating the effect of Yoga on heart and/or respiratory rate, only 2 studies showed no change in either index, including a nonrandomized controlled study of 10 young athletes and an RCT of healthy young men. However, both of these latter studies demonstrated improvement in of this indicates of cardiovascular function. In contrast, 25 eligible intervention studies reported a beneficial effect of Yoga and Yoga-based programs on base line heart rate, and/or heart rate after exercise. Seven studies (of 8 totals) have documented a 3.8% to 60.3% reduction in respiratory rate with Yoga relative to baseline and/or controls receiving usual care or an aerobic exercise program (Table 5). These investigations include studies in healthy adults

and children, as well as in hypertensive adults. Similarly, 21 of 24 total clinical trials reported a 4.3% to 38.8% decline in heart rate relative to baseline, engagement in a relaxing, non yogic activity and/or controls receiving usual care, an aerobic exercise program or no controls receiving usual care, an aerobic exercise program, or no intervention. These trials included studies of healthy and hypertensive adults and of healthy children.

Malathi (2001) in a cross-sectional study of healthy middle-aged men, Vyas and colleagues found those who had been practicing Yoga meditation for 5 years or more to have significant lower baseline heart rates than those who with no meditation experience. Of those clinical trial demonstrating positive effects, Yoga practice was associated with a 3.8% to 60.3% reduction respiratory rate and a 4.3% to 38.8% decline in heart rate.

Vasudevan, A., et al (1994) examined the effects of Yogic meditation in tension headache and anger. 7 Ss with tension headache and high state and trait anger levels were taught and underwent 30 sessions of yogic meditation. Single group design with multiple assessment was used; pre, mid, and post assessments were made using psycho physiological measures. Results indicate no statistically significant reduction in the frontalis muscle tension and skin conductance, although clinically there was a decline. Statistically significant reduction in pain perception was observed. Yogic meditation was effective in reducing tension headache and in the state and trait anger levels.

Panjwani, U., et al C.(1995) studied the Effect of Sahaja yoga practice on stress management and self confidence in patients of epilepsy. The study was carried out on 32 patients of epilepsy who were randomly divided into 3 groups: group I subjects practiced Sahaja yoga meditation for 6 months, group II subjects practiced postural exercises mimicking Sahaja yoga and group III served as the epileptic control group. Galvanic skin resistance (GSR), blood lactate and urinary vinyl mandelic acid (U-VMA) were recorded

at 0, 3 and 6 months. There were significant changes at 3 & 6 months as compared to 0 month values in GSR, blood lactate and U-VMA levels in group I subjects, but not in group II and group III subjects. The results indicate that reduction in stress following Sahaja yoga practice is responsible for clinical improvement.

DiBenedetto M, et al (2000) examined if a tailored yoga program could improve age-related changes in hip extension, stride length, and associated indices of gait function in healthy elders, changes that have been linked to increased risk for falls, dependency, and mortality in geriatric populations. A 3-dimensional quantitative gait evaluation, including kinetic measurements, was performed pre- and post intervention. Twenty-three healthy adults (age range, 62-83 y) who were naive to yoga were recruited; 19 participants completed the program. An 8-week Iyengar Hatha yoga program specifically tailored to elderly persons and designed to improve lower-body strength and flexibility. Participants attended two 90-minute yoga classes per week, and were asked to complete at least 20 minutes of directed home practice on alternate days. Findings of this exploratory study suggest that yoga practice may improve hip extension, increase stride length, and decrease anterior pelvic tilt in healthy elders, and that yoga programs tailored to elderly adults may offer a cost-effective means of preventing or reducing age-related changes in these indices of gait function.

2.6 SUMMARY OF REVIEW OF RELATED LITERATURE

The investigator has compiled and reviewed all the literature and professional reviews related to Yogic Practices with and without diet modifications on physical, physiological and psychological variables from the library of TNPESU and the material available on the internet to provide sufficient knowledge to the readers and comparative analysis of the present study. The reviews show that there is significant positive impact of Yogic Practices with and without diet modifications on physical, physiological and psychological variables. The investigator has found very less studies made on Yogic Practices with and without diet modifications. Based on the experience gained the investigator formulated suitable methodology to be applied in this research that is presented in chapter III.