THE REVIEW OF LITERATURE
The interest level of girls and women in sports has increased all over the world. Deep rooted prejudices existed towards female athletic performance has vanished. Today the effect of training on female has gained attention due to its positive effect on health and efficiency of women. There is clear evidence in literature that exercise impose positive benefits in morphological, physiological and gynecological parameter in female.

Morphological differences between sports women and non sports women can be demonstrated by comparing
several different body measurements and body compositional characteristics. Female athletes are well distinguished from non athlete on the basis of their physique with in a population.

Many studies have revealed positive relationship between body build and performance, in which top class sportsmen showed high muscular component (Behnke and Willmore, 1974; Carter, 1970; Garay et.al., 1974; Gayton, 1975; Hirata, 1966; Leek, 1969; Lewis, 1966; Maas, 1974; Sinning et.al., 1978; Tanner, 1964). Few studies have also been published relating to physique particularly somatotype and performance of women athletes (Alexander, 1976; Brown and Wilmore, 1971; Falls and Humphery, 1978; Hay and Waston, 1970; Johnston and Watson, 1968; Manilla et.al., 1971; Sinning et.al., 1978; Bale, 1981).

Comparative studies have shown differences between sportswomen and non sports women. Bale et.al. (1978, 1979) reported physical education students were generally less fatty and more muscular than non physical education students. Pipes and Wilmore et.al. (1977) reported the distance runners of both sexes are generally characterized as having a relatively low percent body fat compared to the non-athlete. Butts (1982) in a study found that distance runners tend to have larger ectomorphic components than their non counterparts. Young athletes in sports such as gymnastics, dancing, distance running and tracks are typically very lean athletes (Houtkooper, 1996). Fredrick et.al (1977) found that all three fiber types were larger than the respective fibers in the athletes as compared to controls, also the athletes had a much higher percentage of oxidative fibers (SO + FOG) 83% v/s 46%. A direct relationship
between fibers size and oxidative activity was found in slow twitch fibers. Active group had higher means age, body fat percent, height but lower weight than inactive group and the same BMI. The result on somatotype showed that, inactive group has higher score on endomorphy and mesomorphy but lower score on ectomorphy than active group (Bahram. & Shafizadeh).

Sheldon et.al. (1954) reported sportswomen to be less endomorphic and more mesomorphic as compared to non athletic women of similar age. Scientific evidence on the positive effects of regular physical activity (PA) on health and functional capacity, several authorities have stated that the increasing the PA level of general population is one of the key issues in today's health promotion.

Aerobic fitness is associated with structural and functional myocardial adaptations A high correlation between participation in physical activities and the reduction of menopause physical symptoms such as headache, physical fatigue, insomnia, arthrolgia, bachache uncontrollable urine, castrodynia and other positive effect of exercise have been observed (Biddle &Motry, 2001; Lee et.al. 1999; Wilber et.al. 1990; Nestrand et.al. 2005, Astrand et.al. 2004; and Blumel et.al. 2004). Terblanche et.al (2005) in a study suggested that training improves cardio respiratory and body composition in young women. Nassis et.al (2003) in a cross sectional study showed an age related body fatness and central adiposity with no detectable change in fat free mass. The changes were not associated with physical activities.
Earlier research indicated that erythocyetes in men were destroyed in strenuous muscular exercise. Yoshimura et al. (1980) showed that hemoglobin and hematocrit levels decreased as physical training increased studies have show that decreases in blood hemoglobin; hematocrits and red cells are associated with heavy physical training and reduced aerobic capacity. (Douglas 1989).

Increased concern for women athletes & their physiological conditions which may affect their athletic performance has led to the study of "sport anemia" physical performance depends not only on the ability to take in and utilize oxygen but also the transport of oxygen from the lungs to the tissues. In any type of activity, but more importantly in aerobic exercise reduction in circulating hemoglobin during physical training appear unfavorable for sports performance and resistance to fatigue. (Radomsckin, et.al. 1980).

Regular physical activity also has positive effect on the therapy and prevention of disease such as arthritis, osteoporosis, cardiovascular disease that occur due to estrogen reduction (WHO1996). The intensity of exercise, measured as the acceleration level of physical activity, was significantly correlated with BMD changes. Bone stimulation is reached during normal physical exercise in healthy premenopausal women. In the hip area, the threshold level for improving BMD is less than 100 accelerations per day at levels exceeding 3.9 g (Vainionpaa, 2005).
Puhl & Rumyon (1980) reported alternation in all blood variables except mean corpuscular hemoglobin. Blood volume and hemoglobin found to be higher in female athlete than non-athlete. Ghosh (2003) in a study reported that the physical exercise group and yogic practice group had caused significant decrease in the pulse rate as compared with the control group and the combined group, physical exercise group and yogic practice group had caused significant decrease in the respiratory rate when compared with the control group. The combined group, physical exercise group and yogic practice group demonstrated significantly increase in the breath holding time when compared with the control group. Dowdy et.al. (1984) reported that aerobic dance improves physical capacity and cardio vascular function.

Vaccaro (1984) reported differences in forced vital capacity (FVC), forced expired volume (FEV) and maximum voluntary ventilation (MVV), in athlete and non-athlete. Significant difference was also observed between athletes and non-athletes on physical working capacity (PWC). Harley et.al. (1982) indicated age difference as young novice runners has a higher VO₂ max and lower % fat than the middle aged runners.

Khanna et.al. (1991) in a study found that the middle distance runners exhibited significantly higher ventilation as compared to the long distance runners at VT (ventilatory threshold). This indicated that respiratory efficiency in middle distance runners is lower as compared to long distance runners. He further reported ventilatory threshold was although higher in long distance runners (71.5% of VO₂ max) as compared to the middle distance runners.
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(67.68 of VO₂ max) yet it was not found to be statistically significant, the absolute and relative VO₂ max at VT were not significantly different in both the groups.

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Despite the numerous studies aimed at explaining the specific immune response to exercise, conflicts exist in the results obtained so far from such studies. Most of the studies examining the effects of exercise on immune functions have either focused on only one type of exercise or on the changes following exercise of short duration (Bauer et.al., 2002; Mackinnon, 1987; Rowbottom & Green, 2001). There have been a limited number of studies examining the effects of regular exercise in the long term on the immune system (Baure et.al., 2002; Fahlman et.al., 2001; Tyede et.al., 1989; Sage et.al., 2001). Regular exercise has been reported to have several favorable effects on physiological, psychological, and immunological functions (Filaire & Bonis, 2004; Mackinnon, 2000; Reid et.al. 2001; Simonson, 2001) and increase in the resistance against infections (Mackinnon, 2000; Peters, 1997; Sharp & Kouledakis, 1992). Vigorous exercise, however, has been reported to have a
negative effect on these (Callow 1985; Mackinnon 1987 & Moldoveanu & Shephard & Shek, 2001; Nieman, 1994). In elite sportswomen the effects of acute aerobic and anaerobic exercise on the immune and neuro-humoral system has not been fully investigated. Karacabey et.al. (2005) in a study concluded that regular and moderate exercise has favorable effects on the immune system by increasing immunoglobulines which are potent protective factors.

Older post menopausal women can increase their maximum oxygen consumption with exercise. Training without eccentric left ventricular hyper trophy or enhancement of β adrenergic mediated left ventricular functions. These observations provide an explanation for finding that the maximum cardiac output and have not increased in older women in response to training.

Cavanaugh et.al (1989) reported that women athlete may have factors predisposing them to menstrual disturbances. Frisch et.al (1978) reported 21% of 63 women who started training before menarche had menstrual irregularities, 13 % out of 77 women athlete who had regular menses before training had current irregular cycles. Frisch et.al (1981) reported higher incidence of menstrual irregularities in athletes who trained before menarche than athlete who trained after onset of menarche. Incidence of latter menarche reported by athletes engaged in intense physical training. (Frisch et.al 1980, Warren 1980, Frisch 1981). Bahar & Pooraghaei (2009) studied the effect of selected physical training program on non-athlete menopause women’s quality of life and reported significant effects on physical and psychosocial domains, but these differences were not significant in vasomotor and sexual domains, also, in total,
subjects’ quality of life becomes better significantly. There is a long list of theoretical concerns about participation of women in sports during pregnancy. Abdulla (2004) advocates, given the appropriate guidelines and some helpful advice, there appears to be no reason that most women cannot continue with exercise during pregnancy and reap the possible benefits of improvement in total well-being. The multifactorial physiological changes in pregnancy and exercise are still large and vital.

Personality constructs have been instrumental in refining the models of the connection between ability and achievement in most of the fields. Personality attributes feature quite prominently among the candidate predictors of sports scouting, military training and talent hunt in human resource industry, such transition – largely based on the growing evidence of the role personality plays in a range of important life outcomes such as academic achievement (Ferguson, et.al., 2000; Zuckerman, et.al., 1991), vocational choice and work-related behaviour (Raymark and Schmit, 1997; Robertson et.al., 2000), as well as sport and exercise-related behaviour (Aidman and Schofield, 2004; Auweele et.al., 2001; Silva, 1984; Vealey, 1992).

In sport psychology, predicting athletic achievement from personality characteristics has long been considered one of the most attractive applications (Apitzsch, 1995; Cooper, 1969; Deary & Matthews, 1993; Diamant, et.al. 1991, Aidman, 1991; Eysenck, 1995; Liwei & Leahy, 1993). A wide variation of personality traits have been found to be associated with levels of achievement
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(Davies & Mogk, 1994; Kirkcaldy, 1982; Morgan, 1979). Personality does matter when critical long-term issues such as career prospects (Hogan, 1998; Hogan & Shelton, 1998) or health risks (Eysenck, 1995) are at stake. This fundamental influence is also likely to reveal itself if the personality-performance relationship is examined in the context of the life-span. Some researchers are of opinion that direct personality effects on athletic performance are so small – in fact, it is surprising that there is any effect at all. Personality is known as a source of moderator variables (Singer, et. al., 2001), and the search for their effects in sport has largely been misplaced. Personality variables are more likely to appear in interaction – rather than direct – effects, such as influencing the likelihood of converting one’s ability into achievements (Barrick & Mount, 1991). In other words, personality makes a difference when other factors, such as ability, are controlled for.

Research in general psychology has identified relationship between mood responses and the personality dispositions of extroversion and neuroticism. (Liu Ny et. al. 1992 & Dishman, et.al. 1980). Eysenck et.al. (1975), reported that individuals high in neuroticism tend to be apprehensive, anxious, depressed, and tense. In short there is compelling evidence that extroversion tends to be associated with positive mood and neuroticism with negative mood (Hepburnet et.al. 1989, Costa, et. al. 1991 Mathews et.al. 1999).

While it is known that personality influences mood response and that certain types of exercise enhance mood the influence of personality on exercise induced mood changes has not been investigated.
Since the influence of the menstrual cycle upon performance has been recognized for years (Procope and Timone, 1971; Doorlitte and Enqebretson, 1972), female athletes and coaches have ever since devoted much attention to changes in mood, physical well being and muscular work capacity with its different phases. For this reason biomedical and behavioral scientists are investigating topics in the attempt to understand the psycho-physiological processes on which they depend and as a result of this understanding, to help to find a way out of these troublesome difficulties for sports performance. Williams (1990) proposed that above and beyond the pervasive relationship between personality mood intermittent effects also exist which are triggered by particular events, these intermittent effects are proposed to influence both mood averages and mood variations. He further suggested that neuroticism is associated with increases mood variability whereas extroversion is associated with decreased mood variability.

Many studies indicating differences in athlete and non athlete were performed including athletes from team and individual sports. There are specific and unique psychological characteristics found in Brazilian high level athlete when compared with no athlete. The groups were differentiated on majority of the psychological variables (Filho et.al. 2005).

Positive influences of physical training or participation in physical activities on the psychological menopause symptom have been obtained by many researcher (Rostami 2001

Competitive athletes present some psychological characteristics that distinguish him from other population. The differences are found in emotional stability, extroversion, self confidence which are higher in athlete as compared to non athlete (Butt, 1987; Cox, 1994) similarly athlete presented a better ice berg profile and also lower level of tension, depression, anger, fatigue and mental confusion than non athlete. In short athlete present more positive characteristic than non athlete (Morgan et.al 1996).

The results support the mediating role of personality in converting ability into achievement. In practical terms, they confirm the utility of combining estimates of physical ability with personality profiling in predicting the likelihood of success in junior players’ transition to seniors competition. Milton et.al. (2005) supported the notion that exercise is associated with improved mood. However, finding show that personality did not influence this effect, although neuroticism was associated with negative mood.

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decreased mood variability. However, regular physical activity can produces physical benefits such as functional improvement in body systems (Mc-Ardel et al. 1996) and psychological benefits such as well-being, positive mood enhancement, stress reduction (Dishman 1995), and self-efficacy (Berger, 1966) and self-concept improvement (Gallahue, 1998; Spirduso, 1965; Seefeldt, 1986). Self-concept that is generally defined as one's knowledge about his/her characteristics and personal limitations and a way in which one looks at such characteristics as different from or similar to others, is one of the important aspects of social development that is formed through social experiences and interpersonal relationships (Dishman 1995). Such attitudes towards self-concept represented that positive self-concept could be develop through successful involvement in cognitive and social activities (Seefeldt, 1986).

Bahram & Shafizadeh (2009) in a study revealed that adults who participate in physical activity can benefit from its physical, physiological and psychological effects such as physical-concept. Also, the findings showed that one's body size can influence his/her body-image and thus physical fitness and shape up are associated with positive physical-concept formation and self-esteem development in the social setting and personal life. Regular physical activities and exercise as a social event can increase positive self-concept in individuals, especially adults (Spirduso, 1965). Numerous findings have revealed that active groups have benefited from participation in these kinds of habits and have better physical concept or body image than sedentary groups (Franzoi, 1986; Vandevilet and Vancoppenolle, 1999; Finke berg et al., 1998; Huddy and Cash, 1997; Stoughton; e.tal., 1994; Guthrie
et al. 1994; Vanfraechem and Surny, 1994; Hallinan and Schuler, 1993; Davis and Fox, 1993; Pierce et al., 1991; Arms, 1989; Berger, 1988).

Sonstroem (1996) in his Exercise and Self-esteem model (EXEM) proposed that the objective evaluation from physical capabilities maybe increased by exercise. This evaluation can improve self acceptance or self-worth without considering perceived competency. He also proposed that self-esteem improvement following participation in physical activity can be attributed to physical fitness improvement, meeting one’s personal goals, competency improvement, health behavior promotion such as sufficient sleep and nutrition and confront with new social experiences as a result of activity with others. These factors can enhance one’s self-satisfaction. Fox and Corbin (1989) in the development of Physical Self-Perception Profile (PSPP) showed that there are strong association between efficacy and physical fitness.

Bobbio (2009) examined the relation between self-esteem appraisal and physical activity testing a convenience sample of 211 individuals, ages 19 to 35 years and selected from the general population after a brief structured interview. They were by sport habits divided into three distinct group named Athletes, Non athletes, and sedentary people, and then were examined for significant differences in self-esteem scores measured via the Heatherton and Polivy State Self-esteem Scale which assesses three correlated factors, respectively, Performance, Social, and Appearance. As hypothesized, self-esteem scores between-groups differences emerged for the Appearance factor only, and the Sedentary group scored comparatively lower than the other two groups.
Ridinger and Pastore (2000) appear to be the first to use the SACQ with a student-athlete sample. Their study compared a small sample of international student-athletes, domestic student-athletes and non athlete students on the SACQ. Using the full scale adjustment score, they found that international non-athlete students scored significantly lower than all groups except in-state student-athletes.

Strong athletic identities have been linked to benefits such as greater athletic performance, increased self-esteem, and broader social networks (Brewer et.al., 1993; Horton & Mack, 2000; Marsh, et.al., 1995). Across cultures, athletes with strong athletic identities tend to cope better with challenges, suggesting that high levels of identification with the athlete role may help to buffer the stress of athletic and non-athletic transitions (Aifermann, et.al., 2004). For example, higher global self-esteem, one of the benefits of high athletic identity, can help student-athletes adapt to the college environment. Those with greater levels of self-esteem tend to have an easier time adapting to new situations, a skill that would be useful in an environment where every situation is new and unfamiliar (Parham, 1993). In addition, athletes with strong ties to their athletic role may have more or different types of social support to rely upon during the transition into college (Horton and Mack, 2000). Also, those with better athletic performance and greater commitment to the sport may be more willing or capable of meeting the demands of collegiate athletics (Danish, 1983; Horton and Mack, 2000; Werthner and Orlick, 1986).
In contrast, other research has demonstrated that high athletic identity is a risk factor for adjustment difficulties. A strong athletic identity may hinder a student-athlete’s adjustment, particularly during the transition out of sport (Grove, et.al., 1997). Athletes with high athletic identity at the time of transitioning out of sport often experience social and emotional difficulties while trying to adjust to the post-sport environment (Erpic, et.al., 2003; Grove, et.al., 1997).

Herrera and Amor (2000) in a study examined the differences in personality and menstrual variables between physically active \( n = 14 \) and sedentary women \( n = 11 \) in a sample of 25 young women (19–26 yr). To explore personality and depression differences the Eysenck Personality Questionnaire (EPQ) and the Beck Depression Inventory were administered. A General Inventory was employed to assess menstrual and anthropometric variables and the level of physical activity of the last year. Statistical analysis revealed significant differences only in the Psychoticism scale of the EPQ, showing that physically active women had higher scores in psychoticism than sedentary women.

There are several areas of concern that are unique to female. In women the internal milieu undergoes relatively rapid physiological changes accompanied with many odds and evens during puberty to climacteric. While menarche signals the onset of biological capacity to reproduce, menopause announces in unequivocal
terms the dead-end of potentially creativity, predominantly marked for an aging process in cultures that extol youthfulness.

However as dramatic as menarche, menopause is often believed to be a significant event that strains the coping ability of women. A ubiquitous event in the life of woman, it never got attention what it deserved (Prakash, 1999). Participation in physical activities can produce beneficial effects to deal with the problems and to reduce the risk of Hypokinetic diseases in women.

The review of literature underline the fact that there is dearth of research on psycho-physiological and gynaecological correlate of sports women and non sports women of Chhattisgarh especially, on women aged 25 years and older, thus the scholar felt the need to study psycho physiological status of sports women and non sports women.