

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 RELATED TO YOGA AND PHYSIOLOGICAL VARIABLES

Relwani R, Berger D, Santoro N, Hickmon C, Nihsen M, Zapantis A, Werner M, Polotsky AJ, Jindal S.2011 Semen parameters are unrelated to BMI but vary with SSRI use and prior urological surgery. Male infertility affects approximately 6% of reproductive-aged men. It has been suggested that overweight men or men with obese body mass index (BMI) experience prolonged time to pregnancy, though the influence of male **BMI** on fertility remains understudied. We hypothesized that BMI is inversely correlated with fertility, manifested by reduced

sperm concentration, motility, and morphology. Males of age 18 to 50 with semen analyses and self-reported BMI were included (n = 530). Patient parameters analyzed included age, BMI, smoking, urological, and fertility history. Luteinizing hormone (LH), Follicle-stimulating hormone, testosterone, steroid hormone-binding globulin (SHBG) and free androgen index (FAI) levels (n = 55), and selective serotonin reuptake inhibitor (SSRI) use (n = 12) were also measured. The men in this study had a mean BMI of 28.2 ± 4.9 kg/m² (range = 15-60), which is considered overweight, and a mean semen concentration of 55.4 ± 46.8 million/mL, which is in normal range, according to WHO standard. No consistent relationship was observed between increasing BMI and sperm concentration, motility, or morphology, although the testosterone levels trended downward with increasing BMI; there was a suggestion for decreased sperm concentration in current smokers. Men treated with combination SSRI and other psychotropic agent therapy (n = 12) had significantly reduced sperm motility (P = .009). Not unexpectedly, prior urological surgery (n = 77) was associated with lower sperm concentration (P = .0001) and morphology (P = .0008). When in vitro fertilization-embryo transfer (IVF-ET) was used as a treatment modality (n = 121), male BMI was not a significant predictor of clinical pregnancy (P = .06). In our study, we did not observe a significant association between male BMI and sperm concentration,

Ospina MB, Bond K, Karkhaneh M, Tjosvold L, Vandermeer B, Liang Y, Bialy L, Hooton N, Buscemi N, Dryden DM, Klassen TP. 2007 Meditation practices for health: state of the research. To review and synthesize the state of research on a variety of meditation practices, including: the specific meditation practices examined; the research designs employed and the conditions and outcomes examined; the efficacy and effectiveness of different meditation practices for the three

most studied conditions; the role of effect modifiers on outcomes; and the effects of meditation on physiological and neuropsychological outcomes. Comprehensive searches were conducted in 17 electronic databases of medical and psychological literature up to September 2005. Other sources of potentially relevant studies included hand searches, reference tracking, contact with experts, and gray literature searches. A Delphi method was used to develop a set of parameters to describe meditation practices. Included studies were comparative, on any meditation practice, had more than 10 adult participants, provided quantitative data on health-related outcomes, and published in English. Two independent reviewers assessed study relevance, extracted the data and assessed the methodological quality of the studies. Five broad categories of meditation practices were identified (Mantra meditation, Mindfulness meditation, Yoga, Tai Chi, and Qi Gong). Characterization of the universal or supplemental components of meditation practices was precluded by the theoretical and terminological heterogeneity among practices.

Evidence on the state of research in meditation practices was provided in 813 predominantly poor-quality studies. The three most studied conditions were hypertension, other cardiovascular diseases, and substance abuse. Sixty-five intervention studies examined the therapeutic effect of meditation practices for these conditions. Meta-analyses based on low-quality studies and small numbers of hypertensive participants showed that TM (R), Qi Gong and Zen Buddhist meditation significantly reduced blood pressure. Yoga helped reduce stress. Yoga was no better than Mindfulness-based Stress Reduction at reducing anxiety in patients with cardiovascular diseases. No results from substance abuse studies could be combined. The role of effect modifiers in meditation practices has been neglected in the scientific literature. The physiological and neuropsychological effects of meditation

practices have been evaluated in 312 poor-quality studies. Meta-analyses of results from 55 studies indicated that some meditation practices produced significant changes in healthy participants. Many uncertainties surround the practice of meditation. Scientific research on meditation practices does not appear to have a common theoretical perspective and is characterized by poor methodological quality. Firm conclusions on the effects of meditation practices in healthcare cannot be drawn based on the available evidence. Future research on meditation practices must be more rigorous in the design and execution of studies and in the analysis and reporting of results.

Li AW, Goldsmith CA.2012. The effects of yoga on anxiety and stress. Stress and anxiety have been implicated as contributors to many chronic diseases and to decreased quality of life, even with pharmacologic treatment. Efforts are underway to find non-pharmacologic therapies to relieve stress and anxiety, and yoga is one option for which results are promising. The focus of this review is on the results of human trials assessing the role of yoga in improving the signs and symptoms of stress and anxiety. Of 35 trials addressing the effects of yoga on anxiety and stress, 25 noted a significant decrease in stress and/or anxiety symptoms when a yoga regimen was implemented; however, many of the studies were also hindered by limitations, such as small study populations, lack of randomization, and lack of a control group. Fourteen of the 35 studies reported biochemical and physiological markers of stress and anxiety, but yielded inconsistent support of yoga for relief of stress and anxiety. Evaluation of the current primary literature is suggestive of benefits of yoga in relieving stress and anxiety, but further investigation into this relationship using large, well-defined populations, adequate controls, randomization

and long duration should be explored before recommending yoga as a treatment option.

Relwani R, Berger D, Santoro N, Hickmon C, Nihsen M, Zapantis A, Werner M, Polotsky AJ, Jindal S (2011) Semen parameters are unrelated to BMI but vary with SSRI use and prior urological surgery. Male infertility affects approximately 6% of reproductive-aged men. It has been suggested that overweight men or men with obese body mass index (BMI) experience prolonged time to pregnancy, though the influence of male BMI on fertility remains understudied. We hypothesized that BMI is inversely correlated with fertility, manifested by reduced sperm concentration, motility, and morphology. Males of age 18 to 50 with semen analyses and self-reported BMI were included (n = 530). Patient parameters analyzed included age, BMI, smoking, urological, and fertility history. Luteinizing hormone (LH), Follicle-stimulating hormone, testosterone, steroid hormone-binding globulin (SHBG) and free androgen index (FAI) levels (n = 55), and selective serotonin reuptake inhibitor (SSRI) use (n = 12) were also measured.

The men in this study had a mean BMI of 28.2 ± 4.9 kg/m² (range = 15-60), which is considered overweight, and a mean semen concentration of 55.4 ± 46.8 million/mL, which is in normal range, according to WHO standard. No consistent relationship was observed between increasing BMI and sperm concentration, motility, or morphology, although the testosterone levels trended downward with increasing BMI; there was a suggestion for decreased sperm concentration in current smokers. Men treated with combination SSRI and other psychotropic agent therapy (n = 12) had significantly reduced sperm motility (P = .009). Not unexpectedly, prior urological surgery (n = 77) was associated with lower sperm concentration (P = .0001) and morphology (P = .0008). When in vitro fertilization-embryo transfer (IVF-

ET) was used as a treatment modality (n = 121), male BMI was not a significant predictor of clinical pregnancy (P = .06). In our study, we did not observe a significant association between male BMI and sperm concentration,

Du Plessis SS, Cabler S, McAlister DA, Sabanegh E, Agarwal A.2011 The effect of obesity on sperm disorders and male infertility. The results of several studies point to an increased likelihood of abnormal semen parameters among overweight men, and an elevated risk for sub fertility among couples in which the male partner is obese. Obesity is, therefore, associated with a higher incidence of male factor infertility. Several mechanisms might account for the effect of obesity on male infertility, both directly and indirectly, by inducing sleep apnea, alterations in hormonal profiles and increased scrotal temperatures, ultimately manifesting as impaired **semen parameters** (decreased total sperm count, concentration and motility; increased DNA fragmentation index). Neither the reversibility of obesity-associated male infertility with weight loss nor effective therapeutic interventions have been studied in-depth. The increasing prevalence of obesity calls for greater clinical awareness of its effects on fertility, better understanding of underlying mechanisms, and exploration into avenues of treatment.

Afeiche MC, Gaskins AJ, Williams PL, Toth TL, Wright DL, Tanrikut C, Hauser R, Chavarro JE.2014 Processed meat intake is unfavorably and fish intake favorably associated with semen quality indicators among men attending a fertility clinic. Emerging literature suggests that men's diets may affect spermatogenesis as reflected in semen quality indicators, but literature on the relation between meat intake and semen quality is limited. Our objective was to prospectively examine the relation between meat intake and indicators of semen quality. Men in subfertile couples presenting for evaluation at the Massachusetts General Hospital

Fertility Center were invited to participate in an ongoing study of environmental factors and fertility. A total of 155 men completed a validated food-frequency questionnaire and subsequently provided 338 semen samples over an 18-mo period from 2007-2012. We used linear mixed regression models to examine the relation between meat intake and semen quality indicators (total sperm count, sperm concentration, progressive motility, morphology, and semen volume) while adjusting for potential confounders and accounting for within-person variability across repeat semen samples. Among the 155 men (median age: 36.1 y; 83% white, non-Hispanic), processed meat intake was inversely related to sperm morphology. Men in the highest quartile of processed meat intake had, on average, 1.7 percentage units (95% CI: -3.3, -0.04) fewer morphologically normal sperm than men in the lowest quartile of intake (P-trend = 0.02). Fish intake was related to higher sperm count and percentage of morphologically normal sperm. The adjusted mean total sperm count increased from 102 million (95% CI: 80, 131) in the lowest quartile to 168 million (95% CI: 136, 207) sperm in the highest quartile of fish intake (P-trend = 0.005). Similarly, the adjusted mean percentages of morphologically normal sperm for men in increasing quartiles of fish intake were 5.9 (95% CI: 5.0, 6.8), 5.3 (95% CI: 4.4, 6.3), 6.3 (95% CI: 5.2, 7.4), and 7.5 (95% CI: 6.5, 8.5) (P-trend = 0.01). Consuming fish may have a positive impact on sperm counts and morphology, particularly when consumed instead of processed red meats.

Afeiche MC, Bridges ND, Williams PL, Gaskins AJ, Tanrikut C, Petrozza JC, Hauser R, Chavarro JE.2014 Dairy intake and semen quality among men attending a fertility clinic. To examine the relationship between dairy food intake and semen parameters. Longitudinal study used One hundred fifty-five men been used for the study Total sperm count, sperm concentration, progressive

motility, morphology, and semen volume. Low-fat dairy intake was positively related to sperm concentration and progressive motility. On average, men in the highest quartile of intake (1.22-3.54 servings/d) had 33% (95% confidence interval [CI] 1, 55) higher sperm concentration and 9.3 percentage units (95% CI 1.4, 17.2) higher sperm motility than men in the lowest quartile of intake (≤ 0.28 servings/d). These associations were primarily explained by intake of low-fat milk. The corresponding results for low-fat milk were 30% (95% CI 1, 51) higher sperm concentration and 8.7 percentage units (95% CI 3.0, 14.4) higher sperm motility. Cheese intake was associated with lower sperm concentration among ever-smokers. In this group, men in the highest tertile of intake (0.82-2.43 servings/d) had 53.2% (95% CI 9.7, 75.7) lower sperm concentration than men in the lowest tertile of cheese intake (< 0.43 servings/d). Our findings suggest that low-fat dairy intake, particularly low-fat milk, is related to higher sperm concentration and progressive motility, whereas cheese intake is related to lower sperm concentration among past or current smokers.

Duplessis ss, cobbler s, mc Alister DA, sabanegh E, Agarwal A (2010) The effect of obesity on sperm disorders and male infertility. The results of several studies point to an increased likelihood of abnormal semen parameters among overweight men, and an elevated risk for sub fertility among couples in which the male partner is obese. Obesity is, therefore, associated with a higher incidence of male factor infertility. Several mechanisms might account for the effect of obesity on male infertility, both directly and indirectly, by inducing sleep apnea, alterations in hormonal profiles (reduced inhibin B and androgen levels accompanied by elevated estrogen levels) and increased scrotal temperatures, ultimately manifesting as impaired semen parameters (decreased total sperm count, concentration and motility;

increased DNA fragmentation index). Neither the reversibility of obesity-associated male infertility with weight loss nor effective therapeutic interventions have been studied in-depth. The increasing prevalence of obesity calls for greater clinical awareness of its effects on fertility, better understanding of underlying mechanisms, and exploration into avenues of treatment.

Zareba P, Colaci DS, Afeiche M, Gaskins AJ, Jørgensen N, Mendiola J, Swan SH, Chavarro JE.2013. Semen quality in relation to antioxidant intake in a healthy male population. To assess the relationship between dietary antioxidant intake and semen quality in young healthy males. Cross-sectional study. University and college campuses in the Rochester, New York, area. One hundred eighty-nine university-aged men. Semen volume, total sperm count, concentration, motility, total motile count, and morphology. Progressive motility was 6.5 (95% confidence interval [CI], 0.6, 12.3) percentage units higher among men in the highest quartile of β -carotene intake compared with men in the lowest quartile. Similar results were observed for lutein intake. Lycopene intake was positively related to sperm morphology. The adjusted percentages (95% CI) of morphologically normal sperm in increasing quartiles of lycopene intake were 8.0 (6.7, 9.3), 7.7 (6.4, 9.0), 9.2 (7.9, 10.5), and 9.7 (8.4, 11.0). There was a nonlinear relationship between vitamin C intake and sperm concentration, with men in the second quartile of intake having, on average, the highest sperm concentrations and men in the top quartile of intake having the lowest concentrations. In a population of healthy young men, carotenoid intake was associated with higher sperm motility and, in the case of lycopene, better sperm morphology. Our data suggest that dietary carotenoids may have a positive impact on semen quality.

Gaskins AJ¹, Colaci DS, Mendiola J, Swan SH, Chavarro JE.2012. Dietary patterns and semen quality in young men. Are different dietary patterns associated with semen parameters in young men. The consumption of a Prudent dietary pattern was significantly associated with higher progressive sperm motility and unrelated to sperm concentration and morphology. The consumption of a Western dietary pattern was unrelated to conventional semen quality parameters. Over the past decades there has been evidence of a concomitant decline in sperm and diet quality. Yet whether diet composition influences semen quality remains largely unexplored. The Rochester Young Men's Study (n= 188) was a cross-sectional study conducted between 2009 and 2010 at the University of Rochester. Men aged 18-22 years were included in this analysis. Diet was assessed via food frequency questionnaire and dietary patterns were identified by factor analysis. Linear regression was used to analyze the relation between diet patterns and conventional semen quality parameters (sperm concentration, progressive motility and morphology) adjusting for abstinence time, multivitamin use, race, smoking status, BMI, recruitment period, moderate-to-intense exercise and total calorie intake. Two dietary patterns were identified by factor analysis.

The 'Western' pattern was characterized by high intake of red and processed meat, refined grains, pizza, snacks, high-energy drinks and sweets. The 'Prudent' pattern was characterized by high intake of fish, chicken, fruit, vegetables, legumes and whole grains. The Prudent pattern was positively associated with percent progressively motile sperm in multivariate models (P-trend = 0.04). Men in the highest quartile of the Prudent diet had 11.3% (95% CI 1.3, 21.3) higher % progressively motile sperm compared with men in the lowest quartile. The Prudent pattern was unrelated to sperm concentration and morphology. The Western pattern

was not associated with any semen parameter. This was a cross-sectional and observational study, which limited our ability to determine causality of diet on semen quality parameters. Our findings support the suggestion that a diet rich in fruits, vegetables, chicken, fish and whole grains may be an inexpensive and safe way to improve at least one measure of semen quality.

Nadjarzadeh A¹, Shidfar F, Amirjannati N, Vafa MR, Motevalian SA, Gohari MR, Nazeri Kakhki SA, Akhondi MM, Sadeghi MR. 2014 Effect of Coenzyme Q10 supplementation on antioxidant enzymes activity and oxidative stress of seminal plasma: a double-blind randomized clinical trial. Low seminal plasma concentrations of coenzyme Q10 (CoQ10) have been correlated with impaired sperm parameters, but the exact mechanism remains of dominating interest. This randomized, placebo-controlled study examined the effect of CoQ10 on catalases, superoxide dismutase (SOD) and F₂-isoprostanes in seminal plasma in men with andropause and their relation with CoQ10 concentration. Sixty men with andropause with idiopathic oligoasthenoteratozoospermia (OAT) were randomized to receive 200 mg d⁻¹ of CoQ10 or placebo for 3 months. 47 persons of them completed the study. Semen analysis, anthropometric measurements, diet and physical activity assessment were performed for subjects before and after treatment. Independent and paired t-test, chi-square test and ancova were compared outcomes of supplementation between two groups. CoQ10 levels increased from 44.74 ± 36.47 to 68.17 ± 42.41 ng ml⁻¹ following supplementation in CoQ10 ($P < 0.001$). CoQ10 group had higher catalase and SOD activity than the placebo group. There was a significant positive correlation between CoQ10 concentration and normal sperm morphology ($P = 0.037$), catalase ($P = 0.041$) and SOD ($P < 0.001$). Significant difference was shown between the mean of changes in seminal plasma 8-isoprostane in two groups ($P = 0.003$) after

supplementation. Three-month supplementation with CoQ10 in OAT men with andropause can attenuate oxidative stress in seminal plasma and improve semen parameters and antioxidant enzymes activity.

Imamovic Kumalic S¹, Pinter B¹.2014 Review of clinical trials on effects of oral antioxidants on basic semen and other parameters in idiopathic oligoasthenoteratozoospermia Infertility affects 50 to 80 million people worldwide. Male factor is a cause of infertility in almost half of cases, mainly due to oligoasthenoteratozoospermia (OAT). With common diagnostic methods no cause can be found in approximately 30% of cases of male infertility due to OAT and these are considered idiopathic. Reactive oxygen species (ROS) play an important role in male infertility and are proved to be higher in men with andropause ; antioxidants could oppose their effect. The aim of this paper was to review the literature on clinical trials in the period from year 2000 to year 2013 studying the effects of various types of antioxidant supplements on basic and other sperm parameters and pregnancy rates in subfertile males with idiopathic OAT. The majority of studies were randomized and placebo controlled and confirmed beneficial effect of antioxidants on at least one of the semen parameters; the biggest effect was determined on sperm motility. In many of these trials combinations of more antioxidants were assessed. The optimal dosages of one or more antioxidants were not defined. We concluded that antioxidants play an important role in protecting semen from ROS and can improve basic sperm parameters in case of idiopathic OAT.

Jathar VS, Hirwe R, Desai S, Satoskar R.S.1976 Dietetic habits and quality of semen in Indian subjects. Dietetic habits revealed significant effect on seminal plasma vitamin B12 levels. The mean values for seminal plasma vitamin B12 activity in lactovegetarians from normozoospermic, oligozoospermic and azoospermic groups

are significantly lower than the corresponding mean values observed in the nonvegetarian subjects. The mean vitamin B12 content of seminal plasma in azoospermic group was distinctly lower than the mean values in normozoospermic and oligozoospermic groups. However, seminal plasma vitamin B12 values showed no correlation with the sperm content of the corresponding semen in both normozoospermic and oligozoospermic subjects. Studies on sperm morphology and on biochemical parameters revealed no significant effect of the type of diet on sperm count, sperm motility, percentage abnormal sperms, seminal plasma total proteins, albumin, fructose, citric acid, acid and alkaline phosphatase activity in normozoospermic group.

Pramanik T,et.al,(2009). investigated immediate effect of slow pace bhastrika pranayama on blood pressure and heart rate. The objective of this study was to evaluate the immediate effect of slow pace bhastrika pranayama (respiratory rate 6/min) for 5 minutes on heart rate and blood pressure and the effect of the same breathing exercise for the same duration of time (5 minutes) following oral intake of hyoscine-N-butylbromide (Buscopan), a parasympathetic blocker drug. They used the subjects and method for this study were Heart rate and blood pressure of volunteers (n = 39, age = 25-40 years) was recorded following standard procedure. The results of the study was noted that after slow bhastrika pranayamic breathing (respiratory rate 6/min) for 5 minutes, both the systolic and diastolic blood pressure decreased significantly with a slight fall in heart rate. No significant alteration in both blood pressure and heart rate was observed in volunteers who performed the same breathing exercise for the same duration following oral intake of hyoscine-N-butylbromide.

Sharpe RM.2000 Lifestyle and environmental contribution to male infertility.

This chapter is an overview of recent developments in our understanding and thinking about the importance and nature of environmental effects on sperm counts and fertility in the human male. This area is plagued by imperfect studies, not necessarily because of imperfect design but because of other 'uncontrollable' constraints. The available data, therefore, need to be placed in context and account taken of the limitations of our understanding or, more correctly, our ignorance. As we enter the new millennium, one of the saddest scientific aspects of human reproduction and infertility is our persisting ignorance about the causes and treatment of male infertility. With one notable exception (Y chromosome microdeletions) there has been little advance in our understanding of the causes of male infertility and its direct treatment over the past 20 years. Although most men with andropause can now be offered the chance of fertility via ICSI, it is largely ignored that this does not represent treatment of the patient's infertility (which will persist unchanged), but is a means of circumventing the problem and leaving it for the next generation to tackle. There are many reasons for our ignorance about the causes of infertility, and some of these are outlined below in order to emphasise how this limits our ability to establish whether or not specific lifestyle and environmental factors do, or do not, affect human male reproductive function.

Upadhyay Dhungel K, et.al, (2008), conducted the study on effect of alternate nostril breathing exercise on cardiorespiratory functions. Pranayama (breathing exercise), one of the yogic techniques can produce different physiological responses in healthy individuals. The responses of Alternate Nostril Breathing (ANB) the Nadisudhi Pranayama on some cardio-respiratory functions were investigated in healthy young adults. The subjects performed ANB exercise (15 minutes everyday in

the morning) for four weeks. Cardio-respiratory parameters were recorded before and after 4-weeks training period. A significant increment in Peak expiratory flow rate (PEFR L/min) and Pulse pressure (PP) was noted. Although Systolic blood pressure (SBP) was decreased insignificantly, the decrease in pulse rate (PR), **respiratory rate** (RR), diastolic blood pressure (DBP) were significant. Results indicate that regular practice of ANB (Nadisudhi) increases parasympathetic activity.

2.2 STUDIES RELATED TO YOGA AND PSYCHOLOGICAL VARIABLES

Sengupta P 2012. Health Impacts of Yoga and Pranayama: A State-of-the-Art Review. Thousands of years ago yoga originated in India, and in present day and age, an alarming awareness was observed in health and natural remedies among people by yoga and pranayama which has been proven an effective method for improving health in addition to prevention and management of diseases. With increasing scientific research in yoga, its therapeutic aspects are also being explored. Yoga is reported to reduce **stress and anxiety**, improves autonomic functions by triggering neurohormonal mechanisms by the suppression of sympathetic activity, and even, now-a-days, several reports suggested yoga is beneficial for physical health of cancer patients. Such global recognition of yoga also testifies to India's growing cultural influence.

Gupta N, Khera S, Vempati RP, Sharma R, Bijlani RL.2006 Effect of yoga based lifestyle intervention on state and trait anxiety. Considerable evidence exists for the place of mind body medicine in the treatment of anxiety disorders. Excessive anxiety is maladaptive. It is often considered to be the major component of unhealthy lifestyle that contributes significantly to the pathogenesis of not only

psychiatric but also many other systemic disorders. Among the approaches to reduce the level of anxiety has been the search for healthy lifestyles. The aim of the study was to study the short-term impact of a comprehensive but brief lifestyle intervention, based on yoga, on anxiety levels in normal and diseased subjects. The study was the result of operational research carried out in the Integral Health Clinic (IHC) at the Department of Physiology of All India Institute of Medical Sciences. The subjects had history of hypertension, coronary artery disease, diabetes mellitus, obesity, psychiatric disorders (depression, anxiety, 'stress'), gastrointestinal problems (non ulcer dyspepsia, duodenal ulcers, irritable bowel disease, Crohn's disease, chronic constipation) and thyroid disorders (hyperthyroidism and hypothyroidism). The intervention consisted of asanas, pranayama, relaxation techniques, group support, individualized advice, and lectures and films on philosophy of yoga, the place of yoga in daily life, meditation, stress management, nutrition, and knowledge about the illness. The outcome measures were anxiety scores, taken on the first and last day of the course. Anxiety scores, both state and trait anxiety were significantly reduced. Among the diseased subjects significant improvement was seen in the anxiety levels of patients of hypertension, coronary artery disease, obesity, cervical spondylitis and those with psychiatric disorders. The observations suggest that a short educational programme for lifestyle modification and stress management leads to remarkable reduction in the anxiety scores within a period of 10 days.

Brown RP, Gerbarg PL.2009 Yoga breathing, meditation, and longevity. Yoga breathing is an important part of health and spiritual practices in Indo-Tibetan traditions. Considered fundamental for the development of physical well-being, meditation, awareness, and enlightenment, it is both a form of meditation in itself and a preparation for deep meditation. Yoga breathing (pranayama) can rapidly bring the

mind to the present moment and reduce stress. In this paper, we review data indicating how breath work can affect longevity mechanisms in some ways that overlap with meditation and in other ways that are different from, but that synergistically enhance, the effects of meditation. We also provide clinical evidence for the use of yoga breathing in the treatment of depression, anxiety, post-traumatic stress disorder, and for victims of mass disasters. By inducing stress resilience, breath work enables us to rapidly and compassionately relieve many forms of suffering.

Brown RP, Gerbarg PL.2005 Sudarshan Kriya Yogic breathing in the treatment of stress, anxiety, and depression. Part II--clinical applications and guidelines. Yogic breathing is a unique method for balancing the autonomic nervous system and influencing psychologic and stress-related disorders. Part I of this series presented a neurophysiologic theory of the effects of Sudarshan Kriya Yoga (SKY). Part II will review clinical studies, our own clinical observations, and guidelines for the safe and effective use of yoga breath techniques in a wide range of clinical conditions. Although more clinical studies are needed to document the benefits of programs that combine pranayama (yogic breathing) asanas (yoga postures), and meditation, there is sufficient evidence to consider Sudarshan Kriya Yoga to be a beneficial, low-risk, low-cost adjunct to the treatment of stress, anxiety, post-traumatic stress disorder (PTSD), depression, stress-related medical illnesses, substance abuse, and rehabilitation of criminal offenders. SKY has been used as a public health intervention to alleviate PTSD in survivors of mass disasters. Yoga techniques enhance well-being, mood, attention, mental focus, and stress tolerance. Proper training by a skilled teacher and a 30-minute practice every day will maximize the benefits. Health care providers play a crucial role in encouraging patients to maintain their yoga practices.

Geeta S. Pастey et. Al (2007) had conducted the study on Impact of Emotional Maturity on Stress and **Self Confidence** of Adolescents. This study was to find out the impact of emotional maturity of adolescents on their stress and self confidence. Sample of the study consists of 105 adolescents studying in XI and XII class at Dharwad city Karnataka State, India. The scales such as emotional maturity (Singh and Bhargav, 1994), Self Confidence Inventory (Rekha Agnihotri, 1987) and Students' Stress Scale (Deo, 1997) were administered on the selected sample. Along with responses to the above scales, some personal data information was also collected from the sample. The obtained responses were scored and converted to standard (T) scores, further subjected to 't' and 'F' tests. The findings revealed that the adolescents with high emotional maturity have significantly high stress ($t=10.44$; $p < 0.001$) and self-confidence ($t=-2.92$; $p < 0.01$) when compared to those with low emotional maturity. Adolescents with more number of siblings have shown significantly higher level of self-confidence ($t = 2.96$; $p < 0.01$) than their counter parts. It is also found that educational level of father has significantly influenced stress of their adolescent children ($F= 5.303$; $p < 0.01$). Adolescent boys tend to have significantly higher stress than girls ($t=1.72$) and girls tend to have significantly high self confidence ($t=1.83$). Adolescents with high emotional maturity have significantly higher stress and self confidence than those with lower emotional maturity.

Sengupta P, Chaudhuri P, Bhattacharya K.2013 Male reproductive health and yogaNow-a-days reproductive health problems along with infertility in male is very often observed. Various Assisted Reproductive Technologies have been introduced to solve the problem, but common people cannot afford the cost of such procedures. Various ayurvedic and other alternative medicines, along with regular yoga practice are proven to be not only effective to enhance the reproductive health in

men to produce a successful pregnancy, but also to regulate sexual desire in men who practice celibacy. Yoga is reported to reduce stress and anxiety, improve autonomic functions by triggering neurohormonal mechanisms by the suppression of sympathetic activity, and even, today, several reports suggested regular yoga practice from childhood is beneficial for reproductive health. In this regard the present review is aimed to provide all the necessary information regarding the effectiveness of yoga practice to have a better reproductive health and to prevent infertility.

K Chandra A, Sengupta P, Goswami H, Sarkar M.2012 Excessive dietary calcium in the disruption of structural and functional status of adult male reproductive system in rat with possible mechanism Calcium is essential for functioning of different systems including male reproduction. However, it has also been reported as chemo-castrative agent. The study has been undertaken to elucidate the effect of excessive dietary calcium on male reproductive system in animals with possible action. Adult male healthy rats fed CaCl₂ at different doses (0.5, 1.0 and 1.5 g%) in diet for 13 and 26 days to investigate reproductive parameters as well as the markers of oxidative stress. Significant alteration was found ($P < 0.05$) in testicular and accessory sex organs weight, epididymal sperm count, testicular steroidogenic enzyme ($\Delta(5)$ 3 β -HSD and 17 β -HSD) activities, serum testosterone, LH, FSH, LPO, activities of antioxidant enzymes, testicular histoarchitecture along with adrenal $\Delta(5)$ 3 β -HSD activity with corticosterone level in dose- and time-dependent manner. Overall observations suggest that excessive dietary calcium enhances the generation of free-radicals resulting in structural and functional disruption of male reproduction.

Kirkwood G, Rampes H, Tuffrey V, Richardson J, Pilkington K.2005

Yoga for anxiety a systematic review of the research evidence. Between March and June 2004, a systematic review was carried out of the research evidence on the effectiveness of yoga for the treatment of anxiety and anxiety disorders. Eight studies were reviewed. They reported positive results, although there were many methodological inadequacies. Owing to the diversity of conditions treated and poor quality of most of the studies, it is not possible to say that yoga is effective in treating anxiety or anxiety disorders in general. However, there are encouraging results, particularly with obsessive compulsive disorder. Further well conducted research is necessary which may be most productive if focused on specific anxiety disorders.

Riley KE, Park CL.2015. How does yoga reduce stress? A systematic review of mechanisms of change and guide to future inquiry. Yoga is increasingly used in clinical settings for a variety of mental and physical health issues, particularly stress-related illnesses and concerns, and has demonstrated promising efficacy. Yet the ways in which yoga reduces stress remain poorly understood. To examine the empirical evidence regarding the mechanisms through which yoga reduces stress, we conducted a systematic review of the literature, including any yoga intervention that measured stress as a primary dependent variable and tested a mechanism of the relationship with mediation. Our electronic database search yielded 926 abstracts, 71 of which were chosen for further inspection, 5 of which were selected for the final the systematic review. These five studies examined three psychological mechanisms (positive affect, mindfulness, self compassion) and four biological mechanisms (posterior hypothalamus, IL-6, CRP, cortisol). Positive affect, self-compassion, inhibition of the posterior hypothalamus, and salivary cortisol were all shown to mediate the relationship between yoga and stress. It is striking that the literature

describing potential mechanisms is growing rapidly, yet only seven mechanisms have been empirically examined; more research is necessary. Also, future research ought to include more rigorous methodology, including sufficient power, study randomization, and appropriate control groups.

Taneja DK.2014. Yoga and health. Yoga has been the subject of research in the past few decades for therapeutic purposes for modern epidemic diseases like mental stress, obesity, diabetes, hypertension, coronary heart disease, and chronic obstructive pulmonary disease. Individual studies report beneficial effect of yoga in these conditions, indicating that it can be used as non pharmaceutical measure or complement to drug therapy for treatment of these conditions. However, these studies have used only yoga asana, pranayama, and/ or short periods of meditation for therapeutic purposes. General perception about yoga is also the same, which is not correct. Yoga in fact means union of individual consciousness with the supreme consciousness. It involves eight rungs or limbs of yoga, which include yama, niyama, asana, pranayama, pratyahara, dharana, dhyana, and samadhi. Intense practice of these leads to self-realization, which is the primary goal of yoga. An analytical look at the rungs and the goal of yoga shows that it is a holistic way of life leading to a state of complete physical, social, mental, and spiritual well-being and harmony with nature. This is in contrast to purely economic and material developmental goal of modern civilization, which has brought social unrest and ecological devastation.

Woodyard C.2011. Exploring the therapeutic effects of yoga and its ability to increase quality of life. The objective of this study is to assess the findings of selected articles regarding the therapeutic effects of yoga and to provide a comprehensive review of the benefits of regular yoga practice. As participation rates in mind-body fitness programs such as yoga continue to increase, it is important for health care

professionals to be informed about the nature of yoga and the evidence of its many therapeutic effects. Thus, this manuscript provides information regarding the therapeutic effects of yoga as it has been studied in various populations concerning a multitude of different ailments and conditions. Therapeutic yoga is defined as the application of yoga postures and practice to the treatment of health conditions and involves instruction in yogic practices and teachings to prevent reduce or alleviate structural, physiological, emotional and spiritual pain, suffering or limitations. Results from this study show that yogic practices enhance muscular strength and body flexibility, promote and improve respiratory and cardiovascular function, promote recovery from and treatment of addiction, reduce stress, anxiety, depression, and chronic pain, improve sleep patterns, and enhance overall well-being and quality of life.

2.3. SUMMARY OF THE LITERATURE

The investigator has collected all the reviews related to yogic practices and diet and related to physical physiological and psychological variables from the library of TNPESU and on the internet to provide sufficient knowledge to the readers and effective analysis of the present study.

Also the reviews show that the effect of yogic training with diet that there was significant changes on physical physiological and psychological variables. The investigator has found much more studies made on yogic practices. So the research was interested in the same and found it would be more useful for andropause men for over all development based on the experience gained the investigator formulated suitable methodology to be an applied in this research this is presented in chapter III.