CHAPTER II

REVIEW OF RELATED LITERATURE

The review of related literature is instrumental in the selection of topic, formulation of hypothesis and deductive reasoning to the problem. It helps to get a clear idea and supports the findings with regard to the problem under study. The literature in any form is the foundation upon which all future work will be built. The review of literature is generally used as a basis for inductive reasoning for locating and synthesizing all the relevant literature on particular topic. The research scholar has gone through the available related literature, which are relevant to the present study and have been presented in Therapeutic exercise and Health-Related Fitness programme. The literature in any field forms the foundation upon which all future work will be built. If we fail to build upon the foundation of knowledge provided by the review of literature, the researcher might miss some works already done on the same topic.

The following review has been selected by the investigator.

Steven (1897) conducted a study, to find out the effects in physical fitness components of the BMI, cardio respiratory Endurance, flexibility and dynamic strength. Subjects involved in the weight training and aerobic dance groups experienced significant positive changes in body composition, flexibility, and dynamic strength. The results show that positive changes in flexibility and dynamic strength. Finally it was concluded that improvement in body compositions, flexibility and dynamic strength.

Frank et al. (1969) determined the effects of PFT on the BMI and dietary of the college females. Five members of the women’s swimming team and 10 members of women’s tennis team at the University of the California were participated in the study. The result shown that modifications in BMI occur during physical training program, modification in energy expenditures due to the physical activities was significantly effect by diets also.

Pollack (1971) Studied the Effect of Walking on Body Composition and Cardiovascular Function of Middle Age Men, sixteen sedentary men, 48 years of age...
volunteered to train 40 min, 4 times/week. Weight controls of similar qualification were also evaluated. Resting heart rate and systolic blood pressure did not change. Resting diastolic blood pressure reduced significantly from 77.7 to 74.9 mm Hg. Heart reduction from a standard treadmill walk ranged from 4 to 17 beats/min during exercise and from 16 to 70 beats/min during recovery. Body composition showed reduction in total body weight (-13 kg) and percent fat (-1.1%). The control group remained constant in most cardiovascular function and body composition measures. Vigorous walking training had significant effects on cardiovascular function and body composition of adult men.

E. Ben, Ari. et al. (1978) determined pain threshold heart rate the following two relative workloads were obtained; 55 per cent and 90 per cent of threshold heart rate. Decreased heart rate at rest and during work (P < 0.01). Systolic blood pressure did not rise up to the 15th minute of work. Oxygen consumption increased gradually, reaching a steady state after 15 minutes of work. 02 pulses increased gradually and remained constant during the last 15 minutes of work. SBP X HR product decreased significantly (P < 0.05-0.01) at rest and during work. Favorable changes in minute ventilation and ventilation equivalent indicate improved respiratory adjustment. Clinically there was a pronounced decrease in severity and frequency of angina pectoris along with increased work time before onset of pain. The data show that intensive prolonged training may result in improvement of the physiological adaptive mechanism of patients with angina pectoris to continuous physical stress.

David H. C. et al. (1979) conducted a study entitled The Effect of Swimming Training on Muscular Performance and Body Composition in Children. A group of swimming team aged 9 to 11 years, 13 boys and girls were tested as source of data. Data was analyzed with mean, standard deviation, and analysis of covariance and result was found as the primary training effect for young swimmers is an increase in muscular endurance rather than an increase in muscular strength or changes in body composition.

Glenn R. D. (1980) determined if the physiological responses due to training are the same for walkers and joggers, when the distance is kept equal. Experimental were designed to determine the effect of 20 week training programme on the following body composition variables body density, percent fat, weight, lean
body weight total weight. Experimental were also designed to determine the effect of the training on the following cardio-respiratory variables. During sub maximum exercise and recovery, oxygen consumption, respiratory exchanges into oxygen pulse, heart rate and pressure. Under water weighting maximum inspiration was to determine body composition change. A modified Balke treadmill test to a heart rate of 150 and a standard treadmill walk at three miles per hours on a five percent grade for five min. and a ten min. Recovery were used to determine cardio respiratory changes. Expired gas samples were taken for one min at a heart rate of 150 during the modified balke and during the last min of the standard treadmill walk, blood pressure was taken at rest immediately after exercise in both treadmill test at rest and during the last min. of recovery in the standard treadmill walk. Twenty five untrained subjects age 25-52 participated in the training and testing. A two way analysis of variance with subjects repeated across time was used to determine if any significant difference existed between the means due to time, type training or an interaction of time and type.

Dwyer et.al. (1983) the study was conducted on total of 519 ten year old south Australian school children took part in The School Health Academic Performance and Exercise (SHAPE) study, which involved 45-60 minutes of additional physical education each day. The findings from the study indicated health benefits from daily physical activity. There was no evidence of any loss of academic achievement, measured by arithmetic and reading tests, despite less time dedicated to classroom teaching.

**Bennett B. L.et.al (1985)** investigated the physiological deconditioning from occupational exposure to submarines as described in a small number of reports and determine whether cognitive performance parallels the physiological changes associated with physical training and deconditioning. We examined cardio-respiratory fitness and cognitive performance in 14 male subjects during 70 d of confinement in a nuclear submarine. Maximal oxygen consumption (VO2max) and anaerobic threshold (AT) were assessed before and after confinement. Six exercising subjects (ES) cycled 4-7 times per week for 20 min at 75% max heart rate for 8 weeks. Eight control subjects (CS) did no exercise. Every 14 d of the patrol, cognitive performance was evaluated in both groups by administering a mental arithmetic and choice reaction time tests before cycling, during cycling, and post
cycling. The cycle bout consisted of exercising at 75% VO2max for 15 min. After confinement, VO2max remained constant for ES but declined 7% statistically non-significant for the CS. AT expressed as a percentage of VO2max increased 15% (p less than 0.05) in the ES and decreased 20% (p less than 0.05) in the CS. The only significant effect in the cognitive tests was that both groups responded faster in the choice reaction time test during the exercise session. In conclusion, these data demonstrate a training effect for AT in the ES and a deconditioning response for AT and a statistically non-significant reduction in VO2max in the CS. Under the conditions of this experiment we could find no effects of physical training and deconditioning on the cognitive performance test employed here, although some trends suggest that exercisers out-performed the control group.

M. M. Miss (1988), compared two types of post season training programme, land and water the effect of each had on and components of fitness on addition pre and post test scores were evaluated on 6 variables, body composition, flexibility, muscular strength, muscular endurance, power and cardio vascular endurance. The programmes were 3 times per week. All the subjects were pretested during first week and post during 9 weeks the data were analyzed by using a dependent t test. However a multivariate t test was also used to determine. If there was any difference between the effect of land and water training for each components. The principals outcome of the study indicates that there was little difference between effect of land and water training on the components of fitness the result for water training indicate that muscle power was the only fitness component of the 6 that did not show a significant different muscle strength was the only component and to show a significant difference between land and water training programme.

Rodrigues E. A. et, al. (1989) Investigated The effects of aerobic and anaerobic exercise on ventricular performance were studied in 13 normal subjects who underwent simultaneous pulmonary gas exchange evaluation and exercise radionuclide ventriculography in the supine and upright postures. Right and left ventricular ejection fraction was measured serially at 2-minute intervals during exercise. The anaerobic threshold occurred at 74% and 80% of maximum heart rate, respectively, during upright and supine exercise. Left and right ventricular ejection fractions rose from rest to the anaerobic threshold (p less than 0.01, p less than 0.01, respectively) and there was a further increase between the anaerobic threshold and
maximum exercise (p less than 0.01, p less than 0.01, respectively). The rate of rise of ejection fraction beyond the anaerobic threshold was slightly blunted compared with the rise prior to attaining the anaerobic threshold. There was no significant difference in ventricular performance between supine and upright exercise. The data demonstrate that ventricular performance increases steadily during exercise and is not limited by the conversion of aerobic to anaerobic metabolism. Exercise remains unchanged.

Cameron K.A. (1989) conducted a study with a view to determine the effect of 10 weeks. Aerobic movement programme for overweight children on cardiovascular fitness, body composition and body system. The subject for the study consisted of 20 children 17 female and 3 male age 8 to 12 one group (No = 12) consisted of overweight children one group (No = 8). Cardiovascular endurance was misused in sec. with a 2-mile walk and jog in the school halls. Self-concept was measured with the Piers Harris Children self-concept scale. Body esteem was measured with Mendelson and White is body esteem Scale A 2x2 ANOVA was employed to determine significance of effect. Overweight and average weight children were the independent variables. Self-esteem, body esteem, and cardiovascular endurance male were the dependent variables. Body composition (triceps skin fold measures) was used to distinguish the 2 groups and determine weight lose due to the program. The ANOVA indicated no statistically significant improvement in cardiovascular endurance, self-esteem, and body esteem in overweight children in body comparison with average weight children after 10 weeks aerobic movement programmed.

Tsuji M. et al. (1990) Conducted the study the clinical role of anaerobic threshold in physical training of patients with recent myocardial infarction. Twenty-seven patients with recent myocardial infarction were studied to evaluate the clinical usefulness of the anaerobic threshold (AT) in physical training as cardiac rehabilitation at home. The 27 patients were divided into trained and control groups. Symptom-limited treadmill exercise tests were conducted before and six weeks after the prescribed aerobic training. Heart rate (HR), systolic blood pressure and respiratory gases (VO2, VCO2 and VE) were no invasively measured throughout the exercise periods. AT was defined as systemic increase in the ventilator equivalent O2
(VE/VO2) without an increase in the ventilator CO2 (VE/VCO2) during the increasing work load. The patients in the trained group were obliged to perform aerobic walking training requiring 90-100% HR of the AT level for 30 min, four to six days per week. 1. In the trained group, exercise time, peak VO2, and AT on treadmill performance were significantly increased compared with those of the pre-training values. However, in the control group, these parameters were not significantly changed. A significant reduction in double products was observed during sub maximal workload in the trained group. 2. Factors related to the training effects: The training effect expressed by delta peak VO2 correlated significantly with the initial peak VO2 (pre-training peak VO2) \( (y = 35.4 - 1.29 \times, r = 0.70) \), but there was no correlation between left ventricular function and delta peak VO2. These results indicated that aerobic exercise at home guided by the AT level is safe and beneficial for patients with recent myocardial infarction.

**Sullivan M. J, Cobb F. R. (1990)** Investigated the anaerobic threshold in chronic heart failure Relation to blood lactate, ventilator basis, reproducibility, and response to exercise training. The purpose of study was to evaluate in patients with chronic heart failure (CHF), the anaerobic threshold by gas exchange (ATge) represents a potentially useful parameter for assessing functional disability and the response to therapeutic interventions designed to improve exercise tolerance. We measured the ventilatory, hemodynamic, and metabolic responses to maximal bicycle exercise in 64 patients with CHF and 38 age-matched normal subjects. The ratio of ventilation to carbon dioxide production (VE/VCO2) was increased during exercise in patients as compared with normal subjects although VE was closely related to VCO2 in both individual normal subjects and patients (all, \( r \) greater than 0.92, \( p \) less than 0.01). Increased VE/VCO2 in patients was unrelated to increased pulmonary vascular pressures but was closely linked to increases in the pulmonary dead space to tidal volume ratio (Vd / Vt). Despite hemodynamic abnormalities in patients, PaCO2 was regulated at normal levels during exercise. In a second study, we determined the ATge in 18 patients with CHF and 18 normal subjects by the ventilator equivalents method. The ATge could be identified from unvaried breath-by-breath data as the initial increase in VE/VO2 without an increase in the VE/VCO2 in 15 of 18 patients and in 16 of 18 normal subjects. The ATge demonstrated good day-to-day
reproducibility (r = 0.91, p less than 0.001, SEE = 1.74 ml/kg/min) and low inter
observer variability and was associated with comparable increases in arterial lactate
in the two groups above the resting value, 0.9 +/- 0.4 mM/l in patients and 0.8 +/- 0.5
mM/l in normal subjects. To examine the effects of a chronic intervention on the
ATge, 12 patients with CHF underwent exercise training for 4-6 months. Training
resulted in a 23% improvement in peak VO2 and a decrease in blood lactate
accumulation during sub maximal exercise. This was associated with decreased VE
and VCO2 during sub maximal exercise, an increased VO2 at which the ATge
occurred from 10.1 +/- 1.2 ml/kg/min to 12.1 +/- 2.6 ml/kg/min (p less than 0.01) and
an increase in exercise duration during a symptom-limited, constant work-rate
protocol (938 +/- 110 seconds vs. 1,421 +/- 691 seconds, p less than 0.01).

Sudsuang R.V. et all. (1991) studied Serum cortical and total protein levels, blood
pressure, heart rate, lung volume, and reaction time were studied in 52 males 20-25
years of age practicing Dammam kaya Buddhist meditation, and in 30 males of the
same age group not practicing meditation. It was found that after meditation, serum
cortical levels were significantly reduced, serum total protein level significantly
increased, and systolic pressure, diastolic pressure and pulse rate significantly
reduced. Vital capacity, tidal volume and maximal voluntary ventilation were
significantly lower after meditation than before. There were also significant decreases
in reaction time after meditation practice. The percentage decrease in reaction time
during meditation was 22%, while in subjects untrained in meditation; the percentage
decrease was only 7%. Results from these studies indicate that practicing
Dhammakaya Buddhist meditation produces biochemical and physiological changes
and reduces the reaction time.

Melnick et.al. (1992) was conducted on sports participation was associated with a
lower drop-out rate from school in a study of 3,686 African-American and Hispanic
students, although no relationship between academic attainment and sports
absenteeism from school, but only in females.

Gabbard. (1993) the study was conducted on immediate, short term responses to
physical activity were monitored in 120 male and female, grade 6 school children.
Participants walked for 20-40 minutes depending on the trial allocated, followed
immediately by a 90 second maths computer test. This was carried out 3 times a day for 3 weeks. Improved mathematical performance was witnessed immediately following 20-40 minutes of afternoon walking, although no significant difference was noticed when performing the same intervention in the morning. This suggests that physical exertion may help to sustain appropriate cognitive functioning in the afternoon.

Shephard and Lavallee. (1994) the study was conducted on primary school students in an experimental group were subjected to an additional hour of physical education each day compared to a control group, who received a single period of 40 minutes non-specialist education. The additional physical education in the experimental group was provided by a specialist educator, and as a consequence the experimental group received 14% less academic instruction than the control group. Academic performance was provided as a mean of annual scores obtained in French, English, Maths, Science, and overall conduct. Results showed that girls gained a larger academic advantage than boys from the additional physical education provided in the experimental group. Children in the experimental group had significantly higher academic performance than controls in grades.

Gilt A.K. et, all. (1994) Studied the Comparison of four different methods for respiratory determination of the anaerobic threshold in normal people, and heart- and lung patients We analyzed 128 cardiopulmonary exercise tests (CPX), performed in normal subjects (n = 31), in patients with coronary artery disease (n = 41), with chronic heart failure before (n = 14) and after (n = 14) application of oral PDE-inhibitors and in patients with HIV-infection on a bicycle-ergo meter in semi-supine position using a ramp-program (dependent on study-population with 15, 20 or 35 Watt/min increases) with respect to the ability to determine the respiratory anaerobic threshold non-invasively, using the main criteria described by Wasserman et al.: the V-slope-method according to Beaver, the increase of the ventilator equivalent for O2 (VE/VO2), the increase of the end-tidal PO2 (PETO2) and the increase of the respiratory quotient (RQ) during exercise. In the different study-populations we calculated the detection rates of the AT for each criterion separately. The typical changes in the end-tidal PO2 (124/128 = 96.9%) and the V-slope-method (119/128 = 92.9%) were the most reliable parameters to detect the anaerobic threshold. The
characteristic changes of the ventilator equivalent for O2 (VE/VO2) and of the respiratory quotient (RQ) we found in 100/128 (= 78.1%) and in 107/128 (= 83.6%) of the tests respectively. 86/128 tests (67.2%) showed typical changes in all four mentioned criteria. In another 24/128 tests (19.8%) three of four criteria were fulfilled. Therefore, our investigations showed that in 110/128 cases (85.9%) the AT could be determined by typical changes by means of at least three of the four described parameters. In 15/128 (11.7%) tests only two of four criteria were fulfilled.

Lim C.L., Lee L.K. (1994) Studied the effects of 20 weeks basic military training program on body composition, VO2max and aerobic fitness of obese recruits. The objective of study was to determine forty of the most obese recruits going through a 20 weeks Basic Military Training (BMT) program were selected from a cohort of 197 obese recruits. Their TBW, BF, FFW, VO2max, time taken to achieve VT (V T Time) and maximal heart rate (H R max) were measured before, in the middle, and at the end of the program. The means for each of these variables measured in the 3 occasions were analyzed for significant differences with the repeated measures analysis of variance. Variables that achieved significant difference were further analyzed for pair wise difference with the post-hoc Turkey test. The critical value was set at p < 0.05. Mean TBW and BF decreased from 108.33 +/- 13.1 kg to 90.82 +/- 12.3 kg (p < 0.001), and 34.3 +/- 1.2% to 23.9 +/- 2.3% (p 0.001) respectively. Mean FW decreased from 37.4 +/- 4.8 kg to 22.0 +/- 4.5 kg (p < 0.001). FFW decreased slightly from a mean of 71.5 +/- 8.6 kg to 69.2 +/- 8.8 kg, which was not significantly different (p > 0.05). Mean VO2max increased from 28.1 +/- 6.3 ml.kg-1.min-1 to 32.1 +/- 5.1 ml.kg-1.min-1 (p < 0.001), and mean VT Time on similar exercise protocol increased from 13.3 +/- 2.7 minutes to 15.8 +/- 3.8 minutes (p < 0.001). Mean HR max decreased from 183.5 +/- 12.1 beats. Min - 1 to 177.3 +/- 10.1 beats. Min-1(p < 0.01).

Sakakibara M., HayanoJ. (1996) examined the effect of voluntarily slowed respiration on the cardiac parasympathetic response to a threat: the anticipation of an electric shock. Thirty healthy college students were randomly assigned to the slow, fast, and no paced breathing groups (10 subjects each). Subjects in the slow and fast paced breathing groups regulated their breathing rate to 8 and 30cpm, respectively,
and those in the no paced breathing group breathed spontaneously. Immediately after the period of paced or no paced breathing for 5 minutes, the subjects were exposed for 2 minutes to the anticipation of an electric shock during breathing paced at 15cpm. The amplitude of the high frequency (HF) component of the heart rate variability, an index of cardiac parasympathetic tone, significantly decreased during the threat in the fast and no paced breathing groups, whereas it was unchanged in the slow paced breathing group. No significant difference was observed among the three groups in the amplitude of respiration during the threat. Results suggest that a slowed respiration decreases the cardiac parasympathetic with drawl response to the threat. This study provides a rationale for the therapeutic uses of the slowed respiration maneuver in attenuating the cardiac autonomic responses in patients with anxiety disorder.

Pepin EB et.all. (1996) Conduced on the effects of isometric exercise on 30 males, 74 females, aged 23-61 yr and control subjects 9 males, 16 females, aged 25-47 yr. Systolic, diastolic, and mean arterial pressure (MAP) increased linearly in both groups, but was significantly lower (P < 0.05) in patients with MS at 20%, 40%, 60%, 80%, and 100% of exercise duration. Mean change in MAP at fatigue was +47.9 mm Hg for controls and +28.2 mm Hg for patients with MS, with 18 patients with MS between -6 mm Hg and +15 mm Hg. Heart rate increased normally in patients with MS. In 17% of patients tested, attenuation was profound. Data also suggest an abnormal dissociation between the heart rate and press or response to static work in patients with MS.

Riva CE et.all. (1997) Investigated the response of choroidal blood flow in the fovea region of the human eye to increases in mean perfusion pressure (PPm = mean ophthalmic artery pressure - intraocular pressure; IOP) induced by isometric exercises. Using laser-Doppler flowery, changes in velocity (ChBVel), number (ChBVol), and flux (ChBF) of red blood cells in the choroidal vascular system in the fovea region of the fund us were measured in both eyes of 11 normal subjects (ages 18 to 57 years) during isometric exercises. During 90 seconds of squatting, PPm increased by an average of 67%, from 46 to 77 mm Hg. This resulted in a significant increase of 12% in ChBFm (the mean of ChBF during the heart cycle), mainly caused by an increase in ChBVelm. A further increase in PPm to a value approximately 85% above baseline resulted in a 40% increase in ChBFm. A significant negative
correlation was found between the changes in ChBVelm and ChBVolm, during squatting. Previous studies have demonstrated that during isometric exercise, blood pressures in the ophthalmic and brachial arteries rise in parallel. These observations and the current results indicate that an increase in PPm up to 67% induces an increase in choroidal vascular resistance that limits the increase in choroidal blood flow to approximately 12%. This regulatory process fails when PPm is further increased.

Shephard. (1997) conducted study on total of 546 Canadian primary school children participated in a quasiexperimental study, where the impact of an additional hour each day of vigorous physical education, taught by a professional instructor was investigated. The control groups were from classes immediately above and below the experimental group, who received 40 minutes per week of physical education from their academic teacher. Despite the experimental group receiving 14% less academic instruction, their academic performance significantly increased relative to controls. In the initial months of the intervention, the experimental group experienced accelerated development of various psychomotor skills such as perception, though control students caught up later into the study.

Jarrett et.al. (1998) In this intervention study, a break-time period was introduced once a week at an American primary school which was normally opposed to such practice. A total of 44 boys and girls were their own controls on non-break-time days, and were assessed in classroom behaviour areas of working, fidgeting and 17 listlessness. Over half (60%) of the participants (including those with attention deficit disorder) benefitted considerably, working more, fidgeting less, or both, on break-time days. The authors suggested that the break-time period serves a positive purpose in the primary school curriculum, contrary to the practice of minimising recess in many schools across North America and the UK.

**Walker et. all. (1998)** investigated the *Effect of Physical fitness training on strength BMI on surgery patients*. The study design for 12 week Physical fitness training program effectively maintain strength LBM and BMR in twenty four women subjects were selected randomly assigned to either an exercise (E) group and control (C) group. Both groups were measured for weight % body fat (BF), fat mass (FM), LBM, bone mineral density (BMD), BMR, 1-RM bench press (BP) and 1- RM leg
press (LP) the results indicated that exercise group significantly decrease in BF and increase in BP and LP over the Control group. Loss of LBM was evident in the control group, finally it was concluded that the 12 weeks of structured Physical fitness exercise effects strength and LBM in post-bariatric surgery patients.

Morris, E. L. (1998) conducted the study on health outcomes. A significant difference was found in the spirituality scores between a control group and a research group that practiced daily meditation. The spirituality scores were significantly correlated with coronary artery obstruction over a 4-years duration. The lowest scores of spiritual well-being had the most progression of coronary obstruction and the highest scores had the most regression. The study concluded that spiritual well-being may be an important factor in the development of coronary artery disease.

Smolder J. et.al (1998) Examined related to isometric response on 10 young their aged between 23 to 29 years and 07 older their aged between 54 to 59 years. Heart rate and arterial pressure were related to the individual's contraction times. The isometric endurance response was longer with handgrip than with one-legged knee extension, but insignificant difference was found between above two groups. HR and BP became higher during one-legged knee extension than during handgrip. The older aged had a lower HR and a higher BP response than young, and the differences were more apparent at a higher force level. The results reveals that increasing age is associated with an altered HR and BP response to isometric exercise however it does not affect isometric endurance.

Phyllis et.al(1999) Conducted study the exercise group consisted of 7 men and 9 women aged 66 ± 4 years. The comparison group consisted of 7 men and 9 women also aged 66 ± 4 years. Heart rate variability was determined from 24-hour Holter recordings before and after 12 months of supervised exercise, which consisted of 3 months of stretching and 9 months of 5 hours/week aerobic exercise at approximately 70% of maximal oxygen uptake. Heart rate variability was measured at baseline and 12 months later in the comparison group, who had not changed their usual activity level. In the exercise group maximal oxygen consumption increased from 1.8 ± 0.5 L/min to 2.2 ± 0.7 L/min (P< .05). The standard deviation of normal interbeat
intervals increased from 126 ± 21 ms to 142 ± 25 ms. Mean nighttime heart rate
decreased from 67 ± 6 beats/min to 63 ± 5 beats/min. Increased fitness level had little
effect on indexes of heart rate variability, which reflect parasympathetic or mixed
sympathetic/parasympathetic modulation of heart rate. There was no change in heart
rate or heart rate variability in the comparison group. Exercise training increases total
heart rate variability in normal older adults. The most marked alterations are in
nocturnal heart rate. Heart rate variability is stable over a 1-year period in older adults
who do not alter their activity level.

Stein P.K.et.all. (1999) Investigated the exercise training on seven men and nine
women. HRV (Heart rate variability) was determined from 24-hour Halter recordings
HRV was measured at baseline and 12 months later in the comparison group,
Enhanced fitness level had little effect on indexes of HRV. There was insignificant
effects in HRV in the above two groups. Exercise training enhanced total HRV in
normal adults.

Caterino and Polak. (1999) Experimental study investigated the effects of directed
physical education activities and classroom activities on concentration levels of
second, third, and fourth grade children. The physical activities group performed 15
minutes of walking and stretching in the gymnasium before completing a
concentration test. The classroom activities group went straight from class to take the
concentration test. The authors discovered that children in grade 4 experienced an
immediate increase in concentration following 15 minutes of directed physical
activity, whilst no detrimental effects were observed on the remainder of
experimental participants from grades 2 and 3. It was suggested that the absence of
improvement in grades 2 and 3 may indicate that development is a factor in
concentration ability, and that the type of physical activity may influence the effect on
concentration levels.

Sallis et.al. (1999) the study was conducted for elementary school children, spending
more time in physical education did not have harmful effects on academic
achievement when measured using a standardised test. The 2-year follow-up of the
physical education program showed pupils in the experimental group did significantly
better in achievement tests when compared to controls.
Lee et.all. (2000) examined the physiological effects of Korean traditional Qi-training; we investigated the changes in blood pressure, heart and respiratory rates before, during and after ChunDoSunBup (CDSB) Qi-training. Twelve normal healthy CDSB Qi-trainees (19-37 years old; trained for 1.3 +/- 0.2 years; 9 men and 3 women) volunteered to participate in this study. Heart rate, respiratory rate, systolic blood pressure and rate-pressure product were significantly decreased during Qi-training. From these results, we suggest that CDSB Qi-training has physiological effects that indicate stabilization of cardiovascular system.

McKenzie et.al. (2004) This study was conducted two-year intervention study involving a physical education curriculum change showed a small increase in moderate and vigorous physical activity over control subjects, but no effects on enjoyment of PE or attendance in classes according to follow-up student surveys. However, the authors suggested that in the particular school used, the baseline levels for enjoyment of PE and attendance were particularly high, leaving little room for improvement.

Bergman et.al. (2005) aimed to track the changes in growth and Health-Related Physical Fitness (HRPF) of students during a year period and also to compare them with HRPF criteria. The sample consisted of 61 students of both sexes (31 boys and 30 girls) measured in August 2001 and in August 2002 as well. Growth was evaluated by stature and body weight and HRPF by some tests of the battery proposed by PROESP-BR, having as reference the HRPF health zone of the Physical Best (AAHPERD, 1988) and Fitnessgram (COOPER INSTITUTE OF AEROBICS RESEARCH, 1987). Data were analysed by descriptive statistics and Student’s t-test for paired samples. The results showed that students had high indexes for stature and body weight. Excepted for body composition, the students had low HRPF, presenting high prevalence of below health zone for the physical fitness components.

Thomas Adams et.al. (2006) determined the immediate and long-term effectiveness of a university level Conceptually Based Health-Related (CBHR) fitness course on Health-Related Fitness (HRF) knowledge. Two hundred and seventy-seven students served as subjects. Subjects were grouped according to the following criteria. Group 1 represented students that had never taken and/or were not currently enrolled in the required CBHR course. Group 2 consisted of students currently completing the
course. Groups 3 through 6 were grouped according to the number of weeks or years that had passed since they completed the required course. Group 3 represented students currently enrolled in school between 1 and 52 weeks post course completion. Similarly, Groups 4 and 5 represented students currently enrolled either 53-104 or 105-156 weeks post course completion, respectively. Group 6 represented students currently enrolled and who completed the concepts course 157 or more weeks prior to their participation in the study. An 80-item, multiple-choice test was used to determine HRF knowledge. One way ANOVA was used to determine significant differences ($F (5, 276) = 49.77, p = .000$) between groups in HRF knowledge. A least significant difference post hoc analysis test determined mean differences occurred between Group 1 and all other groups and Group 2 and all other groups. No mean differences between Groups 3 through 6 were identified. Results of this study suggest students develop an above average level of HRF knowledge immediately following completion of a university level CBHR fitness course. Additionally, it was concluded students retain and present, for a minimum of four years, significantly higher levels of HRF knowledge than students that have never taken or completed a university level CBHR fitness course.

Coe et al. (2006) conducted in American middle school children, found that academic achievement was not related to enrolment in physical education, but interestingly it was associated with the total amount of vigorous activity performed by the children. Subsequent analysis of a 55 minute physical education class revealed that only 19 minutes of this time was spent in moderate to vigorous activity, and it was suggested that this was not sufficient vigorous activity to impact on academic achievement. It could be that a threshold activity level is required to positively influence academic achievement from analysing these longitudinal physical education interventions, it has been suggested that as a result; academic performance matches or exceeds that of controls. Children receiving additional physical education appear to show accelerated psychomotor development, which could provide a mechanism for accelerated learning of academic skills.

Ahamed et al. (2007) In this study 50 minutes of additional physical activity per week (i.e. 10 minutes per school day) was administered to children in grades 4 and 5 at intervention schools. After 16 months the results of a standard academic test did not significantly differ between intervention and control schools, despite the
intervention group losing academic lesson time (P<0.05) Ten minutes per day of additional physical activity may not have been long enough to elicit any academic benefits, but it is sufficient to provide health advantages to the children (WHO, 2010). The study is widely applicable as a simple intervention, as it was designed to supplement the existing Canadian curriculum, and was conducted by generalist teachers who received additional training and resources.

**Budde et.al. (2008)** study showed that attention and concentration are enhanced following acute bouts of either co-ordinative exercises or normal sport lessons provided in physical education class in adolescent children. A total of 115 pupils aged 13–16 years of an elite performance school were randomly assigned to an experimental and a control group and were tested for attention and concentration. Both groups performed the attention and concentration test after a regular school lesson (pre-test) and then after either 10 minutes of co-ordinative exercise (experimental group), or following a normal sport lesson (control group). Concentration and attention task scores were higher following either co-ordinative exercise or a normal sport lesson, in comparison to following a regular school lesson. Larger test score improvements were observed in the co-ordinative exercise group in comparison to the normal sport lesson group, though heart rate was similar in both groups. The authors suggested that the co-ordinative component of the exercise may explain the significant performance differences. Co-ordinative exercise may activate parts of the brain responsible for attention and concentration.

**Roxane (2008)** conducted the study on overweight and physical activity in rural and urban children. The study conducted on 1687 boys and 1729 girls from fourth, fifth, and sixth grade classes in schools from urban areas, small cities, and rural areas. The investigator was examine physical activity and prevalence of overweight. Between rural and urban The Physical activity was measured by self-report and BMI was calculated from morphological formula (Height weight). The results reveals that overweight was found to got have much among rural children (25%; P <.001) than urban ares children from (19%) and small cities (17%). Urban children were the more physical active overall Children from small cities reported they more time spend in physical activity as compare than rural children. Finally it was suggest that overweight less in small cities urban children and they engage in more in physical activities.
Bhosale (2011) review on anaerobic exercise on the cardio respiratory functions on sedentary students. 20 Nanded, Maharashtra, India had attended to the study. The age, height, weight, resting heart rate, vital capacity, respiratory rate, and breath holding capacity of all subjects were measured in PE department. Exercise that use large muscles groups that can be maintained continuously and are anaerobic in nature. These exercises include Weight lifting, pull ups, pushups, sprinting, jumping row and strenuous activity. Heart rate was measured by counting radial pulse for a min. The respiratory rate was taken by keeping palm on the stomach and counting the total number of breath for a period of 30 sec. and doubled later on the get the respiratory rates per min. vital capacity was measured by using dry spirometer in liters. Breath holding capacity after expiration of students was tested by an electronic watch. The subjects were instructed to stand erect with legs bended, after getting signal the students exhale air through his nostrils. The total time of air holding of the students was measured in seconds. Similarly breath holding capacity after inspiration of the student was measured by also measured by electronic watch. The subject was instructed to stand erect with legs bended after getting signal the students inhale air through his nostrils. The total time of air holding capacity after inspiration of the students was measured in seconds. significant effects of anaerobic exercise was found in physiological variable with respect to heart rate of Experimental group. no significant effects of anaerobic exercise was found in physiological variable with respect to systolic Blood pressure of Experimental group. Thus the hypothesis of the study was not accepted. It had been hypothesized that there would be significant effect of anaerobic exercise on Heart rate among sedentary students no significant effects of anaerobic exercise was found in physiological variable with respect to Systolic Blood pressure of Experimental group. no significant effects of anaerobic exercise was found in physiological variable with respect to Breathing holding capacity (inspiration) of Experimental group. no significant effects of anaerobic exercise was found in physiological variable with respect to Breathing holding capacity (expiration) of Experimental group. Thus the hypothesis was not accepted.

Hillman et.al. (2009) examined the impact of 20 minutes of treadmill walking at 60% maximum heart rate, followed by cognitive testing, on 20 preadolescent children. The results showed an improvement in response accuracy and academic
achievement on the exercise trial relative to a resting control trial. The findings indicated that there was no increase in arithmetic performance following exercise.

Barros et.al. (2009) conducted on amount and duration of breaks from academic study varies widely between schools in both the UK and North America. A large cross-sectional study of over 10,000 U.S children aged between 8 and 9 years old examined each pupil's rating of classroom behavior (as assigned by their teacher) and the amount of recess permitted by the school they attended. Classroom behaviour scores were higher for children with recess in comparison to those with either no breaks or minimal breaks. However, a dose response effect was not observed for those experiencing various recess durations. Socioeconomic status was also associated with behaviour, with lower SES individuals having lower classroom behaviour scores. Those who received no recess were much more likely to be from lower socio-economic backgrounds which limits the significance of the findings of the study.

Walk. (2009) this study was conducted a total of 2.4 million Texas students in grades 3-12 took part in a series of Fitnessgram tests during 2007-2008. One of the outcomes from the data analysis was that, higher physical fitness achievement was associated with better school attendance rate remained true after controlling for potential confounding variables including socio-economic status, ethnicity and school size.

Houlihan et.al. (2009) The study was conducted on School Sport Partnership (SSP) programme initiative in England was central to the Labour Governments Physical Education, School Sport and Club Links national strategy, which set out to address participation, inclusion, and coherence between sporting opportunities. Joining this partnership meant additional funding was provided each year so the school could increase sporting opportunities for all. The vast majority of English schools participated in the programme and the impact of the scheme was assessed by the Loughborough partnership (2009).

Jeanes et.al. (2009) study was conducted on school-based programme supported by the Cricket Foundation aimed to provide greater access to cricket at an all-inclusive level. An external, well qualified coach would come into the school every week to teach cricket to the children. Beyond the obvious impact on PE provision in schools, responses from a pupil survey indicated that significantly more pupils looked forward
to school and enjoyed attending when Chance to Shine was taking place than when it was not (53% and 36% looking forward to school respectively).

Sinku and Chavan. (2011) were investigated to identify the physical fitness components of rural and urban students. 40 students, 20 rural and 20 urban from various colleges of Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra India were selected as subjects for the study. Execution criteria were the presence of chronic medical condition such as asthma, heart disease or any other condition that would put the subject at risk when performing the rural fitness components. The data was collected by use of measurements of height & weight as well as by application of tests like, running, jumping, steeping, setups etc. The data was analysed with the help of statistical procedure in which arithmetic mean, standard deviation and t - test were employed. The mean ages of rural students were 21.03 (+3.11) years, heights were 171.33 (+ 5.22) cm. and the weights were 68.48 (+3.91) kg. On other hand the mean (+ S.D.) age of the urban students were 21.99 (+3.72) years, height 171.66(+ 8.29) cm. and weight 67.92 (+ 3.76). Significant difference in the agility (t=3.11, p<.05) was found between rural and urban students, urban students was found to be greater agility as compared to rural students while comparing speed ability ( t= 3.26, p<.05) significant difference was found between rural & urban students. Urban students incur significantly less speed ability as compare to rural students. Meanwhile, significant difference was found in endurance ability (t=5.96, p<.05) between rural and urban students. Rural students were found to have got more cardiovascular efficiency as compare to urban students. While comparing explosive strength between rural and urban students, significance difference was found (t=6.53, p<0.5). Rural students were Strongest as compared to their counterpart. Whilst no significant difference in the muscular strength was found between two groups students.

Amusa and Goon. (2011) presented the data on the health-related physical fitness of the Tshannda rural school children in grades 1 to 7 and to evaluate age and gender differences in physical fitness among the Tshannda children, of which information is not yet available. The stature, body mass and skin folds of the children was measured and the Euro fit test battery was used to assess the children’s physical and performance fitness. Percentage body fats fat mass and fat-free mass were calculated. There was progressive increase and improvement in the performance values from
grade level one to seven. In the rural performance tests requiring moving the body, power and strength, the boys generally performed higher than the girls. Girls were superior to boys in the tests of flexibility. Body fat was higher in girls than in boys at all grades and increases with advancement in grades. The physical performance measures of our samples increase in grade levels and with the boys having higher values than girls as well as performing better in activities requiring physical exertion and expenditure of energy. In contrasts, the girls showed superiority in flexibility measures and accumulate more body fat than the boys. Physical fitness of these rural school children seems to be low, thus confirming the worldwide decline in fitness levels of children.

**Harrist, et. al. (2011)** Conducted the study on weight status on 12 schools children. The investigator determine children's weight status, physical activity, and fitness level, respectively through mesure BMI, the modified Self-administered Physical Activity Checklist, and the FITNESSGRAM battery tests. He conducted the study on 237 childerns of 12 schloos. Result reveals that 38% of the children (9.2 ± 0.4 years) were overweight or obese. In which fifteen percentage was extremely obese. The respondent spent 91.8 ± 83.8 and 32.2 ± 47.7 minutes time in moderate- and vigorous physical activities. However Obese children spent less time in moderate physical activity and combined moderate- and vigorous physical activity. Meanwhile 43% of all respondent failed to meet the fitness for muscular strength and Thirty six percent failed to meet it for flexibility. Rural children were higher level of obesity compared to the national average; they had low fitness and thirty percent failed to meet the minimum physical activity Rural children are at a particular high risk for obesity.

**Singh & Bhosale (2011)** was to study the effect of anaerobic exercise on blood pressure. Anaerobic Training was planned for six week and four days a week. Study was conducted at swami Ramanand Teerth Marathwada University Nanded. Mean scores and standard deviation were taken and paired t-test was applied. There was No significant effect on systolic Blood pressure (t=1.10, p<.05) and Diastolic Blood pressure (t=1.60, p<.05). It was found that there was significant decrease in blood pressure.
Hasmi (2011) studied on Bamu and Srtmu Football players. The age ranged of Bamu Football players and Srtmu Football players was 15-30 year. The data was collected with the help of Eysenck personality inventory. This inventory provides four psychological dimensions viz; Neuroticism, Extraversion, Psychoticism and Lie-scale. The mean (S.Ds.) age of Bamu Football players was 22.33 (5.26). Their weight was 65.88 (14.59) Kg. and their height was 167 (25.90) cm. Meanwhile the mean (S.Ds.) age of Srtmu Football players was 24.07 (7.78), their weight was 68.32 (18.06) kg and their height was 171 (26.04) cm. It was hypothesized that no significant difference of personality characteristics with respect to neuroticism between Bamu Football players and Srtmu Football players. The results of the study, revealed the existence of statistically significant difference of personality characteristics with respect to neuroticism was found (t = 3.19, P < .05) between Bamu Football players and Srtmu Football players. Bamu Football players was found to have got more neurotic tendency as compared to Srtmu Football players. The results of the study, revealed the existence of statistically significant difference of personality characteristics with respect to psychoticism was found (t= 2.99, P < .05) between Bamu Football players and Srtmu Football players. Bamu Football players was found to have got more psychotic than Srtmu Football players. Which means that Srtmu Football players incur significantly less psychotic tendency as compared to their counterparts. This may be due to the age difference between players. significant difference of personality characteristics was found (t = 2.80, P < .05) between Bamu Football players and Srtmu Football players. Srtmu Football players was found to have got less extrovert than to Bamu Football players. This may be due to maturity difference between Bamu Football players and Srtmu Football players. no statistically significant difference of personality traits with respect to lie-scale. Significant difference of personality characteristics with respect to extraversion was found (t=3.33, P < .05) between Bamu Football players girls and Srtmu Football players women players. Which means that Srtmu Football player's women player incurs less significantly extrovert tendency. statistically significant difference of personality characteristics with respect to psychoticism was found (t= 4.01, P < .05) between Bamu Football players girls and Srtmu Football players women players. Srtmu Football players women was found to have got more psychoticism tendency as compared to Bamu Football players girls players. Which means that Bamu Football
players girls players having less psychoticism tendency as compared to their counterparts. This may be due to the age difference. It was hypothesised that no significant difference of personality traits with respect to extraversion of Bamu Football players girls and Srtmu Football players women players. The results of the study indicated that statistically significant difference of personality characteristics with respect to extraversion was found (t=3.25, P < .045) between Bamu Football players girls and Srtmu Football players women players. Srtmu Football players women players was found to have got less extrovert tendency as compared to Bamu Football players girls players. Thus the hypothesis was not accepted. The significant difference of personality traits with respect to lie-scale was found (t = 2.78, P < .05) between Bamu Football players girls and Srtmu Football players women players. Bamu Football players girls players more liar as than to Srtmu Football players women players.

Singh (2012) study is to find out the cardiovascular fitness level between rural and urban collegiate students and to determine the level of fitness level among rural and urban students. Eighty Rural and Eighty Urban collegiate sedentary students from Nanded, participated in the study. The age, height, weight, and cardiovascular fitness, of all subjects were measured in PE departmental laboratory and Field. Cardiovascular fitness was assessed using 12 minute run test. Place markers at set intervals around the track to aid in measuring the completed distance. Participants were ruined for 12minutes, and the total distance covered is recorded. Walking was allowed. BMI was calculated by Quetelet equation. With regards to BMIin rural and urban collegiate students they have obtained mean value were 20.12 and 23.78 respectively, the result reveals a statistically significant difference of body mass (t=3.45<, .05) was found between rural and urban collegiate students; Urban collegiate students was found to got more obese as compare than rural collegiate students. With regards to 12 minutes run and walk in rural and urban collegiate students they have obtained mean value were 1357.5 and 13.40 respectively, the result reveals a statistically significant difference of cardiovascular fitness (t=49.61,p<.05) was found between rural and urban collegiate students.

Kawre (2012) compared of personality traits and anxiety behavior and BMI of student athletes and non-student athletes with respect to height weight age
neuroticism, psychoticism, extraversion and lie scale and. Total 150 non student athletes and 150 student athletes were selected as a subject for the present study. Their age ranged from 21 to 30 years. Those Students participated in minimum intercollegiate tournament have consider for students athletes and those students not participated any sports activities at minimum intercollegiate tournament as consider for non-student athletes. For the present study Eysenck personality inventory (1985) was and sport competition anxiety test (Marten, 1977), were utilized. It includes 90 questions of four personality variables and 15 for Anxiety. Data was collected individually through a Eysenck personality inventory from 150 non student athletes and 150 student athletes by contacting from different college of Aurangabad District. E. P.I. were distributed to junior collegiate and senior collegiate volleyball players of Aurangabad instruction were given to the students before filling these inventory by the researcher. To analyze the data t-ratio were used to comprise the BMI, personality traits with respect to psychoticism, neuroticism, and extraversion and lie scale and anxiety behavior between student athletes and non-student athletes. The level of significant was set up at 0.05 level of confidence. With regards to BMI significance difference was found out in (t= 2.78) of Student athletes and non student athletes With regards to psychoticism no significance difference was found out in (t=1.27) of Student athletes and non student athletes. With regards to neuroticism of Student athletes and non student no significance difference was found out in (t= 0.36) of Student athletes and non student athletes. With regards to extraversion of Student athletes and non student athletes no significance difference was found out in (t= 1.94) of Student athletes and non student athletes. With regards to Lie-scale of Student athletes and non student athletes no significance difference was found out in (t=0.88) of Student athletes and non student athletes. With regards to neuroticism of female Student athletes and female non student athletes insignificance difference was found out in (t= 1.98) of female Student athletes and female non student athletes. With regards to psychoticism of Student athletes and female non student athletes no significance difference was found out in (t= 1.33) of female Student athletes and female non student athletes. With regards to Extraversion of Student athletes and female non student athletes insignificance difference was found out in (t= 1.76) female Student athletes and female non student athletes. With regards to Lie-scale of female Student athletes and female non student athletes significance difference was
found out in (t=2.00 P< 0.5) female Student athletes and female non student athletes, female student athletes having more Liar tendency as compared to non student athletes, which means female non student athletes incur significantly more Liar tendency. With regards to anxiety of Student athletes and non student athletes insignificance difference was found out in (t= 1.85) Student athletes and non student athletes. With regards to anxiety of female student athletes and female non student athletes no significance, difference was found out in (t=1.18 P< 0.5) female student athletes and female non student athletes, female student athletes students having less anxious as compared to non student athletes, which means that female non student athletes was found to have got more anxious. Students Athletes reported more injuries due to Anxiety.

Sinku (2012) examined the effects of physical fitness programmes on the lung function measured through Vital Capacity of sedentary students. Twenty sedentary male students studying in different colleges of the Swami Ramanand Teerth Marathwada University Nanded, Maharashtra(India) had attended the study voluntarily the mean age of these students were 20.3 + 2.66, height were 172.33 + 5.99 cm. the weight were 69.29 + 4.01 Kg. Tests at the beginning of 2009-2010 academic year in this study, vital capacity was taken from the sedentary students. The applied training programme was planned for twelve weeks, 5 days a week and 60 minutes in a day, as the statistical techniques. Mean scores and standard division were take and paired t-test was applied. The significant effects of physical fitness training programme on vital capacity (t= 4.30, p=<.05) was found in sedentary students. In the study it was found there is a significant increase in the vital capacity. According to the result, that physical fitness training programme in physical education department is academic programme. It is are not only beneficial to increase the lung function and to improve physical fitness of sedentary students but also to improve the lung functions of players of various sports disciplines and general people.

Patil (2012), conducted the study on BMI, blood pressure, heart rate, pulse pressure, etc on rural and urban farmers. the study conducted on 60 peoples in two groups thirty subjects of each group. the study conducted in gulburga district of karnatka state in india. The age group of the target population was 20 to 30 years. The investigator were found out BMI through Anthropometric measurements, pulse
pressure arterial pressure, both blood pressure such as systolic blood pressure and diastolic blood pressure measure by blood pressure device heart rate, peak exercise Heart rate, post exercise heart rate in two groups such as rural and urban sedentary the results reveals that The BMI incure significantly less (p<0.05) in rural farmer group compared than urban sedentary group. Significant difference also found in pulse pressure arterial pressure, both blood pressure such as systolic blood pressure and diastolic blood pressure measure by blood pressure device heart rate, peak exercise Heart rate, post exercise heart rate in two groups such as rural and urban sedentary. They also found a negative correlation between BMI and percentage recovery HR, the investigator finally conclude that The rural farmer had less BMI and less increase in peak HR, faster HR recovery after physical activities, enhance in PFI and improve in percentage RHR as compared to urban sedentary group. Results indicates a better cardio-vascular efficiency of rural farmer group of Gulgarga District of Karnataka in Indian as compared to their counterpart.

Firdous (2012) studied on effects of weight training on chest muscle circumference, upper arm muscle circumference, fore arm muscle circumference, thigh muscle circumference and calf muscle circumference. In this study fifty male students of SRTMU, Nanded, were selected as subjects and where divided experimental group and control group. The experimental group was treated with weight training and no training was given to CG. The duration of training programme was forty two days. The training was administrated on alternative days i.e. three days per week. significant effect of weight training on chest muscle circumference, upper arm muscle circumference, fore arm muscle circumference and calf muscle circumference and in case of thigh muscle circumference no significant effect was found on experimental group when compared with control group. Therefore, the weight training programme designed for this study might not be effective on thigh muscle circumference. The significant effect on subjects of experimental group might be due to the nature of weight training programme designed in the present study for the duration of six weeks.

Singh and Bhosale (2012) was to study the effect of anaerobic exercise on blood pressure. Height was 169.6 and weight were 60.05kg. The Anaerobic Training
was planned for six week and four days a week. Study was conducted at swami Ramanand Teerth Marathwada University Nanded. There was no significant effect on SBP (Systolic blood pressure) \( (t=1.10, \ p<.05) \) and DBP (Diastolic Blood pressure) \( (t=1.60, \ p<.05) \). It was found that decrease in blood pressure due to above exercise. All the subject was tested for Blood pressure. The data collected was analyzed by \( t \) - ratio with the level of significances set at 0.05. With regards to selected physiological variable in Systolic Blood pressure in Experimental group they have obtain the mean value of 125.9 and 120.7 respectively which are given in the result shows that Not significant effects of anaerobic exercise was found in (t = 1.10) physiological variable with respect to systolic Blood pressure of Experimental group. With regards to selected physiological variable in Diastolic Blood pressure of Experimental group, they have obtain the mean value of 74.25 and 70.2 respectively which are given in the Table -2 shows that no significant effects of anaerobic exercise was found in (t = 1.60) physiological variable with respect to Diastolic Blood pressure of Experimental group. It had been hypothesised that there would be Not significant effect of anaerobic exercise on Blood pressure among sedentary students. Not Significant effects of anaerobic exercise were found in physiological variable with respect to Blood pressure of Experimental group. Thus the hypothesis was not accepted.

**Sarode (2012)** study on Physical fitness and BMI in rural and urban collegiate students they have obtained mean value were 21.12 and 23.78 respectively, the result reveals a statistically significant difference of body mass \( (t=2.70<,.05) \) was found between rural and urban collegiate students; Urban collegiate students was found to got more body index as compare than rural collegiate students, which means that rural collegiate students incur significantly less obese as compare than their counterparts. With regards to pull ups in rural and urban collegiate students they have obtained mean value were 7.81 and 0.99 respectively, the result reveals a statistically significant difference of body mass \( (t=<.05) \) was found between rural and urban collegiate students; Urban collegiate students was found to got more pull ups as compare than rural collegiate students, which means that rural collegiate students incur significantly less upper strength as compare than their counterparts. With regards to sit ups in rural and urban collegiate students they have obtained mean value were 24.16 and 20.31 respectively, the result reveals a statistically significant
difference of body mass ($t<.05$) was found between rural and urban collegiate students; Urban collegiate students was found to got more sit ups as compare than rural collegiate students, which means that rural collegiate students incur significantly less Muscular strength as compare than their counterparts. With regards to sit&reach in rural and urban collegiate students they have obtained mean value were 30.56 and 33.43 respectively, the result reveals a statistically significant difference of sit&reach ($t=2<.05$) was found between rural and urban collegiate students; Urban collegiate students was found to got less sit&reach as compare than rural collegiate students, which means that rural collegiate students incur significantly more flexibility ability as compare than their counterparts. With regards to right hand grip in rural and urban collegiate students they have obtained mean value were 34.77 and 30.06 respectively, the result reveals a statistically significant difference of right hand grip ($t=<.05$) was found between rural and urban collegiate students; rural collegiate students was found to got more right hand grip as compare than urban collegiate students, which means that rural collegiate students incur significantly more right hand grip as compare than their counterparts. With regards to left hand grip in rural and urban collegiate students they have obtained mean value were 32.80 and 32.71 respectively, the result reveals a no statistically significant difference of left hand grip ($t=)$ was found between rural and urban collegiate students. With regards to 9 minutes run and walk in rural and urban collegiate students they have obtained mean value were 1357.5 and 13.40 respectively, the result reveals a statistically significant difference of (t=.p<.05) was found between rural and urban collegiate students. Rural collegiate students was found to got more aerobic fitness as compare than urban collegiate students, which means that rural collegiate students incur significantly more aerobic fitness as compare than their counterparts. Statistical significant difference of body mass was found between rural and urban collegiate students Urban collegiate students was found to got more body index as compare than rural collegiate students. Statistical significant difference of body mass was found between rural and urban collegiate students. Urban collegiate students was found to got more pull ups as compare than rural collegiate students. Statistically significant difference of body mass was found between rural and urban collegiate students. Urban collegiate students was found to got more sit ups as compare than rural collegiate students. Statistically significant difference of sit&reach was found between rural and urban collegiate students. Urban
collegiate students was found to got less sit&reach as compare than rural collegiate students. statistically significant difference of right hand grip was found between rural and urban collegiate students. rural collegiate students was found to got more right hand grip as compare than urban collegiate students. no statistically significant difference of left hand grip (t=) was found between rural and urban collegiate students. statistically significant difference of (t=,p<.05) was found between rural and urban collegiate students. rural collegiate students was found to got more aerobic fitness as compare than urban collegiate students. Finally conclude that urban students have lower levels of fitness compared with rural students.

Singh, More and Jain (2013) conducted the study 150 Rural and 150 Urban collegiate Athletes students from P.E.S College of physical education various colleges of Swami Ramanand Teerth Marathwada University Nanded, voluntary to participate in the health related physical fitness programmes. The age, height, weight, and cardiovascular fitness, of all subjects were measured in physical education department laboratory and Field. Participants were ruined for 12minutes, and the total distance covered is recorded. Walking was allowed. BMI was calculated by Quetelet equation. The result reveals a statistically significant difference of body mass (t=p<, .05) between rural and urban collegiate students. However the result reveals a statistically significant difference of cardiovascular fitness (t=p<.05) was found between rural and urban collegiate students. The results of present study showed that health related fitness was better in rural students.

Abhijeet (2013) studied the effects of selected exercises to achieve health related physical fitness components among sedentary students. The investigator made an effort to find out the effects of selected exercises to achieve health related physical fitness components among sedentary students. Accordingly two groups of sedentary students were targeted for this study; these subjects were classified into control group and experimental group. In each group forty students were taken. The age was 18 to 28 years of the subjects. The data was collected with the help of 12 minute Run & Walk Test for evaluating Cardiovascular Endurance, while assessing Muscular Endurance one minute Bent Knee Sit Up test was used. Grip Dynamometer Strength Test and Kraus Weber Strength Test were used for measuring muscular strength. However body composition was measured through Body Mass Index. Meanwhile Sit
& Reach Test and Bend & Reach Test were utilized for measuring flexibility. The investigator had been taken Bent knee sit ups, Squat thrust, Strudel thrust, Bench press, Pull ups, Depth jump, Side step jump, Vertical jump, Standing broad jump, Split Squat Jump, Static stretching exercises for training which were applied on five physical fitness components. These exercises were divided into three sections as per their characteristics in the training programme for getting better results. It had been hypothesized that, there would be significant effects of selected exercises to achieve Health - related physical fitness with respect to Flexibility, assess through Bend & Reach Test and Sit & Rich Test among sedentary students. The results revealed that significant effects of selected exercises on Flexibility was found out (F=39.23, P <0.05) through Bend & Reach Test and result also revealed that significant effects of selected exercises on Flexibility was found out (F=47.89, P<0.05) through Sit & Reach Test among sedentary students, which means that there was significant effects of training programme of selected exercises on flexibility. It had been hypothesized that, there would be significant effects of selected exercises to achieve Health-related physical fitness with respect to Muscular Endurance, assess through Bent Knee Sit Ups among sedentary students. The results revealed that significant effects of selected exercises on Muscular Endurance was found out (F=22.31, P<0.05) among sedentary students. It had been hypothesized that, there would be significant effects of selected exercises to achieve Health - related physical fitness with respect to Cardio-vascular endurance, assess through 12 Minute Run & Walk Test among sedentary students. The results revealed that significant effects of selected exercises on Cardio-vascular Endurance was found out (F=73.12, P<0.05) among sedentary students. It has been hypothesized that, there would be significant effects of selected exercises to achieve Health-related physical fitness with respect to Body Composition, evaluate through BMI among sedentary students. But the results revealed that no significant effects of selected exercises Body Composition was found (F=0.002, P<0.05) among sedentary students. It had been hypothesized that, there would be significant effects of selected exercises to achieve Health-related physical fitness with respect to Muscular Strength, evaluate through Kraus Weber Test and Grip Dynamometer among sedentary students. Therefore the results revealed that significant effects of selected exercises on Muscular Strength was found out (F=150.624, P<0.05) through Kraus Weber Test, result also revealed that significant effects of selected exercises on Muscular
Strength was found out (F=8.85, P<0.05) through Grip Dynamometer Test among sedentary students, which means that there was significant effects of training programme of selected exercises on Muscular Strength.

Chavan (2013) conducted the study with the effects of Resistance Training to improve Sports Performance related physical fitness components among PE students. All PE students are good players in Football, Track and field, basketball and Volleyball. The investigator made an effort to find out the effects of Resistance Training to improve Sports Performance related physical fitness components among PE students. Accordingly two groups of students were targeted. The subjects were classified into control group and experimental group. In each group there was forty students was taken for present study. The age of the subject were 21 to 30 years. These tests were utilized for control group for two times, such as pre and post and same as experimental group therefore these tests were used totally four times. The results of study indicates that in 150 yard Dash Run test mean of pre and post test of speed among control group were 7.38 and 7.55. and the SDs were 0.45 and 0.58 respectively. However Experimental group have obtained the mean values 7.47 and 6.48 of pre-test and post-test respectively and standard deviations were 0.49 and the post test was 0.36 respectively and observed in F-ratio was 74.65 which is required to be 3.98 at 1,77df at 0.05 level of significance. There was significant effects of Resistance training was found out on sports performance related physical fitness components with respect to speed among PE students. significant effect of Resistance training to the improvement of sports performance-related physical fitness components with respect to Athletic power ability among PE. The results of study indicates that Standing Broad Jump test mean were 221.3 and 217.4 respectively and the standard deviations were 13.25 and 13.29 respectively However Experimental group have obtained the mean values 229.82 and 240.95 of pre-test and post-test respectively and standard deviations were 12.40 and the post test was 12.56 respectively and observed in F-ratio was 97.34 which is required to be 3.98 at 1,77df at 0.05 level of significance. The results reveal that there was significant effects of Resistance training was found out on sports performance related physical fitness components with respect to Athletic power among PE students. Significant effect of Resistance training to the improvement of sports performance-related physical fitness components with respect to work power ability among PE students. The results of
study indicates that in vertical Jump test mean were 41.4 and 40.77 (pre and Post) respectively and the standard deviations were 3.29 and 2.97 respectively However Experimental group have obtained the mean values 42.4 and 47.3 of pre-test and post-test respectively and standard deviations were 3.68 and the post test was 4.41 respectively and observed in F-ratio was 53.76 which is required to be 3.98. There was significant effects of Resistance training was found out on sports performance related physical fitness components with respect to work power among PE students. It was hypothesized that there would be significant effect of Resistance training to the improvement of sports performance-related physical fitness components with respect to Agility among PE students The results of study indicates that in SEMO Agility test mean Pre & post- test of Agility among control group were 13.27 and 13.15 respectively and the standard deviations were 0.96 and 0.81 respectively However Experimental group have obtained the mean values 13.41 and 11.72 of pre-test and post-test and SDS were 0.88 and the post test was 0.64 respectively and observed in F-ratio was 58.52. There was significant effects of Resistance training was found out on sports performance related physical fitness components with respect to Agility among PE students. PE students and athletic requires agility. Resistance training can help PE as well as players strengthen the skills. It was hypothesized that there would be significant effect of Resistance training to the improvement of sports performance-related physical fitness components with respect to Balance among PE. The results of study indicates that in Brass Stick test mean Pre & post- test of Balance among control group were 37.96 and 35.97 respectively and the standard deviations were 4.51 and 4.52 respectively However Experimental group have obtained the mean values 39.53 and 46.19 of pre-test and post-test respectively and standard deviations were 5.17 and the post test was 5.20 respectively and observed in F-ratio was 69.59 which is required to be 3.98. There was significant effects of Resistance training was found out on sports performance related physical fitness components with respect to Balance among PE students. It was hypothesis that there would be significant effect of Resistance training to the improvement of sports performance-related physical fitness components with respect to Hand Reaction Time among PE students The results of study indicates that in Nelson Hand Reaction Time test mean of Pre and post- test of Hand Reaction Time among control group were 0.24 and 0.25 and the SDs were 0.027 and 0.027 respectively However Experimental group have obtained
the mean values 0.24 and 0.21 of pre-test and post-test respectively and standard deviations were 0.026 and the post test was 0.026 respectively and observed in F-ratio was 17.39 which is required to be 3.98. There was significant effects of Resistance training was found out on sports performance related physical fitness components with respect to Hand Reaction Time among PE students. Hence the sixth hypothesis of the present study was confirmed. It was hypothesized that there would be significant effect of Resistance training to the improvement of sports performance-related physical fitness components with respect to Foot Reaction Time among PE students The results of study indicates that in Nelson Foot Reaction Time test mean of Pre & post- test of Foot Reaction Time among control group were 0.28 and 0.29 and the SDs were 0.021 and 0.027 respectively However Experimental group have obtained the mean values 0.28 and 0.25 of pre-test and post-test respectively and standard deviations were 0.024 and the post test was 0.023 respectively and observed in F-ratio was 44.59. There was significant effects of Resistance training was found out on sports performance related physical fitness components with respect to foot Reaction Time among PE students. Therefore the results of the study supports last hypothesis. After completion of the study 12% PE students reported common injuries during experimental period of which strain and sprain are common in respondent.

**Tuteja (2013)** conducted the study on Isotonic and Isometric training on swimming performance and effects of blood pressure among school swimmers and effect of Isotonic and isometric training on physiology and Swimming performance. In this study total 30 Swimmers were selected; of out of 10 Swimmers of each group. Three groups were targeted such as isotonic, isometric and swimming practicing group, there was no . The 30 swimmers Nanded, participated in the study and their age ranged between 12-18 years. Training was given to the isometric and isotonic groups only. The data was collected through respondents in the form of different experimental tests in pre and post stagrs. The demographic information about Gender, age, daily smoking, drug use, etc. was obtained before seeking responses. The Swimming performance test was measure through 150 miters free style swimming and for short duration swimming and 400 miters free style for long duration swimming both test was involved pre and post test. RHR was taken before & after training. Before recording Resting heart rate the subject was instructed to remain lying on their bed to record the heart rate, Heart rate was recorded by the palpation at
redial artery per minute. The score was express in number of heart rate per minute. The Respiratory rate of each subject was recorded before & after training. Before recording Respiratory rate the subject was instructed to remain lying on their bed in supine lying position. The tester then record rate of respiration in units per minute by carefully watching the movements of the subjects abdominal. Total number of respiratory movement per minute finally recorded. Among the three groups, the Practicing group was strictly under without having any special activity. The experimental groups were subjected to the experimental treatment. One experimental group was given Isotonic exercises training and the other group was given Isometric exercise training. The training period for the experimental groups was six weeks in the mornings for about 30 minutes for isotonic and isometric group separately, except on Saturdays and Sundays, significant effects of isotonic and isometric exercise on short distance swimming performance among school swimmers. In order to locate the significant effects of isotonic and isometric exercises, L.S.D. post hoc comparison for means difference of effects of isotonic and isometric exercises on short distance swimming performance among school swimmers among three groups of Swimmers reveals significant effects of isotonic exercise had found in Practicing group and isometric group that means significant effects of isotonic exercise on Swimmers. Meanwhile significant effects was found between Practicing group and isometric groups, that means there was significant effects of isometric exercise on Swimmers finally, insignificant effects was found between isotonic and isometric groups. Thus the hypothesis was accepted. The second hypothesis, that there would be significant effects of isotonic and isometric exercises on long distance swimming performance among school swimmers The results of the study revealed significant effects in Practicing group and isometric group found, that means significant effects of isotonic exercise on Swimmers, insignificant effects was found between Practicing group and isometric groups, that means there was significant effects of isometric exercise on Swimmers and insignificant effects was found between isotonic and isometric groups. Thus the hypothesis of the study was accepted. The third hypothesis that, significant effects of isotonic and isometric exercises on systolic blood pressure on school swimmers, that insignificant effects of isotonic and isometric exercises on systolic blood pressure on school swimmers was found thus, the hypothesis of the study regarding systolic blood pressure was rejected. The fourth hypothesis that, significant
effects of isotonic and isometric exercises on Diastolic blood pressure on school swimmers, the insignificant effects of isotonic and isometric exercises on diastolic blood pressure on school swimmers was found thus, the hypothesis of the study regarding diastolic blood pressure was rejected. The fifth hypothesis of that, significant effects of HR on school swimmers, insignificant effects of exercises on heart rate on school swimmers was found thus, the hypothesis of the study regarding heart rate was rejected. The sixth hypothesis that significant effects of isotonic and isometric exercises on systolic respiratory rate on school swimmers, no significant effects of isotonic and isometric exercises on respiratory rate on school swimmers was found thus, the hypothesis of the study regarding respiratory rate was rejected. Finally, Tuteja concluded that, There would be significant effects of isotonic and isometric exercises on short distance swimming performance among school swimmers. Significant effects of isotonic and isometric exercise on short distance swimming performance among school swimmers. Significant effects of isotonic exercise reveals in Practicing group and isometric group that means there was significant effects of isotonic exercise on Swimmers. Significant effects was found between Practicing group and isometric groups, that means there was significant effects of isometric exercise on Swimmers. Insignificant effects was found between Practicing group and isometric groups, that means there was significant effects of isometric exercise on Swimmers. The last hypothesis that significant effects of isotonic and isometric exercises on occurrence of injuries among school swimmers, significant effects of isotonic and isometric exercises on occurrence of injuries on experimental groups on school swimmers.

Katherine A. et, all. (2013) studies on Body weight, shape and body image were measured in sixteen males and eighteen females before and after two types of exercise. The results shows that body weight and shape did not effects. The findings have implications for exercise promotion where role for body image in exercise adherence.
Andrea .et, all. (2013) examined the effects of medium-impact exercise program (MIEP) on health-related quality of life (HRQoL) and cardio respiratory fitness in seventeen sedentary women with sHT. The training programme planned for 60 minutes during 12 weeks and three days in a week. HRQoL was measured by the SF-12v2 questionnaire, after training programme the respondent that performed an MIEP effects in HRQoL. The respondent that performed exercise indicates a higher (28%). After exercise program, there were remarkable improvements in HRQoL in most domains. Finally MIEP proved to have a positive effects on cardio respiratory fitness.

Jain (2013) comprised of Academic stress and risk of BMI and Blood Pressure among student athletes and non-student athletes by using Gadzella’s Life Stress Inventory (B. M. Gadzella,1991) and injury form. Five categories of academic stressors namely frustrations, conflicts, pressures, changes, and self-imposed and four categories describing reactions to these stressors like physiological, emotional, behavioral, and cognitive were comprised. The sample consisted of 150 student athletes and 150 and non-student Athletes from different colleges and departments of Swami Ramanand Teerth Marathwada University Nanded at the end of 2012-2013 academic year in their study. Those Students were participating in intercollegiate tournament have considered student athletes and those students were not participating any sporting activities at minimum intercollegiate tournament as considered non student athletes. The mean age of student athletes were 23.3 ± 3.64, height were 178.33 ± 15.56 cm. the weight were 69.29 ± 4.01 Kg. Similarly, the mean age of student athletes were 22.3 ± 3.45, height were 175.67 ± 14.99 cm. the weight were 73.98 ± 7.01 Kg. The significant deference of frustration (t=p<.05), conflicts (t=p=<.05) and self-imposed (t= p<=.05) were found in students athlete and non-students athlete in academic stressors sub dimension with combined sample (t=p<.05), While comparing reaction to stressors, there were significant difference found in Physiological (t=p<.05), Behavioral (t=p<.05), and cognitive (t=p<.05) with combined sample (t=p<.05). Students athletes reported higher frustrations and self-imposed stressors with academic stressors and greater physiological and cognitive reaction to stressors than non athlete students. Student athletes reported more injuries as compare then their counterparts due to academic stress.
Sinku (2014) find out the difference of positive and negative mental between PE and sedentary students. 150 PE and 150 sedentary students from Swami Ramanad Teerth Marathwada University had been selected for the present study. Their age ranged from 18-30. Questionnaires were distributed physical and Sedentary students. Instructions were given to the both group students before filling these questionnaires by the researcher. To analyzed the data, t-ratios was comprised the status of mental health between physical and sedentary students. For the present study, Mental health was measured by (GHQ-12). The 12-item GHQ-12 comprises six ‘positive’ and six ‘negative’ items. While comprised of positive mental health, significant difference of mental health found between physical and sentry students with regards to been feeling reasonably happy (t=p<.05), however insignificant differences were found in Been able to concentrate, Plying a useful Part, Been able to enjoy and Been able to face up. While considering negative mental health, the result reveals that there was significant differences of mental health found between physical and sedentary students with regards to Lost much sleep (t=p<.05), Under strain (t=p<.05), and Yourself as a Worthless (t=p<.05). However insignificant differences were found in Couldn’t overcome, Unhappy & depressed, and Been losing confidence. The common belief that PE students lead to better physical and mental health then sedentary students. PE students actively engage in various physical and sporting activities during their studies however sedentary students not engage in various physical and sporting activities during their studies. Results reveals that there was significant difference between mental health with regards to been feeling reasonably happy (t=2.82,p<.05) PE students was found been have got more feeling happy as compare than sedentary students. However insignificant differences were found in Been able to concentrate, Plying a useful Part, Been able to enjoy and Been able to face up. Results reveals that there were significant differences of mental health with regards to Lost much sleep (t=2.62,p<.05), Under strain (t=2.11,p<.05), and Yourself as a Worthless (t=2.21,p<.05), which means that PE was found been feeling reasonably happy. However insignificant differences were found in Couldn’t overcome, Unhappy & depressed, and Been losing confidence. Significant differences was found between positive mental health with regards to been feeling reasonably happy, However insignificant difference were found in Been able to concentrate, Plying a Useful Part, Been able to enjoy and Been able to face up.
Significant difference was between mental health with regards to Last much sleep Under strain and Yourself as a Worthless which means that there PE was found been feeling reasonably happy. However insignificant differences were found in Couldn’t overcome, Unhappy and depressed, and Been losing confidence. Finally, the results of the study were expected to be of great use and importance to the students as the same can be utilize in formulating the modalities in putting their knowledge acquired through developed scientific investigations, analysis and interpretation of findings to use of all type of students.

Shangharsh (2014) studied on Forty sedentary students from SRTMU Nanded, to participate in the physical exercise programme. The age, height, weight, resting heart rate, respiratory rate, breath holding capacity, BMI (Body Mass Index) and Blood Pressure of all subjects were measured in PE department laboratory and psychological tests were also carried out by distributing questionnaires, which measured personality characteristics, emotional intelligence and sports competitive anxiety. All 40 acted as experimental group for Physical exercise. The training programme was planned for 60 minutes for five days in a week. Exercises that use large muscles groups were given to the students. These exercises includes walking, jogging, dancing, stair climbing, jumping rope and cross country. Heart rate was measured by counting radial pulse for a min. The respiratory rate was taken by keeping palm on the stomach and counting the total number of breath for a period of 60 sec. and doubled later on the get the respiratory rates per min. Breath holding capacity after expiration of students was tested by an electronic watch. The subjects were instructed to stand erect with legs bended, after getting signal the students exhale air through his nostrils. The total time of air holding of the students was measured in seconds. Similarly breath holding capacity after inspiration of the student was measured by also measured by electronic watch. The subject was instructed to stand erect with legs bended after getting signal the students inhale air through his nostrils. The total time of air holding capacity after inspiration of the students was measured in seconds. Blood Pressure was measured by using Sphygnometer. BMI was measured by height weight standard table. It had been hypothesized that there would be significant effect of physical exercise on Heart rate among sedentary students, with regards to selected physiological variable in heart rate of before and after test of Experimental group, significant effects of physical exercise was found in
physiological variable with respect to heart rate of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Respiratory rate among sedentary students, with regards to selected physiological variable in respiratory rate of before and after test of Experimental group, significant effects of physical exercise was found in physiological variable with respect to respiratory rate of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Breath Holding Capacity (inspiration) among sedentary students, with regards to selected physiological variable in Breath Holding Capacity (inspiration) of before and after test of Experimental group, significant effects of physical exercise was found in physiological variable with respect to Breath Holding Capacity (inspiration) of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Breath Holding Capacity (expiration) among sedentary students, with regards to selected physiological variable in Breath Holding Capacity (expiration) of before and after test of Experimental group, significant effects of physical exercise was found in physiological variable with respect to Breath Holding Capacity (expiration) of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Random Breathing among sedentary students, with regards to selected physiological variable in Random Breathing of before and after test of Experimental group, no significant effects of physical exercise was found in physiological variable with respect to Random Breathing of Experimental group. Thus the hypothesis of the study was rejected. It had been hypothesized that there would be significant effect of physical exercise on Blood Pressure (diastolic) among sedentary students, with regards to selected physiological variable in Blood Pressure (diastolic) of before and after test of Experimental group, significant effects of physical exercise was found in physiological variable with respect to Blood Pressure (diastolic) of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Blood Pressure (systolic) among sedentary students, with regards to selected physiological variable in Blood Pressure (systolic) of before and after test of Experimental group, significant effects of physical exercise was found in
physiological variable with respect to Blood Pressure (systolic) of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on BMI among sedentary students, with regards to selected physiological variable in BMI of before and after test of Experimental group, no significant effects of physical exercise was found in physiological variable with respect to BMI of Experimental group. Thus the hypothesis of the study was rejected. It had been hypothesized that there would be significant effect of physical exercise on Neuroticism among sedentary students, with regards to selected Psychological variable in Neuroticism of before and after test of Experimental group, no significant effects of physical exercise was found in Psychological variable with respect to Neuroticism of Experimental group. Thus the hypothesis of the study was rejected. It had been hypothesized that there would be significant effect of physical exercise on Extraversion among sedentary students, with regards to selected Psychological variable in Extraversion of before and after test of Experimental group, significant effects of physical exercise was found in Psychological variable with respect to Extraversion of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Sports Competitive Anxiety among sedentary students, with regards to selected Psychological variable in Sports Competitive Anxiety of before and after test of Experimental group, significant effects of physical exercise was found in Psychological variable with respect to Sports Competitive Anxiety of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Self Awareness among sedentary students, with regards to Emotional intelligence in Self Awareness of before and after test of Experimental group, significant effects of physical exercise was found in Emotional intelligence with respect to Self Awareness of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Empathy among sedentary students, with regards to Emotional intelligence in Empathy of before and after test of Experimental group, significant effects of physical exercise was found in Emotional intelligence with respect to Empathy of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on
Self-Motivation among sedentary students, with regards to Emotional intelligence in Self-Motivation of before and after test of Experimental group, significant effects of physical exercise was found in Emotional intelligence with respect to Self-Motivation of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Emotional Stability among sedentary students, with regards to Emotional intelligence in Emotional Stability of before and after test of Experimental group, significant effects of physical exercise was found in Emotional intelligence with respect to Emotional Stability of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Managing Relations among sedentary students, with regards to Emotional intelligence in Managing Relations of Experimental group, significant effects of physical exercise was found Emotional intelligence with respect to Managing Relations of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Integrity among sedentary students, with regards to Emotional intelligence variable in Integrity of Experimental group, significant effects of physical exercise was found in Emotional intelligence with respect to Integrity of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Value Orientation among sedentary students, with regards to Emotional intelligence variable in Value Orientation of Experimental group, significant effects of physical exercise was found in Emotional intelligence with respect to Value Orientation of Experimental group. Thus the hypothesis of the study was accepted.

It had been hypothesized that there would be significant effect of physical exercise on Commitment among sedentary students, with regards to selected Emotional intelligence in Commitment of Experimental group, significant effects of physical exercise was found in Emotional intelligence with respect to Commitment of Experimental group. Thus the hypothesis of the study was accepted. It had been hypothesized that there would be significant effect of physical exercise on Altruistic Behavior among sedentary students, with regards to Emotional intelligence Altruistic Behavior of Experimental group, significant effects of physical exercise was found in Emotional intelligence with respect to Altruistic Behavior of Experimental group.