

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 more knowledge which 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 for one to formulate such a reviews for various scholars' work. This can bring out a deep insight and clear perspective of the overall field in such reviews. Such collected reviews have been presented in logical order, in order of 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 is given as follows.

STUDIES ON PHYSIOLOGICAL VARIABLES

Bowman, et al., (2007) examined the age-associated reduction in baroreflex sensitivity modifiable by exercise training. The effects of aerobic exercise training and yoga, a non-aerobic control intervention on the baroreflex of elderly persons was determined. Baroreflex sensitivity was quantified by the α -index, at high frequency (HF; 0.15–0.35 Hz, reflecting parasympathetic activity) and mid-frequency (MF;

0.05–0.15 Hz, reflecting sympathetic activity as well), derived from spectral and cross-spectral analysis of spontaneous fluctuations in heart rate and blood pressure. Twenty-six (10 women) sedentary, healthy, normotensive elderly (mean 68 years, range 62–81 years) subjects were studied. Fourteen (4 women) of the sedentary elderly subjects completed 6 weeks of aerobic training, while the other 12 (6 women) subjects completed 6 weeks of yoga. Heart rate decreased following yoga (69 ± 8 vs. 61 ± 7 min⁻¹, $P < 0.05$) but not aerobic training (66 ± 8 vs. 63 ± 9 min⁻¹, $P = 0.29$). $\dot{V}O_2$ max increased by 11% following yoga ($P < 0.01$) and by 24% following aerobic training ($P < 0.01$). No significant change in αMF (6.5 ± 3.5 vs. 6.2 ± 3.0 ms mmHg⁻¹, $P = 0.69$) or αHF (8.5 ± 4.7 vs. 8.9 ± 3.5 ms mmHg⁻¹, $P = 0.65$) occurred after aerobic training. Following yoga, αHF (8.0 ± 3.6 vs. 11.5 ± 5.2 ms mmHg⁻¹, $P < 0.01$) but not αMF (6.5 ± 3.0 vs. 7.6 ± 2.8 ms mmHg⁻¹, $P = 0.29$) increased. Short-duration aerobic training does not modify the α -index at αMF or αHF in healthy normotensive elderly subjects. αHF but not αMF increased following yoga, suggesting that these parameters are measuring distinct aspects of the baroreflex that are separately modifiable.

Campbell em, et al., (2003) centre for health advancement, Wallsend, New South Wales, Australia. Premenstrual symptoms in general practice patients. To examine the rates of premenstrual symptoms in Australian patients, the treatments they had tried for such symptoms, the perceived effectiveness of these treatments, and the proportion of women who reported that they had sought help for premenstrual symptoms and whether women perceived the need for additional help in dealing with premenstrual symptoms. Characteristics associated with higher symptom levels and desires for help were examined. Study design: a cross-sectional survey of 310 general practices patients aged 18-45 years and who had reported having had a menstrual

period in the previous three months. Results: between 11% and 32% of women reported severe or extreme changes during the premenstrual phase on each of the 10 symptoms in the short premenstrual assessment form, with the highest rates for affective symptoms. Eighty-five percent of women reported that they had tried treatments for premenstrual symptoms, and many reported having tried multiple treatments. The most commonly tried treatments included pain killers rest, drinking more fluid and exercise, which had been tried by at least one-third of women. When women were asked to nominate up to three treatments they had tried and found most effective, the most commonly mentioned were dietary changes, evening primrose oil, vitamins (including b6) and exercise. Approximately 50% of the women had sought help, most commonly from a general practitioner and 45% reported that they would like more help dealing with premenstrual symptoms. Higher overall symptom scores were associated with a history of endometriosis, a lower education level, and not taking oral contraceptives, taking evening primrose oil and taking vitamin b6. Conclusion: there is a need to further refine, through evaluation of different approaches, programs and resources, ways to effectively help women who report premenstrual symptoms and would like help to deal with them.

Gore, M.M. (2001) conducted the study of “Physiological response on six students of yoga” who recited Aum for 10 times in low pitch (LAUM) and high pitch (HAUM) on separate days, the polygraph recording was done before during and after Aum recitation. It was revealed that during HAUM heart rate eye movements and chin muscle activity increased significantly, reduced eye movements , Blood pressure and heart rate during LAUM was not significant, Although the relaxation after both types of recitation was similar as judged through Heart rate, Respiration rate and blood pressure, subjects reported better feeling of relaxation after LAUM.

Harinath (2004) evaluated “Effect of hathyoga and omkar meditation on cardio-respiratory performance, psychologic profile and melatonin segregation”. Thirty healthy men in the group of 25-35 years volunteered for the study, they were randomly divided into 2 groups of 15 each, group 1 subjects served as controls and performed bodily 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 for 45 minutes and pranayama for 15 minutes during morning, whereas during evening hours these subjects performed preparatory yogic postures for 15 minutes and meditation 30 minutes daily for three months. Orthostatic tolerance, Heart rate, Blood pressure, Respiratory rate, dynamic lung functions and psychologic profile was measured before and after 3 months of yogic practices. Serial blood samples were drawn at various time intervals to study effect of these yogic practices and Omkar Meditation on melatonin levels, Yogic practices for three months resulted in an improvement in cardio respiration performance and psychological profile. The plasma melatonin also showed an increase after 3 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, maximum night time melatonin levels in yoga group showed significant correlation with wellbeing score.

Blank SE. (2006) conducted a “Study with the aim to evaluate acute physiological responses to Hatha yoga asanas (poses) practiced in the Iyengar tradition.” Preliminary data were collected on the impact of postural alignment on physiological responses. Intermediate/advanced level yoga practitioners (n=15 females) were monitored for respiratory rate, oxygen uptake (VO_2), and brachial arterial blood pressure (n = 9) during a 90 min practice. The subjects, aged 43.5 ± 6.9

yr , had current weekly practice of 6.2 ± 2.4 hr/week and practice history 9.2 ± 7.2 yr. Physical characteristics of the subjects included: height body mass and percent body fat. The practice included supine, seated, standing, inversions, and pushes up to back arch asanas maintained for 1-5 min. Physiological responses were significantly greater in standing asanas, inversions, and push up to back arch versus supine and seated asanas. However, postural alignment significantly influenced respiratory rate, blood pressure responses indicating that adherence to precise alignment has relevant physiological consequences for the yoga practitioner.

Telles S, et al., (2006) conducted the “Study on Post traumatic stress symptoms and heart rate variability” in Bihar flood survivors following yoga at Department of Yoga Research, Patanjali Yogpeeth, Delhi-Haridwar Highway Haridwar, India. They select Twenty-two volunteers (group average age 31.5 ± 7.5 years; all of them were males) were randomly assigned to two groups, yoga and a non-yoga wait-list control group. The yoga group practiced yoga for an hour daily while the control group continued with their routine activities. Both groups' heart rate variability, respiratory rate, and four symptoms of emotional distress using visual analog scales, were assessed on the first and eighth day of the program. As a result there was a significant decrease in sadness in the yoga group and an increase in anxiety in the control group. Finally they concluded a week of yoga can reduce feelings of sadness and possibly prevent an increase in anxiety in flood survivors a month after the calamity.

Sarang PS, et al., (2006) conducted the “Study on Oxygen consumption and respiration during and after two yoga relaxation techniques” at Swami Vivekananda Yoga Research Foundation, Bangalore, India. In Cyclic meditation (CM) is a technique which combines "stimulating" and "calming" practices, the oxygen

consumption, breath rate and breath volume of 50 male volunteers were assessed before, during, and after sessions of CM and sessions of supine rest in the corpse posture (shavasana, SH). The oxygen consumption, breath rate and breath volume increased during the "stimulating" practices of CM, returned to the baseline during the "calming" practices, and the oxygen consumption decreased after CM. During the SH session the oxygen consumption, breath rate and breath volume reduced; however the decrease in oxygen consumption after SH was less than after CM. The results support the idea that a combination of yoga postures with supine rest (in CM) reduces the oxygen consumption more than resting supine alone does.

Patra S, et al., (2009) conducted the “Study on respiratory Rate Variability During Sleep Following the Practice of Cyclic Meditation and Supine Rest” at SVYASA, Bangalore, India. In the present study, on thirty male volunteers, CM was practiced twice in the day and after this the RRV was recorded (1) while awake and (2) during 6 h of sleep (based on EEG, EMG and EGG recordings). This was similarly recorded for the night's sleep following the day time practice of SR. Participants were randomly assigned to the two sessions and all of them practiced both CM and SR on different days. During the night following day time CM practice there were the following changes; a decrease in heart rate, and an increase in the number of pairs of Normal to Normal RR intervals differing by more than 50 ms divided by total number of all NN intervals. No change was seen on the night following SR. Hence yoga practice during the day appears to shift sympatho-vagal balance in favor of parasympathetic dominance during sleep on the following night.

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 submaximal 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.

Pramanik T, et al., (2008), conducted the “Study on Immediate effect of slow pace bhastrika pranayama on blood pressure and heart rate” at Department of Physiology, Nepal Medical College, Kathmandu, Nepal. They select Heart rate and blood pressure of volunteers (n = 39, age = 25-40 years) was recorded. After 5 minutes of this breathing practice, the blood pressure and heart rate again were recorded in the aforesaid manner using the same instrument. The other group (n = 10) took part in another study where their blood pressure and heart rate were recorded following half an hour of oral intake of hyoscine-N-butylbromide 20 mg. Then they practiced the breathing exercise, and the abovementioned parameters were recorded again to study the effect of parasympathetic blockade on the same pranayama. It was noted that after slow bhastrika pranayamic breathing, both the systolic and diastolic blood pressure decreased significantly slow pace bhastrika pranayama (respiratory rate 6/min) exercise thus shows a strong tendency to improving the autonomic

nervous system through enhanced activation of the parasympathetic system.

Gore, et al., (2003) investigated the effects of yoga and aerobics training on cardio respiratory functions in obese people. As an outcome of one month programme of weight reduction using yoga practice and aerobics , Female residential Yoga Group (FRYG) of 25-40 age range, showed a significant and consistent reduction in systolic blood pressure(SBP) in all the testing sessions. Their Peak Expiratory Flow Rate (PEFR) also improved in two of the follow up (FU) testing sessions. FRYG of 41-70 age range reduced their SBP significantly in two of the FU sessions as well as a significant increase in the PEFR was recorded. Pulse rate (PR) did not show significant change. FNYRG (Female Non- Residential Yoga Group) of 25-40 age range with the normal BP and PR initially, showed a significant reduction in DBP in two of the FU testing sessions, while the increase in the PEFR was not significant. FNRYG of age 41-70 showed a significant improvement in PEFR in post -test and first FU; yet reduction in BP was not significant statistically. Female Aerobic Group (FAG) of age range 25-40 showed non significant reduction in BP and PEFR. However FAG of age range 41-70 reduced their BP significantly in 2nd, 3rd, and 6th FU, but their PEFR and PR did not change significantly. Male Residential Yoga Group (MRYG) of 41-70 age range did not show significant change in BP, and PEFR, however, MAG (Male Aerobic Group) of same age range showed significant reduction in SBP only, in one of the FU testing sessions. Their PEFR showed non-significant reduction. MAG of age range 25-40 showed non significant reduction in BP and PEFR.

Govindarajalu et al., (2003) investigated the effect of yoga practices on flexibility and cardio respiratory endurance on high school girls. Sixty high school girls were volunteered in a pre experimental group design, where the practice of

selected yoga practices was given at an intervention to the experimental group 'A' (n1=30) for a period of eight weeks. The control group 'B' (n1=30) was not allowed to participate in the experimental treatment. The pre and post tests were conducted on flexibility and cardio respiratory endurance. The results of ANOVA revealed that there was an improvement in the flexibility and no significant change was evident in the cardio respiratory endurance. Thus, short term yoga is useful in improving flexibility, but not the cardio respiratory endurance, even at the stage of puberty in girls.

Johnson Premkumar and Mariayyah (2006) analyzed the effect of selected yogic practices and physical exercises in amplifying the cardio respiratory endurance among the residential male college students. With the assistance and help of the experts in the field of yoga, sports and previous researches on these areas, a comprehensive and suitable yoga package and a physical exercise package was evolved. Sixty residential male college students were selected at random and divided into three groups of twenty each namely, Group A, Group B and group C. The first two groups are experimental groups and the third group is a control group. The experimental group A underwent a designed yogic practices training for three months and similarly the group B was treated with designed physical exercises. The control group (group C) did not undergo any special training. The status of cardio respiratory endurance of all the groups was measured through Cooper's 12 Minutes run/walk test and was recorded as initial scores. The same test was administered after three months of specific training and was recorded as the post test. The obtained pre test and post test were analysed by using Analysis of Covariance for significant improvements. Post- hoc test was applied to find out the better group among the three. The designed

training package was suitable and made positive training impacts on cardio respiratory endurance among the subjects at various levels.

Nandi, et al., (2004) studied the effects of Aerobic exercise, Yogic Practice and the combination of both on Cardio respiratory endurance. Eighty school boys (9th and 10th grade) were randomly selected and then sub divided into four equal groups (n=20 in each group). Three training programmes viz., aerobic exercise, Yogic practice and combination of aerobic exercise and yogic practice were randomly allotted to three groups, where the remaining one group was the control. The performance on cooper's test (12 minutes run or walk) of all the three groups were recorded before and after 12 weeks training programmes. Result of ANCOVA reveals that the aerobic group showed greater cardio respiratory endurance ability. However the yogic practices group as well as the combination of aerobic exercises and yogic practice also have a significant improvement on the development of greater cardio respiratory endurance (post test f value=3.785.2.73 at .05 level)

Rube Jesintha and John Parthiban (2007) Studied the influence of yogic practices on resting pulse rate , breath holding time and cardio respiratory endurance of school Khokho players. For the study 32 school girls who were studying in Government Higher Secondary school in Kalanivasal, Pudukkottai District, Tamilnadu, India were selected as randomly and assigned to two groups. Group I underwent yogic practices (n=16) and Group II (n=16) acted as control group. The data collected from the groups were statistically analyzed with analysis of covariance (ANCOVA). Resting pulse rate, Breath holding time and cardio respiratory rate showed significant difference between the groups.

Oken, et al., (2006) examined randomized, controlled, six-month trial of yoga in healthy seniors and the effects on cognition and quality of life. The yoga

intervention produced improvements in physical measures (eg, timed 1-legged standing, forward flexibility) as well as a number of quality-of-life measures related to sense of well-being and energy and fatigue compared to controls.

Pullon sr, reinken ja, sparrow mj. Treatment of premenstrual symptoms in Wellington Women. Royal New Zealand College of general practitioners, Wellington faculty. Abstract a survey of 1826 women in the Wellington region was carried out. Participants were asked about their general and gynaecological health, as well as detailed questions about their last menstrual cycle. The majority (1456) had had a menstrual period within the last month or so. eighty five percent of these women noted premenstrual symptoms of some kind, and were asked about a variety of self-help measures, and medical help, for these, and whether the advice and/or treatment was in fact helpful. Nine hundred and ninety women had tried self-help while four hundred and sixteen had sought medical help. The most commonly tried self-help measures were exercise, rest and vitamin b6. Half the women had tried each of these. Overall, there was a marked placebo response, but exercise, rest and keeping a written diary of symptoms were all helpful in over eighty percent of those who tried them. Doctors offered a wide range of treatments, including vitamin b6, diuretics, oral contraceptives and mefanamic acid, but the effect of these was difficult to evaluate further. When the sample was subdivided into clusters of women who shared similar symptoms, significant differences in the effectiveness of different self help measures emerged. four different premenstrual syndromes are suggested: PMS-breast, PMS-bloat, PMS-irritable and intolerant, and PMS-various.

Sakthignanavel, (1998) investigated the effect of pranayama with Aerobic exercise with Aerobic fitness. There are evidences that the practice of pranayama and aerobic exercises improves physical and mental performance. The present

investigation was undertaken to study the effect of pranayama with aerobic exercise on muscular endurance, diastolic and systolic blood pressure, vital capacity and cardio respiratory endurance. Thirty normal male volunteers had undergone a 12 weeks training course of pranayama (n1=10), aerobic exercise (n2=10) and pranayama with aerobic exercise (n3=10). The suitable parameters were used before and after the training. The results show that the pranayama group marked as higher degree in vital capacity ($p<0.05$). The aerobic group shows greater cardio respiratory endurance and muscular endurance than the other groups ($p<0.05$). But the combined pranayama and aerobic exercise group shows a greater improvement in all aspects than the other three groups ($p<0.05$).

Sakthi Gnanavel and Buvanewari (2006) investigated the effects of selected psycho- physiological variables of working women. Fifteen normal female volunteers had undergone eight week training programme on Asanas, Pranayama and Meditation. The suitable psychological parameters (personal stress and health systems) and physiological parameters (pulse rate and heart rate) were taken before and after the yoga practice programme. The results showed that there is greater improvement in all aspects of experimental group than the control group.

Singh bb, et al., Incidence of premenstrual syndrome and remedy usage: a national probability sample study. Complementary medicine program, University of Maryland School of medicine, Baltimore, USA. Abstract context: premenstrual syndrome is believed to affect 30% to 80% of women. Studies in various cultures have used a variety of methodologies to determine prevalence, symptom profile, and effectiveness of available treatments. This study was designed to provide information on incidence of PMS and therapies used based on a national probability sample of us women. Method: in 1996 a national probability sample (n = 1052) of women aged 21

to 64 years was surveyed by telephone using random digit dial methods. The survey included demographic information, questions concerning respondent knowledge of premenstrual syndrome, incidence rates of common premenstrual syndrome symptoms, and any remedies that were used to control the symptoms. results: forty-one percent of the women responded "yes" to the question, "do you suffer from premenstrual syndrome?" an additional 17% indicated that they experienced symptoms prior to their menstrual cycle that are commonly associated with premenstrual syndrome (e.g., pain, bloating, feeling more emotional, weight gain, food cravings), though without associating these symptoms with premenstrual syndrome explicitly. The most frequently noted severe symptom was that of "[feeling] more emotional." of those reporting premenstrual syndrome symptoms, approximately 42% took either prescription or over-the-counter medications to relieve them. Eighty percent of the women taking any type of medication relied on over-the-counter medications. Prescription drug use for premenstrual syndrome symptoms focused on medications to control pain; hormone supplements were the second most frequently prescribed drugs. Fewer than 3% of the respondents used prescription medications. Respondents were asked to indicate whether they had used a complementary medical therapy to control symptoms. exercise was used most frequently (18%), and acupuncture was the least frequently used. although only a small percentage of women used complementary therapies, for most of these therapies a near-perfect concordance was found between usage and belief in efficacy. conclusions: women were aware of symptoms related to premenstrual syndrome more frequently than they recognized a formalized medical syndrome. less than half of the women reporting symptoms had taken either over-the-counter or prescription drugs. those who tried complementary therapies generally found them to be effective.

Telles, et al., (2004) investigated whether yoga reduces heart rate and whether the reduction would be more after 30 days of yoga training. Two groups (yoga and control, n = 12 each) were assessed on Day 1 and on Day 30. During the intervening 30 days, the yoga group received training in yoga techniques while the control group carried on with their routine. At each assessment the baseline heart rate was recorded for one minute. This was followed by a six-minute period during which all the participants were asked to attempt to voluntarily reduce their heart rate, using any strategy. Both the baseline heart rate and the lowest heart rate achieved voluntarily during the six-minute period were significantly lower in the yoga group on Day 30 compared to Day 1 by a group average of 10.7 beats per minute (i.e., bpm) and 6.8 bpm, respectively. In contrast, there was no significant change in either the baseline heart rate or the lowest heart rate achieved voluntarily in the control group on Day 30 compared to Day 1.

STUDIES ON BIO- CHEMICAL VARIABLES

Bijlani RL, et al., (2005) A brief but comprehensive lifestyle education program based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus. 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 study is based on data collected on 98 subjects (67 male, 31 female), ages 20-74 years, who attended one of our programs. The subjects were a heterogeneous group of patients with hypertension, coronary artery disease, diabetes mellitus, and a variety of other illnesses. The intervention consisted of asanas (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 outcome 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 high density lipoprotein (HDL) cholesterol, hemoglobin and total triglycerides 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 subjects with hyperglycemia or hypercholesterolemia. The observations suggest that a short lifestyle modification and stress management education program leads to favorable metabolic effects within a period of 9 days.

K.V.V. PRASAD, et al., February (2006) Studied Impact of Pranayama and Yoga on Lipid Profile in Normal Healthy Volunteers. The present study was conducted on normal healthy volunteers, 41 men and 23 women, to evaluate the impact of Pranayama and Yoga asanas on blood lipid profiles and free fatty acids, in two stages. In stage-I, Pranayama was taught for 30 days and in stage-II, yogic practices were added to Pranayama for another 60 days. A Significant reduction was observed in triglycerides, free fatty acids and VLDL-cholesterol in men and free fatty acids alone were reduced in women at the end of stage-I. A significant elevation of HDL-cholesterol was seen only in the men at the end of stage-I. At the end of stage-II, free fattyacids increased in both men and women, and women demonstrated a significant fall in serum cholesterol, triglycerides, LDL-

and VLDL-cholesterol. The results indicated that HDL-cholesterol was elevated in men with Pranayama, while triglycerides and LDL-cholesterol decreased in women after yoga asanas. The results of the present study indicate that Pranayama and yogaasanas can be helpful in patients with lipid metabolism disorders such as coronary artery disease, diabetes mellitus and dyslipidemia etc.

Yurtkuran, M., et al., (2004). A modified yoga-based exercise program in hemodialysis patients: a randomized controlled study. To evaluate the effects of a yoga-based exercise program on pain, fatigue, sleep disturbance, and biochemical markers in hemodialysis patients. In 2004 a randomized controlled trial was carried out in the outpatient hemodialysis unit of the Nephrology Department, Uludag University Faculty of Medicine. Clinically stable hemodialysis patients (n=37) were included and followed in two groups: the modified yoga-based exercise group (n=19) and the control group (n=18). Yoga-based exercises were done in groups for 30 min/day twice a week for 3 months. All of the patients in the yoga and control groups were given an active range of motion exercises to do for 10 min at home. The main outcome measures were pain intensity (measured by the visual analogue scale, VAS), fatigue (VAS), sleep disturbance (VAS), and grip strength (mmHg); biochemical variables-- urea, creatinine, calcium, alkaline phosphatase, phosphorus, cholesterol, HDL-cholesterol, triglyceride, erythrocyte, hematocrit--were evaluated. After a 12-week intervention, significant improvements were seen in the variables: pain -37%, fatigue -55%, sleep disturbance - 25%, grip strength +15%, urea -29%, creatinine - 14%, alkaline phosphatase -15%, cholesterol -15%, erythrocyte +11%, and hematocrit count +13%; no side effects were seen. Improvement of the variables in the yoga-based exercise program was found to be superior to that in the control group for all

the variables except calcium, phosphorus, HDL-cholesterol and triglyceride levels

Anjum Sayyed, et al., (2010) conducted a Study of Lipid Profile and Pulmonary Functions in Subjects Participated in Sudarshan Kriya Yoga To see the effect of Sudarshan Kriya Yoga on Lipid Profile, Pulmonary Function and Hemoglobin concentration, 8 days consisting of 150 participants. Out of which 55 were included in the study group. results show that after practicing Sudarshan Kriya, there is decrease in Total Cholesterol, LDL-Cholesterol along with significant increase in HDL-Cholesterol, and T3. There are significant changes in Pulmonary Function, but statistically non-significant changes in Hematological parameters. Sudarshan Kriya Yoga may play vital role in reducing Total Cholesterol LDL-Cholesterol and significantly increasing HDLCholesterol .Spirometric Pulmonary Function Tests studied were Forced Vital Capacity, Forced Expiratory Volume in first second, Peak Expiratory Flow Rate and Maximum Voluntary Ventilation. The results showed improvement in all Pulmonary Function parameters in all subjects as compared to before practicing Sudarshan Kriya Yoga. The present study confirmed the positive effect of Sudarshan Kriya Yoga on Lipid Profile and Pulmonary Function.

Kasundra, PM*, Thumar, PB and Mungra, JD (2010) The objective of the study was to assess the impact of Pranayama training on selected components of blood. For the present study subject selected were students of Bachelor of Arts studying in Mahadev Desai Gram Seva Mahavidyalaya. Randomly 30 students were selected for the study and then subjects was divided into two equal groups randomly consisting of 15 subjects each belonging to one experimental (GrouPA) and one control group (Group B). Group A were exposed to Pranayama and group B was control group. Experimental group participated in Pranayama training for eight weeks. The variables and test items selected for the present study were cholesterol, blood

glucose, hemoglobin, WBC, RBC, platelets, T4. For analyzing the data t-test was used to find out the significant difference between pre-test and post-test. This study revealed significant difference in pre-test and post-test of experimental groups of selected blood components i.e. cholesterol, bloodglucose, hemoglobin, WBC, RBC, platelets. This shows that Pranayama training has an impact on selected components of blood.

LIMOSIN F, ADES J. Psychiatric and psychological aspects of premenstrual syndrome service de psychiatrie du professeur rouillon, 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 very heterogeneous 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 homey, 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 homey, 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 comorbidities 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 cardiovagal function. However, additional rigorous studies are needed to confirm existing findings and to examine long-term effects on cardiovascular health.

STUDIES ON PSYCHOLOGICAL VARIABLES

Baldwin, (1999) investigated the psychological and physiological differences between adult exercisers who added a weekly yoga class to their regular exercise program and those who did not. Subjects were pre tested and post tested for mood state, stress response, recovery heart rate, and spinal/hamstring flexibility. Over a period of eight weeks, subjects in both groups continued their normal exercise habits and maintained exercise logs. Subjects in the Yoga Group added a weekly yoga class. Subjects in the Control Group received a yoga class at a later time. At the end of eight weeks, exercise logs were collected and post tests were conducted. The results suggested: (1) more positive mood change in the Yoga Group over eight weeks, (2) more immediate positive affect from yoga than from cardiovascular or resistance training activities, (3) more compliance with yoga than with cardiovascular or resistance training activities, (4) comparable perceived exertion ratings for 'moderate' Hatha Yoga and routine aerobic exercise, (5) an 8% gain in spinal and hamstring flexibility in the Yoga Group over eight weeks, and (6) decreased vulnerability to stress in the Yoga Group, at the same time that sources of stress for that group increased.

DVIVEDI J, et al., Effect of '61-points relaxation technique' on stress parameters in premenstrual syndrome. Department of Physiology, himalayan institute of medical sciences, jolly grant, dehradun - 248 140. Abstract premenstrual syndrome

is a psychoneuroendocrine stress related disorder and more than 300 treatment modalities for PMS show that the existing remedies have not provided satisfactory help to relieve PMS. 61-points relaxation exercise (61-pr), a relatively less known hatha yoga technique, is a successful means of stress relaxation and is expected to relieve PMS as well. The present study was conducted on 50 clinically healthy women volunteers who were in their reproductive age group and in their premenstrual period, from which a control group (n = 20) and a PMS group (n = 30) based on the symptoms were identified. In both groups basal heart rate (hr/min), systolic (sbp; mmhg) and diastolic blood pressure (dbp; mmhg), electromyogram (emg; mv), electrodermal galvanic activity (edg; microv), respiratory rate (rr/min) and peripheral temperature (t; degrees f) were recorded and the subjects were taken through a guided 61-pr. The symptoms and parameters were re-recorded after the 61-pr. In control group, the basal hr was 82.06 +/- 8.07, sbp 111.95 +/- 8.23, dbp 76.8 +/- 6.42, emg 4.08 +/- 2.99, edg 9.77 +/- 3.29, rr 15.60 +/- 3.77 and t was 97.86 +/- 0.63. After 10 minutes of 61-pr, hr (77.27 +/- 10.85, p < 0.05), sbp (107.35 +/- 7.41, p < 0.05), dbp (75.25 +/- 7.57, p < 0.05), emg (2.07 +/- 1.90, p < 0.05), edg (8.06 +/- 2.87, p < 0.05), rr (16.00 +/- 4.12, p < 0.05) fell significantly and t (97.97 +/- 0.64, p > 0.05) rose significantly. In the PMS group, the basal hr was 90.61 +/- 8.46, sbp 122.5 +/- 11.52, dbp 83.53 +/- 8.26, emg 5.79 +/- 2.75, edg 13.14 +/- 6.54, rr 19.13 +/- 3.76 and t was 93.43 +/- 5.29. After 10 minutes of 61-pr, hr (75.58 +/- 10.11, p < 0.0001), sbp (114.53 +/- 9.70, p < 0.0001), dbp (77.46 +/- 8.68, p < 0.0001), emg (2.56 +/- 1.77, p < 0.0001), edg (10.64 +/- 5.72, p < 0.0001), and rr (16.13 +/- 3.76, p < 0.0001) declined to a much greater extent and t (93.49 +/- 5.28, p < 0.0001) rose more significantly. These results suggest a reduction in sympathetic activity by 61-pr, also the high basal sympathetic tone present in subjects of PMS group due to stress is

considerably reduced by relaxation. 61-pr is effective in providing relief from PMS and may be a useful adjuvant to medical therapy of PMS and other stress disorders.

TONINI G. Dysmenorrhea, endometriosis and premenstrual syndrome centro di endocrinologia pediatrica-auxologia, clinica pediatrica, irccs burlo garofolo, trieste, italy. abstract dysmenorrhea is the most frequent gynecological problem in adolescent girls (the prevalence is 80-90%). genetic influence, style of life (diet and physical activity) social, economical and cultural factors can affect symptoms. Prostaglandins and leucotrienes produced by endometrium, abnormal uterine smooth muscle contractility and modifications of the local blood flow are responsible for abdominal pain. Frequently daily activities are negatively affected (missing time at school) dysmenorrhoea can be primary or secondary to anatomical anomalies of internal genitalia or presence of synechie (post surgery or inflammatory pelvic diseases). Therapy may consist of traditional medicine (relaxing techniques such as yoga, agopuncture, mild analgesic drugs or more effective fans). In case of therapeutical failure, contraceptive and/or gnrh agonists can represent the last choice. endometriosis is less frequent, etiopatogenesis is not completely understood, but the anatomical lesions consist of an oestrogen-dependent neo-angiogenesis. Oestrogen inhibitors, oral contraceptives or gnrh agonists may be useful in treating this pathology. in case of drug failure surgery is suggested. For the effective diagnosis laparoscopy and biopsy are absolutely necessary. Premenstrual syndrome is cyclical, extremely complex, and unusual in adolescent girls, sometimes associated to pre-existent psychic disorders. It can be treated with symptomatic drugs or, more recently, using drugs that alter the levels of serotonin, but their use in the adolescent patient is not yet recommended.

DALEY A. Exercise and Premenstrual symptomatology: University of Birmingham, primary care and general practice, edgbaston, clinical sciences building,

edgbaston, birmingham b302eh, united kingdom. Abstract background: premenstrual syndrome (PMS) refers to a constellation of regular, recurring, psychological or somatic complaints, or both, that occur specifically during the luteal phase of the ovulatory menstrual cycle and that resolve by the onset of or during menstruation. Many women of reproductive age experience PMS. Exercise has been proposed as a potential treatment in this regard, and several observational studies have reported a reduction in PMS and associated symptomatology in physically active women relative to their less active counterparts. Methods: this review seeks to synthesize the available literature regarding the effects of exercise on PMS, with emphasis on findings from intervention studies. Studies were identified by systematically searching relevant databases. Results: four eligible intervention studies were identified; all of these reported a reduction in PMS and related symptomatology after participation in exercise interventions. However, studies to date have recruited small samples and have been of low methodological quality. Conclusions: there is a paucity of research on the effects of exercise on PMS. Although the American college of obstetricians and gynecologists (ACOG) has advised that regular aerobic exercise may help relieve PMS, to make any evidence-based policy recommendations regarding the effectiveness of exercise, more high-quality research is required.

Woolery A,et al., (2004) examined the effects of a short-term Iyengar yoga course on mood in mildly depressed young adults. Young adults pre-screened for mild levels of depression were randomly assigned to a yoga course or wait-list control group. Twenty-eight volunteers ages 18 to 29. At intake, all participants were experiencing mild levels of depression, but had received no current psychiatric diagnoses or treatments. None had significant yoga experience. Subjects in the yoga group attended two 1-hour Iyengar yoga classes each week for 5 consecutive weeks.

Beck Depression Inventory, State-Trait Anxiety Inventory, State Trait Anger Expression Inventory, Profile of Mood States, morning cortisol levels were used. Subjects who participated in the yoga course demonstrated significant decreases in self-reported symptoms of depression and trait anxiety. The findings provide suggestive evidence of the utility of yoga asanas in improving mood and expression of anger in the subjects.

Brown RP, et al., (Feb. 2005) "Sudarshan Kriya Yogic Breathing in the Treatment of Stress, Anxiety, and Depression. A type of controlled breathing with roots in traditional yoga shows promise in providing relief for depression. The program, called Sudarshan Kriya yoga (SKY), involves several types of cyclical breathing patterns, ranging from slow and calming to rapid and stimulating, and is taught by the nonprofit Art of Living Foundation. One study compared 30 minutes of SKY breathing, done six days a week, to bilateral electroconvulsive therapy and the tricyclic antidepressant imipramine in 45 people hospitalized for depression. After four weeks of treatment, 93% of those receiving electroconvulsive therapy, 73% of those taking imipramine, and 67% of those using the breathing technique had achieved remission. Another study examined the effects of SKY on depressive symptoms in 60 alcohol-dependent men. After a week of a standard detoxification program at a mental health center in Bangalore, India, participants were randomly assigned to two weeks of SKY or a standard alcoholism treatment control. After the full three weeks, scores on a standard depression inventory dropped 75% in the SKY group, as compared with 60 in the standard treatment group. Levels of two stress hormones, cortisol and corticotropin, also dropped in the SKY group, but not in the control group. The authors suggest that SKY might be a beneficial treatment for depression in the early stages of recovery from alcoholism.

David Shapiro et al., (2006) conducted a study on Yoga as a Complementary Treatment of Depression. Preliminary findings support the potential of yoga as a complementary treatment of depressed patients who are taking anti-depressant medications but who are only in partial remission. The purpose of this article is to present further data on the intervention, focusing on individual differences in psychological, emotional and biological processes affecting treatment outcome. Twenty-seven women and 10 men were enrolled in the study, of whom 17 completed the intervention and pre- and post-intervention assessment data. The intervention consisted of 20 classes led by senior Iyengar yoga teachers, in three courses of 20 yoga classes each. All participants were diagnosed with unipolar major depression in partial remission. Psychological and biological characteristics were assessed pre- and post-intervention, and participants rated their mood states before and after each class. Significant reductions were shown for depression, anger, anxiety, neurotic symptoms and low frequency heart rate variability in the 17 completers. Eleven out of these completers achieved remission levels post-intervention. Participants who remitted differed from the non-remitters at intake on several traits and on physiological measures indicative of a greater capacity for emotional regulation. Moods improved from before to after the yoga classes. Yoga appears to be a promising intervention for depression; it is cost-effective and easy to implement. It produces many beneficial emotional, psychological and biological effects, as supported by observations in this study. The physiological methods are especially useful as they provide objective markers of the processes and effectiveness of treatment. These observations may help guide further clinical application of yoga in depression and other mental health disorders, and future research on the processes and mechanisms

A. Vedamurthachar, et al., (2006), Antidepressant efficacy and hormonal effects of Sudarshana Kriya Yoga (SKY) in alcohol dependent individuals. Sudarshana Kriya Yoga (SKY) has demonstrable antidepressant effects. SKY was tested for this effect in inpatients of alcohol dependence. Following a week of detoxification management consenting subjects (n=60) were equally randomized to receive SKY therapy or not (controls) for a two-week study. SKY therapy included alternate day practice of specified breathing exercise under supervision of a trained therapist. Subjects completed the Beck Depression Inventory (BDI) before and after the two weeks of this intervention. Morning plasma cortisol, ACTH and prolactin too were measured before and at the end of two weeks. In both groups reductions in BDI scores occurred but significantly more so in SKY group. Likewise, in both groups plasma cortisol as well as ACTH fell after two weeks but significantly more so in SKY group. Reduction in BDI scores correlated with that in cortisol in SKY but not in control group. Antidepressant effects of SKY were demonstrated in early abstinence that also had substantial spontaneous improvement. It is not known if this effect contributes to sustained abstinence. Results extend the antidepressant effects of SKY in alcohol dependence subjects. Reduction in stress-hormone levels (cortisol and ACTH) along with BDI reductions possibly support a biological mechanism of SKY in producing beneficial effects.

Descilo T, Vedamurtachar A (2008), conducted the “Study on Effects of a yoga breath intervention alone and in combination with an exposure therapy for post-traumatic stress disorder (PTSD) and depression in survivors of the 2004 South-East Asia tsunami” at The Trauma Resolution Center of Miami, Miami, USA. In this non-randomized study, 183 tsunami survivors who scored 50 or above on the Post-traumatic Checklist-17 (PCL-17) were assigned by camps to one of three groups:

yoga breath intervention, yoga breath intervention followed by 3-8 h of trauma reduction exposure technique or 6-week wait list. Measures for post-traumatic stress disorder (PCL-17) and depression (BDI-21) were performed and at 6, 12 and 24 weeks. . The effect of treatment vs. control was significant at 6 weeks with yoga breath, with Yoga breath + exposure and in the control. As a conclusion Yoga breath-based interventions may help relieve psychological distress following mass disasters.

Rao M. Raghavendra, PhD , N. Vanitha, BNYS (2009) This study compares the effects of an integrated yoga program with brief supportive therapy in breast cancer outpatients undergoing adjuvant radiotherapy at a cancer center. Methods. Eighty-eight stage II and III breast cancer outpatients are randomly assigned to receive yoga (n = 44) or brief supportive therapy (n = 44) prior to radiotherapy treatment. Assessments include diurnal salivary cortisol levels 3 days before and after radiotherapy and self-ratings of anxiety, depression, and stress collected before and after 6 weeks of radiotherapy. Results. Analysis of covariance reveals significant decreases in anxiety ($P < .001$), depression ($P = .002$), perceived stress ($P < .001$), 6 a.m. salivary cortisol ($P = .009$), and pooled mean cortisol ($P = .03$) in the yoga group compared with controls. There is a significant positive correlation between morning salivary cortisol level and anxiety and depression. Conclusion. Yoga might have a role in managing self-reported psychological distress and modulating circadian patterns of stress hormones in early breast cancer patients undergoing adjuvant radiotherapy.

Panjwani, U., et al., (1995) studied the Effect of Sahaja yoga practice on stress management in patients of epilepsy. The study was carried out on 32 patients of epilepsy who were randomly divided into 3 groups: group I subjects practised Sahaja yoga meditation for 6 months, group II subjects practised 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.

Waelde LC, et al., (2004), A pilot study of a yoga and meditation intervention for dementia caregiver stress. Twelve older female dementia patient family caregivers (eight Latinas and four Caucasians) participated in a six-session manualized yoga-meditation program (called Inner Resources) designed to help caregivers cope with stress. Pre/post comparisons revealed statistically significant reductions in depression and anxiety and improvements in perceived self-efficacy. Average minutes of weekly yoga-meditation practice were significantly associated with improvements in depression. The majority of caregivers found the intervention useful and reported subjective improvements in physical and emotional functioning. These findings suggest that Inner Resources may be a feasible and effective intervention for family caregivers and may improve affect, coping, physical well-being, and stress management.

Simard AA, Henry M (2009), conducted the “Study on Impact of a short yoga intervention on medical students” health at McGill University, Canada. In this study they select Fourteen first-year medical students participated in a 16-week yoga intervention pilot study. Students completed questionnaires at baseline, mid-intervention and end of the study. The students reported improvements in overall health, perceived stress and depressive symptoms following the intervention. As a

conclusion yoga intervention may be effective in decreasing stress and improving general well-being in medical students.

Kulkarni DD, Bera TK (2009), conducted the “Study on Yogic exercises and health - a psycho-neuro immunological approach” at Scientific Research Department, Kaivalyadhama Yoga Research Institute, Lanavla , Pune. Relaxation potential of yogic exercises seems to play a vital role in establishing psycho-physical health in reversing the psycho-immunology of emotions under stress based on breath and body awareness. Therefore, a hybrid model of human information processing-psycho-neuroendocrine (HIP-PNE) network has been proposed to reveal the importance of yogic information processing. This study focuses on two major pathways of information processing involving cortical and hypothalamo-pituitary-adrenal axis (HPA) interactions with a deep reach molecular action on cellular, neuro-humoral and immune system in reversing stress mediated diseases.

Carmody J, Baer RA (2008), conducted the “Study on Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program” at Division of Preventive and Behavioural Medicine, University of Massachusetts Medical School, USA. Relationships were investigated between home practice of mindfulness meditation exercises and levels of mindfulness, medical and psychological symptoms, perceived stress, and psychological well-being in a sample of 174 adults in a clinical Mindfulness-Based Stress Reduction (MBSR) program. This is an 8- session group program for individuals dealing with stress-related problems, illness, anxiety, and chronic pain. Participants completed measures of mindfulness, perceived stress, symptoms, and well-being at pre- and post-MBSR, and monitored their home practice time throughout the intervention. Results showed

increases in mindfulness and well-being, and decreases in stress and symptoms, from pre- to post-MBSR. Increases in mindfulness were found to mediate the relationships between formal mindfulness practice and improvements in psychological functioning, suggesting that the practice of mindfulness meditation leads to increases in mindfulness, which in turn leads to symptom reduction and improved well-being.

Parshad O (2006), conducted the “Study on Role of yoga in stress management” at Department of Basic Medical Sciences, The University of the West Indies, Jamaica, West Indies. The state of the mind and that of the body are intimately related. If the mind is relaxed, the muscles in the body will also be relaxed. Stress produces a state of physical and mental tension. Yoga, developed thousands of years ago, is recognized as a form of mind-body medicine. In yoga, physical postures and breathing exercises improve muscle strength, flexibility, blood circulation and oxygen uptake as well as hormone function. In addition, the relaxation induced by meditation helps to stabilize the autonomic nervous system with a tendency towards parasympathetic dominance. Physiological benefits which follow, help yoga practitioners become more resilient to stressful conditions and reduce a variety of important risk factors for various diseases, especially cardio-respiratory diseases.

Cowen VS (2008), conducted the “Study on Stress and Functional fitness improvements after a worksite-based yoga initiative” at Department of Health, Physical Education and Dance, The City University of New York, USA. This study explored the benefits of yoga on functional fitness, flexibility, and perceived stress. A quasi-experimental design was used to measure benefits of yoga in sample of firefighters from a major metropolitan fire department. Yoga classes were conducted on-shift, in the fire stations over the period of 6 weeks. The classes included pranayama (breathing), asana (postures), and savasana (relaxation); 108 firefighters

enrolled in the study, most were physically active but had no prior experience with yoga. Baseline and post-yoga assessments were completed by 77 participants. Paired t-tests revealed significant improvements in the Functional Movement Screen, a seven item test that measures functional fitness. Improvements were also noted in trunk flexibility and perceived stress. Participants also reported favorable perceptions of yoga: feeling more focused and less musculoskeletal pain. These findings - along with the retention of the majority of the participants - indicate that participants benefited from yoga.

Daniele Martarelli, et al., (2009) Diaphragmatic breathing is relaxing and therapeutic, reduces stress, and is a fundamental procedure of Pranayama Yoga, Zen, transcendental meditation and other meditation practices. Analysis of oxidative stress levels in people who meditate indicated that meditation correlates with lower oxidative stress levels, lower cortisol levels and higher melatonin levels. It is known that cortisol inhibits enzymes responsible for the antioxidant activity of cells and that melatonin is a strong antioxidant; therefore, in this study, we investigated the effects of diaphragmatic breathing on exercise-induced oxidative stress and the putative role of cortisol and melatonin hormones in this stress pathway. We monitored 16 athletes during an exhaustive training session. After the exercise, athletes were divided in two equivalent groups of eight subjects. Subjects of the studied group spent 1 h relaxing performing diaphragmatic breathing and concentrating on their breath in a quiet place. The other eight subjects, representing the control group, spent the same time sitting in an equivalent quiet place. Results demonstrate that relaxation induced by diaphragmatic breathing increases the antioxidant defense status in athletes after exhaustive exercise. These effects correlate with the concomitant decrease in cortisol and the increase in melatonin. The consequence is a lower level of oxidative stress,

which suggests that an appropriate diaphragmatic breathing could protect athletes from long-term adverse effects of free radicals.

SUMMARY ON THE RELATED LITERATURE

The investigator has compiled and reviewed the literature and professional reviews related to naturopathy and yogasana on physiological, bio-chemical psychological variables from the library of TNPESU and YMCA College of physical education and the material available on the internet to provide sufficient knowledge to the readers and comparative analysis for the present study.

The review shows that there is a positive impact in yogasana on, physiological, bio-chemical and psychological variables. The investigator has found very sufficient studies made an analysis with yoga practice. Based on the review, the yoga studies the researcher has chosen this topic as well as the reviews supported on this study and since this is a new research study done on menstrual irregularity through naturopathy treatment, there is no related research reviews based on naturopathy study. The investigator formulated suitable methodology in this research that is presented in chapter III.