CHAPTER-II

REVIEW OF RELATED LITERATURE

Research must start with facts and end with facts. The formulation of research problem is on the basis of theoretical perspectives and review of past research it helps the researchers to be acquainted with subject matter and channelize his efforts in desirable direction, it is the basis for formulating desirable hypothesis. Hypotheses are checked against observations and generalized, and the generalizations support, suggest the modification in the subject matter. Therefore the references available for various sources pertaining to present research topic have been reviewed. Important institutions visited for this purpose are libraries of SGB Amravati University Amravati and libraries of Shriman Madhava Yoga Mandira Samiti, Kaivalyadhama, Lonavala, Pune and Amravati Study center, Amravati.

Critical and exhaustive search of the literature emerged out that, although a large number of studies have been made on diabetes, but quite a few studies were conducted on teaching effectiveness. However, an attempt was made to review the important studies. The experimenter attempt to review the earlier studies in relation to yogic exercises and allied areas.

It is proved by varied studies and resulted in the positive effects of yoga exercises on diabetes patients for calculating minimum risk. Some mentioned up to 65% beneficial and implementing effects of this therapy. That were completely controlled by yogic treatment five cases of juvenile diabetes have been forwarded by K. N. Udupa. Global prevalence of diabetes estimated for the year 2000 and its projection for 2030 were published by Sarah W. according to this 31.7 million diabetes cases have been registered till the year 2000 and predicted to be increase up to 79.4 million diabetics by the year 2030. This study was conducted in the developed countries such a UK, Sweden, US. However the same result can be applied for developing countries. The most prevalent age group was found to be 65 years pus old individuals in the developed countries; although for developing countries it would be between 45 year old to 65 years individuals.

Global prevalence of type 2 diabetes mellitus is one of the leading issues in front of the whole world especially for developing countries such as India. An effective management of the disorder can be done by proper medical treatment, self awareness and management,
diabetes education exercise etc. In this article scientific evidences on effective management of T2DM through yoga have been discussed. Results show that Yoga can effectively control biochemical and neuro-physiological variables associated with development and progression of T2DM. This it can be concluded that yoga in addition to the conventional anti diabetic treatment, can work as a complementary therapy to improve patients overall quality of life.

2.1: STUDIES RELATED TO YOGA EXERCISES

Cokolie et.al. (2013), Studied that diabetes mellitus is associated with considerable morbidity and mortality. Their aim was to determine the impact of laughter therapy on the level of blood glucose in diabetic patient of type 2 category. For this study scholars had applied laughter yoga which include respiratory laughing and fun exercises. Out of 211 participants only 110 were involved, whereas 101 participants of controlled group have not participated. The blood glucose level of both group was measured after standard brunch with a total of 250kcal. The procedure adopted was a 90min lecture followed by 30min intense workout after 120min the blood glucose level was measured. Finally, it was concluded that the inhibitory effect of laughter was increase (P<0.05). This study further indicated the importance of daily opportunities for laughter in patients with diabetes.

Kyizom, et.al. (2010), For the study and divided into two groups equally to see the role of pranayama and yoga asana on P300 latency and amplitude in diabetes patients of type 2 category 60 patients of type 2 diabetes patients suffering from diabetes were taken as a sample. (a) Controlled group were treated only conventional medical therapy and (b) yoga group were treated with conventional medical therapy along with yoga asana and pranayama. For both the groups blood glucose and basal recording of P300 were taken initially and after 45 days for both the groups second recording was repeated and noted. P300 was recorded using auditory “old ball paradigm” on Nihon Khoden Nero pack μ MEB 9100. Analysis of data was done using repeated measures analysis of variance (ANOVA) with 5% level of significance followed by Turkeys test with same level of significance. Result obtained indicated significant improvement in the latency and the amplitude of N200, P300, was very low and statically observed in the controlled groups as compare to the yoga group. Scholars suggested and concluded that along with the conventional medical therapy for improving cognitive brain function in diabetes yoga has a beneficial effect on diabetes patents on P300 type 2 diabetes.
Agte et al. (2004), Studied the efficiency of Sudarshan Kriya yoga in combination with micronutrients rich vegetarian diets for the subject with type 2 diabetes. From the centuries, yoga has show positive effects of curing never system. It reduces hyperglycemia in diabetics. It has various modes and positions that are being used for improving health status and to control glycemia which in result improves lipid profile and reduces insulin resistance and improve its prognosis and significant decrease in fasting blood glucose level postprandial blood glucose by yoga therapy and glycostated hemoglobin yogic practices also measures decease impulse rate, systemic and diastolic blood pressure. This study was to examine the potential of Sudarshan Kriya yoga as per the researchers objective; for reducing oxidative stress in plasma of patient with diabetes and assess the effect of the sudarshan kriya yoga on glucose tolerance and lipid profile of patient with type 2 diabetes, The age of patients ranged from 45 – 65 yrs of both genders. And the subject was divided into two groups. They are treatment and non treatment groups. 57 subjects were treatment groups and 30 in non treatment groups. Patient were taught pranayama, asana, meditation along with sudarshana kriya yoga by specialist faculty. Specialize kits were used to measured blood level, lipid profile, hemoglobin etc. oxidative stress was measured as mM. malondi aldehyde ML plasma. Records of subjects, diets and activities were collected for 3 random days via pre tested performs. In last two days of four month biochemical observation was recorded. These data’s were compared using a paired “t test”. Non sudarshana kriya yoga group data were also compared separately for four month. Result suggested a promising potential for sudarshana kriya yoga as a complimentary treatment for diabetes patients. Results also indicated that the effect of sudarshana kriya yoga along with pranayama, meditation, asana, balance diet, might be more effective for intervention as it helps in relaxation of the mind.

Nagraj et al., (2013), Stated that diabetes patient of type 2 mellitus comprise and array of dysfunction. The above disease is characterized by macro vascular coronary peripheral vascular and neuropathic. Diabetes patient underline nerve damages, yoga has been proved beneficial there by reducing hyperglycemia. The objective for this study was to observe nerve conduction velocity variation amongst practitioners and non practitioners of yoga in their daily routine of lifestyle. For this study the subject were equally divided into two groups; the first is practitioners and the another non practitioners of yoga with a sample size of 30 subjects in each groups. Both groups were analyzed for nerve conduction velocity. Result indicates that higher means of yoga groups for nerve conduction velocity as compared to non practitioner groups. Researcher concluded that yoga can be used as a useful supporting
palliative treatment for managing diabetes mellitus type 2 induced nerve damages when compared with non practitioner group of yoga.

**Sahay et al., (2010),** Stated that across the globe diabetes has emerged as major health problem. Diabetes start at much younger age and remain undetected in large population. While practicing yogic postures some common symptoms in diabetes patients after areas. Sugar craving satiating of glucose to cells up insulin levels lower back can be experienced in those with pancreatic issues, numbers or insensitivity occur due to neuropathy extreme sensitive to touch cramps the all having those if is also important to measure teaching consideration to the patients with type diabetes. Having low blood sugar level causes dinginess; sweating shakiness etc. therefore monitoring blood glucose level and regulating eating patterns should be directed by the experts. Researcher studied that approximately 200 million diabetes patient are their around the globe and this dieses spreading very fast and likely to touch 80 millions patient in India. A main cause of diabetes is blindness, chronic renal dieses and non traumatic limb amputation and peripheral vascular dieses. Researcher opined that to prevent chronic dieses like type 2 diabetes it is necessary to have a detail knowledge. The preclinical phase modifiable risk factors, effective and simple tools to identify high risk individual and effective intervention which can be largely affordable and acceptable.

**Arora et al., (2014),** Stated that from our rich India heritage culture yoga is an ancient and practice till date. Yoga is useful in treatment dieses like diabetes, asthama, hypertension, etc. Researchers conducted prospective study to know the effect of yogic exercises on glycosylated hemoglobin HbA1c in diabetes. A base line record of glycosylated hemoglobin HbA1c was made in the beginning of the study and was repeated after three months. The age of the subject ranged from 40 – 60 yrs of both genders who were randomly selected from patient attending medicine OPD in government medical college Amritsar (Punjab). Total sample size was 50. Blood sample were taken in the morning between 6 to 8 am and yoga asana were perform for 30 minutes. After completion of asana again the blood sample were taken and compared with the record of a sample taken before the start of the course. The data obtained was statistically analyzed using P value and standard deviation. Result indicated that out of total 50 subjects there was further decrease in diabetes due to effect of yogic exercises and can lead to better symptomatic and biochemical profile.
Jain et al. (1993), The researcher here studied the change in blood glucose and its tolerance by oral glucose tolerance test. On a sample of 149 non insulin dependent diabetes patient for period of 40 days of yoga therapy. According to severity scale index based on area index total under oral glucose tolerance test response to yogic asana was categorized. The entire subject indicated good response to yogic therapy and there was significant reduction in hyperglycemic drugs. Researcher conducted that physical activity has an important role in the primary prevention of impaired glucose tolerance. An exercise conditioning and yogic exercise cannot be equated to useful and causal physical exercise. Main emphasis in yogic exercise is relaxation, voluntary breath control and maintenance of certain static body postures. Which may be considered a beneficial adjuvant for non insulic dependent diabetes patients.

Yang et al. (2011), The researcher here studied the different modes of physical activity along with dieting which was recommended to type 2 diabetes patients. Diabetes is known as a chronic disease all ever the world and then become socio economic problem. This significant medical issue is related with morbidity and mortality psychological negatively such as anxiety sorrow increases blood glucose level whereas laughter happiness modifies its level. In type diabetes patients’ positive symptoms appeared so close in the study notice includes laughing and fun session of exercises. By promoting weight lost, improving glucose level and reduce in blood pressure researcher studied that yogic exercise was beneficial in reducing risk factors for type 2 diabetes patient The study was conducted on 23 subjects randomly assigned to yoga intervention group for a period of 3 months with two sessions per week. Questionnaire was distributed to the subject and blood test at based line and after three months was analyzed. The result indicated that yogic exercise proved beneficial for risk reduction option for type 2 diabetes patient. Researcher also concluded that by performing specific exercises daily proved beneficial in reducing cardio metabolic risk factors and increasing exercise self efficiency for the subjects.

Waryasz et al. (2010), Here is the study exercise prescription for type 2 diabetes patients for reducing pharmaceutical burden to improve health. Over the years human living conditions and life style is changing unseeingly. Therefore, the effects upon nutrition appear relevantly millions of people practicing various modes, exercises, and going asanas as a part of relaxation which than are gaining positive results also alternative medical approaches with natural strategies are teaching applied for the daily estimates and modifications some patients with diabetes do not respond to the medication. It is observed that this kind of unsupportive
nature of human body for the medication happens due to mental stress anxiety etc. so various suggested or recommended asanas can improve brain function and can respond to the proper mediation. This kind of metabolite disorders originates from damage that results from one free resale. Dietary modification. Yogic postures breathing exercises can be used as complementary therapy for the treatment of mutable disorders. Researcher stated that yogic exercise include low impact exercise, stretching and breathing proved beneficial and also helps to reduce anxiety associated with chronic condition of type 2 diabetes patient. Frequency of yoga asana, intensity and duration is necessary for diabetes patient ability to safely perform for reducing the glucose level. They also recommended that to enable health care professionals for curing type 2 diabetes patient yoga asana have proved and alternate and effective treatment option for type 2 diabetes patient.

Susanta.j. (2013), the purpose of the study was to investigate the effects of Pranayama on selected physiological parameters of middle aged male. There were two groups Experimental and Control Groups. Experimental group consist of 29 male staff (age 40 to 50 years) of a CBSE school, Mechogram, Purba Medinipur. Control Group consist of 26 male staff (age 40 to 50 years) from a secondary boys school Mechogom, Purba Medinipur. Physiological parameters selected for the study were High Density Lipoprotein and Low Density Lipoprotein. The present study has three separate parts pre test, the specific training programme and the post test. Pre test was conducted in a single day before the onset of a planned exercise programme of 15 weeks. All the physiological parameters were measured in a single day. HDL was measured by a physician and Depression was measured through questionnaire prepared by Beck. All the subjects of the experimental group were brought under a common training programme which consists of specific pranayama training i.e. Vastrika, Anuloma- Viloma, Bhramari and Bahya for five days a week, for 45-60 minutes of different intensity, sets and repetitions according to the suitable age group for 15 weeks. The training period was divided into five phases, viz first 3 weeks, 4th to 6th week, 7th to 9th week, 10th to 12th week and 13th to 15th week. After the completion of 15 weeks planned programme the post test was conducted in the similar fashion with that of pre test.

After analysis of the study it is observed that in experimental group, the mean difference between pre test and post test of HDL cholesterol was 2.10 and the t value (9.17) appeared significant following Pranayama training programme t value (1.59) was
insignificant in control group during the experimental period. It is also indicates that in experimental group, the means difference between pre test and post test of Depression was 6.41 and the t value (6.19) appeared significant following pranayama training programme t value (0.43) was insignificant in control group during the experimental period. In the present study significant reduction of depression level was found among the subjects of the experimental groups following pranayama training programme.

Based on the result of the present study, After fifteen weeks of pranayama training programme a significant increment in HDL cholesterol level was observed in experimental group. No significant change was observed in control group. In experimental group a significant damage of depression was observed and there was almost no change in control group.

Murugesan et al, (2011) Diabetes is a silent killing metabolic disease. It is a condition in which the pancreas has no longer produces enough insulin or stops the production so that glucose in the blood cannot absorbed by the cells of the body. Now the researchers found, physical inactivity is one of the main reasons for the cause of diabetes. It is the purpose of the study to find out the influence of yogic practices and asana on insulin level of diabetic patients. For the purpose of this study, sixty (60) Diabetic patients were selected on random basis from Virudhunagar District in Tamilnadu. Their age group ranges from 35 to 45. The selected Subjects were divided into four equal groups of fifteen (15) each, and the experimental group A would undergo yoga Programme, experimental group B would undergo Yoga; Yoga and asana Programme would be for the experimental group C and experimental group D is control group not undergo any practices. Blood samples were collected from the subjects before and after the training to find out the level of insulin. StandardCLIAlab test was used to find out the insulin level of diabetic patients. As per the data collection, it is statistically analyzed by using t-test, analysis of covariance (ANCOVA) and schiffs post hoc test to find out the pre and post test training performances which compare the significant difference between the adjusted final means and the better group. The results revealed that yogasanas asana had significantly increased the insulin level of diabetic patients.

Centra et.al, (2004), the design of the study was an authoritative, research based guide to determining faculty effectiveness is offered. Assessment of classroom teaching, scholarship and research, public service, and student advising are faculty tasks examined for
personnel decisions and general improvement. Emphasized on educational accountability in academe, due to declining enrollments and financial cut, backs, is noted. Developed to aid administrators and faculty leaders in upgrading their institutions faculty evaluation programs, the book focuses on the traditional evaluation methods and innovative ones (such as videotape playback sessions and individualized professional growth contracts). Chapters discuss: Aims and objectives of the evaluation of faculty valuation and use of student rating; various benefits of self assessment and analysis; measurement of student based learning; research advising analysis; and social service; legal fact-sheets and personnel opinions and decisions as well as assembling data for decision making. Facts about available student rating instruments are examined in the appendix. A list of exhibits offer statistical and general information ranging from the student Instructional report (SIR) to analysis of instruction: lectures, discussions, questioning.

Nagarathna, (2004), The study consists of Yoga asana, pranayama and kriya along with control yogic diet containing 60-50% carbohydrates, 15-20% proteins and 15-20% fats conducted on 149 type 2 diabetes subjects. Subjects were admitted to hospital under control for 40 days, 1.5 hr morning and 1 hr evening parameters studies include chest cardiogram ECG, FBG and PP. Glucose excretion was check daily. On the basis of these results subjects were categorized into three groups as follows, group I poor response characterized by abnormal OGTT, max exceeding 300 mg dl and hypoglycaemic drug requirement was not reduced. Group II fair response characterized by OGTT max. Did not exceed 210 mg/dl and hypoglycemic drug requirement was substantially reduced. Group III good response characterized by normalized OGTT max. Or did not exceed 201 mg/dl and hypoglycaemic drugs no longer required to maintain blood glucose. Investigated forty nine patients with established diabetes mellitus took part for fifteen days in a yoga camp where an integrated approach of yogic practices was used. A significant change was shown in the parameters, weight and blood sugar (fasting and postprandial blood sugar). Even the group with no change in weight, imparted a significant decrease in the level of the postprandial sugar, indicating that the results might not be due to the reduction in obesity.

Desai, (2005), conducted a study on “An influence of yogic treatment of serum lipase activity in diabetics.” Eight diabetic of both the sexes in age group of 25-30 years (adult diabetics) undergoing yogic treatment for seven weeks in S.A.D.T. Gupta Yogic Hospital, Kaiwalyadhama, Lonavala in two different batches. Practicing certain yogic postures are known to have positive and effective benefits on hungry body. There can be seen therapeutic
effects on endocrine mechanism. Clinically, diabetes is an extremely serious standpoint regarding public health. Indian Ayurvedic systems continuously working on it prove the ancient times as of yoga. Most of the researches have been accomplished in Indian. Many scientific modalities have been subjected to empirical evaluation. Their basal serum lipase activity were recorded and repeated after seven week of yogic training. During treatment period various yogic practices comprising of kriyas, asanas and pranayama and time were daily given e.g. one hour in the morning and also in the evening. Over the period of study he was observed a significant reduction in serum lipase activity in eight diabetic patients due to continuation of yogic treatment for seven weeks; Subjects were studied to see the influence of seven weeks of yogic training-cum treatment. Their basal serum lipase activity were recorded and repeated after seven weeks of yogic training. Over the period of study he was observed a significant reduction in serum lipase activity in eight diabetic patients.

Halderer et al, (2012), The concerning study was carried out to evaluate the effect of three months yogic practices on ventilator functions. Methods: Sixty (n=60) healthy male volunteers (age range 21–33 years and height of 174.8 ± 3.52 cm) drawn randomly from BSF personnel participated in the study. Participants practiced yoga under supervision of professional yoga instructor, two hours daily five days a week, along with their daily routine activities. Standing height, weight and dynamic lung function tests viz. Forced Vital Capacity (FVC), Forced before and after 3 months of yoga training.expiratory Volume in 1st second (FEV1) and Maximum Voluntary Ventilation (MVV) were measured Tiffeneau index (TI) was calculated before and after the said training. Results: After three months of yogic practice, there was no significant change in body weight with a trend of reduction. MVV increased significantly (P < 0.01) while the other parameters viz. FVC, FEV1 and TI did not change significantly. Conclusion: Increase in MVV indicates that yogic practices improve the pulmonary capacity of practitioner which can help in enhancement of ventilatory functions and significantly increased the insulin level of diabetic patients.

Brown, (2005), conducted the effects of educational interventions in diabetes care. Various studies on the effect of patient learning strategies and self-care behavior, and metabolic control were analyzed by using meta-analysis technique. Variables, such as type of patient instruction, type of research design, and overall quality of the study, also were analyzed. The 236 effect sizes had an un-weighted mean of 0.91 and a weighted mean of 0.33. The weighted mean effect size for studies with control groups (N=27) was and the weighted mean effect size for studies using the one group pretest-post test design (N=20)
Homogeneity analyses which resulted in weighted mean effect size estimates for knowledge sub-variables ranging from 0.41 to 0.91; for performance of skill, 0.25 to 0.38; for compliance, 0.24 to 1.01; and for metabolic control, 0.06 to 0.84. Experimental mortality was the only variable significantly correlated with the overall weighted mean effect size, $r = -0.52$, $p < 0.002$. The results of this study clearly support the notion that patient teaching has positive outcomes in diabetic adults. Furthermore, methodological issues were important factors which influenced these findings. For obtaining a fasting lipid profile on children greater than two years of age exactly after the diagnosis is quite necessary. If there is family history of hypercholesterolemia before the age of 55 years or if the family history is hidden. If family background is of no such history the first lipid screening at puberty should be considered. The children who are diagnosed at or after puberty consider obtaining lipid profile. If there is abnormality in lipids for both age groups then annual monitoring is essential. If the accepted risk in cholesterol values level then repeating lipid profile after every five years is reasonable.

It this respect initial there, may consists of optimizing of glucose control guiding dietary to decrease the amount of saturated fat after the age of ten years of the child who has LDL cholesterol $7/60$ mg/dl or LDL cholesterol $7/30$ mg/dl in addition of a stain in it will be reasonable. The ultimate aim of this therapy is to lower LDL cholesterol value <100 mg/dL.)

For those patients who have diagnosed in childhood with type 1, relate with a high risk of early subclinical and CVD. Having lack in intervention data, AHA categorizes children with type 1 in highest tier for cardiovascular risk and recommends both lifestyle and pharmacological treatment. to AHA which restricts saturated fat up to 7% of total calories and restricts dietary calories up to 200 mg/day based on the initial therapy should be with steps. This data randomizes clinical trials in children with seven months of age and the diet is safe for normal growth and development among such cases.

However, recent studies have shown short-term safety in adults in lowering LDL cholesterol levels, and improving endothelial function none of any statin theory has been established for children. and no stain is approved for use under the age of ten. This also not to use on children with type 1 patients.

Gore, (2006), The concerning study of yogic treatment for diabetes, he emphasized on relaxation and tranquilizing were the main objectives of yoga and practice. He was treated that beneficial effect of yoga training on six out of nine diabetics in respect of fasting and postprandial sugar levels, sugar in urine, glucose tolerance and medication. A leading cause
of blindness is diabetic retinopathy. On the other side most of the patients remains as they are. It is divided into two categories- 1st Simple and 2nd is proliferative. The earliest sign of retinal change is an increased capillary permeability that is evidenced by leakage of dye into the vitreous humor after fluorescein injection. Occlusion of retinal capillaries follows, with subsequent formation of secular and fusiform aneurysms. Arteriovenous shunts also occur. The vascular lesions are accompanied by proliferation of lining endothelial cells and a loss of the pericytes that surround and support the vessels. Hemorrhages into the inner retina areas are dot shaped, while bleeding into the more superficial nerve fiber layer causes flame-shaped, blot, or linear lesions. Preretinal hemorrhages characteristically have a boat shaped appearance. Exudates are of two types. Cotton wool spots can be shown by angiography to be microinfarcts-nonperfused areas surrounded by a ring of dilated capillaries. A sudden increase in the number of cotton wool spots represents an ominous prognostic sign and may herald the appearance of rapidly advancing retinopathy. Hard elucidates are more common than cotton wool spots and probably represent leakage of protein and lipids from damaged capillaries. Retinal edema due to the previously mentioned increase in vascular permeability is most often seen in the posterior pole of the eye, often in association with hard exudates. If the edema is in the muscular region visual acuity may be seriously apermanently impaired. Macular edema should be suspected when loss of visual acuity is not corrected by glasses, especially if posterior pole exudates are seen. Edema is difficult to recognize without slit lamp examination or stereoscopic fungal photographs. Consultation with a retinal surgeon should be sought early, since vision may be spared by laser therapy of the muscular edema. The fundamental characteristics of proliferative retinopathy are new vessel formation and scaring. The stimulus for neovascularization may be retinal hypoxia secondary to capillary or arteriolar occlusion. Two serious complications of proliferative retinopathy are vitreal hemorrhage and retinal detachment. Either may cause a sudden loss of vision in one eye. Treatment of diabetes retinopathy is photocoagulation. Such treatment decreases the incidence of hemorrhage and scaring and is always indicated when new vessel formation occurs. Photocoagulation is also useful in treatment of micro aneurysms, hemorrhages and muscular edema even if the proliferative stage has not begun. Pan retinal photocoagulation is often used to diminish retinal demands for oxygen in the hope that the stimulus for neovascularization will be decreased. In this technique, several thousand lesions are produced over a 2 week period. Complications of photo coagulation are within the acceptable range. Some loss of peripheral vision is inevitable with extensive burns. Pars Plana Vitrectony is another surgical technique which is utilized for the treatment of non resolving virtual
hemorrhage and retinal detachment. Postoperative complications are more frequent than with
photocoagulation and include retinal tears retinal detachment, cataracts, recurrent vitreal
hemorrhage glaucoma infection and loss of the eye.

To vary with the age of onset as well as the duration of the disease is appeared the
frequency of diabetic retinopathy. About 85% of the patients deliberately develop the
complications but some never develop lesions even after 30 years of the disease. In older
patients retinopathy develops very early. Fifty percent of the patients with proliferative
disease advances to blindness within five years. It is more common in insulin treated patients.
various vigorous aerobic or resistance exercises may be contraindicated because of triggering
retinal detachment or vitreous hemorrhage in its presence.

Sahay, (2006), In the concerning study the role of yoga in the control of diabetes
mellitus,Fasting and Post lunch blood sugar levels came down significantly. The patients
develop a sense of well being within 10 days, with lowering of the dosage of drugs and
diminished incidence of acute complications as infections and ketosis. There were prominent
changes in the “Insulin Kinetics” and those of counter-regulatory hormones like cortical. We
identified specific practices for diabetes. They have carried our long term follow up studies in
thirty patients for periods ranging from 2-7 years. There was a smooth and sustained control
of diabetes in these patients as assessed by periodic blood sugar values and estimation of
HbA1c. The incidences of long term complication as well as acute complications were
significantly low.

Varandani, (2006), administrated two hundred eighty six patients with diabetes of
different degrees of severity took part in a three months yoga therapy course (Hatha yoga
cleansing process and exercises), with a strict diet and no drugs 25% had a normal blood
sugar level at the end and 27% had an improved blood and urine chemistry without reaching
normal values. The 25% who did not react to the therapy consisted mainly of persons who
have diabetes since their childhood or who had needed large quantities of insulin before. This
kind to diabetes is increasing in adolescent. It is generally appears in people with ethnic
minority. Between type 1 and type 2 can be difficult due to the presence of auto antigens and
ketosisas in destination of children and in such distinct diagnosis is critical because treatment
dietary plan, educational approach will differ between the two.

During the diagnosis process., Type 2 has prominent incidence of co – morbidities.
various tests such as blood pressure measurement eye examination, fasting lipid profile are
recommended. Therefore screening Guidelines are similar to those with type 1 diabetes for the treatment of hypertension, dyslipidemia, retinopathy microalbuminuria. Additional problems e.g. polytheistic ovarian disease and various morbidities need to be addressed. ADA consensus statement on this subject provides guidance on the prevention in youngsters.

**Bhat, (2007),** A study conducted here, role of yogic practices on effective control of diabetes. It is one of the major health problems affecting about 5% of Indian population. Yoga is an ancient, conventional in Indian psychological, physical and spiritual exercise regimen that has been studied for several decades. As per its role in the management of several chronic diseases including hypertension, asthma, obesity, neuromuscular diseases and psychiatric illnesses. Yoga is most notably specified as a mind-body therapy composed of various breathing and relaxation techniques, including meditation, postures, and phrase recitation to improve physical and mental illness. Complications involved in management of diabetes and increasing prevalence of diabetes every year, have been emphasized on the need for efficient control. Diet control, exercises and meditation with insulin and or antiglycemic drug are the presently available treatment procedures. Stress management is also important in preventing the onset as well as controlling diabetes. Yoga includes moderate exercise, diet restriction, relaxation techniques etc. is a very good stress management system. Yoga brings harmony in body and mind, and keeps the person healthy, both physically and mentally. Literature survey indicates that effective control of diabetes, both IDDM and NIDDM can be achieved by the yoga practice. This can be explored by further experimental researches.

**Gordon, (2008),** Affect of exercise therapy on type II diabetes patients. The objectives were to analyses the efficacy of the treatment by measuring the lipid profile and oxidative stress indicators in type II diabetes patients. Study design used was randomized control study on sample size of 231 type II diabetic patients and were divided into 3 group viz. Hatha yoga, conventional PT and control. Duration of the study was 6 month period. Observation: fasting blood glucose total cholesterol, lipid peroxidation were decreased significantly in yoga, as well as, PT groups. The study is resulted in the efficacy of Hatha yoga on FBS, lipid profile oxidative stress markers and antioxidants in type II diabetes.

**Gore, (2009),** examined that yogic treatment was given to nine diabetics for five weeks. The mental relaxation and tranquilization were emphasized more. This was special approach than the usual concept of physical exercises in the yogic treatment this diet was regulated in terms of their calorie requirement. Fasting as well as postprandial blood sugar
reduced significantly from 191.7 and 134.1 mg/100ml blood and 282.9 to 214.5 mg/100ml Bloods respectively after the yogic treatment. Glucose tolerance increased Psychological makeup and the general feeling of all being also improved. The medicinal doses were reduced. Follow of study on four patients after six months, showed further improvement was to continued yogic treatment. Since the diabetes is a stress disorder, the above approach seems to be appropriate, on the basis of the results. Continuous medical treatment and care is required to Diabetes, as it is a chronic, polygenic disease which requires utmost Self management education for a going patient is essential for preventing acute complications and for reducing further risks. Diabetes care is complex one therefore it needs to have multi tasking risk reduction treatment. There is intended to provide various individuals with components of diabetes care, tools, etc. to evaluate the quality of care. Certain patient factors like co-morbidities, individual preferences require modification of goals which are determined targets for most patients. Litled section of the section specifically marks children with diabetes, pregnant women, and pre-diabetic patients. These standards do not need to preclude evaluation or judgment of the patient. These standards included screening, diagnostic, therapeutic treatments.

It is essential to perform to classify the diabetes, detect the complications, risk factor control in patient and provide basis for continuers care. Laboratory tests should be performed to evaluate each patient’s medical condition. To ensure optimal management of the patient Diabetic patients should receive medical care and treatment from the learned and trained team of medical personalities as health care team will be assisted. The patient should assume active role in their care by the collaborative team approach. and management plant should be formulated as an alliance among the patient and family and medical personalities as well.. To provide adequate education and development of problem solving various strategies and Techniques should be used. It is necessary to take account of treatment plan and patient performances for implementing the management plan Plans have to recognize self management education in diabetes patients. It must support for integral caring components. Patient’s age, conditions, duties or works, physical fitness and activity, etc. should be considered while developing the plan.

Perry, (2009), has investigated the impact of lifestyle education on diet, exercise, metabolism, in people with diabetes. Throughout this study he has randomized 61 volunteers as subjects for six month’s standard education programme. He has divided them into tow group namely Group – I and Group – II. After the completion of six month Group – I subjects
received routine surveillance and Group – II intensive advice. Present insulin advises and plans were implemented for the optimization of glycemic control. The result of the study showed that glycate hemoglobin decreased significantly in both groups. The improvement being sustained during the time span. Comparable changes in Group-I regarding low density lipoprotein (LDL) were seen at the trial but decreases were only seen in Group – II. It is also observed that the programme has changed diet and exercise habits which are sufficient to improve the measures of glycemic control.

Krook, (2011), investigated lifestyle modification programme. He tried to reduce risk factors in subjects with type 2. Three hundred and four individuals were participated in this programme. Regarding exercise training, they received information and practical guidance nutrition management and psychological counseling. Parameters were determined at each visit. Significant improvement in glycemic control is appeared (P<0.0001) After finishing the programme. Oxygen uptake and blood pressure, body mass index and serum cholesterol was significantly reduced, while HDL cholesterol values. Subjects also reported increased well being and reduced stress. It was concluded that a 31 weeks lifestyle modification program results in marked improvements in glycaemic control, blood pressure and well being in subject with type-II diabetes.

Shengagavalli, (2011), conduct a study on Effect of yoga and walking on the selected physiological bio-chemical and psychological variables in diabetic patients. In this study sixty diabetic patients were divided into four groups of fifteen each, Control group and experimental group I, II and III, walking group yoga group and walking and yoga group. Pretest and post test scores were computed. The treatment was given for twelve weeks. Analysis of co variance statistical technique was used to test the adjusted post test mean difference among the experimental groups. The Schaffer’s post hoc test was used to determine the significance of paired mean difference. Respiratory rate, vital capacity blood sugar cholesterol, anxiety and stress were significant changed due to the effect of yoga and walking in a favorable direction. The control group was was out of any kind of training. The second group would undergo walking. The third group would undergo yoga while yoga and walking would be for the fourth group. Pre test and post test scores were calculated. The treatment was given for twelve weeks. The selected tests were measured by the following units for testing the hypotheses: Respiratory rate was measured in number of breath per minute. Vital capacity was measured as the largest quantity of air and the wet spirometer was used to find out vital capacity. Blood sugar was checked by the level of sugar in the blood in
milligram. The cholesterol was measured by the level of cholesterol in the blood in mg with the procedure prescribed by Assatoor and king zak’s. Anxiety and stress was measured in points and the procedure was through scoring questionnaire.

The scheffe’s post hoc test ordered adjusted means between the groups for respiratory rate, vital capacity blood sugar, cholesterol anxiety and stress. The means difference between control group and walking group, control group and yoga group, control group and walking and yoga group, walking group and yoga group, walking group and walking and yoga group. The scheffe’s post hoc test confidence interval value is less than the mean difference value the difference is significant when the confidence interval value is more than the mean difference the value is insignificant.

The findings of the study showed that the experimental group III had reduced respiratory rate reduced vital capacity reduced blood sugar reduced cholesterol reduced anxiety and reduced stress more than the experimental group II. It was further shown that the experimental group I was better than control group. Physical training brings out local changes in the muscles; improve neuron-muscular co ordination of activities and a series of more general cardio respiratory changes. During exercise, when expiration is not passive the expiratory muscle forcefully contract to expel air rapidly. Breathing is cyclical because of the alternating excitation and inhabitation of the respiratory centers. Depth of inspiration depends on the numbers of motor units firing and their frequency of discharge whereas respiratory rate depends on the length of time elapsing between firing. During heavy exercise tidal volume, aspiratory reserve volume and expiratory serve volume to meet the increased needs of the cells for more O2 and removal of excessive Co2. Tidal volume approaches vital capacity because excessively deep breaths rapidly exhaust the aspiratory and expiratory muscles bringing Vo2 maximum increases. So vital capacity is also increased.

Five endocrine glands and at least eight hormones secreted by those glands function as key parts of the glucose homeostatic mechanism sugar regulating hormones where as insulin tends to decrease tropic hormone and Glucocorticoids are two more hormones that increase the adrenal cortex to increase its secretion of gluconeogenesis. They do thus by mobilizing protons, that is the break down or hydrolysis of proteins to amino acids. More amino acids enter the circulations and also new glucose streams from the mobilized amino acids. More glucose streams out of liver cells into the blood and adds to the blood glucose level. Many studies are occurred look at the effects of yoga on anxiety levels in non clinical samples. Yoga produce an anxiolytic effect, the exact mechanism is likely to be compels.
Yoga may be delivered as a complete intervention and different aspects are delivered separately such as reductionist approach may result in loss of efficacy. During exercise one cannot feel anxiety tension and stress. The uses of regular exercise as a stress management technique has beneficial for mood enhancement, increased self confidence and decrease psychological and physical stress. Further the greater the skill in exercise greater the appreciation of the quality of life and self discovery through exercise. We can use yoga meditation not only as part of a program to reduce stress, but also as a way to assist in attaining other goals. We can use meditation to help motivate us to exercise, maintain a proper diet and sleep better.

Respiratory rate, vital capacity, blood sugar, cholesterol, anxiety and stress were significantly and favorably changed due to the effect of yoga and walking. In respiratory rate, vital capacity, Blood sugar, cholesterol, anxiety and stress the experimental group III showed a significantly greater change than experimental group II experimental group I and control group. The yoga group showed significant improvement over walking group and was significantly better than the control group.
Bijlani, (2012), examined that impact of lifestyle based upon intervention of yoga exercises. The variables were measured at the beginning and at the end. The study was based upon the data collected after studying the subjects. Study included 67 males and 31 females of 20-60 years of age. Patients with hypertension, coronary artery diseases, diabetes mellitus and so many other diseases were the subjects of study. The study was carried out in an integral health clinic where the modification programme was conducted for the prevention of chronic disease, fasting plasma etc. During this study it is seen that within a period of 9 days modification program and lifestyle education programme lead to favorable effects.

Innes et.al, (2013), the study includes life changes such as mental and physical activities and complete vegetarian diet as suggested in yoga. This has brought positive changes in 87 diabetes subjects aged 45 to 65 years old. They were intervened for yoga up to 4 months. Yoga intervention design consists of SKY asana, pranayama, meditation and interactive discussion on stress free life. Effect of the therapy reflected s reduction in fasting FBG, PP, TC, TG Hb increased HDL level jointly administered that yoga may be safe and effective intervention for type 2. This research was restricted to original studies. Target of the study was to cover clinical populations with cardiovascular disorders. Also, evaluated data have to be extracted regarding study design. The quality of study was judge according to the predetermined criterion. They identified 25 eligible studies. These studies suggest beneficial change in several risks.

Aljasir, (2013), brought out the effects of yoga practices for the management of type 2 diabetes. Each study was decide and all randomized controlled clinical trials were included for summarizing the effects of each outcome. Due to wide clinical variation pooling of the studies did not take place Statistical methods were used. The improvements were statistically significant. The result were inconclusive no adverse effects were reported. Antioxidant activity of exercise have been studied which shows that Hatha yoga practices are as effective as physical exercises. They have experimentally observed the decrease in MDA concentration and increase in SOD in non-insulin dependent diabetes patients. There is only one study identified based on effect of yoga asana which improve nerve conduction velocity in type 2 diabetes, subjects with sub-clinical neuropathy, whereby BMI units showed favorable but not significant decrease.
2.2: STUDIES RELATED TO TEACHING EFFECTIVENESS:

Hermanason, (2005), assessed Research has not elucidated a strong significant statistical relationship between the effectiveness of teachers in the classroom and their scholarly productivity. There are some weak correlations between certain teaching attributes and scholarly productivity including intelligence subject knowledge, and preparation. The studies do not show a negative correlation between teacher's effectiveness and scholarly productivity. The problems with elucidating statistically significant relationship between teacher's classroom ability and scholarly productivity are probable the result of measurement problems and a positive relationship likely does exist. It seems apparent that the increased knowledge gained through scholarly makes teacher more effective in the classroom.

Stivers, (2005), examined extent to which findings from research on teacher's effectiveness are represented on the national teacher's examination test of professional knowledge was studied through Delphi investigations. Phase-I identified and rated seven research reviews. Phase-II with twelve panelists examined the relationship of test items to research findings from 1 review. The teacher should be fully committed to his subject and profession. It is only this sense of commitment which would serve as a stimulus for good work. If he lacks the sense of dedication, he would be hindering his own and his pupil's development. “A good teacher's first attribute is that he would be a teacher and nothing else and he should be trained as a teacher.” Thus a teacher should take to his work with his whole heart. Teaching is a relationship which is established between three focal points in education, the teacher, the child and the subject. Teaching is the process by which the teacher brings the child and the subject together.

Zounhia, (2005), the purpose of their study was to explore differences in instructional and pedagogical effectiveness among Greek secondary school teachers of different subjects as perceived by pupils. In this study 165 pupils aged 13-15 years from thirty three secondary schools in Athens, Greece, completed questionnaires regarding the effectiveness of 253 teachers. Within the framework of teacher preparation at university, the results indicated no significant differences in instructional and pedagogical effectiveness between those who attended courses in pedagogy, psychology and instructional knowledge and those who did not however, pupils perceived the instructional role of teachers to be higher than the pedagogical role. Moreover, in
teachers of different subjects, instructional and; pedagogical effectiveness were associated and correlated to each other.

**Rao et al, (2006),** studied teacher effectiveness is the effective linkage of teacher competence and teacher performance with the accomplishment of teacher goals. It mainly depends on the teacher characteristics such as knowledge base, sense of responsibility, and inquisitiveness; the student characteristics such as opportunity to learn, and academic work; the teaching factors such as lesson structure, and communication; the earning aspects such as involvement and success; and the classroom phenomena such as environment and climate, and organization and management. If the teachers take care of these factors, their effectiveness can be enhanced to the optimum level. Considering the very importance of teacher effectiveness, this study has been undertaken to study the teacher effectiveness of secondary school teachers. The secondary school teachers are possessing high teacher effectiveness. This study will be very much helpful to the educational policy makers, planners, administrators and teachers in enhancing the teacher effectiveness to realize the educational objectives and national goals.

**Clemente, (2007),** assessed the effective teaching in respect of quality education. In the field of educations it is an attempt to cope up with advancement of the modern education. The clamor in Philippines education has been evaluated and thoroughly discussed for quality higher education. According to this study there may be a lacking device for quality graduates. With the excess supply of degree holders there can be a shortage of quality graduates. Report manifested that low percentage of graduates and the increasing number of teacher education graduates is continued to alarm the nation.

From these studies, it can be deducted that most tertiary institution has not successfully produced students armed with quality learning. Quality learning is related to good teaching or teaching effectiveness. Trying to see the relationships between the quality of students learning and student perception of learning, it was found out that students were more likely to learn effectively if the academic department were perceived to provide characteristics, like good teaching openness to students, freedom in learning, clear goals and standards and appropriate workload.

**Selwa, (2008),** examined the behavior between clinical teacher and baccalaureate nursing students. Teacher behaviors that were found to be significantly associated with student learning
outcomes included flexibility, giving opportunity to observe, quality of answering question, quality of discourse feedback specificity, and concern for the learner's progress and problems.

**Mandlik, (2010)**, Comparison between two modes of teaching methodologies viz. traditional teaching and teaching with audio-visual aids for a yoga teacher programme. The teacher training programme includes 12 practical sessions in the beginning of the programme. In these sessions the basic principles of teaching methodology are explained with reference to yoga proves course. The demonstration of the teaching practices are given in details. This is a crucial part of the programme and needs the expert trainer. The expects are not available and it is very difficult to train the trainer. The demand of TTC is increasing and we have to arrange these programmes very often. The experiment was carried out on the group of students of teacher training course at our institute in Nashik in the month of April the total participants were 78. The students were required to practice 11 micro lessons based on the syllabus. The expert observer was present during the practice of micro lessons in the class. Each student has to conduct 2 full lessons of one hour each which were again observed by the expert teacher. This part of the course was common for both the batches.

The coefficient of Variation for Group I is 10.87 which is less than group 2 i.e. 16.57. This indicates that Group I is more consistent as compared to 2 groups. Average score for the Igroup is (148.4) which is also more than the 2 Group (137.3). This experiment proves the effectiveness of the audio visual aids resulting in better performance as compared with the conventional direct training in the class through an expert teacher.

**2.3: OTHER RELATED STUDIES:**

**Barnard, (2006)**, studied the effectiveness of intense diet and exercise schedules for controlling diabetes mellitus and macro-vascular associated risk factor. Medical charts were screened for patients with NIDDM which were obtained from the 4,587 participants. Total 652 patients were identified and their responses for three week’s programme were analyzed. Fasting glucose level appeared reducing in the observation. Blood pressure also reduced serum total and LDL also reduced by 22% finally it is concluded that lifestyle consisting balanced diet and aerobic exercise can be effective for controlling NIDDM and reducing risk.. When you digest food, your body converts that food into glucose. A hormone called insulin allows this glucose to enter in every cells of your body and be used as energy. Mishandling of your diet causes various
problems such as rejection of insulin conscious overeating, suffering of depression etc. As your acquainted with your health care team you will begin to feel freer and happy to share details regarding your diabetes. They will definitely help you to find ways and techniques to approach everyday problems. After this it seems as the part of day to day life.

Expertise or the team might have so many constructive ideas. They encourage participation in a family therapy session. In fact by doing this they will learn about you and your family problems regarding diabetes to cope up with mechanisms to fight with diabetes. They may suggest possible tricks and techniques for emergency cares to reinforce support and provide a working model for adjustment to life.

Ybarra, (2007), assessed the efficiency of a modest weight loss. Also rapid improvement in glycemic control evaluated. They followed hypo-caloric balanced diet. The fat contents were lowered. Plasma lipid and lipoprotein level were measured in fasting by cumulative flotation ultracentrifugation sub-fraction and lipoprotein of low density were obtained finally it is concluded that patients can achieve improvement in cardiovascular risk factors. Before suggested guidelines and prior to approving any exercise programme, patients should be check with multiple cardiovascular factors for coronary artery disease. Which stand called as CAD? As per the discussions the area of screening asymptomatic diabetic patients for CAD remains unclear. Recent ADA consensus concluded that routine exercise is not necessary. Readers and providers can use clinical judgments here. Of course, high risk patients should start with low intensity exercises and period of time should increase the intensity and duration of the exercise.

Physicians have to evaluate patients for condition that might contraindicate certain types of exercises are not useful who suffer from particular decease like uncontrolled hypertension, autonomic neuropathy, and peripheral neuropathy. Patients’ age and previous exercises should be considered to perform this kind of activity. When it appears that people with Type – 1 diabetes are deprived of insulin for twelve to forty – eight hours. However, check your urine for ketones if your blood glucose level is higher. It you have ketones then do not exercise. ketones are present then exercising your blood glucose level go even higher.

Barman, (2007), Concerning study is on the Effect of yogic asana on health related physical fitness in school children. The effect of regular practice of yogic asana on health related
physical fitness is to determine the aim of this study. Here in this study, total 48 residential male students are participated in this study. They were randomized into two equal groups as yoga group and waitlist control group. Yoga group was regularly practiced only yogic asana for 1 to 1.5 hour per day, 6 days per week, for 12 weeks with a progressive load method. The health related physical fitness was assessed by measuring strength muscular endurance cardiovascular endurance flexibility and body composition. In the present study all the measurements were done at the baseline after 6 to 12 weeks of asana training. A repeated measure of ANOVA followed by post hoc analysis was used for analyzing the data. Simple percentage also calculated from the mean value to see the quantitative changes of the asana training. After 12 weeks, yoga group showed prominent improvement in right hand grip strength (14.105) left hand grip strength (16.28%) muscular endurance (77.59%) cardiovascular endurance (8.61%) flexibility (18.72%) where as lean body mass (7.69%) and body fat percentage (33.63%) decreased significantly. It is concluded that yogic asana alone may elicit a positive improvement in the health related physical fitness. This is an experimental prospective randomized control trial study. In this study two group namely yogic asana group and waitlist control group stayed in the school hostel and their diet pattern life style were not different in nature. Before introducing yogic asana training both the groups’ initial data of all parameters were recorded. Then after 6 and 12 weeks of regular asana practice again all the variables were measured for the two groups. During the period of experiment the control group we maintained similar life style and only observed yoga asana practice in the practice time.

Health related physical fitness, i.e. muscular strength, muscular endurance, cardiovascular endurance, flexibility and body composition are significantly improved through this study 12 weeks practice of yogic asana. We did not found any study the alone analyzed the effect of yogic posture on health related physical fitness. Most of the studies combined with other yogic techniques and exercise. This may be the first randomized control trail to observe the effect of yogic posture on physical fitness. Here we are reporting only health related physical fitness, elsewhere we will report comfortable related outsoar fitness. Through this researcher observed that right hand grip strength improve (14%) and left hand grip strength improve (16%) after 12 weeks of yogic asana practice. Strength may be increased due to improvement in integrity of motor neural pathways muscle bulk and contractibility or favorable effect on energy metabolism in skeleton muscle. Muscular endurance increased (38%) after 6 weeks and (77%)
after 12 weeks yogic asana practice. Cardio respiratory endurance measured by 600 yards run and walks improve (8%) after 12 weeks yogic asana practices. Scientist has shown that yoga training improves the cardiac recovery index, cardiovascular endurance and anaerobic power and decreased blood pressure either at rest or during exercise. Some multidisciplinary studies reported increased VO max. Yoga in long duration effect hypothalamus, decrease the systolic and diastolic blood pressure through its influence on vasomotor centre. It leads to reduction in sympathetic tone and peripheral resistance. Reports suggested that yoga reduces sympathetic tone increases parasympathetic tone and improves cardio vigil function. To increase the stroke volume through the arterial baroreflex mechanism was the Hemodynamic effect of Yoga training.. Yoga training improves thermoregulatory efficiency, respiratory muscles strength and endurance. Suryanamaskara is increased vigil tone reduces basal metabolic rate and resting consumption. Also there are some reports that Suryanamaskara increases VO max due to reduction of O2 consumption in resting condition and greater utilization at cellular level and improves cardio pulmonary efficiency in healthy adolescence,. In this study we observed that flexibility was improved (12%) after 6 weeks and (18%) after 12 weeks of yogic asana practices. increase in hamstring and low back flexibility. In body composition researchers have calculated % body fat total body fat in kg and lean body mass? Percentage body ft deceased (33%) and improved (7%). The metabolic cost of hatha yoga was reported 2-4 k. ca/ minutes. Energy expenditure of asana was 1003 k. cal/week (450 minutes/week) was reported. In the present study, first week subjects practice 36 minutes/ week (60 minutes N 6 days) and energy expenditure was 302 k. cal./ week and in the final week the expenditure was increased up to 1204.2 k.vsl/week (540 minutes/ week) as calculated on the basis of previous report. In our study we have followed a progressive training load method which is very effective for general fitness and sports performance development. The intensity and repetition of asana gradually increased up to 12 weeks. The researchers could not find any study which scientifically Appling progressive training load for the improvement of physical fitness through yogic asana.

Malhotra, (2007), The concerning study is administered twenty subjects of 30-60 years age group to see the effect of forty day’s yoga exercises on nerve conduction. Duration set dram 0-10 years. Subjects who were suffering of cardiac, renal and proliferative retinal complications were excluded from the study. It was decided to perform the yog mudras for 30-40 min/day for forty consecutive days. Specific diet and medicines were prescribed and blood glucose level,
Nerve conduction velocity were measured and repeated for forty days. The different group of twenty subjects was kept on prescribed medication and light physical excesses like walking etc. No specific duration of periodical parameter were recorded for comparison deteriorated over the period of study indicating that diabetes is a slowly progressive disease involving the nerves yoga asanas have a beneficial effect on glycemic control and improve nerve function in mild to moderate type-II diabetes with sub-clinical neuropathy. Observation indicates that right and left hand median nerve conduction velocity increased while in control group nerve conduction deteriorated over the period of study indicating diabetes as a slowly progressive disease involving the nerves. Yoga proved effective in this article at sub clinical neuropathy. Sensory nerves allow the brain to respond to the sensation such as pain touch etc. as different nerves have various condition velocities. As the age increases there is decrease in velocity. This is due injury or nerve damage yoga showed improvement in nerve conduction velocity of experimental group and which was not seen in control group. This shows yoga practices may have helped to decrease damage in nerve followed by sensory function improvement.

**Hsia, (2009),** Here is an investigation of widespread use of herbal supplements which are able to benefit type II diabetes mellitus. It was proved by some patients. Assessment suggests that pancreas tonic is a botanical mixture of traditional Indian Ayurvedic herbs. They reported positive results of single centre, randomized double blind placebo. They were treated with diet and lifestyle and with stable doses for at least there mount. All subjects started one month single blind placebo run in first phase by following randomization and the case line characteristics were comparable between treatment groups. Out of these, nineteen of the subjects entered into first stratum and 17 entered into second stratum 2 subjects were not significant. Reduction in HBA is seen in 1st stratum subject no significant treatment was induced in between treatment groups. Over the last decade, experts in primary care setting practices and steady improvements in numerous patients with diabetes. According to them care should be aligned with components that ensure productive interactions. National data showed that average AIC levels have declined from 7.82% in 1999-2000 to 7.18% in 2004, based upon information collected in National wealth and Nutrition examination survey. Treatment should meet patient’s needs.
Evidences suggest that progression in risk factor may be slower than the expectations. Hence certain challenges to goal based care and hardships even after adjusting for patient centric factors that indicate further improvements.

Various interventions have been implemented. While these improvements are significant, data continue to suggest that there are areas for improvements in diabetes care. An important role in improving the management of diabetes certain patient may present particular. Over the years, researchers have implemented numerous intervention, they often fragmented and lack clinical information abilities. Optional care of patients is required for an effective framework.

*Trento, (2009)*, studied time cause changes in patients with type II diabetes. It was managed by group compared with individual care and education. Five years a clinical trial was conducted for containing systematic education. Hundred and twenty patients with non-insulin were enrolled for the study and were allocated to group care. Eight did not start and 28 of them did not complete the study. The main outcomes of the study were knowledge of diabetes, problem solving ability, quality of life etc. It was observed that diabetic knowledge and problem solving ability were increased after the completion of first year of the treatment. H6AIC level progressively increased. Ayurveda is so called because it helps in longevity or it causes the attainment of life. That is the reason why Ayurveda regards maintenance of health as the primary issue for its analysis. The term cikitsa can primarily be taken to mean maintenance of health and secondarily to mean removal of diseases. If the connotation of the term cikitsa is limited only to the removal of diseases that will amount to delimiting the scope of the term. No doubt Ayurveda deals with removal of diseases and also prescribes numerous Aushadhis but in spite of all these it seems proper to hold that the maintenance of health is the primary aim of Ayurveda. All these characteristics and functions of Ayurveda make it evident that it is not only a therapeutic scientific practice but it helps in longevity, too. Maharishi patanjali, the profounder of yoga analyses not only the theoretical aspects of yoga but he values the practical aspects, too. It is when one puts into practice its theoretical aspects that one can be successful in yoga. Therefore to inspire for action for the sake of nivrtti is the characteristic of yoga.

The purpose of Ayurveda is two hold, acquisition and maintenance of health. Ayurveda for healthy persons prescribes daily and seasonal diets the observances of which help in maintaining vata pitta kapha in their balanced conditions. Further these observances keep the
gastric fire balanced, the activities of dhatus and male as in even conditions. It is due to all these they should the senses and mind are kept in a healthy condition. According to Mahabharata, mental consists in the equilibrium of sattva, rajas, and tamas. And it is evident that the equilibrium of the three guans depends on the above mentioned three dosas, three dhatus and three males. It is as the result of these observances happiness and longevity is attained. Longevity is the best means for the attainment of the four purusharthas. Finally, it is longevity which is the summed bonus of Ayurveda.

For the practice of yoga health is of utmost value for the body alone is the most useful means in the attainment of Kaivalyadha. It is for this reason only that yoga considers the issue of physical and mental health as of utmost importance. Accordingly, it prescribes that satkriyas yama nuiyamas, asana pranayama etc. which are known as external means of yoga. These practices are not only helpful to maintain health, but also in removing the diseases of the body thus making the sadhaka healthy and fit for his sadhana. It is for these reasons that Ayurveda had adopted yoga.

**Sultana, (2009),** The study imparts to find out the effect of twelve weeks yogic practices on selected physiological variables on female students of Pondicherry University. For the concerned study a total of 35 subjects on came forward. Out of them 30 subjects were selected and they were divided into two groups viz experimental and control group. The experimental group practiced selected yogasanas surya namaskara meditation and pranayama. Pre test and post test were taken before and after twelve weeks. In any training, Control group was not engaged whereas it was tested pre and post the same as that of the experimental group. The cardio respiratory endurance of both groups were tested with the help of harwards step test whereby for measuring balance one leg balance test was given for flexibility sit and reach test was given and maximum breath holding time was measured on the basis of pertained data statistical test was applied and it was concluded that there are significant changes in the four selected variables due to yoga.

Yoga training was given to the subjects for weekly six days. Duration of training was twelve weeks. Only morning and 6:30 to 8:30 was fixed for the systematic and progressive ways of training were applied for subjects. It include ten minutes of meditation ten minutes of surya namaskara and savasana, 60 minutes of yoga asana and fifteen minute of pranayama and
savasana. The duration of training for one day is not more than 120 minutes. On the bases of collection of data statistical analysis was done with the t test. Because only two group and pre test value and post test value was compared in the both groups. The level of significance is 0.05. In this study result indicates that there is a significant difference between the pre and post test of cardio respiratory endurance. In the case of one leg balance the calculated value 2.733 is higher than the table value 2.14 at 0.05 levels. The result indicates that there is a significant difference between the pre and post test of one leg balance. In the case of control group there is no significant difference between the pre and post test so the null hypothesis is rejected because control group is not participated in yoga training.

Cardio Respiratory Endurance was improved due to surya namaskara and yoga. The training enhances the endurance performance as heart efficiency increased and there was increase in the stroke volume and cardiac output. Two factors contributed to such a change. One was the increase in the blood volume and there was the increase in the myocardial contractility. Myocardial contractility means the strength of ventricular contraction.

To stand walk sit e balance is an important factor for a human being without which nobody can do their daily activities perfectly. It is a state in which all weight and forces are evenly spread so as to produce a condition of steadiness. The selected asanas enhanced the body balance of experimental group. But in control group there was no improvement in balance. Due to the training muscles strengthened and body weight was equalized on both right and left side of subjects. Due to this balance also increased. The main factor for body balance is correct body posture. So this study hypothesized that there is significant change in body balance due to twelve weeks yoga training.

Flexibility is defined as the range of possible movement in a joint or a sequence of joints. After twelve weeks yoga asana, significant changes were shown in experimental group, in flexibility. But in control group there was no change as majority of asanas involve stretching. Especially it is stretch and hold method so that it could enhance flexibility faster. This is another factor for improving flexibility. Breath holding for maximum time is the capacity to hold breath after inhaling. By lung capacity one can hold breathe for longer duration. The concerned study concluded after getting valid results that there was improvement in selected physiological variables after twelve weeks of yoga training. So doing regular yogasana is good for enhancing
heart efficiency and body flexible. Other main benefit of yoga is that it makes the individual more active through the whole day. Especially viksana, parvatasana and virabhadrasana were found more effective in improving body balance.

**Bhatt, (2011),** *Impact of yogic exercises on depression level.* Three hundred sixty participants in the age range between 15-40 were taken and they were arranged according to the requirement of factorial design with 3 types of yogic exercisers two types of sex and 2 levels of age i.e. 30 participants per cells. In order to measure the pattern of depression scale was used. Data were analyzed by three ways ANOVA and it was found that highest level of depression was noticed in seldom exerciser. Lowest level of depression was found in yogic exercisers at home and the level of depression was zero in yogic exerciser at an institute. The level of depression on younger participants was higher as compared to the older ones. Moreover it was seen that the magnitude of depression was higher in males than females.

Three hundred sixty participants in the age range 15-40 were taken in consideration and they were arranged according to the requirement of 3x2x2 factorial design with 3 types of yogic interplay. 2 types of sex and 2 levels of age i.e. 30 participants per cell. The test was administered to know the general profile of the respondents i.e. name age sex details of yogic exercises and interest and schedule, dietary habits and other factors which seem important to get the profile of yogic exercise. This general information schedule was prepared by the investigator. In order to measure the pattern of depression scale was used. This scale has ninety six items. Split half reliability of the measurement and test retest reliability in this measure has been quite adequate.

The major effect of type of yogic exercises was significant and mean values pooled across sex and age were 203.96, 305.38 and 344.42 respectively for yogic exercisers at institute, at home and seldom exercisers. The next main effect of sex difference was significant. It was noted that males were more depressed than females. The third main effect of age difference was also significant man values for younger and older participants were 306.92 and 305.84. Two way interaction of types of yogic exercisers and sex was significant. The types of yogic exercisers age interactions was also significant appearing. The third interaction of sex and grade was also significant.
Obtained data were analyzed by three way analysis of variance and interpreted in terms of types of yogic exercisers sex and age as determinants of depression prior to the study. Some hypotheses were formulated and the findings discussed accordingly.

Variation in the types of yogic exercises caused variation in depression: Our first objective was concerned with the impact of types of yogic exercises on depression. It was proposed that variation in depression would be caused by variation in the types of yogic exercisers. Our hypothesis was confirmed and we found that yogic exercisers at institute displayed a low or zero level in depression followed by yogic exercisers at home and seldom exercisers. This variation may have been due to the environmental effect that prevailed in the institute.

Variation in the sex caused variation in depression: Our second notion was related with the impact of sex on depression. It was claimed that females and males would exhibit difference in depression. It was found that there was a difference in the magnitude of depression based upon sex. Females were less depressed than the males. This may be due to the females being more spiritually and religiously oriented. The reason for males being more depressed than female may be because the males carry more responsibilities as compared to females.

The last notion was concerned with the variation in the pattern of depression according to age. Variation in the age caused variation in depression: It was concluded that variation in age would cause a variation in the level of depression. The level of depression among younger people was more as compared to older people. The reason for this could be attributed to the frustration arising from unemployment and non-settlements.

Chatterjee (2011) The present study on Yoga and healthy aging: A biochemical study, an attempt has been made to observe the impact of regular yogic practices on some biochemical parameters in a middle aged group. Fifteen untrained volunteers randomly divided into two groups. The study group underwent yogic practices daily for one hour 15 minutes 6 days week for 6 weeks. Fasting blood sugar and lipid profile variables were measured before commencement and after 6 weeks of yogic training period. Mean SD and P value have been calculated for analyzing the data. Simple percentages were also calculated from the mean value to see the quantitative changes of the yogic training. In the biochemical variables fasting blood
sugar, total cholesterol, triglyceride low density lipoprotein and ratio of cholesterol to high density lipoprotein decreased whereas high density lipoprotein increased after yogic intervention programme. Results indicated that regular practice of some yogic exercises for a period of 6 week may positively alter selected biochemical variables responsible for delay the onset of aging.

In the present study height, weight, body mass index, fasting blood sugar, cholesterol triglycerides, LDL, HDL, VLDL, and the ratio of cholesterol to HDL measurements were taken. Generally lifestyle, physical inactivity psycho physical stress and largely diet has a direct impact on fasting blood sugar and all the lipid variables whereas individual genetic makeup plays a very little role. Basically we consume more amounts of saturated fats than understand fats leading to high laid profile and risk indicators for middle aged cardiovascular and metabolic health problems. Schmidt reported that three months of yoga and meditation training programmed significantly reduces total serum and LDL cholesterol. Ahjan reported that the angina practicing yoga showed a regular reduced in all lipid parameters except HDL compared to control groups. Yoga group showed significant reduction in number of angina episodes per week improved exercise capacity and decrease in body weight serum total cholesterol, LDL cholesterol and triglyceride levels as compared with control group reported by Manchand. Vyas and Kikshit concluded that lipid profile showed a benefit lowering of serum cholesterol in short and long term mediators as compared to non meditations. Yogendra studied on angiographic all proven coronary artery disease patients and at the end of one year yoga training statistical significant changes were found in serum total cholesterol and serum LDL cholesterol. Bijlani reported that fasting plasma glucose serum total cholesterol low density lipoprotein cholesterol the ratio of total cholesterol to high density lipoprotein cholesterol and total triglycerides were significantly lower and cholesterol significantly higher on the last day of the yoga programs compared o the first day of the course. In the present study a significant decrease in cholesterol and LDL were found after 6 weeks of yogic intervention programme compared to age sex matched controls. as compared to control group. No significant changes were found in triglycerides, HDL, VLDL the ratio of cholesterol to HDL a regular decreased in triglyceride, VLDL the ratio of cholesterol to HDL fasting blood sugar and increase in HDL was seen.

In the present study body weight of the experimental group both before and after the yoga intervention is presented. It appears that the mean body weight of experimental group before
training was 69.70+ 4.24 kg whereas after six weeks of yogic practices the mean body weight was reduced to 3.41 %. The mean differences were analyzed by t- test and P value was 0.38. In case of control group subjects the pre and post mean were 70.00+ 4.04 kg and 69.96+ 3.82 kg respectively. BMI of the experimental group both before and after the training is presented. It appears that the mean BMI of experimental group before training was 25.98 kg whereas after the six weeks of yogic practices the mean BMI reduced to 3.43kg. The means differences in this case were analyzed by t- test and P was value 0.52. In case of control group pretest and post test mean BMI value was 24.8 kg and 24.87 kg respectively. Fasting blood sugar and lipid profile that is cholesterol, triglyceride high density lipoprotein low density lipoprotein very low density lipoprotein, cholesterol to HDL ratio has been considered as biochemical variables in this study.

In the present study, the improvement of all the biochemical variables after regular yogic practices could be due to the following possible mechanisms. (1) The nature of yogic activity may contribute to modify the psycho neural response effective in reducing stress. (2) Middle age is the point from where the glucose utilization in the cell started to decrease. On the other hand a decrease of physical activity and taking the same amount of food as consumed in the youth age may increase blood sugar level. Yogic exercise is considered as a mild moderate physical activity. Some in the time of yogic practices energy requirement will be increased and the excess amount of sugar may be utilized by the cell thus improving exercise tolerance as it is related to cardiovascular response. (iii) Meditation is believed to gradually diminish sympathetic dominance resulting in a better balance between the sympathetic and the parasympathetic. It also brings about a hypo metabolic state. By modifying the state of anxiety, meditation reduces stress induced sympathetic over reactivity. Thus a reduced in sympathetic response and ability to come of stress can be possible reasons for the improvement in lipid profile variables observed in our study. From the above findings it can be concluded that integrated approach of yoga can be beneficial for the modification of biochemical variables responsible for early aging and overall biochemical health in the middle aged group. Further it can also be concluded that 6 weeks intervention time was too short to produce a significant result for all the variables except cholesterol.

Mondal et.al,(2012), In this study an attempt has been made to observe the effect of twelve weeks of yogic training on general immunological health variables in a middle aged group. The convenient sampling method was applied. Forty five untrained volunteers (30 male
and 15 female, age group of 35-55 years) divided into two groups (experimental) underwent yogic practices (kriya surya namaskara, asana, pranayama and meditation) daily in the morning for 6 days week for 12 weeks. Body weight body mass index, total and differential (neutrophils, eosinophils, basophils, monocytes and lymphocytes) count of white blood cells and platelets were measured before commencement and after 6 and 12 weeks of yogic training period. In the present study the repeated measures of ANOVA was used for data analysis. Simple percentages were also calculated from the mean value to see the quantitative changes of the yogic training. Regular yogic training for 12 weeks produced a significant increase in WBC, neutrophil, monocyte, lymphocyte and platelets whereas eosinophil was decreased significantly for both male and female group as compared to control. All the changes were in the normal range. From the present study it can be concluded that integrated approach of yogic training may be helpful to maintain the general immunological efficiency and promote healthy life.

WBC: WBC also called as leukocytes are the mobile units of the body protective system. They are formed partially in the bone marrow (granulocytes and monocytes and a few lymphocytes) and partially in the lymph tissue (lymphocytes and the plasma cells) after formation they are transported in the blood to different parts of the body where they are needed. The real value of the WBC is that most of them are specifically transported to two areas of serious infection and inflammation thereby providing a rapid and potent defense against infections agents. An independent positive association of WBC count with poor lifestyle factors includes overall obesity cigarette smoking and nutritional balance has been reported. On the other hand WBC count showed an independent negative relationship in alcohol intake and hours of work. In this study the yogic training protocol included sitryanamaskara and asanas which have a similarity with moderate exercise and the pranayama meditation etc. have a stress reducing effect. In the time of practicing this whole training schedule the subjects might have change knowing or unknowingly their daily life style which may be attributed to the increased WBC count in this study.

Neutrophil: Neutrophils is one of the white blood cell produced by hematopoietic is the bone marrow. They are released into the peripheral blood and circulate for 7 to 10 hours before migrating into the tissues where they have a life span of a few days. Like macrophages, neutrophil are phagocytes. The normal range of neutrophil is 40-75%. In this study it was found that neutrophil counts were increased after yogic practice. Exercise causes a biphasic increase in
the number of neutrophils in the blood in athletes and individuals participating in moderate exercise may have improved resistance to infection. Several studies are shown that neutrophil numbers in the blood and neutrophil precursors in the marrow are not lowered in the healthy elderly. The mechanism behind the increase of neutrophil may be attributed to the intracellular calcium concentration and hexode and phagocytic ability. In addition, neutrophil adhesion and fegamma receptor function, cytosolic concentrations of free calcium etc, may also be the possible areas to be detected in future to know the exact mechanism.

Monocyte: The mononuclear phagocyte system consists of monocytes, circulating in the blood and macrophages in the tissues. During hemopoiesis in the bone marrow granulocyte monocyte progenitor cells differentiate into promonocytes which leave the bone marrow and enter the blood, where they further differentiate into mature monocytes. Monocytes circulate in the blood serum for about 8 hours, during which time they enlarge then migrate into the tissues and differentiate into specific tissue macrophages. In the present study the subjects were practicing yogic asanas which were performed with his own body weight as resistance. Also the volume of the practice load was increased every week. This training process may create adaptive changes in the platelet count. This result of this study has a very close agreement with other research findings of leading researchers’.

In this study the eosinophil level was decreased significantly in the male and female groups. In the male group it was decreased after six and 26.22 after 12 weeks. In female group it was decreased 16% after six and 24% after twelve weeks of yogic practices. In this study the platelets slightly decreased after six weeks but after twelve weeks of yogic practice it was increased significantly in the male and female group. In the male group it was increased 23.12% and in the female group it was increased 21.80%. In this research the lymphocytes increase significantly in the male and female group after twelve weeks of yogic practices. In the male group it was increased 6.87% after six weeks and 19.4% after twelve weeks. In the female group it was increased 12.67% after six weeks and 32.67% after twelve weeks of yogic practices.

From the present study it can be concluded that integrated approach of yogic training may be useful to maintain the general immunological efficiency in the human body and promote healthy living.

Kumar, (2012), conducted a study on Effect of selected yogic practices and physical
activity on hematological and physiological samples among college students. Ninety male students were selected randomly from Sri Ramakrishna Mission Vidyalaya college of Arts and Science, Coimbatore. Their age from eighteen to twenty one years. They were divided into three equal groups e.g.control group (Group-I), Yogic practice group (Group-II) and Physical Activity group (Group-III). The subjects were tested in order to find out the Hemoglobin, mean Arterial Pressure, Blood glucose and Blood Lactic Acid in the early morning before the start of the training programme. Group II underwent yogic practices and group III underwent physical activity for twelve weeks on five days a week from morning 6.30 am to 7.30 am. any training was not given to he control group. The pre and post test scores on selected dependent variables were subjected to ANOVA to find out significance of the variables. Schaffer’s test was used to find out which of the paired means differed significantly. Analysis of data revealed that the level of hemoglobin increased due to twelve weeks training on selected yogic practices and physical activity. Group III showed more hemoglobin level than group II and group I. However, the group II showed much improvement in hemoglobin level than the group I. Due to the influence of twelve weeks yogic practices and physical activity there was no significant difference in Arterial pressure, blood glucose and blood lactic acid level among all the subjects.

The yogic practice group and physical activity group showed significant improvement in hemoglobin level when compared to control group. Twelve weeks of yogic practices and physical activity may have caused a small increase in the production of red blood cells. Therefore, total hemoglobin increased slightly with such training. The hemoglobin at rest is known t decline slightly with training because of the increase in plasma volume that is somewhat larger than the increase in red cells, expansion of plasma volume in trained persons further reduces hemoglobin during exercise. During yogic practices and physical activity the dilation of blood vessels in the working muscles decreases the arterial resistance to blood flow more than the vasoconstriction I none working tissues increases the resistance. Therefore effect of changes in blood vessels, size during exercise is to decrease the blood pressure simultaneously cardiac output causes a greater systolic pressure, which counteracts the tendency towards reduced pressure causes by vasodilatation in the working muscles, only a slight fall in blood pressure is caused. Yogic practice and physical activity increases blood flow I subjects and improve the microcirculation. There was an increased peripheral blood flow, which brings greater amount of glucose to the site of utilization. Such increased utilization of glucose may bring about desirable
decrease in blood sugar. The yogic practice group and physical activity group leads to hyperglycemia, excess of sugar in blood due to glucogenolysis. But physical training leads to hypoxemia. The practice of taking glucose during exercise is aimed more at preventing hypoglycemia than giving energy for the exercise.

It was found that during prolonged heavy exercise the water balance may be disturbed and the stores of available energy, particularly glycogen may be critically too. Therefore the individual’s ability to transport oxygen from the air to the working muscles may not always be the limiting factor. It has been found that the subjective feeling of glucose in the fasting subjects and for a depletion of the glycogen depots in the working muscles. An increase in heart rate with reduction in stroke volume as work proceeds is often observed during prolonged exercise particularly in a hot environment. If dehydration and the fall in blood sugar are prevented by proper supply of fluid and sugar performance capacity is better maintained during prolonged exercise, therefore control group and training groups did not have any significant improvement after twelve weeks of yogic practice and physical activity on Blood glucose.

The experimental groups had no significant effects on blood lactic acid due to yogic practice and physical activity when compared with the mean difference of the control group. Yogic practice and physical activity if prolonged for hours the work output during maximal effects decreases gradually. After the rest a workload that normally could be tolerated for six minutes had to be terminated after about four minute due to exhaustion. The peak lactate level in the blood correspondingly decreased. It is believed that the limiting factor must be sought at the cellular level in the exercising skeletal muscles and could be anything from a change in the properties of the membranes’ of muscles fibers and distributed ATP-ADP machine to a depletion of oxygen stores or a reduced capacity to neutralize the metabolites produced.

In this study it was found that due to twelve weeks of yogic practice and physical activity at sub maximal intensity elicits a lower blood lactate response in college students than in aged people and an age related increase towards adult values during development in eighteen to twenty one year’s students suggest that glucogenolysis and consequent ability to produce lactate is limited in adolescence compared with adults therefore control group and training groups did not show any significant improvement after twelve weeks of yogic practices and physical activity on Blood Lactic Acid level.
Bhavanni, (2012), conducted a study on Immediate Cardiovascular effects of Savitri Pranayama in Sitting and Supine Positions in Female Volunteers. This study was conducted as a part of the outreach programmes of Yoganajali Natyalayam in the local community in and around Pondicherry. 11 female subjects (aged 34.00-2.03, with BMI 26.66-1.25) attending regular thrice weekly yoga sessions for 2 to 3 months and able to perform savitri in a competent manner were recruited and informed consent obtained from them. Of the subjects one was hypertensive another hypothyroid but both were on regular medication. Four of the subject’s complained of occasional sinusitis and headaches while three of them were overweight. Informed consent was obtained by one of the investigators and procedure of the study was explained to them. Baseline HR and blood pressure were recorded in the sitting position at the start of their regular yoga practice session on the first day of the study. Mean- SEM baseline value of HR systolic (SP) and diastolic (DP) pressures were 82.18-2.02, 113.45 – 3.48 and 70.55 – 2.25 respectively. They then participated in their regular yoga session of 45 minutes.

HR and BP recorded after 5 minutes of quiet sitting using a digital BP mentor, they were then asked to do 5 minutes of normal quiet breathing in the sitting position following which HR and BP were once again recorded. Similarly pre and post recordings were done after 5 minutes of savitri in sitting position. On the second day, the HR and BP were recorded similarly before and after a period of 5 minutes of normal quiet breathing and savitri performed in the supine position. RPP was calculated as HR N SP/100 and Do P as Hr mean pressure/100. The technique of savitri the rhythmic breath is as follows while breathing in awareness is placed on filling and emptying the lungs from low mid and upper sections as in hath yoga pranayama. A held in and a held out breath are added to the breath technique so that the incoming and the outgoing breath are done for an equal count while the held in and the held out breath are for only half of that duration. In this study was have used a six count for inspiration and expiration and a three count for the retained and held out breaths. Data was assessed for normality using graph pad Instate and passed normality testing by Kolmogorov-Smirnov Test. Statistical analysis was done using ANOVA with Tudey Kramer multiple comparisons Test for data with identical SDs and Kruskal Wallis with Dunn’s multiple comparisons test for data with non identical SDs. Students t test and p values less than 0.05 were accepted as indicating significant differences in intra and inter group comparisons.

Cardiovascular effects in the present study were more pronounced with regard to RPP
and DPP due to cumulative benefits occurring as a result of changes in HR, SP, and MAP. RPP and Do P are especially significant as they are indicators of myocardial oxygen consumption and load on the heart and therefore an indirect indicator of strain on the heart. Our results give direct evidence of the cardiovascular benefits of performing savitri in a sitting position. The rise of the same in supine position may be understood as a mere restoration of normalcy that had been lowered by the previous practices.

It is concluded that the practice of savitri pranayama in sitting position has beneficial cardiovascular effects. This may be due to a normalization of autonomic cardiovascular rhythms as a result of increased vigil modulation and or decreased sympathetic activity and improved baroreflex sensitivity. Our study gives evidence that the sitting position may be preferred over the supine position for performing savitri. Over findings have potential therapeutic applications a day to day as well as clinical situations where HR and BP need to be brought down at the earliest. Further studies in larger groups of healthy volunteers as well as in patients of hypertension and other psychosomatic disorders is required to enable a deeper understanding of the mechanisms involved.

Deshpande, (2012), conducted a study on Effects of yogic practices on physical fitness with special reference to cardiovascular endurance: A Bibliographic study, this paper is a critical analysis of literature on Yoga and physical fitness with special reference of cardio respiratory endurance in the past 2 decades. Above mentioned research studies focus on various aspects of yoga and cardiovascular endurance. These studies differ in aim sample age and size, intervention type and period of intervention. From this thorough bibliographic study of past literature, researcher has observed transitional shift in research studies from merely identifying gross effects of yogic practices on physical fitness to specified research studies which explored the phenomenon behind the effectiveness of yogic practices on cardio respiratory endurance. This transitional shift was based on specific studies with respect to difference in velocity intensity and various combinations of yogic practices. This may be because in the past sports were meant for recreation or health purposes only due to lack of competitions participation social recognition availability of resources and the media was not side spread. But now the scenario has changed and sports are being undertaken as lifetime career due to enormous availability of competitive opportunities resources equipments, coaching nutrition and development of allied science. This increased the demands of longevity of sports career and performance along with maintenance of
health. These transitional phases in research in yoga and physical fitness field encouraged researcher to work on integrated practical application based study.

The bibliographic study show that no studies showing the combined effect of Yoga and Ayurveda on the parameters relating physical fitness and longevity. However there are few studies showing the effect of yoga on cardiovascular endurance, health related physical fitness, pulmonary functions etc. The need of the hour therefore is to undertake studies to investigate the combined effect of yogic and Ayurvedic interventions on athletes in general and on school athletes in particular given the tremendous potentialities of yoga and Ayurveda for enhancing performance in athletics.