Chapter-III

PROCEDURE

This Chapter contains brief description of the meaning of sports environment need of sports environment, Sports Equipments, selection of subjects, design of the study, selection of variables, reliability of data, administration of the questionnaires, collection of data and the statistical procedure used for analyzing the data.

Meaning of Sports Environment

Sports environment is the conditions and circumstances in which sports persons perform or indulge in sports activities. Sportspersons including the related persons to sports such as coaches, teachers of physical education and other officials must know and pay appropriate attention to sports environment. They have to select the appropriate sports activities based on the changes of sports environment. It means that all the factors or conditions that encourage and promote sports constitute sports environment.

In fact, the sports environment includes two types of environment which are mainly related to sports. These two types of environment are described below:

1. **Physical Environment.** Physical environment of sports includes natural and artificial or man-made environments, which further consist of playgrounds, courts, gyms, climate, weather, altitude, mountains, stadiums, sports complexes, indoor halls, swimming pools, sports equipments and the surroundings of that area. The natural environment of sports impacts playground to a greater degree. Undoubtedly, the plain area is not suitable for mountaineering. Surfing depends on ocean. Skiing, ice skating and ice hockey are the right choices in cold regions.

2. **Social Environment.** Social environment of sports includes is the another type of environment which affects the sports profoundly. Social environment of sports includes cultural environment and traditional environment, which further consist or religion, philosophy, attitudes, beliefs, assumption, moral and ethical codes during sports and games and customs, etc. As a matter of fact, people take the direction established by traditional and cultural environments of the area. Local core cultures dominate over certain regions including local customs, ceremonies and taboos. These taboos regulate what people should do or not do. It means that the choice to participate in games and sports is affected by the culture and tradition. Religions also play a vital role in preferring sports activities. Indeed, social environment is equally very vast. It also includes the attitude, behavior and beliefs of coaches, officials, spectator and
members of other terms. For example, if the behavior of coaches and officials is not ethical and moral, it will not be suitable for the promotion and encouragement of sports. Such social environment may be harmful for sportspersons.

**Need of Sports Environment**

For the promotion and encouragement of sports and games the appropriate sports environment is always required. Sports and games cannot be ameliorated and flourished in the absence of appropriate sports environment. As it is usually said that environment plays a vital role in the growth and development of a plant, if it is appropriate it will grow like anything. On the other hand, if the environment is not proper, its growth and development will be hindered rather it will not flourish. In the same way, sportspersons including sports and games will not be flourished, if there is not a proper sports environment.

There are various reasons due to which proper sports environment is needed for sports and sportspersons. These reasons are described below:

1. **For Raising the Standard of Sports.** The appropriate sports environment is direly needed for raising the standard of sports. In fact, every country of the world wants to reach at the apex position in the field of sports. Nowadays, sports has become the focal point of attention in every country. To achieve the top position in the world of sports has become the prestige of every country. Every country wants to prove its image before other countries through sports. It can be possible only through the proper sports environment. If there is proper sports environment, the standard of sports can be raised.

2. **For Proper Growth and Development.** The proper sports environment is needed for proper growth and development of sportspersons who are engaged in various sports. In the absence of proper sports environment, the growth and development of sportspersons is impossible.

3. **For Avoiding Physical Health Risk.** The proper sports environment is required for avoiding physical health risks to the sportspersons who engage themselves in the field of sports. In the absence of proper sports environment, there can be physical health risk to the sportspersons. For example, practice at very high altitude may be dangerous to the sportspersons. They can fall prey to hypoxia. Along this, other illness like mountain sickness, pulmonary edema, vision problem and abnormality of the structure of red blood cells may also occur. Air pollution can be another problem for sportspersons. Those sportspersons who practice in polluted air, face various types of physical health risks. It chances the chances of damage of eyes and throat. It also causes various diseases of respiratory system such as bronchitis, asthma, SARS (Severe Acute Respiratory Syndrome). The presence of hydrogen fluoride in air damages teeth and bone.
Carbon monoxide reduces the oxygen carrying capacity. Mercury has severe effects on nervous system. Lead causes blindness, coma and eventually death. It also leads to cardiovascular diseases. Air pollution may be more dangerous for sportspersons in comparison to other people because the rate of respiration remains more during participation. Its bad effects were observed in Olympic, 2004 in Athens. There was more polluted air in comparison to European countries. To practice in extreme heat can be harmful, even fatal. Heat cramps, heat exhaustion and heat stroke may occur in such conditions. Practice in cold climate may lead to frost bite and destruction of cells. To avoid the above-mentioned physical health risks is essential. Therefore, proper sports environment is needed for avoiding physical health risk.

4. **For Avoiding Sports Injuries.** The proper sports environment is also needed for avoiding various sports injuries to sportspersons during the practice and competitions. It means that different types of injuries may occur to sportspersons if playgrounds, courts, sports equipments, training equipments and protective equipments are not appropriate. So, proper sports environment in terms of sports grounds, courts and equipments, etc. is needed for avoiding injuries to participants.

5. **For Avoiding Mental Health Risks.** The proper sports environment in terms of social environment is also needed for avoiding mental health risk. It may create stressful situations. If such type of sports environment persists, it may create stress, tension and anxiety in abundance, which ultimately lead to depression. So, for avoiding mental health risks, proper sports environment is direly needed.

6. **For Enhancing Mass Participation.** The proper sports environment is essential for enhancing mass participation in sports. In fact, proper sports environment motivates and encourages everyone to participate in sports and games which is the need of the hour. If there is no proper sports environment, nobody would like to participate in sports and games. Hence, proper sports environment is needed for increasing mass participation. Consequently, it can be said that due to the above-mentioned reasons, there is dire need of proper sports environment.

3.2 **Essential Elements of Positive Sports Environment**

The positive sports environment consists of the following essential elements:

1. **Sports Stadiums or Sports Complexes.** For the positive sports environment, sports stadiums or sports complexes should be well planned. Stadiums should be constructed according to the requirement. They should not be far away from the city. If they are located far away from the city, the spectators as well as players may face inconvenience. The site of the stadiums must be free from air pollution. There should not be any noise pollution. Sports stadiums or complexes must have appropriate sitting capacity.
for the spectators. There must be proper provisions of safe drinking water, toilets, urinals and sufficient space for parking the vehicles. The construction of stadiums should be as per rules of construction. There should be proper arrangements of lighting, ventilation and drainage, etc. There should be a proper boundary wall. Sports Stadiums should be secure and safe from different point of view. The whole infrastructure should be earthquake proof.

2. **Playgrounds/Courts.** For the positive sports environment, playfields/courts should have enough open space. The playfields, courts or track, etc. should be well-laid, leveled and pleasing to encourage their use. They should be neat and clean. The artificial playfields, courts and track must be of good quality and as per international standards. They should be maintained properly.

3. **Sports Equipments, Training Equipments and Protective Equipments.** For positive sports environment the sports equipments, training equipments and protective equipments should be according to the sports and games. Along this, these equipments should be as per the international standards. Players must have proper knowledge to use these equipments. These equipments must be checked properly before their use or at least after certain interval. The protective equipments should be made compulsory to wear according to the game/sports. Sports kit as well as shoes should be proper.

4. **Normal Climatic Conditions.** For Positive sports environment, there should be normal climatic condition. Although it differs sports to sports yet these conditions play their own role. To practice in extreme heat, cold and humidity may be harmful to sportspersons. Sportspersons should not do practice in such extreme environment. They should do their practice in early morning or late evening during not seasons. During winter season, they should use indoor stadiums. Extreme heat and cold conditions may cause the heat stroke, heat cramps, heat exhaustion and frost bite, etc. So, they should practice in normal climatic conditions.

5. **Culture and Tradition of Society.** Cultures and traditions of society play a vital role in creating sports environment. Usually, it has been observed that people take directions established by the cultures and traditions. The people excel in that specific sports which is preferred by the society. For example, Japan South Korea, China usually excels in Table Tennis. Hockey is preferred in Punjab and Football is preferred in West Bengal. This is merely owing to the culture and tradition of the society. In fact, culture and tradition create a positive sports environment.

6. **Attitude and Behaviour of Officials and Spectators.** The attitude and behavior of coaches, officials and spectators are also essential elements of sports environment. Their attitude and behavior can be very effective in creating a positive sports environment. Coaches must follow the moral and ethical
code of conduct. There should not be a gap between their words and actions. They should not lay undue stress on winning. In fact, winning is something but not everything. They should not put the youth into an attitude of winning at any cost. They should try to enhance team work, sportspersons spirit, cooperation, fair play and other positive sports values among the players. Coaches should promote good sportsmanship by being positive role models. They should show proper respect in language and behavior towards players, other coaches, officials and parents also. They should teach and reinforce the fundamentals and basic skills properly. Such type of attitude and behavior of coaches and officials will be definitely beneficial for creating a positive sports environment.

Along this, the attitude and behavior of spectators also pay equally vital role in creating a positive sports environment. The presence of spectators provides motivation to the players, whereas, the absence of spectators demotivates the players. Hence, it can be said that the presence of spectators creates the positive sports environment. Along this, the attitude and behavior of spectators may play a double role in creating sports environment. The negative attitude and behavior of spectators may create a negative sports environment. In case of Football it is usually seen at world cup. They indulge in violence and create a negative sports environment. So, the spectators must have some code of conduct. They should have positive attitude and behavior. Such types of spectators have a helping hand in creating positive sports environment.

7. **Attitude and Behaviour of Parents and Players.** Sometimes, the professional players do not behave in a mature and responsible way and do not serve as a good role model when they make rude gestures or act as if the rules don’t apply on them. Such acts create hindrance in the path of positive sports environment. So, they should demonstrate good sportsmanship. They should accept responsibility of their own behaviour. The parents should also demonstrate good sportspersons by being positive role models. They should try to promote healthy and safe environment for players. In fact, there have been a number of instances when behavior of parents has necessitated the police being called into assist.

8. **Drugs, Tabacco and Alcohol Free Environment.** It is also an important as well as essential element of positive sports environment. The coaches, parents, spectators, players and other officials should refrain from drugs, alcohol and tobacco. They should try to promote positive sports environment by refraining themselves from such substances.

3.3 Role of Individual in Improvement of Sports Environment for Prevention of Sports Related Accidents.
Accidents are common in the field of sports. These accidents can occur to any sportspersons during training or competition. Coaches, administrators and sports officials always try to prevent the sports related accidents but in spite of their best efforts, they are not able to prevent them completely. In fact, the prevention of sports related accidents must be a priority for everyone involved in sports activities, particularly coaches, administrators and other sports officials. They should take such steps which may reduce the chances of sports related accidents, because a number of sportspersons are injured every year in such accidents.

An individual can play a very effective role in the improvement of sports environment for prevention of sports related accidents. For this purpose, a well-planned and coordinated programme should be chalked out to minimize the accidents in the field of sports. So, first of all, an individual must have the knowledge of such factors which may cause accidents in sports. In fact, there are two types of causative factors:

(a) Intrinsic Factors

(b) Extrinsic Factors

**Intrinsic Factors**

These factors include age, gender, body size, history of previous accidents, fitness, muscular strength, laxity of ligaments, skill, psychological status and overall intelligence of sportspersons.

**Extrinsic Factors**

These factors include sports equipments, climate (heat, cold and humidity) conditioning errors, facilities, officiating and coaching, etc. The above-mentioned factors are directly or indirectly related to accidents in sports. If an individual wants to eliminate all these factors, it is impossible but some of the factors can be eliminated. So, if an individual wants to improve the environment for prevention of sports related accidents he should lay an effective stress on the following points:

1. **Sports Facilities.** All sports facilities must be maintained and frequently inspected for the safety of participants. They safety fences, batting cages, location of water sanitation facilities and emergency medical services should be available. In relation to indoor facilities, proper arrangement of lighting, playing surfaces, hall dimensions need attention. Poor lighting may contribute to accidents due to poor visibility. The playing surface should be cleaned regularly. It should not be slippery. Proper paddings on walls near the poles of basketball should be done.

2. **Protective Equipments.** Essential protective equipments must be used by sportspersons. These equipments must be good quality and according to norms.
3. **Fitness of Sportspersons.** An individual who wants to enter in the field of sports should be fit. For the purpose of fitness he should do general conditioning and sports specific conditioning at entry level. Today it is a well-known fact that you do not play sports to get fit, you get fit to play sports. Research studies, conducted in this filed show that fitness is helpful in preventing accidents in sports filed.

4. **Climatic Conditions.** Generally, sports are conducted under a wide range of climatic conditions, i.e., heat, cold, humidity and polluted air, etc. It has been observed that a significant percentage of deaths in sports is related to climatic conditions particularly from heat related problems. Following steps should be taken in extreme conditions of heat, humidity, cold and polluted air:

   (a) Enough fluids should be consumed after some interval.

   (b) During extreme environmental conditions when the temperature is above 95°F and there is high humidity, heavy exertion should not be done. Practice can be done in early morning or in late evening.

   (c) Light clothes should be worn during extreme heat. So, uniform must be put on the basis of temperature and humidity.

   (d) Exposure to extreme cold may cause hypothermia and other skin related problems such as frost-bite and frost-nip, etc.

   (e) Don’t be outdoor physical activity/sports if there is chilled wind in cold weather for a long duration.

   (f) Dress with appropriate cold-weather clothing. Hands, feet and head should be covered.

   (g) Don’t exercise near sources of pollution. Allow practice whenever heavy pollutant concentration in the air is less.

5. **Skill.** Learning of proper skills of the sports is very significant in avoiding accidents in sports. A well-skilled sportspersons has rare chance of accidents.

6. **Proper Officiating and Coaching.** Proper officiating and scientific coaching should be done to reduce the chances of accidents in sports field. During biased officiating rules and regulations are not followed properly therefore the chances of accidents are enhanced. So, unbiased or proper officiating should be done to improve the environment. An individual, therefore, should try to lay maximum stress on all the above-mentioned points to improve the sports environment for prevention of sports related accidents.
3.4 Role of Spectators and Media for Creating Positive Sports Environment

Role of Spectators for Creating Positive Sports Environment

Spectators can play a very vital role for creating positive sports environment. First of all, it is essential to know about positive sports environment. In fact, the positive sports environment is the conditions and circumstances which are favourable and beneficial for the sportspersons who perform or indulge in sports activities. The presence of spectators is essential for creating positive sports environment. But if the behaviour and attitude of spectators are not positive and appropriate, there may be a negative role of spectators. There can be hindrance in the path of creating positive sports environment. So, the spectators’ behaviour and attitude towards coaches, officials and players should be appropriate. They should not pass negative comments towards any player. They should not also pass the negative comments towards referee, umpire or any other game official. They should not instruct players on the field. They should not indulge themselves in any type of violence. They should appreciate the good of sportspersons. They should not throw any waste material towards the players. They should try to motivate the players so that they may put up better performance. In this way, the spectators can play very significant role for creating positive sports environment.

Role of Media of Creating Positive Sports Environment

The media, whether it is print media or electronic media, plays a significant and effective rule for creating positive sports environment. Media is providing its valuable contribution for the encouragement and promotion of sports and games, Millions of people watch the various World Cups and Olympic games with the help of electronic media. Various sports channels such as ESPN, Start Sports, Ten Sports and NEO Sports are available which provide the facility of watching live and recorded programmes of games and sports. Thus, media is promoting the games and sports. It provides the detail knowledge of sports and games to youths. Owing to this, they are motivated towards sports. It does not publicise the sports and games only but also provides publicity to sportspersons. Sportspersons are made heroes overnight through the media. So, it has become a vital source of motivation to sportspersons because they get publicity through it. It can play an additional significant role if it lays equal stress on all the sports and games instead of limited games such as cricket, football, basketball and tennis, etc. It should also popularize other games and sports. It should also lay equal stress on women’s sports. In this way, it can play a more effective role for creating positive sports environment.

Selection of subject

The present research is done over 300 women cricket player of India. Keeping in view the players be data categorize keen on three main group.
Districts (100) State (100) and National (100) women cricket players. The sample representing the District level Women Cricket Players who participated in the District level Women Cricket tournament, 2012 held at Madan Mohan Malviya Stadium, Allahabad from 25.4.2012 to 27.4.2012 also and held at Kamala Nagar Kanpur. The sample representing the State Level women Cricket Players who participated in the State Level Women Cricket Tournament, 2012 held at Major ran jet Sports Complex Allahabad from Date: 25th Dec. to 30th Dec. and the sample representing the national level women cricket players who participated in the national level, (All India P.K.B.) Women Cricket Tournament, 2012 held at M.M.M. Stadium Allahabad from 9th October to 13th October 2012, Kamala Club National Level Women Cricket Championship also held at 22 Feb. to 27 Feb. 2013 and National Level Women Cricket Championship also held at Mumbai from 8th to 14th march 2013.

**Latest General Rules of Cricket**

1. **The players.** (a) a match is played between eleven players on each of the two sides; one of the players on each side shall be the captain. If the captain is not available, the vice captain shall act as a captain. (b) Before the toss for innings, players shall be nominated by the captain.

2. **Substitutes.** (a) Substitutes shall be allowed in the field for any player who is incapacitated by illness or injury during the match. (b) Substitutes shall be allowed to field only but not allowed to bowl or bat. (c) A runner is allowed for a batsman who, during the match is incapacitated by injury or illness. The player, acting as a runner shall be the member of batting team.

3. **Boundaries.** Though no distance of the boundaries from the wicket is fixed but it should be 75 to 85 yards. Due to this, the playing grounds vary in size everywhere.

4. **Follow on.** The side batting first and leading by 200 runs in five day match, 150 runs in a three days match, and 100 runs in a two day match can ask their opponents to follow their innings.
5. **Over.** Bowling should be done from each wicket alternatively. There may be six or eight balls in an over. No-balls and wide balls are not counted in an over.

6. **Batsman Getting out.**

(a) When he is bowled (b) When he is caught from a stroke off his bat and the ball is held by the fielder before it touches the ground. The fielder’s both feet must in playing area (c) when he handles the ball. (d) when he hits the ball twice. (e) Leg before wicket (L.B.W.). (f) He is run out if he is out of his crease while the ball is play and his wicket is put down by a fielder. (g) When he hits the wicket with his bat, body part or dress. (h) He is stumped. (i) When he is obstructing the fielder intentionally. (j) He is out, timed out if he takes more than two minutes intentionally to enter the field at the fall of the wicket.

**Rules Related to Twenty-20 Match**

1. Each side bats for 20 overs.

2. A match lasts 3 hours with 20 minutes break between innings.

3. Minimum of 5 overs a side needed to constitute a match.

4. The incoming batsman shall get only 90 seconds to face the next ball. So when the match is in progress, the team shall sit near the boundary line instead of pavilion.

5. Both teams shall have to finish their innings within 75 minutes. If they fail the batting team will be awarded six bonus runs for every over bowled.

6. A batsman has 90 seconds to get into the field. If he does not do so, he will be timed out.

7. In the first six overs only two fielders can be placed outside the 30 yard circle. For the remaining 14 overs, not more than five fielders will be outside the circle.

8. Bowlers can send down a maximum of four overs each.

9. After a no ball the next delivery will be a free hit for the facing batsman. He cannot be dismissed off the free hit, except being run out. No change in the field placement is allowed for the free hit. The umpire will signal a free hit by raising on arm and moving it in a circular motion. A no ball will give two runs to batting team.
10. If a match is tied, penalty shootout will be applied. Each will nominate five bowlers who will take runs to hit the wickets at the other end. There will be no batsman facing. The team which achieves the maximum strikes wins the match. This is called bowl out rule.
1.6  Proper Sports Gears and their Importance

Sports gears mean sports equipments, protective equipments and sports wears, etc. In the games of cricket various sports gears such as stumps with bails, cricket ball, cricket bat, helmet, batting gloves, chest guard, thigh guards, arm pads, shoulder pads, abdominal guard, leg protector, shoes, sports uniform, wicket keeping gloves and side screen, etc. are used. The above-mentioned sports gears should be made of good quality. These equipments must be in proper shape, size and weight. For example, the weight of the ball must be within 5½ to 5¾ ounces. It must be in round shape. The circumference of the ball may vary from 8 to 9 inches. It means that each sports equipment should be according to international standards.

These sports gears play a very vital role in the performance of the players. If these equipments are not proper, It may be impossible for the players to show good performance in the match. Along this, proper, protective equipments are also significant in preventing sports injuries. So, from every aspect, proper sports gears related to cricket are significant.
2.2 Specific Exercises of Warm-up and Conditioning

Specific Exercises of Warm-up

Warm-up is performed prior to the training or competition. It is an activity which is essential to perform the task efficiently and systematically. First of all, general exercises are performed and immediately after that specific exercises are performed for warm-up. It is usually called specific warm-up. The specific exercises, which are required to perform in cricket, are shuttle runs, short and long catching practice bowling, practice, fielding practice, knocking practice and dummy batting practice, etc.

Specific Exercises of Conditioning

Conditioning is very significant for every game and sports. As a matter of fact, without proper conditioning, it becomes difficult to perform well in competitions. Cricket requires speed, strength, flexibility, endurance, coordinative abilities and perfection in various skills. So, a cricket player should try to improve the above mentioned components of physical fitness. For this purpose, the following methods of training should be included in the schedule:

1. Continuous training and interval training should be included in the schedule for developing endurance.

2. Acceleration runs should be performed at least once a week.

3. Light weight training exercises like sitting press, standing press, step up with weight, pulling exercises with weight and bench press, etc. should be performed for developing strength. The weight training exercises should also be done at least once in week.

4. For improving flexibility, hamstring stretch, sit-ups (simple and modified), legs stretch forward-backward and sideways, alternate toe-touching with legs apart, forward roll and backward roll, etc. should be performed at least once a week.

5. Stress should be laid on practice of technical aspects of cricket such as practice of catching skills, bowling skills and batting skills, etc.

2.3 Terminology Related to Cricket
Bails, rubber, ashes, dead ball, extra (sun-dries), wicket, fine leg, square leg, gully, mid off, mid on, mid wicket, batsman, bowler, short leg, slip, cover, extra cover, third man, googly, off-spin, leg-spin, chinaman, flight, in-swing, out-swing, reverse swing, bumper, seamer, full toss, short pitch, wide, no-ball, over, over the wicket, round the wicket, maiden, handle the ball, hit wicket, played on, run out, stumped out, bowled, catch, follow on, throw, overthrow, crease, not out, seen shooter, slog over, innings, boundary, leg of cricket, clean bowled, bye, leg bye. The brief description of some of the terms is given below.

(a) **Dolly catch.** A very simple catch which is easily taken by a fielder.

(b) **Maiden over.** A maiden over is that over in which the batsmen are unable to make a run.

(c) **Hattrick.** When a bowler takes three wickets on three consecutive balls he is said to have scored a hattrick.

(d) **Extras.** Run not scored by the batsman but the run through byes, leg byes, no-balls and wide balls. These runs are included in the scores of a team but not credited to the batsman.

(e) **Rubber.** In the series of international test matches, a team, who wins more matches than the other team, is called to have won the rubber.

(f) **Over.** Series of deliveries (6 in England and 8 in Australia) made consecutively by one bowler from one end of the field before the bowling is taken up by another bowler at the other end.

(g) **Over pitch.** To bowl the ball so that it bounces so far up the wicket that it can be played with ease by the batsman.

(h) **Seam.** Slightly raised band of stitches round a cricket ball which enables bowlers to make it spin.

(i) **Sitter.** An extremely easy catch.

(j) **Skittle.** To dismiss rapidly a side or a number of batsmen.

(k) **Spin.** To twist the ball when bowling, so that on pitching it changes direction.

(l) **Sundry.** Sundry means extra. This term is used in Australia.
(m) **Sweep.** It is stroke in which the balls is played behind the wicket on the leg side with a sweeping movement of the bat.

(n) **No ball.** A ball is called ‘no ball’ when either umpire considered that the bowler’s delivery is not fair.

(o) **Gully.** It is an off side fielding position between the slips the slips and point.

(p) **Bouncer.** Ball pitched short by a fast bowler so that it rises sharply, often over the batsman’s head.

2.5 **Common Sports Injuries and their Prevention**

**Common Sports Injuries**

Sports injuries are common in every game or sports. Any player may be injured during practice or in competitions. Various injuries such as contusion, strain, sprain, abrasion, dislocation of joints, fracture and bleeding, etc. may occur in cricket also. The contusion may occur to a player when a ball hits directly. Sprain and strain may occur while running between the wickets or catching a ball. Dislocation of joints, fracture and abrasion may occur to a player while performing a dive to catch the ball. Shoulder injury is also common in cricket.

**Prevention**

For the prevention of sports injuries in cricket, the stress should be laid down on the following points:

1. Adequate warm-up should be performed prior to the training or completion.

2. The cricket ground should be smooth and clean. There should be proper grass over the ground except on the pitch. It should not be slippery. There should be a proper gap between the spectators and boundary line so that the spectators may not be able to throw the waste materials on the ground.

3. While doing practice or taking part in a match, all the players must use proper protective equipments specially the batsmen, wicket keeper and the fielders near the pitch.
4. The rules and regulations must be followed during practice and competition. It means that there should be good officiating. The umpires should not have any inclination towards any team.

5. The player, who is under fatigue, should not continue to play.

6. All the players should perform cooling down after the practice or competition.

7. Conditioning of players is necessary during preparatory period. Those players, who do not perform conditioning, they usually get injured.

8. The players should have common sense and scientific attitude. They should always be careful during practice and competitions. They should have good anticipation power.

9. No doubt the stress of competition is important to get success but too much stress should be avoided. Too much stress may lead to injury.

10. Improper light and extreme hot and cold climatic conditions may increase the chances of getting injured. So, in such conditions, the players should avoid training.

11. Proper physical fitness plays a key role in preventing sports injuries. Various research studies conducted in this field reveal that physical fit players are likely to get lesser chances of injuries in comparison to unfit players. In fact, the flexibility, one of the components of physical fitness, alleviates in the chances of injury.

12. High quality sports equipments should be used by the players.

13. The players should be technically and tactically sound.

IDEAS CARRIED OVER FROM LITERATURE

Since long before the development of modern psychiatry, the masters of the novel, the epic, and the drama have written brilliant and moving characterizations of abnormal behavior, which they have developed not through systematic clinical or experimental study but through their sensitive, keen observations of human behavior. Their primary purpose, of course, has been artistic rather than scientific: they have obviously not been interested in developing a systematic body of scientific principles. But their descriptions of human abnormality in all its infinite
subtleties of degree and variety often have lifelike vividness and an emotional force that science cannot achieve. *Othello*, for example, gives us an unforgettable insight into the subjective quality of obsessive, violent jealousy.

**Richard M. Suinn (1977)** of Colorado State University calls this something extra a *quiet confidence*, as in “facing the Olympics intending to win instead of hoping to win,” the ability to concentrate completely on performance in situations in which physical skills are so closely matched that the competitors, “psychological approach to competition” becomes the critical factor that determines who wins.

From my discussion with Eastern Europeans¹ who have been working with learning enhancement techniques to train athletes, it appears that Nadia Comaneci’s 10 scores were definitely not accidental: included in her training were techniques that promoted her self-confidence and her concentration on gymnastics. Most swimming coaches have known some athlete who forgot how many laps had been completed and lost the race because of “just not being with it,” even through the contest mattered a great deal. We might identify the minutiae that affected that swimmer in that event, but the fact remains that an athlete who “has it all together” on a regular basis, under any circumstance, is really something special. A close scrutiny of the differences between these two competitors might reveal that the first lost place by allowing other mental processes to enter the arena, while the latter had learned to exclude any and all distractions, both mental and physical, from the competitive scene.

Since there is always something that demands attention or that becomes a distraction from the task at hand, we may ask, How can we facilitate the learning of this ability in the first athlete? If it is possible to build this concentration into one’s competition, then perhaps we need a new Paradigm for training athletes. One step is to reappraise the premises from which coaching derives. Do we have notions that preclude new thought-processes simple because they are unfamiliar and because we cannot see their application or their effect on the outcome of competition? To risk taking an alternate approach to training, which might not only work but actually be of great benefit in training, is a big step but is quite a possible one.
Critical factors for us, coaches, are

1. How do we handle ourselves with regard to the training of athletes and with regard to competitive situations?
2. How do we handle ourselves with regard to the athletes’ perceptions of us?
3. Do we help athletes grow with competitive situations?
4. What can we do to improve and add that extra something to bring an athlete to the top?

Rushall (1977) feels that there is a need for “consistency of the sport system. The training and competitive regime, coaching behaviors, expectations and consequences of behavior, if consistent will lead to reliable and systematic responses from athletes.” Training is individual; each athlete needs his or her own system, consistently applied, throughout all phases of a sport.

The old approach to coaching has been one of “fight” and pain and agony. We mentally “rev up” for competition, weeks in advance, and build to a peak that finally brings coach, competitor, and family to the verge of hysteria. Couldn’t the goal be achieved in a different way? Why not a smaller expenditure of energy and, instead, a greater concentration of energy through centering and visualizing?

Consider these familiar phrases: “You don’t have what it takes,” “Don’t let that person get away with treating you like that,” “If I fail in this, I’ll be discredited,” “This effort won’t count,” “The reward won’t be worth the effort,” “Do it later,” “Hide your deficiency” (Bassett 1975, pp. 20-23). In situations that elicit any of these responses, one’s self-esteem is threatened, anger and frustration lead to aggression towards oneself and others, and the scene is set for failure. Competitive sports involve primarily instrumental aggression –one tries to defeat an opponent to experience the satisfaction of proving one’s competence –but, for some athletes, aggression is linked with anger directed at the opponent Layman (1970, p. 27) pointed out that, since winning always involves physical or psychological injury to one’s rival,

There are some athletes who cannot force themselves to win unless they perceive the opponent as the enemy and become angry. We should note that both frustration and anger can lead to behavior other than aggression. They can lead to fear, fight, or withdrawal.
In this way, again, athletes expend energy that could better be utilized in performance. Is it possible to look at competition in a different light? Why has it been necessary to have aggression towards the person in the other lane or the other heat? What possibilities of action would be opened by a change in our concept of competition? A national team is comprised of members from a number of different teams from various parts of the country; the psychological adjustment that such athletes need to make to view a former opponent as a teammate, possibly as a roommate, precipitates unnecessary stress. It diverts considerable energy from the actual competition, instead of heightening the energy that is available to the athletes.

What makes a winning athlete? Each of us has definite ideas about who has the potential to become a winner and who will actually make it to the top. If we were asked to specify the qualities that we look for in a champion, we would probably be hard pressed to come up with any particulars. We are aware that a champion, like Mark Spitz or John Nabor, has something extra. This same phenomenon is observed with actors and singers, too. Perhaps, by momentarily removing ourselves from sports, we can bring this intangible quality into clearer focus. Singers Leontyne Price, a consummate performer, by her poise and her manner of moving conveys to us a sureness of person and knowledge of her art. Nothing surprises her. These are the same qualities that we should promote in athletes. A person who conveys this sureness has learned to take all the areas of performance into consideration and feels mastery of them all. An athlete who presents sureness of self is a consistent performer and has had support in personal growth to accomplish this. Development in this direction must be promoted by a coach who takes time and makes time to give all possible information and feedback whenever it is needed or required. The coach must also give the athlete sufficient leeway to experiment with new thought-processes about the sport and about body movement.  

Recently there has been an interest in athletes who “almost make it” to the top. It is generally assumed that each athlete focuses mainly in being number one. What does an athlete stand to gain or lose by being number one? How many secondary gains are lost because of efforts to attain that position? Is the athlete psychologically ready to take the responsibility of being tops? The anxiety an athlete feels and the frustration coaches feel may stand in direct relation to the responsibilities that they expect will be placed on them by winning.
To explore an athlete’s fear in an open, understanding way sometimes is the key to a blossoming, not only in competitive life, but also in all other areas of life.

All superior athletes have ability to survive disappointment and defeat. The responsibility for what an athlete does, good or bad, can be attributed to others, but, in the final analysis, it rests with the individual athlete. A top performer might sometimes lose some self-confidence but never loses faith in his or her powers and abilities. The question is, Can we help athletes become more responsible for their own behavior, which in turn determines what athletes can perform at consistently high level?

The use of projective tests, such as the Tukto Motivational Rating Scale, permits the construction of ongoing profiles for each athlete and for the coach. These profiles can be used to activate more positive behaviors and thought-processes in athletes. Pain-and-agony coaching has seen its day. Some athletes have enough personal drive but need help to see themselves as being tops and to counteract negative input from school, peers, and family. We can help them grow more capable and more confident if we recognize that they want to have a knowledgeable voice in their own training. What makes a successful coach? As athletes, we have particular ideas of what a coach should be and of what is needed to bring out a peak performance. We define and redefine the role continuously, and, as with our attempt to describe the profile of a top athlete, we have trouble in describing what a coach really is, for coaching is mostly an art.

Little is known about successful coaches who are more than authority figures. I believe that coaching techniques can be made much more consistent if we attune ourselves to the needs of athletes and learn to keep our own egos out of the situation.

In preparing for a competitive event, coaches are generally so involved in the sport and in their athlete’s problems that they have no time to reflect on their own generality; actions or language. Only after the event is over is there occasion for reflection on what has transpired during the day, and sometimes, when the press of training becomes intense, we don’t find time for even this much review. But isn’t it a disservice, to the coach as well as athletes, not to take time to go over the day’s interactions? Is it possible that, not only are there athletes who dare not wind, but also coaches who are afraid to have a winner? We need to take time to look clearly at
the processes in coaching and at the physical and emotional feelings that arise as we reflect. If we are not afraid of our own honesty, we might find that the difficulties of coaches in reaching their potentials are the same as the difficulties of athletes. Do we fear the image we present to others. In our own anxiety, do we lack the mental clarity to recognize our behaviors and those of athletes for what they really are? For example, do we unconsciously structure anxiety by the promotion of situations in which athletes have little chance of winning or are so physically and emotionally pushed that they become depressed. Spino (1978) calls for Coaches who have intentions for our larger personality… new ways of fitness that are easier, techniques with connotations for the whole person. In the new framework the coach is a “spirit guide” who can interpret experiences and put them in perspective. The coach is no longer just a stopwatch guide. It’s a paradigm change, Competition-oriented, time-a key result, your spiritual side, and the integration between physical possibility for the satisfaction that comes from physical reward. Takes off the pressure of winning new work. More and more to run it gets to be fun.

We can lessen our own anxiety by being honest with ourselves –not a vindictive, destructive honesty, but honesty whose clarity separates fact from rationalization and gets to the core of truth. There is less feeling of anxiety if there is little discrepancy between the real and the ideal. Coaching can lead to this awareness and growth. Guidance of an athlete toward this new self requires skill. How well do we really know the operational patterns of athletes? Can we work within the framework of these patterns to limit the threat to self that looking at oneself brings forth? And can we change this looking from one that provokes anxiety and fear to one of adventure and expansion? Some may say that that is a job for a psychologist, but I remind them that this introspection is the very psychology that makes or breaks both athlete and coaches. Levitt (1974) believes that

The main responsibility of our coaches is to provide something in athletics that is more fulfilling to the athlete than merely a medium for approval and ego support. It seems that if mastery and knowledge of oneself is approached, winning will be incidental. The more successful athletes tend to be higher in realistic appraisal of themselves and lower in resting anxiety than the less successful.
Others take different views of what is involved with new coaching method. These are no longer based on “try harder” but emphasize being or is less and a feeling of new vitality.

**Gallwey and Kriegel (1978)** note that anyone who has ever been involved in any sports or games will know the infuriating gap that occurs between what you are supposed to do and what actually happens. This gap is a separation between body and mind, or between the outer and inner game. Since all physical activities have some kind of a goal and the present obstacles between you and the goal. To get over the obstacles and reach the goal is what sport is about on one level. Within oneself there are other difficulties –anxiety, fear, self-doubt, lack of confidence. All these things arise from inside us and make it difficult for us to perform according to our true potential.

**According to Ronal (1977),**

Concentration is one of the keys to athletic excellence. It is the ability to put all and every part of your powers of thought and desire on one point…. Concentration implies an effort to tune out all stimuli that can distract you from your goal. Concentration requires you to focus on one thing at a time and it takes effort and practice to develop it.

Probably the most striking characteristic of a performance that happens without obstacles is the feeling of exhilaration that accompanies it. Gallwey calls this confidence, in yourself, confidence in your ability to do whatever you want to do actually, confidence that you can and will accomplish your goals through the power of your own mind and body.

**Suinn (1976)** We keep a positive goal in mind, to make it real, and as an accomplished fact as to think of it, so it suggests that we imagine feeling good -self-confidence,courage will experience victory, which is the result of faith.

**Schwarzenegger (Dychtwald 1978)** describes this confidence as beginning with a wanting power.

As long as you can mind the fact that, as you can see, as long as you really believe 100 percent in what it can. This case is all your heart.
You fool your mind in order to do certain things. Thinking that my biceps are enormous mountains gets my body to respond. And as your body changes, even in small ways, you gain self-confidence; you see that things are possible. Self-confidence is one of the big secrets for success. You begin to realize you have an enormous command over your body. Just imagine, you get so you can move each individual muscle—you gain a lot of self-confidence by having so much command over yourself, over your body, and that, again, is a reflection of your mind.

The uncomfortable fact is that we ourselves interfere with our ability to demonstrate our potential; we often prefer to attribute breakthrough to luck or good conditions instead of rewarding ourselves for our own good performances. Schwarzenegger states.

To change the physical, to achieve, to win, mental following, you need to expand the scope of visualization. By the body will follow, it happens every time I close my eyes before I lift a heavy weight. I imagine it, I do it.

Want power, thought power, do power.

The process of achieving this command of performance has been carefully noted by a number of coaches. I want to share some of their practical ideas, focusing on readiness, centering, and inner feelings.

Readiness can be broken into three areas: physiological, mental, and the cooperation between the two. Physiological readiness appears necessary to prime the body’s energy system to activate the best performance. Mental readiness is quite different. It is the process by which an athlete brings an event into focus, runs it through mentally, and allows the body to prepare to respond to the mental image. The third level of readiness involves cooperation between mind and body without anxiety; at this level, the athlete sees the top performance as an accomplished fact. This sounds like a combination of Zen centering and biofeedback.

Centering is being in a balanced position within oneself and having immediate awareness, a quality analogous to the “controlled spontaneity” of highly trained musicians, dancers, and actors.
Biofeedback is information from the bio-individual gained by noninvasive means, channeled into a selective information translation system, and presented in a readily understandable form to the individual. It rests on two basic principles.

Every change in physical condition and conscious or unconscious, and conversely, conscious or unconscious mental-emotional state, every change in the physical state with an appropriate change in the mental-emotional state, accompanied by an appropriate change (Green, Green, and Walters 1969).

To a person, tracking rises, and appears that any physical process can be done voluntarily, that person can be controlled. By detecting and amplifying these signals, the instruments allow an individual to be aware immediately of the subtle shifts in his physical state. In a brief time, individuals are capable of noting correlations between these physiological fluctuations and the accompanying psychological states, which are usually in the form of specific images or fantasies. Then, it becomes possible to use the mental image to produce the physiological change at will, and the success or failure of that attempt is immediately registered by the physiological monitoring device. The individual becomes involved in a “closed biofeedback loop” (Gattozzi 1971) Thus the link between psychological and physiological processes is made quite explicit.

Another system, biofeedback without instrumentation, is one in which the art of visualization has its roots. It involves training an individual to no longer negate the body he or she lives in, to be minutely aware of its processes and, with coaching, to discover that one is able to know oneself and can minutely control one’s body. Visualization is the ability to see an object or an activity clearly in one’s mind, as though looking at a TV screen. This is most easily achieved with brain wave frequencies in the low alpha and high theta ranges and with a fairly high amplitude of the waves. Information gained in this way makes it possible to use correlations between the physiological feedback of specific images to produce physiological changes at will. An athlete is his or her own closed biofeedback loop, and the link between the psychological and the physiological is made quite explicit. The goal is to achieve a mental image to produce change in an athlete in a centered way and thereby to activate the potential for superiority. Readers who are familiar with body movement systems will recognize that the imaging process activated by
the Feldenkreiz system is a prime example of the activation of potential. In 1977, Betty Wenz suggested that to achieve this sort of control produces important differences in a superior athlete’s performance. Research conducted by Shaw and Kolb has shown significantly faster reaction times (30 percent faster) for those who have learned to center and quite themselves.

It is important to give athletes the verbal power to help themselves through the use of this kind of a system. One must be able to describe accurately all the processes of action in a sport. A sport-specific language in combination with an athlete’s home language is the working ground for making changes in physical and psychological behavior. Are you and your athlete really communicating—speaking the same language. Do athletes really understand your descriptions of the process of action. Can they verbally, accurately, and with a minimum gestures describe what they do as a person visualize, there is a gradual discovery that all attempts at self-concealment, blocking, and passing the buck and futile and that the only way out is to rand what other athletes do. Once accurate language is learned, a scrupulous honesty must enter into the thought-process. recognize what one truly is. Such honesty is the measure of an athlete’s commitment to a goal. It is necessary to take the time to teach these skills, as it appears that the ability to accurately describe and discuss one’s movements is one of the keys for the fine tuning that makes the difference between the top performers and also-rans. The steps of language power, kinetic sense, and the ability to be relaxed, centered, and alert are difficult, and athletes’ attempts at growth must reach coaches’ awareness and must be encouraged. Ferrer-Hombravella suggests that

Psychological training should be prescribed before an athlete competes; and the young man should not compete until he has acquired sufficient resistance to the frustrations and acquires a necessary stable emotional equilibrium, the facility of adaptation to new situations, the ability to have self-control, etc. It is only at this stage that one can receive maximum value from competition.

On the practical side of all this are relaxation and visualization techniques. Relaxation will increase an athlete’s ability to cope with the stress of competition and begin to reach his competitive potential. Many systems are available, some applicable to athletics, and some not. The set that I use for basic stress reduction and centering has its origins in Jacobson’s (1938) progressive relaxation exercises. I have radically changed these over the years. They
allow an athlete to have greater awareness of bodily tension and physiological processes, and they identify the language of body, which then can be carried over into training and competitive situations. Nonjudgmental observational skill is needed to evaluate the total performance. Most important is the process by which one can change oneself to become aware of one’s idiosyncrasies. It makes the difference between the champion and the also-rans.

Superficial attention will not stand up to the stress of competition. Athletes must be given the apparatus to carry over into practice and then into competition what they learn about themselves. They must know what it is like to have a knowledgeable feeling of one’s anatomy. One must be able to relax and concentrate fully on a small part of the body. The keys are in one’s being alert, centered, and relaxed. One must know that human perception can be regulated in much the same way that a knowledgeable technician can manipulate the content of the images shown on a television screen.

My system of relaxation and centering is the following. First, find a good, comfortable position that you can keep for approximately 20 minutes. When you are learning these exercises it is a good idea to lie on the floor or on a bed or to use a recliner chair. Close your eyes. Take a few long, slow, deep breaths and then view and feel your feet. Tighten the muscles of your feet as you take in a long, slow breath. Hold it for a moment, and, as you exhale, relax those muscles. Continue up your body with the muscles of your calves, the muscles around your knees, and then the muscles of your thighs, hands, forearms, and upper arms. Move on to the muscles of your abdomen, lower chest, upper chest, head, face, and neck and shoulders. Stay comfortable for a while, keep your breathing long and slow, and allow yourself to become quieter and quieter with each long, slow breath. When you feel quiet and mentally intense, visualize a part of the process of motion of your sport. Just watch completely and make no judgments on what you feel and see in yourself. Any correction should be worked on while you are engaged in the sport; in other words, allow the visualization process to carry over into your training and competition.

Centering of attention is also the gateway to the flow experiences alluded to by Gallwey, Spino, and others. Furlong (1976) observed that
Activity in the flow of people and undergo an intensive focus of attention. They do not try to focus harder. Concentration automatically. Your body, you feel relaxed, your energy is flowing very smoothly, feels good and is vigilant on all. Flow is the feeling of being lost in the process. Flow person is aware of his work, but he is not aware of awareness, which is a floating action… Individual to be in full control of his world gets to activit that flow is another obvious answer for world.

Ask an athlete what it feels like to flow. The experience is usually strong enough that one can give a good description of it. Give permission during practice to enjoy and work in the experience if it happens during workouts –and watch your athlete move ahead.

Level of each athlete was ranked by his coach. Comparisons were made between the baseball players, tennis players, and the EPPS norms. Also, comparisons were made between the highest- and lowest- ranked athletes in both sports and the EPPS norms. The baseball team scored significantly higher than the other two groups on the Abasement factor, significantly lower than the other two groups of the Intraception variable, lower than the tennis group on the Achievement variable, lower than the norm group on Autonomy, and lower than the tennis group on Dominance. Both the baseball and tennis groups scored significantly higher than the norm group on the Aggression factor. No differences were noted between high- and low- rated baseball players, and the high- and low-rated tennis players only differed on one of the 15 measures.

This investigation would be difficult to replicate since ability was not assessed with a universally recognized tool. Also, one would expect differences on numerous variables to be greater between major and minor league players (La Place 1954) than between high- and low-rated athletic groups from the same university team. Similarly, High- and low-rated baseball and tens groups from the Big Ten Conference might differ on a number of the EPPS scales, but such differences might not necessarily exist within any given conference school. It is recommended that sport psychologist employ clear distinctions of ability in testing high- and low-performance groups.
The MMPI was administered to freshman and upper-class athletes and non-athletes by Booth (1958). Comparisons were made between (1) athletes rated as poor or good competitors, (2) athletes who participated in team, individual, or team-individual sports, and (3) freshman and upper-class athlete & non-athlete. The results revealed that the athlete & non-athlete and the athletes from the various sport groups differed significantly on several of the MMPI scales. Also, an analysis of the 550 MMPI questions revealed that 22 of the items discriminated between poor and good competitors.

Kroll (1967) administered the 16 PF to 94 amateur and collegiate wrestlers consisting of 28 superior athletes who had been on the United States Olympic team or had been NCAA or NAIA champions or place winners, 33 college wrestlers who were rated as excellent by their coaches and had won at least 60 percent of their matches that year, and a group of 33 wrestlers from the same teams who were rated as average or below average. Discriminant function analyses failed to demonstrate differences for the criterion groups. Also, the wrestlers differed significantly from established norms only on the tough-mindedness factor.

On the other hand, Morgan (1968a) administered the Eysenck Personality Inventory (EPI) to English-speaking wrestlers who participated in the 1966 world tournament, and he reported that performance in the tournament was significantly correlated with the extroversion dimension, success, however, was not related to neuroticism.

Unfortunately, literature cannot provide either the theoretical or the practical basis for understanding and curing specific cases of abnormal behavior. A court psychiatrist familiar with Othello may feel deep sympathy with a patient who has become irrationally convinced of his wife’s infidelity and has killed her in a fit of jealous rage. But this insight and sympathy will not alone determine the sanity or insanity of the accused or indicate what treatment will be most effective. The psychiatrist must perform examinations and systematically search for factors like those that have been observed to operate in thousands of cases of similar abnormal behavior.

Literature and psychology, then, give different kinds of understanding of abnormal behavior; they can and should complement each other. In fact, “Quite apart from the enjoyment
of literature, the reader cannot fail to learn something genuine about psychopathology and the psychiatrist will learn what he will not find in the textbooks. If he knows only psychiatry, he does not know psychiatry.” Let us glance briefly at a few classical illustrations.

The writing of the Greek poet and dramatist contain many allusion to abnormal behavior. In his play Medea, Euripides (480-406 B.C.) described and analyzed the emotion of jealousy and revenge as displayed by a mother who murders her children. Sophocles (495-406 B.C.) in Oedipus Rex and Electra has given us first intimation of incest motive in shaping of human behavior. And in Orestes he clearly described delusional and hallucinatory symptoms arising out of severe feelings of remorse and guilt.

Many of the characters in the plays of Shakespeare (mostly written and produced between 1590 and 1610) portray the development of abnormal behavior with almost clinical accuracy. The intense guilt reaction of Lady Macbeth, after planning and participating in the bloody murder of King Duncan, is well brought out in her uneasy sleepwalking and symbolic hand washing:

Many of the expression found in literature not only yield valuable information about the concepts of personality dynamics and mental illness prevalent during a particular historical period but also tell us a great deal about the inner experiences of the author.

Man has long been puzzled by irrational motivations and images that seem to lie deeply buried in his unconscious and come to light only under the most unusual circumstances—delirium, the influence of drugs, or severe mental illness—when inner restraints are lowered and perceptions are distorted. The opium dreams of De Quincey reveal something of this “world within.”
DEVELOPMENT OF OUR MODERN VIEWS

With our modern research methods, psychiatric teams and scientifically equipped mental hospitals and clinics, we feel that we have come a long way from the superstitious and often cruel treatment of the mentally ill of earlier times. The story of this journey is a fascinating one, and it is a story which will help us to understanding better our modern views of abnormal behavior. For not only do our popular misconceptions about mental disorders have their roots in the dim historical past, but even our modern scientific concepts are the result of a long developmental process. For example, electroshock treatment is antedated by flogging, immersing the patient in cold water, and other crude shock treatments worked out by the ancients. Even modern brain surgery, as well shall shortly see, had its early precursor many thousands of years ago. Let us turn, then, to an examination of some of the earlier beliefs and practices and the steps by which they have changed and developed through the centuries up to the present time. In this way we shall gain a better perspective for understanding our modern views, and shall also get a “feel” for the trends of thought and the directions in which psychology and psychiatry seem to be moving at the present time.

Demonology among the Ancients

The earliest “psychiatry” of which we have any knowledge was that practiced by Stone Age cave men for half a million years ago. In some forms of mental illness, perhaps early in the patient medicine man now known as trephining operation in the treatment of the disorder, and the convulsive attacks, complained of severe headaches are developed. This operation is performed with crude stone instruments and to cut through the skull, the skull is in the form of a circle is one of the area was chipping away. This is called a trephine opening, possibly causing all the problems of the evil spirit is allowed to escape, and, incidentally, a certain amount of pressure on the brain may be alleviated. In some cases, trephined skulls of primitive men lived for many years after escaping the individual operation, indicating that the healing around the opening show
(Selling, 1943). This early brain surgery left much to be desired in terms of technique, but it was even more inadequate in terms of the naïve, unscientific theory of demonology upon which it rested. It was probably a very simple and logical step to extend this theory to peculiar and incomprehensible behavior in their fellows. The decision as to whether the possession involved.

Such treatment was originally in the hands of medicine men, or shamans, but was eventually taken over in Greece, China & Egypt by the priests, who were apparently a curious mixtures of priest, physician, psychologist, and magician. Although these priests were dominated in the main by beliefs in demonology and established exorcistic practices, they did make a beginning in the more humane and scientific treatment of the mentally ill. For example, as early as 860 B.C. in the temples of Asclepius in Greece, the priests supplemented the usual prayer and incantation with kindness, suggestion, and recreational measures such as theatricals, riding, walking, and harmonious music. However, despite this modern note, treatment was not free of its barbaric aspects, and starving, flogging, and chains were still advocated for recalcitrant patients.

Membership in the medical priesthood of these Greek temples of healing was originally hereditary, but in time, as their influence started to wane, outsiders were admitted and various “schools” were formed. In one of these groups the celebrated Greek physician Hippocrates received his early training. As we shall see, however, Hippocrates was to stray far from the fold of demonology.

**Early Medical Concepts of Mental Illness**

Against this background of primitive superstition, there occasionally appeared an outstanding figure or group who approached mental illness on a more scientific basis. Especially during the Golden Age of Greece we find considerable progress being made in the understanding and treatment of mental illness.

**STRESS AND THREAT**
Related to both the individual’s perception of the situation and his tolerance for it is the matter of threat. Many stress situations do not carry any major threat to biological or psychological needs. A cold is not the threat that pneumonia is; similarly, an individual isolated during recovery from a communicable disease may be lonely but does not experience the threat evidently experienced by the individuals, who were given the “silent treatment” in the antarctic. In the latter case, there was a direct threat to important psychological needs.

Stress situations which we perceive as physically damaging or threatening to our survival—such as having a limb amputated or being given a diagnosis of cancer—carry a high degree of threat. Similarly, stress situations which threaten the adequacy and worth of the self—such as loss of social status, failure in one’s chosen occupation, or desires which the individual considers highly immoral and incompatible with his self-concept and self-ideal—involve a strong element of threat. The individual is also likely to feel threatened in situations which place demands on him that he perceives as important but beyond his power to meet. Thus the person who deeply doubts his adequacy and worth is constantly experiencing threat, whereas a more secure person, even in the face of severe stress, may not feel serious threat. In general, a situation perceived as threatening is much more stressful than one perceived as presenting a difficult but manageable problem. Threat arouses anxiety which, as well shall see, has many implications for adjustive behaviour.

**STRESS PATTERNS ARE UNIQUE AND CHANGING**

Each individual faces a unique pattern of adjustive demands. This is true partly because of differences among people in the interpretation of the same situation. But objectively, too, no two people are faced with exactly the same pattern of demands. Each person’s age, gender, occupation, economic status, personality make-up, and other factors to help identify him: the stress pattern a child faces differs in many respects from that of an older person, and the stress
pattern faced by a carpenter will differ from that of a business executive. Stress patterns change with time too- both predictably, as the individual enters different life periods, and unpredictably, as an accident, a death in the family, or some other unforeseen event makes new demands.

WE MAY BE UNAWARE OF STRESS

Although we are often acutely aware of our frustrations and conflicts, they can also operate below the level of consciousness. We saw in the hypnosis experiment a subject who was unaware of the conflict dominating his behaviour. The rejected boy who shows off and the insecure girl who boasts of her wealthy relatives may be quite unaware of the frustrations that lead to their behavior. Similarly, an individual may have severe conflicts centering around homosexual desires and yet be unaware that he even has such impulses. We shall shortly see how our ego defense mechanisms make this possible.

Reactions to Stress- Some General Principles

The effects of stress depend heavily upon the severity of the stress: mild stress may actually improve the performance and functional efficiency of the organism, whereas severe stress tends to impair integration and effectiveness, and excessive stress eventuates in a breakdown of the system. In our immediate discussion, we shall be thinking primarily of severe stress.

Stress leads to automatic, persistent attempts at its resolution- it forces us to do something about it. What we do depends on a host of factors, including our frame of reference, our motives, our competencies, our stress tolerance, environment limitations, and momentary conditions like prior mental set or fatigue. Sometimes inner factors play the dominant determining role; at other times, outer factors are of primary importance. Any stress reaction, of course, reflects the interplay of a combination of determinants-some more influential than others, but all working
together to make the individual react as he does. In the rest of this chapter we shall see what sorts of things we do and what happens when the stress is so great that it overtaxes our adjustive capacities.

**REACTIONS ARE HOLISTIC**

We have seen that living organisms tend to maintain their integrity—their “wholeness”—and that this tendency appears on biological, psychological, and sociological levels. Of course, conflicting needs, as in the case of social approval vs. sec, may lead to the sacrifice of satisfaction on one level, but even here the organism reacts as a whole and the action offering the least disturbance in psychobiological equilibrium is the one chosen.

Although we shall continually emphasize this unity of the organism—its reaction to stress as an integrated whole—we again find it convenient to utilize our concept of three interactional levels in our examination of adjustive reactions. In this context we shall refer to biological, psychological and sociological levels of defense.

**Biological defenses.** We are particularly concerned with three types of biological defenses. First there are the cellular or immunological processes involved in protecting the organism against disease. When these defenses fail to hold, there is impairment in the biological and often the psychological functioning of the organism. Particularly when the central nervous system is affected, as in brain tumors or in syphilitic infection of the brain, we are likely to find disturbances in psychological functioning. In later chapters, we shall elaborate upon the known relations between such disease processes and mental illness.

Second are the emergency emotional processes. Strong unexpected stimuli, injuries and situations evaluated as threatening lead to marked physiological changes designated by Cannon (1939-1953) as emergency emotional reactions, for they represent the total mobilization of body
resources to deal with the stress situation. These changes are effected largely through the autonomic nervous system and include increased muscle tonus, the dumping of stored sugar into the blood stream, the speeding up or deepening of breathing, faster beating of the heart, and the secretion of adrenalin. At the same time, physiological processes not crucial for the immediate action, such as digestion, may be stopped. In essence, the individual is placed on a war footing. Although such emergency measures contribute to the adaptive potential of the organisms. They may overshoot their mark and behaviour disorganization may result.

Third are the neural defenses, which range from alerting the organism to extra vigilance and sensitivity in the face of danger to actually protecting it from excessive stimulation and disorganization. Of significance here is the concept of protective inhibition. On a simple neural level, protective inhibition takes place when stimulation exceeds the working capacity of given cells (Bykov, 1959). Here the normal reaction of the nerve cell to stimuli is inhibited to protect the life of the cell. On a more complex level, we can see a comparable inhibition when the individual avoids an overwhelmingly traumatic experience by fainting.

Psychological defenses. For purposes of discussion, we may distinguish two types of psychological defenses: (a) task-oriented reactions, involving our cognitive abilities in fairly direct attempts to solve problems and gratify needs, and (b) ego defense-oriented reactions, involving numerous ego defense mechanisms-largely unconscious devices by which we protect the self from hurt.

The way in which we perceive, learn, and reason will be markedly influenced by the frame of reference we have developed – our assumptions about both ourselves and our world. When our frame of reference is fairly consistent with reality, we can organize effective adjustive reactions. But when we are reacting to a “world that isn’t there,” our behavior cannot help but be maladjustive. And unfortunately our tendencies to maintain our existing assumptions operate as
persistently for inaccurate assumptions as for accurate ones. New experiences which are incompatible with these assumptions are often denied symbolization (rejected) or given a distorted meaning to minimize the disturbance to our existing structure of assumptions (Rogers, 1957).

The individual’s pattern of ego defensive reactions, like his pattern of assumptions, tends to be relatively consistent and enduring. Under severe stress, there is often an exaggeration of the ego defensive reactions that the individual customarily relies upon. The latter point is well illustrated in a study by Cappon (1961) of the behavior of 20 dying patients. He found that “The hostile became more hostile, the fearful more fearful, the weak weaker. They each clung to their habitual defenses-regression, denying, withdrawing, projecting, as before”. We shall shortly discuss in greater detail the actual types of psychological defense we muster- both the direct, deliberate ones and the unconscious, “automatic” ones.
Sociological defenses. The individual adjusts not only as a unit but also by means of groups or organizations such as the family, the church, and the army. The author once heard a noted speaker refer to democracy as an “unstable equilibrium of pressure groups.” Banding together in social groups for united action to benefit the constituent members is a major adjustive reaction in a democracy. Furthermore, a social group, like an individual, may use adaptive or maladaptive means to protect itself.

Up to this point, we have briefly noted that the individual has several types of coping mechanisms and lines of defense for maintaining his integrity-immunological, emergency emotional, cerebrally controlled adaptive, ego defensive, and group or sociological. It should be re-emphasized that these levels of defense are categorized only for convenience and that the individual reacts to stress as a psychobiological unit.

EXCITATION AND INHIBITION

Basic to the integration of human behavior – on both biological and psychological levels- are the neural processes of inhibition and excitation. Through these processes some activities are held in abeyance while others are facilitated, thus making possible the overall coordination of the organism and providing considerable flexibility in dealing with stress.

The activity of muscles, glands, and other bodily organs and systems in regulated largely by means of nerve impulses which exert either an excitatory or an inhibitory influence. On a simple level, we observe the reciprocal innervation of body muscles- one set relaxing while another contracts in the bending of joints and the movement of limbs. On a more complex level, we have noted the interaction of the various processes in the activation of the organism. These same processes are operative in highly complex patterns of thought and action. The human brain not only receives, filters, digests, and assigns meaning to new experience but regulates all thoughts and actions. Thus impulses may be permitted direct action, suppressed until a more
appropriate time and place, or completely repressed. In general, action needs to be inhibited until relevant factors in a problem situation have been taken into account. Impulsive behavior is usually not well integrated or effective (Duffy, 1962).

We can also see excitatory and inhibitory processes’ on social levels. Laws and mores tend to inhibit certain types of behavior while financial and other incentives are used to facilitate behavior considered desirable by the group. In fact, as we have previously noted, the individual’s own inner psychological controls are largely a reflection of social assumptions concerning reality and value which he has learned and accepted from his group for the guidance of his own behavior.

Although the human brain has certain built-in safeguards- for example, the activity of the lower brain centers is subject to regulation by the higher and more distinctively human cerebral cortex- excitatory and inhibitory mechanisms may be defective in development or they may break down under excessive stress. Developmental defects in inhibitory neuronal fields or in learned reality and value controls may lead to impulsive, aggressive, antisocial behavior. Similarly, brain pathology as well as various functional mental disorders may lead to an imbalance in either excitatory or inhibitory processes with a resulting disorganization of behavior.

**REACTIONS ARE ECONOMICAL**

Not only does the individual react to stress as an integrated unit, but he reacts in a way which is economical, involving a minimal expenditure of energy. This, of course, is what we might expect in view of his tendencies toward self-maintenance. Man’s needs and goals are many, but his resources, while impressive, are limited. On both biological and psychological levels, the individuals tries to meet his needs and reach his goals in the simplest way that he can- he is always doing his best in relation to the way he evaluates the problem.
As J.G. Miller (1957) has pointed out organisms that survive tend to employ the least expensive defenses against stress first and increasingly more expensive ones later. If a continuously increasing amount of acid is injected into a dog’s veins, the first defense mechanism which appears is over breathing. If this does not prove effective, more drastic protective mechanisms, such as biochemical changes in the blood, are brought into operation.

A person unable to achieve an important goal may reveal a comparable patterning of defenses on the psychological level. First he may lower his level of aspiration. This is relatively inexpensive. Then he may rationalize his behavior by saying that he could have accomplished more if he had been given more time. This is a little more expensive since he runs the risk of being given more time and still being unable to achieve the goal. With continuing failure, repression may be his next line of defense, and in time the unresolved stress may lead to psychological or somatic symptoms- an expensive consequence. Finally, to avoid extreme self-devaluation, he may develop a schizophrenic reaction and deny the reality of the situation- an extremely expensive defense.

The principle of economy is also relevant in a slightly different context. Reaction patterns, whether mental or physical, tend to involve less conscious effort and less energy with repetition. This is readily apparent in the formation of habits, such as driving an automobile. Although less obvious, the same principle holds in relation to habitual ways of perceiving and thinking. As a consequence, the individual tends to maintain his existing patterns of thought and action not only because they provide his basic source of security in dealing with the world but because it requires less effort to follow established patterns than it does to modify them or adopt new ones. This tendency to resist change in established ways of perceiving and acting has been referred to as “inertia” on the individual level and as “cultural lag” on the social level. It is one of the big blocks to successful therapy and helps us to understand the tendency of maladaptive behavior patterns to persist long after new, more efficient patterns have become available.
REACTIONS MAY BE CONSCIOUS OR UNCONSCIOUS

Reactions to stress situations may fall anywhere on the conscious-unconscious continuum: they may be undertaken with conscious intent, with only partial awareness, or with no conscious involvement at all. In general, our potentials for conscious and unconscious functioning represent complementary resources for adjustive action.

**Automatic functioning.** On a biological level, corrective and defensive processes go into operation automatically when our equilibrium is disturbed. This can be seen in the regulation of body temperature, the repair of damages tissue, and other routine maintenance operations as well as in our cellular and immunological defenses against invading microorganisms. Biological drives, energy mobilization and emergency emotional processes also go into operation automatically, although conscious problem solving may be required before the individual’s needs are met.

On the psychological level, automatic functioning may take the form of habits, in which reactions which were once conscious no longer require our attention. Another kind of automatic functioning is the use of unconscious defense mechanisms against threats to our self-structure. Seeing what we want to see, screening out or distorting threatening ideas, and repressing painful experiences are all examples of automatic and largely unconscious processes. Although potentially a boon in taking care of routine problems so that our attention is freed for solving new problems, it is apparent that automatic functioning can also lead to irrational and ineffective behavior.

**Conscious efforts to adjust.** In our complicated and changing environment we must constantly change our behavior to meet new demands. On a biological level, as we have noted, the organism adjusts automatically to many kinds of change, but on a psychological level
adjustment to change usually requires conscious processes involving reasoning, imagination and learning of new behavior.

Despite a great deal of research, we know relatively little about what goes on in the human brain as it “processes” a stress situation and directs our adjustive action. Some theoreticians have likened the operation of the brain to that of a complex electronic computer. The analogy, of course, is far from complete, and our self-aware “human computer” is both more and less efficient in handling problems than is the machine. On the one hand, it is more inventive and creative; on the other, more subject to error. We often come up with wrong answers not only because of a lack of information or wrong assumptions, but also because of urgent time pressures, emotional involvement, our need to defend our self-structure, and other limiting conditions which are peculiarly human.

**STRESS AROUSES EMOTION**

The particular emotional states accompanying reactions to stress vary greatly, but where the stress is severe, it typically leads to emotional mobilization for emergency action. Three emotional patterns are of special significance in our present discussion.

**Frustration arouses anger (hostility).** The immediate reaction of the organism to frustration is typically one of anger. Physiological arousal in anger seems to energize the attack response and to intensify aggressive action—to help the organism meet its needs through attack upon and removal of the obstacle.

Where the frustration continues or the individual is confronted with a succession of frustrating situations stemming from the same source, anger gradually blends into hostility (Buss, 1961). In a general sense, hostility may be viewed as prolonged anger. It involves increased drive toward destruction, damage, or hurt to the object viewed as the source of frustration.
In many respects, anger and hostility are difficult emotions to deal with. Both involve tension which demands discharge, yet the conditions of civilized living permit few direct outlets. Consequently, such tension is often discharges in fantasy and other indirect and deviant but “safe” ways which we shall presently examine.

**Danger arouses fear.** Specific dangers tend to arouse fear. Ordinarily, fear elicits withdrawal or flight reactions. However, the nature of the stress situation and the degree of fear elicited will have much to do with the direction and quality of behavior induced.

The individual who fears that he has cancer may go in immediately for a general medical checkup or may put it off because he fears facing the real possibility of an affirmative diagnosis. In the face of intense fear, the individual may panic or freeze and become unable to function in an organized manner. Such behavior can be readily observed in fires and other disasters.

**Threat arouses anxiety.** Although closely related to fear, anxiety is a subjective warning of threat in which the specific nature of the danger is not known. Many stress situations – the possibility of global atomic warfare, for example-give rise to both fear and anxiety. But in general we may conceive of fear as directly related to perceived dangers, while the sources of anxiety are perceived vaguely or not at all.

Stress situations inducing anxiety are often difficult to cope with-as in the case of repressed homosexual desires that threaten to break through existing ego defenses- since the nature of the threat is usually unclear to the individual, yet the anxiety or psychic pain demands some sort of protective action. As well shall see, the defenses mustered to cope with anxiety may run the entire gamut of abnormal behavior.

Hostility, fear, and anxiety may be aroused singly or in various combinations. Where fear or anxiety is aroused, hostility is likely to follow, for the things we fear are actual or potential
sources of frustration. Also, when intense hostility threatens to produce overt behavior, anxiety may be elicited at this possibility.

### ADAPTATION TO STRESS IS EXPENSIVE

Severe stress, even when it is not excessive, is expensive. Particularly is this true of stress which continues over long periods.

**Lowering of adaptive efficiency.** Under severe stress there is a narrowing of the perceptual field and an increased rigidity of cognitive processes. As a consequence, it is difficult and often impossible for the individual under severe stress to reinterpret a situation or see new factors or relationships in it. Studies with animal subjects have shown that even when the stress situation is changed and new possibilities of solution are made available, the animal that has been under stress is likely not to see the new possibilities but instead to continue to follow a rigid, stereotyped adaptive pattern (Maier, 1949).

In human subjects, reasoning is often further impaired by the emotional processes that typically accompany severe stress. For example, people with high level of anxiety tend to be rigid and inflexible and to approach new problems in a stereotyped way (Cowen, 1952a, 1925b; Jones, 1954; Longenecker, 1962). In fact, we may generalize to the extent of saying that as stress increases beyond a minimal level, reasoning, problem solving and adaptive efficiency progressively decrease.

**Reduction in resistance to other stresses.** In building defenses for coping with one stress, the organism typically suffers a lowering of tolerance to other stresses (Selye, 1956). For example, mice exposed to extremes of cold develop increased resistance to the cold but become unusually sensitive to X-rays.
Wear and tear on the system. With sustained or very severe stress there may be a considerable amount of irreversible wear and tear on the system. Many people believe that after undergoing very stressful experiences, rest can completely restore them. Selye (1956) has pointed to evidence that this is a false assumption;

"Experiments on animals clearly can not replace it uses the reserves and adaptability of the reaction, have shown that leaves an indelible scar. It immediately by removing some of the annoying experience extreme fatigue after the original level of fitness to restore the truth about us. But the focus is almost. We are constantly under pressure through a period of at the time of life to go from rest, with the adoption of a deficit of energy every day, it adds up to what we call aging adds up.

"The last half of the century, due to the development of the great classics of medicine, the producers of premature death due to infection (bacterial, malnutrition, etc.) at a phenomenal rate declined.

But a growing proportion of the human population is mainly due to the pressure of the so-called diseases of wear and tear, or degenerative diseases.

It may also be pointed out that in some individual sustained or very severe stress appears to lead to chemical changes in blood that interfere with brain functioning and seriously impair the individual’s ability to think, feel and act in an integrated manner. In fact, a disorganization of thought processes similar to that observed in various severe mental disorders can be induced temporarily in normal people by the injection of certain drugs such as lysergic acid or mescaline. We shall examine later the implications of such chemical changes.

Types of Psychological stress Reactions
When we feel competent to handle a stress situation, our behavior tends to be task-oriented—aimed primarily at dealing with the requirements of the situation. And the value of the adequacy of the danger of the situation when our feelings of stress, but to protect ourselves from the devaluation of our actions aimed at relieving anxiety and post-traumatic stress and tend to be ego defense-oriented. On the face of continued demands that exceed our ajustive resources, we undergo personality decompensation—our behavior becomes increasingly disorganized and disintegrative.

**TASK-ORIENTED REACTIONS**

Task-oriented reactions are aimed at realistically meeting the demands of the stress situation. They tend to be based on an objective appraisal of the situation and to be constructive, rational, and consciously directed. The task may involve meeting an inner demand or an outer one or a combination of both, and task-oriented behavior can mean making changes in oneself or one’s surroundings or both—whatever the situation warrants. It can involve attack, withdrawal, or compromise, and the reaction may be overt or covert. For example, lowering one’s level of aspiration in the face of failure may be as much a task-oriented reaction to stress as increasing one’s efforts to achieve the original goal.

**Attack.** In attack behavior we attempt to remove or surmount obstacles to need satisfaction. Such attack responses are apparently based on fundamental tendencies of living organisms toward increased activity and variation in mode of attack when obstacles are encountered. The possible ways of directly attacking problems are legion, and they range from obvious techniques such as physical assault or learning new skills to subtle means such as patience or passive resistance.

The most typical emotional reinforcement of attack behavior is anger or hostility. Many stress situations cannot be dealt with adequately by means of direct aggression. When attack is
unsuccessful, the individual is subjected to unpleasant or painful frustration which typically elicits anger or hostility—directed toward the object or persons viewed as the obstacle. Thus attack responses which at first involve only a tendency toward increased activity may come to have strong emotional reinforcement. In many instances, of course, the initial stress situation may elicit anger which acts as a powerful driving force toward attack behavior.

When appropriate to the situation and the individual, an attack approach usually offers the best channel for using and coordinating abilities in constructive action. However, attack behavior may be destructive as well as constructive. With hostility, there is a tendency to destroy as well as attack. For example, if an adolescent feels unwanted, unjustly treated, and deprived of opportunities afforded to others, he may build up a high level of hostile tension which is discharged in delinquent behavior. Stealing, destruction of property, fire setting, sexual misbehavior, and assault frequently represent attack patterns involving defiant, hostile reactions of this sort.

Withdrawal. Simple withdrawal is a second fundamental type of reaction to stress. Many animals seem capable of fairly well-coordinated withdrawal or flight reactions shortly after birth, but the human infant has no such complex pattern. However, he is able to withdraw a hand or foot from a painful stimulus such as a hot object and when subjected to sudden, unexpected stimuli, he may tend to curl up into a ball, apparently a type of primitive fear reaction.

In addition to withdrawing physically, the individual may withdraw in various psychological ways—such as admitting defeat, reducing his ego involvement in the situation, lowering his aspirations, restricting the situations with which he attempts to cope, curtailing energy and effort or becoming apathetic. Resistance and protective inhibition are common forms of avoidance or withdrawal in the face of excessive pressure.
As the individual learns to associate certain objects and situations with frustration and hurt, he may avoid rather than attack them. His tendency to withdraw in the face of such dangerous situations is typically reinforced by fear. With time, his fears may involve a wide range of real and imagined dangers. Hostility, too, may be aroused, since withdrawal usually involves some measure of frustration. And when withdrawal is incompatible with one’s ego ideal, there may be guilt feelings - a complicated admixture of apprehension, anxiety and self-devaluation which we shall examine later.

So just as simple aggregation becomes complicated by anger or hostility, we find simple withdrawal becoming complicated by fear and perhaps hostility and guilt as well. In both cases, the individual’s reaction tendencies are reinforced by emotional processes leading to a high degree of tension which demands discharge. But here again, social living provides few situations in which such mobilized energy can be utilized effectively in direct physical action. Taking final examinations, being interviewed for jobs, coping with excessive competition - these stress situations cannot ordinarily be met by direct physical withdrawal but must usually be faced despite fears.

There are, of course, many stress situations in which the most realistic solution is simply to withdraw. Many college students find themselves majoring in areas not well suited to their interests or abilities. In such cases, withdrawal and the pursuit of an alternative area of training may be the most appropriate action.

**Compromise.** Since most situations cannot be dealt with successfully by either direct attack or withdrawal, it usually becomes necessary to work out some sort of compromise. Compromise may mean changing one’s method of operation, accepting substitute goals, or resorting to normally unacceptable means. An individual faced with starvation may compromise
with his conscience and steal “just this one time” or he may eat worms, bugs, spiders, or even human flesh.

Often, too, we resort to symbolic satisfactions under conditions of severe frustration. Thus a soldier may gain some substitutive satisfaction from pin up pictures or from wish-fulfilling day-dreams. In fact, Messerman (1961) has shown, that under sustained frustration the individual usually becomes increasingly willing to accept substitute goals- both symbolic and non-symbolic ones.

Making a decision that resolves a conflict is usually a compromise reaction, for a decision in either direction inevitably involves some measure of frustration. As a consequence, such decisions are difficult to make, and the individual may feel considerable anxiety and hesitation. The girl who feels she must decide between two suitors may procrastinate, vacillate from one possibility to the other, and feel increasingly anxious as she tries to avoid the inevitable frustration which either decision would entail.

When compromise reactions succeed in meeting the essential requirements of the stress situation, the problem is resolved and the individual can go on to other activities. Often, however, we make compromises which we cannot fully accept and live with because important needs continue to go unmet. In such instances, additional adjustive action is required. Perhaps the most common emotions accompanying compromise reactions are fear, anxiety and guilt.

Task-oriented reactions of all three types-attack, withdrawal, and compromise- involve the same steps: (a) seeing and defining the problem (b) working out alternative solutions to the problem (c) deciding upon the safest and most rewarding course of action, and (d) evaluating the “feedback” or results of the action to see if possible errors can be compensated for or corrected. Perhaps the most difficult step in this sequence is that of decision making, or choice, for here we are concerned with weighing values, predicting outcomes and balancing risk against potential
reward, none of which can be a matter of complete certainty. In essence, we “play the probabilities” as we see them.

Under conditions of severe and sustained stress which cannot be resolved with the resources available, the individual often develops various “strategies” for coping with the situation. For example, under experimental conditions of “information input overloading” - where the individual is forced to process more bits of information than he can handle efficiently - J.G. Miller (1961) noted the following strategies:

- omission - not processing part of the information
- error - processing incorrectly and not making corrections
- Queuing - delaying responses during peak overloads and then trying to catch up during lulls
- Filtering - systematically omitting certain categories of information according to some priority scheme
- Approximation - responding in less accurate or precise ways because of time pressure
- Escape - leaving the situation or taking other measures to cut off the flow of information

At high rates of information input, filtering and omission were the strategies used most. At very high rates, as much as 98 per cent of all information input was not responded to. In this way the individual was able to keep functioning even though his efficiency was markedly impaired. Students who have experienced “overloading” in their academic work are likely to be familiar with these strategies.

Although task-oriented behavior has a better chance of meeting our needs than does ego defense-oriented behavior, it obviously is not always successful in coping with the stress situation. A faulty frame of reference, for example, can lead to unrealistic and maladjustive
solutions. Where feedback is available, however, and is used in a task-oriented way, it is often possible to correct faulty initial assumptions and change ongoing behavior.

**EGO DEFENSE MECHANISMS**

As we have seen, the self is the integrating core of the personality and any threat to its worth or adequacy is a threat to the individual’s very center of existence. Consequently, various defense mechanisms are gradually learned for protecting the self. These are called into play whenever we find ourselves in a situation which threat to the integrity of the self is present.

All of us use these ego defense mechanisms. They be important for soften failure, reducing cognitive dissonance, all aviating anxiety defensive ourselves against trauma, and maintaining our feelings of adequacy and personal worth. Thus we must consider them normal adjustive reactions unless they are used to such an extreme degree that they interfere with the maintenance of self-integrity instead of being an aid. Like a nation devoting its major energies to armaments, the self can break down under too heavy a load of defensive activities.

These mechanisms, necessary as they are, have certain drawbacks. They involve a high degree of self deception and reality distortion and usually are not adaptive in the sense of realistically coping with the adjustment problem. The individual who continually rationalizes away his mistakes is not apt to profit from them. Because defense mechanisms operate on relatively unconscious levels, they are not subject to normal conscious checks and evaluations. In fact, the individual usually resents having his attention called to them for once they become conscious, they do not serve their defensive purposes so well.

Ego defense mechanisms take many forms. Like task-oriented reactions, they may involve primarily attack, withdrawal or compromise. For example, the individual may defend himself by a good offense- perhaps blaming others for mistakes or unacceptable desires that are
really his own. Or he may escape from the painful truth by denying it or by unconsciously pushing it out of his consciousness, he may work out a compromise in which a painful idea is admitted to consciousness but distorted in such a way that it is no longer hurtful. The more common defense mechanisms are discussed in the next several pages.

**Denial of reality (escapism).** Probably the simplest and most primitive of all ego defense mechanisms is denial of reality. We evade man disagreeable realities simply by ignoring or refusing to acknowledge them. Very few of us, for example, accept the full inevitability of death. Of course, we act as if we were quite resigned to the idea, but the full realization of the actual physical decay of our bodies is usually mercifully obscured by vague feelings of our omnipotence—everybody else dies but not us—and by various religious and philosophical convictions about continuation of life after death.

This tendency to avoid or deny unpleasant reality is related to the concept of perceptual defense. Not only do we become increasingly sensitive to stimuli that appear useful in adaptation or enhance the self, but we tend to avoid those aspects of a situation which are traumatic or self-devaluating or contradictory to our assumptions. We turn away from unpleasant places of interest and also refuse to discuss unpleasant topic, we ignore or deny disapproval, we refuse to face many of our real troubles and even in old age we are prone to deny to ourselves the evidence of physical decline. Proud parents be disgracefully blind when it come to perceiving the defect of their off spring. Mother whose nine year old son had been diagnosed by several psychologists and psychiatrists as mentally retarded developed the firm belief that her son was a member of a new species which matured at a slower rate and would in the long run achieve a higher level of mental development. Under extreme conditions such as imprisonment— the individual may experience the feeling that isn’t really happening to me. Here the defensive reaction appears, at least temporarily, to protect the individual from the full impact of his traumatic situation.
Some of the methods commonly used for avoiding unpleasant reality are referred to as escapism. These include such strategies as procrastination, refusal to face unpleasant situations, and preoccupation with work, social engagements, or other activities to such an extent that the individual is just too busy with seemingly important matters to face his real problems. The latter is sometimes referred to as “escape into reality.” Other commonly used methods of escapism are “not being in the mood” or getting “sick”.

By means of this mechanism of ignoring or denying unpleasant reality, we do protect ourselves from a great deal of stress. But like recognizable ostrich who bury his head in sand when danger approaches, we may fail to take cognizance of many things which are essential for effective adjustment.

**Fantasy.** Not only do we often deny unpleasant outer or inner realities, but we also tend to construct the world in fantasy as we would like it to be. We fall for various “get rich quick” schemes, we accept flattery eagerly, and we are highly susceptible to selling techniques based on telling us what we want to hear about the merchandise.

Fantasy is moved by frustrated needs & grows essentially out of mental descriptions associated with need satisfaction. In fantasy the person achieves his goals and gratifies his needs, although in substituted fashion. Such fantasies may take many forms. Starving men commonly have mental images of food; the would-be business tycoon has fantasies of wealth, success, and high social standing.

Of course, fantasy may be either productive or nonproductive. Productive fantasy is used constructively in maintaining motivation and in the solution of immediate problems, as in creative imagination. Nonproductive fantasy is merely a wish-fulfilling activity, compensating for lack of achievement or need gratification rather than stimulating or promoting achievement.
Two common varieties of wish-fulfilling fantasy are the “conquering hero” and the “suffering hero” patterns. In the first, the individual pictures himself a great and courageous soldier, an athlete, a surgeon, or some other remarkable figure who performs incredible feats and wins the admiration and respect of all, the essential idea being that he is rich, powerful, and respected. James Thurber used this theme as the basis for his Secret Life of Walter Mitty. Hostility is frequently dissipated safely and conveniently through conquering hero fantasies in which the individual destroys or punishes all who stand in his way. Most students report fantasies involving the physical injury or destruction of others, such as hitting, shooting, machine-gunning, and even running over people in tanks. Undoubtedly these fantasies act as safety valves for the release of hostility and provide some measure of compensatory gratification.

The suffering hero does not have to admit any personal inferiority because he imagines that he may be suffering from some terrible affliction, handicap, or visitation from unjust fate. When others find out about his difficulties and realize how nobly and with what courage he has carried on, they will accord him the sympathy and admiration he deserves. Thus inferior performance is explained away without any threat to the individual’s feeling of adequacy or basic worth.

Many of our fantasies are ready-made for us in the form of movies, television dramas, magazine stories, and books. In these we can escape from our own status and identify ourselves in fantasy with the hero or heroine, bravely facing and surmounting their problems with them, and sharing in their adventures and triumphs.

The ability to escape for the short term from unpleasant reality into a more pleasant dream world have considerable adjustive value. It may add dash of excitement & interest which enables us in the direction of bear up under an otherwise drab and uninteresting existence, or our fantasy achievements and their rewards may spur us on to greater pains toward our goal in real
life. We often return to work with increased vigor and enthusiasm after seeing a movie. Purely wish-fulfilling fantasies, however, are divorced from reality, and thus present a danger for adequate personality adjustment. For it may become increasingly easy to retreat to a dream world when the going gets tough. Particularly under situation of extreme frustration our fantasies be apt to get out of hand. For example, in a study of 19 men awaiting death by execution, Bluestone and Mc Gahee (1962) noted that many of the men took it for granted that their appeals for clemency would be successful. In one extreme case, the prisoner developed the delusional belief that a pardon had been granted. In the case of these men, we can see both fantasy and denial of reality at work.

**Rationalization.** Rationalization has two major defensive values

(a) It helps us to justify what we do and what we believe &

(b) It aids us in softening the disappointment connected by means of unachievable goal.

Generally good reasons for our past, present & socially approved the proposed behavior, thinking logically. With a little effort, we will soon find ourselves instead of watching television or not, we’d love to marry someone of the study, necessity can justify buying a new car. To take things in stride, the more we justify it is equally easy to find the most selfish & anti-social behavior. Why we should yield the right of way edurostunna motorist. Why not show him any consideration, he could not help it if he would not admit it to us. Some of the other fellow has to learn not to be so gullible and this provided a cheap lesson - we do not want to misrepresent the facts in a sale.

Often we manage not only to justify our behavior, but actually to feel righteous about it. Even callous brutality can be re interpreted through rationalization as noble and praise worthy.
Thus Hitler saw the liquidation of the Jews not as reprehensible but as a noble crusade. One of the most notorious bootleggers and gangsters of American history, when finally caught and imprisoned, insisted that the government was persecuting him - that all he was trying to do was bring people the "lighter pleasures of life. But such rationalizations it is possible to feel admirable and righteous instead of ashamed and guilty.

Protecting ourselves from the disappointment of failure to reach unattainable goals, we are often called sweet lemon sour grapes and two types of policies that seek rationalization. "Sour grapes" approach to the fox, who is unable to reach the sweet grape clusters is based on the fable, they decided that it was not worth having anyway. A new automobile may not be desirable because it costs more than it is worth, the insurance on it is exorbitant, it would lead to increased driving and increased possibility of accidents, and besides if people don't like you well enough to enjoy riding in your old car, they aren't worth having as friends. Similarly, we may view business success as requiring too much effort or point out that the girl we couldn't get talks too much and will probably lose her figure at an early age. As Aronson and Carlsmith (1962) have pointed out, one way of reducing the discrepancy between our assumptions of what is desirable and our failure to take action is to convince ourselves that the particular goal object is not really desirable after all.

The "sweet lemon" attitude is in a sense an extension of the sour grapes mechanism. Not only be the unattainable not worth while, but what we have is remarkably satisfactory. The disadvantages of a new car are obvious and the many virtues of our old one would make such an exchange extremely silly. We find unruffled in our shortage, for money is the root of all evil and would probably distort our political and economic views. Such sweet lemon mechanisms may involve more generalized Pollyanna attitudes so that every dark cloud has a silver lining and every happens for the best.
Of course, it is difficult to tell where an objective consideration of information and problems leaves off and rationalization begin. Rather conclusive indication of good reason be

(a) Hunting intended for reason to justify our behavior or attitude

(b) Being unable to recognize inconsistency or ambiguous evidence

(c) Becoming upset when our reason is question

The curious of our rationalization, of course it is a threat to suspicion, we have manage to construct against self-depression and anxiety would be aroused if we were to permit these defenses to be destroyed.

Even a young child as soon as he learned of the socially approved questionable behavior by developing a number of reasons to justify it finds. The value of community attitudes he internalizes and he will follow the same procedures as justifying his behavior. In this way, the rationalization to avoid unnecessary frustrations and help us to maintain a reasonable degree of integrity in a dangerous world, the self becomes a key to adjust the exposure. The true causes of our behavior that we do not have to accept the price of this defensive reaction, however, self-deception. As a result, we be less likely to profit as of our error and may instead spend our energy in trying to justify them or in proving that they were not really errors or misdeeds at all. When used to an extreme degree, rationalization may lead the development of false way of life or delusion which is maintained despite contradictory objection evidence.

**Projection.**

Projection be a defensive reaction by means of which we (a) transfer blame for our own shortcoming mistakes & misdeed to others and (b) attribute to others our own unacceptable impulses, opinion and requirements.
Projection maybe most commonly evidence in our tendency to blame someone or something outside ourselves for our own mistake & shortcoming. The students who fail in examination may feel sure the teacher was unfair that err husband may blame his moral slip on the girl who led me on boy being punish for fighting may protest. It wasn’t my fault. Fate & bad luck be particularly overworked matter of projection. Even non-living substance are not exempt from blame. The three year old boy who fall rotten his hobby horse may attack it with blow & kick, the tennis player who misses the ball may look at his racquet with a puzzled expression as if there must be a hole in it; and the basketball player who slip may return to inspect the imaginary smooth spot. In extreme cases the individual may become sure that other people or forces are systematically working against him. Such thoughts may develop into delusion of discrimination involving the supposed plot & conspiracy of his enemy.

In other projective reaction we attribute to others our own unacceptable desires and wishes and thoughts. On an elementary level, this is evidenced by our tendency to see others in the light of our own personality make-up. If we are honest, we tend to think others are too, whereas if we are deceitful, we are prone to attribute this characteristic to others. In more extreme degrees of projection, the individual with guilt-arousing homosexual leanings may accuse other men of trying to seduce him-while he remains unaware of his own homosexual inclinations. It is common for mental patients who are obsessed by ethically unacceptable sexual ideas to accuse others of "pouring filth into their minds."

Projections probably develop as of our near the beginning realization so as to putting the blame on others for our own failure, unethical thoughts, & misdeed help us to avoid social disapproval and punishment. And as we internalize society's values, such projections protect us from self-devaluation. Again, however, we may pay an exorbitant price for our ego defenses.
Repression. Repression is a defensive reaction by means of which the individual's own painful or dangerous thoughts and desires are excluded from his consciousness without his awareness of what is happening. It has often been referred to as selective forgetting, but it is more in the nature of selective remembering. For although the material is denied admission to consciousness, it is not really forgotten. The soldier who has seen his best friend killed by shrapnel may find his experience so terribly painful that it is excluded from consciousness and he becomes "amnesic" for the battle experience. However, by means of hypnosis or sodium pentothal interviews, the repressed experience may be brought into consciousness.

It is of value to distinguish repression from suppression. Suppression differs from repression in that here the individual consciously "puts the idea out of his mind" and thinks of other things. Thus it is not as dangerous to his mental health as repression is apt to be, for it is deliberate-the individual knows what he is doing.

Repression is by no means always complete often desires and thoughts are only partially excluded from consciousness. Repressed desires are frequently revealed in dreams, reveries, jokes, and slips of the tongue, as well as under the influence of alcohol or drugs. Vague feelings of unworthiness, insecurity and guilt also may indicate incomplete repression. With continued frustration, repressed desires may increase in strength and threaten to break through into consciousness and overt action. Such threats lead to the arousal of anxiety and additional defenses.

Repression is an extremely important ego defense mechanism and in varying degrees enters into most, if not all, of the other ego defense mechanisms. In helping the individual to control dangerous desires and in minimizing the disruptive effects of painful experiences, it plays an important role. In the case of sudden, traumatic experience, it may operate as a temporary defense until time and other factors have somewhat desensitized the individual to the shock. Like
other defensive reactions, however, repression is self-deceptive and may be used to an exaggerated degree or to protect the individual from problems that could be met better by a realistic facing and working through than by evasion. The repression of dangerous desires also ties up considerable Then direct the efforts to solve the problems of life energy, which is not available.

**Reaction formation.** Sometimes we do not suppressing them through the dangerous desires to protect ourselves from the non-conscious attitudes and behavior patterns, which are actually the opposite development. In this way we erect obstacle or barrier to support our repression and keep our real requirements from being carried out in overt behavior.

Usually response development can be easily recognized by its extreme intolerance, which be out of all proportion to the importance of the situation. The most militant crusaders against vice be often fighting their own repressed impulse as well as condemning the outcome of such impulse in others. Self appointed protector of the public moral who voluntarily devote their lives to reading obscene literature, attending burlesque shows & investigating the younger generation and who obsessively condemn homosexuality, alcohol & other alleged vices are usually found to have dangerously strong impulse in the same direction themselves. By making such activities their duty, they partially satisfy their repressed requirements and same time holds them in check by their energetic condemnations.

In everyday behavior formation may take the form of developing a don't care attitude to conceal approach of rejection and craving for affection, of presumptuous. When we are fearful, of developing a puritanical attitude toward sexual and other pleasures, of being excessively polite to a person we don't like- so much so that we make him uncomfortable. In more extreme form, the individual may develop various exaggerated fears, as for example of syphilis, which may help him to keep his dangerous impulses in check. Reaction formation in extreme form is well
illustrated by excerpts from an interesting and self-diagnostic letter which Masserman (1961) received from a "kind-hearted" antivivisectionist:
Appearance of scientific Theories and Practices

With the emergence of modern experimental science, tremendous advances were made in psychiatric theory and practice. These may be conveniently thought of as centering around the development of organic, psychological, and sociological viewpoints-eventually culminating in the holistic viewpoint.

Development of the Organic Viewpoint

Anatomy, physiology, neurology, general medicine, chemistry & increased rapidly in the early part of the 19th century, to the knowledge of. This advance has led to many of the physical difficulty of uncovering the underlying organic disease gradually and it was only another step for these early workers to look upon mental illness as a definite sickness based upon organic brain pathology. This concept of mental illness is called the organic viewpoint; itrepresents the first great advance of modern science in the understanding and treatment of mental illness.

As early as 1757 Albrecht von Haller (1708-1777) in his Elements of Physiology emphasized the importance of brain in psychic function and advocate studying the brains of the insane by post-mortem dissection. The first systematic presentation of the organic view point however was made by the German psychiatrist William Griesinger (1817-1868). In his textbook, ‘The Pathology and Therapy of Psychic Disorders’ published in 1845 Griesinger insist that psychoanalysis should proceed on a physiological & clinical basis and emphasized his belief that all mental illness could be explained on the basis of brain pathology.

Although work of Griesinger received considerable attention, it was his follower, Email Kraepelin (1856 - 1926) who play dominant role in establishment of the organic viewpoint. Kraepelin, whose textbook Lehrbuch der Psychiatric was published in 1883 not only emphasize the importance of brain pathology during mental illness but also made several related contributions which helped establish this view - point. The most important was his system of
classification. Kraepelin noted that certain groups of symptom of mental illness occurred together with sufficient regularity to be regard as specific types of mental disease. In same way that we think of measles, smallpox, and other distinct physical ailments. Then he gave to explain and clarify these types of mental disorders, working out the scheme of classification, which is the foundation of our operations present. The integration of clinical material factor in the classification of a Herculean task and represented contribution to the growing field of psychiatry.

Kraepelin look forward to a form of mental illness as separate and distinct from the others and thought of his course as predictable in advance and as a course of measles. Such conclusion led to wide spread interest in accurate description and classification of mental disorders, this means the outcome of a given type of mental illness might presumably be predict even if it could not yet be controlled.

The subsequent period in psychiatry, during which description and classification were so heavily emphasized, has been referred to as the “descriptive era.” During this period tremendous strides were being made in the study of the nervous system by such now famous men as Golgi, Ramon y Cajal, Broca, Jackson, and Head, and the brain pathology underlying many mental disorders was gradually being uncovered. The syphilitic basis of general paresis (syphilis of the brain) was finally established as the result of the brilliant contributions of a series of medical scientists. Similarly for brain pathology the cerebral arteriosclerosis and in senile psychoses was establish by Alzheimer and other investigators. One success was followed by another, and eventually the organic pathology underlying the toxic psychoses, certain types of mental retardation and other or genially causes mental illness was discovered.

The discoveries were not made overnight but resulted from the combined efforts of many scientists. For example, at least ten different steps can be traced in the discovery of the organic pathology underlying general paresis and the development of appropriate therapy. Prior to this discovery, organic pathology had been suspected in many mental disorders but had not been
demonstrated systematically and completely enough to allow for effective therapy. The sequence of events in this long search shows graphically the way in which scientists working independently can utilize research by others in the field in advancing knowledge bit by bit and developing a theory that will fit all the known facts. The major steps involved were:

1. Differentiation of general paresis as a specific type of mental illness by the Frenchman A. L. J. Bayle in 1825. Bayle gives very complete and accurate description for symptom pattern and convincingly presented his reason for believing paresis to be a separate type of mental illness.

2. Report by Esmarch and Jessen in 1857 of cases of paresis who were known to have had syphilis and their conclusion that the syphilis caused the paresis.

3. Description by the Scotchman Argyll-Robertson in 1869 of the failure of the papillary reflex to light (failure of the pupil of the eye to narrow under bright light) as diagnostic of the involvement of the central nervous system in syphilis.

4. Experiment by the Viennese psychiatrist Richard Krafft-Ebing in 1897 involving Syphilis sores with this matter paretic patient inoculation. The last infected patients who should have been led to the conclusion, which developed secondary symptoms of syphilis. It definitely establish the relationship between the general paresis of syphilis, which was an important experience.

5. Discovery of the \textit{Spirochaeta pallida} by Schaudinn in 1905 as the cause of syphilis.

6. Development by von Wasserman in 1906 of blood test for syphilis. Now it became possible just before check for the presence of deadly spirochetes in blood stream of a man who would not otherwise realize he was infected.

7. Application by Plant in 1908 of the Wassermann test to the cerebrospinal fluid, to indicate whether or not the spirochete had invaded the patient’s central nervous system.

8. Development by Paul Ehrlich in 1909. After 605 failures, of the arsenical salvarsan (which he thereupon called 606) for the treatment of syphilis. Although “606” proved effective
in killing the syphilitic spirochetes in the blood stream, it was not effective against the spirochetes which had penetrated into the central nervous system.

9. Verification by Noguchi and Moore in 1913 of the syphilitic spirochete as the brain-damaging agent in general paresis. They discovered these spirochetes in the post-mortem study of paresis.

10. Introduction in 1917 by Julius Wagner-Jauregg chief of psychiatric clinic of University of Vienna, of malarial fever treatment of syphilis and paresis. He inoculated nine of the paretic patients in his clinic with the blood of a soldier who was ill with malaria and found marked improvement in three patients and apparent recovery in three of the others.

Thus the organic brain pathology underlying one the most serious mental disorders was uncovered and scientific measures for its treatment developed. True, the complete understanding of paresis-why one patient becomes expansive and another depressed with the same general organic brain pathology-involves an understanding of certain psychological concepts yet to be discussed. Also, of course, progress in treatment has continued, and penicillin has become the preferred method of treatment, avoiding the complications of malaria. But the steps outlined above show the way in which for the first time in all history, a clear-cut conquest of a mental disorder be made by medical science. And this had been one of the most serious between all mental illnesses for prior to development of fever therapy the result of paresis had been a general mental and physical deterioration, ending in the patient’s death in from two to five years.

These discoveries of the brain damage underlying paresis and certain other types of mental illness were greatly encouraging to the early investigators, and it is not surprising that during the early part of the twentieth century, the great majority of medical men accepted the organic point of view and were convinced that some underlying organic pathology of the brain or nervous system must be the cause of all mental illness.
So impetus was given to intensive research in anatomy, physiology, biochemistry, neurology, and other allied medical fields in an attempt to isolate the brain pathology presumably underlying the various other types of mental illness. Such researches are still under way, based now upon the holistic rather than the organic viewpoint, and have led to the gradual delineation of the various organic psychoses; to most remarkable advances in treatment, which we shall presently discuss; and to a better understanding of the role of organic factors in all human behavior, both normal and abnormal.

Let us pause for a moment, then, to examine the important advances that had been made in psychiatry up to the year 1915, which we may set as the last year that psychiatric theory and practice were to be almost completely dominated by the organic viewpoint.

1. The early concepts of demonology had finally been destroyed, and the organic viewpoint of mental illness as based upon brain pathology was well established.

2. For general paresis and certain other mental disorders, definite underlying brain pathology had been discovered and appropriate methods of treatment developed.

3. Mental illness had finally been put on an equal footing with physical illness, at least in medical circles, and for the first time the mentally ill were receiving humane treatment based upon scientific medical findings.

4. A workable, though not yet completely satisfactory, scheme of classification had been set up.

5. A great deal of research was under way in anatomy, physiology, biochemistry, and other allied medical sciences in an attempt to ascertain the brain pathology (or other bodily pathology which might be affecting the brain) in other types of mental illness and to clarify the role of organic processes in all behavior.

6. Emphasis had finally been placed upon the importance of public education for the understanding, early detection, and prevention of mental illness.
These were truly remarkable achievements and represented the first great breakthrough in modern psychiatry.

**DEVELOPMENT OF THE PSYCHOLOGICAL VIEWPOINT**

Despite the great advances that had been made by the organic approach, there still remained many extremely puzzling aspects of this problem of mental illness. For one thing, repeated clinical examinations and research studies failed to reveal any organic pathology in over one half of the patients. True, a given patient might show some minor deviation in bodily chemistry, but then so did a great many normal people; furthermore, many other patients with the same symptoms of psychic disorder did not show the same organic deviation.

To some scientists this was only a challenge to intensify their research, for they felt certain that organic pathology must be there and that refinement of their laboratory techniques would reveal it. Other workers, however, became discouraged and decided that a disordered mind was lost forever. Many of the latter workers justified their conclusions by falling back upon a *hereditary approach*, assuming that mental disease represented a genetic deficiency which could not as yet be understood and about which nothing could be done.

As early as the turn of the twentieth century, however, a new current of psychiatric though had been emerging and challenging the dominance of the belief in brain pathology as the sole cause of mental illness. This was the “revolutionary” view that certain types of mental illness might be caused by *psychological* rather than organic factors.

According to this new view, the frustrations and conflicts common to everyday living might become so overwhelming that the individual would resort to the use of unhealthy responses in his efforts to adjust. For example, the individual who felt he had failed miserably in life might become chronically discouraged and depressed, or he might project the blame for his difficulties onto other people who were supposedly working against him. In other instances, the
individual might simply have learned patterns of behavior—such as irrational fears or phobias—which were maladaptive. Presumably the accumulation of such faulty response patterns could lead to more extreme types of abnormal behavior. Thus mental disorders might result from faulty learning or from the use of unhealthy reactions of everyday problems of adjustment.

It might at first be assumed that the role of these psychological factors in mental illness would have been already discovered and formulated by psychologists. But this was not the case. In 1900, psychology as an accepted science was still in infancy, its inception dating back only some twenty-one years to the establishment of first experimental psychology laboratory at University of Leipzing in 1879 by Wihlem Wundt. In addition, early psychology was rather naïve in its approach to an understanding of human behavior and consisted primarily of experimental studies of the psychology of sense perception. True, William James (1890) had published his monumental work, *Principles of psychology*, in which he attempted to explain emotion, memory, reasoning, habits, consciousness of self, hysteria, and other aspects of human behavior. However, he was handicapped because little experimental work had been done in these areas, and his brief allusions to abnormal behavior were mainly descriptive and speculative.

This is not to disparage the contributions of the early workers who helped psychology through its infant period or to minimize the importance of psychological studies as a foundation for what came next. The fact remains, however, that psychology was still in its early stages; and there was little systematic knowledge regarding the role of psychological processes in adaptive behavior.

**Mesmerism.** Strangely enough, we find the origin of the psychological point of view in a rather unexpected place - in study of hypnosis especially in its relation to hysteria. Our story being with one of the most notorious information in psychiatry. Anton Mesmer (1734-1815) who further developed Paracelsus notion of the influence of planets on human body. Their power was believed to be cause by a universal magnetic fluid and it was the distribution of this fluid in body
that presumably determined health or disease. An attempt to find a cure for mental disorder.

Mesmer came to the conclusion that all persons possess magnetic forces which can be used to influence the distribution of magnetic fluid in other people, thus effecting cure.

Mesmer in the town of Vienna and various other attempts to put his theory into practice, but he is a success, which came to Paris in 1778, until it was not. Here, all of her animals magnet and does all kinds of diseases, which opens a clinic. Patient be sitting around in a tub (thebaquet) that contain various chemical and from which protrude iron rod The room was rocked and appropriate music was there, the affected part of the body that's being applied to. Mesmer to pass from one patient to another, and each one with his own hands, touching everything appear in a lilac coat. In this way Mesmer was apparently able to remove hysterical anesthesia and paralyses to demonstrate most of phenomena discovered later by the use of hypnosis.

Finally recognized as a impostor by his medical classmates, Mesmer was forced to leave Paris and shortly faded into obscurity. However his method and outcome Mesmerism in the early 19th century as a source of hot debate in scientific circles for many years, in fact, was the center of controversy as psychoanalysis was to be in early part of the 20th century. This conversation eventually led to a revival of interest in hypnotic phenomenon as itself an explanation of the cures that took place. James Braid in England, for example concluded that the removal of hysterical anesthesia and paralyses, which had been ascribed to the action of magnetism, was actually due to suggestive effect of thoughts arouse in the patient mind by the doctor’s language and gesture. Braid referred to this effect of suggestion as hypnotism and explained them in purely psychological terms. Investigations of hypnotism lag after the time of Braid but during the latter part of the 19th century, hypnosis was used more or less successfully by some physicians in their medical practice.

**The Nancy school**, The doctor's practice, one of the most successful Nancy Frenchman Liebeault (1823-1904), was. Nancy at this time primarily by hypnosis was treated unsuccessfully
Bernheim, which Liebeault success in curing a patient as a result of insanity, and became interested in the relationship between hypnosis, medication a professor, Bernheim (1840-1919), was a four-year (selling, 1943), the traditional method. Bernheim and Liebeault worked together at the problem and neurohypnology and insanity that were related concepts and ideas that were developed (Brown and Menninger, 1940). His theory was based on two lines of evidence: Inability to hear paralysis of an arm in the madness as (a) phenomenon, is the individual's pain-all without feeling that can not be killed with a pinin which the unconscious area, when there organically wrong with the patient can be produced through hypnosis normal subjects was also evident; And (b) the symptoms the patient has the use of his hand, or hear, or previously numb feeling in the area, through hypnosis that can be removed in hysterical subjects. So this insanity was a kind of self-hypnosis, which was likely. Dr. Nancy accept the view that the school.

Meanwhile, Jean Charcot (1825-1893), The head of the Salpetriere Hospital in Paris and his contemporaries, was leading neuroscientists experimentally old mesmerists the incident was investigated. That as a result of a search, Charcot Bernheim and Liebeault agree with the report and suggestions into madness because of a degenerative nature organic emphasize that. Charcot it is wrong, but it's very good for a scientist working on the problem proved to be for medical and scientific interested.

In one of the major medical debates of history, in which many harsh words were used on both sides, the viewpoint of the Nancy school finally triumphed. The recognition of one psychologically caused mental illness spurred research, and it was not long before the role of psychological factors in morbid anxiety, phobias, and other mental illnesses was being uncovered. Eventually Charcot himself, a man of great scientific honesty, was won over to the new point of view, and subsequently did much to promote an understanding of the role of psychological factors in various mental disorders. Pierre Janet (1859-1947) was another Frenchman whose extensive research on hysteria further served to popularize the psychological
viewpoint. He also worked out a psychological theory of psychoneurosis which, though not accepted today, was a great step forward. He believed that a certain level of psychological tension was necessary for adequate unification and integration of mental processes, and that as a consequence of nervous exhaustion this energy level could be lowered to the point where mental synthesis would be disrupted and neurotic symptoms might appear.

Toward the end of the nineteenth century, then, it was clear to many that there were mental disorders with a psychological as well as an organic basis, but one major question still remained to be answered: How do these psychologically caused mental illnesses come about.

Received widespread criticism and condemnation by psychologists and psychiatrists alike. In fact, the English-speaking world did not take official cognizance of Freud until he was close to death. In 1936, on his eightieth birthday, he was elected an honorary member of the American psychiatric Association and in 1939, during his last illness he was apprised of his election as a Foreign Fellow in the Royal Society (Zilboorg & Henry in 1941).

As Freud’s work gradually received recognition, an increasing number of now well-known names appeared among his special students and supporters. As early as 1906 the great Swiss psychiatrist, E. Bleuler, who is being remembered for his epoch-making discoveries on the dynamics of schizophrenia. It had become interested in Freud’s idea (Bleuler, 1912). In 1910 Freud Bleuler and Jung found the International psychoanalytic Association, which played an important role in the development and dissemination of psychoanalytic doctrines (Zilboorg & Henry in 1941).

In the course of time some of these students found themselves in serious disagreement with various aspects of Freud’s system and set up modified systems of their own. Among the more prominent of the dissenters were C.G. Jung and Alfred Adler, who both left Freud in 1911.
Jung though that Freud overemphasized the importance of sexual factors in motivation and neuroses; accordingly, he developed his own systematic approach—the Zurich school of Analytic Psychology. Jung’s personality theory is comprehensive in scope and different in many fundamental respects from Psychoanalytic theory. Three of its most distinctive concepts are the collective unconscious, inner self experience, and psychological types.

In addition to the personal unconscious—consisting of the individual’s experiences which once were conscious but have been forgotten, suppressed, or repressed—Jung believed that the individual also has a collective unconscious consisting of “racial” memories established through the thousands of years of man’s existence and inherited in the brain structure in the form of “primordial images” or “archetypes.” An Arche type is a universal image or ideas which contain a large element of emotion and elicited by some aspect of the individual’s life situation. Thus the archetype of the mother, the primordial image of the mother figure, is elicited by the child’s own mother. Such “collective” memories were used by Jung to account for similarities in folklore, symbols, and other aspects of culture found among diverse people throughout the world.

In emphasizing the importance of inner self experience, Jung held that everything within the unconscious seeks outward manifestation, and that the individual achieves true “wholeness” only as fantasies, images, and dreams from the personal and racial unconscious become accessible to the conscious self. When he is cut off or alienated from his unconscious, it may erupt into consciousness, taking various irrational forms such as phobias, delusions, and hallucinations.

Perhaps Jung’s most popular, although not his most valuable, contribution was his distinction between extrovert and introvert personality types, a distinction which has been of practical value of our understanding of adjustive behavior. Jung devoted many active years to
research into the deep-lying processes of the human personality and is acknowledged to have been one of the most profound thinkers of the twentieth century.

Alfred Adler developed the school of Individual psychology, which holds that man is inherently a social being and that his most basic motivation is to belong to and participate in the group. Adler did not submerge the individual in the group, however; on the contrary he emphasize an active, creative “self” that plays a central role in the individual’s attempts to organize his experiences and fulfill himself as a human being. The individual personality is unique and each person develops a “style of life” which reflects his basic pattern of motives, values, and action patterns. Inferiority ways of thinking arise whenever individual feels a sense of incompleteness or lack of fulfillment in any life area. Such inferiority feelings be normal driving forces which push him toward improvement and superiority. Inferiority feelings, however may be exaggerate into an inferiority complex which lead to unhealthy overcompensation. Thus the neurotic person may strive for power and self aggrandizement in order to compensate for underlying feelings of inadequacy and inferiority. Out of such concepts Alder fashioned a humanistic view of man’s nature emphasizing tendencies towards “social interest” and self-direction- a view directly in contract to Freud’s gloomier concept of man’s irrationality and continual battle with his socially disapproved instincts.

Other students of Freud’s and followers stayed more within the general theoretical framework developed by Freud, more elaborate and modify established psychoanalytic doctrine. It has been these men and women, both American and European, who have played the prominent role in shaping psychoanalytic though. Here we find such well-known names as Karl Abraham, Franz Alexander, A.A. Brill, S.E. Jellife, Otto Fenichel, Anna Freud, FriedaFromm-Reichmann, H. Hartman, David Rapaport, William A. White, and the Menningers.
Freud’s theories met opposition, criticism, and sometimes violent condemnation because of their conflict with religious ideas and because of Freud’s emphasis on sexual factors in mental illness, his failure to give adequate consideration to cultural differences in personality development, and the lack of rigorous experimental verification of his clinical concepts. But despite the opposition and the fact that many of his concepts have had to be rejected or revised in the light of later findings, his ideas have made themselves felt with tremendous force throughout the world, and his influence have probably been greater than that of any other man in the shaping of modern psychiatric and psychological thought.

Design of the Study

The purpose of the entire study sample is considered as the true representative of women cricket players of India at time their assessments of Psychological Variables be done.

Included in the current study need to modify any of the variables investigated, the study, which was not a position. Instead, the collection of data in athletic competition, be helpful in providing the correct understanding anxiety test which cannot otherwise be assessed. It was not intended to study the interaction among various variables. In all there were four sample and four Variables to be investigate.

NEED OF THE STUDY

Memberships in the modern game different physical, social and psychological factors is influenced by. Good body involved in the game and the main emphasis of the various types of motor skills development of the game along with the tactics, techniques and strategies have been placed on education, with the player’s physical fitness during training. Until a physical education teacher, but in the highly competitive sport event performance has been proven to contribute to the social and psychological factors that have been paying attention to the task until. It is only recently that sports administrators and Physical Education teachers have realized the importance of the psychological preparation and training of players to enable them to bear the strain and
stresses inherent in sports participation. So, now the sports trainer and Physical Education teachers have started giving more importance to the psychological conditioning or the building the mental make-up of the players before their contests in the national and international competitions.

In the modern competitive sport, a team of psychological preparation of the scientific method, a game with different skills is as important as teaching. In these days, team play, but games are designed not only to win the competition. And win the game, so that there is no difference in skill proficiency, but also that they play, which is the spirit of the players and the attitude is not only. Mental attitude of each individual player as well as a team to help or hinder their performance. Most of the physical education teacher, physical privacy, skills and training are very important players agree that, but also of good mental and psychological preparation for competition is a vital component for success.

The aim of higher sports in this age of competition is to win in international meets or to attain peak performance in competition. And it is on this factor that the Physical Education teachers try to concentrate. Reach the target and in order to fulfill social expectations, players, in their daily life hard to ignore the rest and practice for several hours a day. Stress, both psychological and social players hesitant to peak performance. If the players would not be prepared mentally and psychologically for the contest, they will not be able to achieve the desirous result. The psychological training has to be provided to the players by the coaches to face stressful situation occurring during the competition.

Sport has become a psycho-social activity, full of tension, anxiety, fear and stresses. In competitive sports, teams and individual players play to win and this spirit of winning the matches and individual events causes many psychological stresses. So the job of the coach is to prepare or train the individual athlete as well as teams in such a way that the players individually as well as, in their capacity, as members of the team are to beam all types of stresses and overcome the effect of over-stresses and strains which may deteriorate the sports performance. The players need to undergo such an arduous, training that they should be able to have physical load during practice schedules and can have psychic stress during the period of competition,
because it is during competition that athletes as well as teams inevitably come under psychological stress.

In modern competitive sports, the role of anxiety in sports performance has attracted the attention of sports scientists. As the physical load during training of sportsmen for international competition is increasing day–by–day, the psychic stress during competition has been intensified. It has been realized that during their participation in competitive sports, the players and athletes are also anxiety-prone. Hence in these days, psychological training of the players and athletes has attracted a greater attention than in the past.

It is agreed by most of the sports scientists that besides developing the physical and physiological aspects of the players i.e. power, strength, endurance, agility and speed as well as providing the best type of the training, unit and unless the players and athletes the mentally prepared for contest, they cannot win in any competition or attain their peak performance which is considered the optimum objective of the modern sports.

Thus, it has become necessary to conduct research to know which psychological factors enhance sports performance. There is a need to conduct research on the national and international sportsmen with respect to some psychological characteristic. It is also essential to know what type of emotional problems like anxiety, fear, aggressiveness or stresses occur when they have to face some strong opponent and how to overcome these problems to achieve the optimum level of achievement/performance. It may be possible if proper research on scientific lines is conducted on the top level sportsmen. In view of this, five psychological variables namely visual reaction time, auditory reaction time, extraversion, neuroticism and competitive anxiety were selected and the relationship of disjunctive reaction time, both visual and auditory with extraversion, neuroticism and competitive anxiety was examined in the present study.

The great majority of empirical research in sport personality has utilized assessment devices which embody the factor theory as their main premise. As expressed by Cattell (1973), the factor theory searches for consistencies in behavior. It is assumed that internal dispositions or traits are relatively stable and so enduring that they override environmental or situational influences. This infers that questions cold be asked in any situation and the responses to
generalized to a sport situation. Thank for example he broad category on anxiety. Is knowing that a person low on an omnibus inventory of anxiety enough to conclude that he will never exhibit anxiety; are there no situations in which his heart rate may increase a little. The situation position as exemplified in Mischel’s (1969) social learning theory, appears to go too far to the other extreme, entering into open debate with personalize. This paradigm can be regarded as the antithesis of the factor theory and maintains that behavioral variation is primarily a function of the situation in which a person is placed.

Game show some personality variables have been found to be associated with. Extraversion and neuroticism many other personality variables that affect the performance of the game, are among the variables. Extraversion has been found to be highly related or supportive to dominance and sociability in athletes and sports participants by Sperling (1942), Tillman (1964), Ruffer (1965), Whiting & Stembridge (1965), Wernet and Gottheil (1966), Bruner (1969), Kane (1970) and Ikegami (1970). Extraversion, according to Alderman (1974), is a construct evolving out of Jung’s (1933) early designation of the two major attitudes of personality: the extraverted attitude, which orients the person to the external, objective world, and the introverted attitude, which orients one towards the inner, subjective world. Eysenck (1974) whose development of the two broad personality dimensions of neuroticism-stability and extraversion-introversion provides the major underlying theoretical structure of this trait. He describes extroverted individuals as:

“Outgoing, impulsive, uninhibited, involved in group activities, sociable, friendly, craving excitement, and having many social contacts. They stick their necks out and take chances, act on the spur of the moment, are optimistic, aggressive, lose their temper easily, laugh a great deal, and are unable to keep their feelings under control.”

**STATEMENT OF THE DIFFICULTY-**

The intention of the learning be toward study the role of psychosomatic variables at different level of participation in women cricket players.

**Psychological Variables:**
1. Sport Anxiety.

2. Mental toughness.

3. Sports Aggression

**Delimitation:**

The study was conducted on only women cricket Players of India irrespective of their affiliation to a geographical region of India, Socio-economic Status, caste, cooler or creed.

**Limitation:-**

1. Questionnaire research has its limitations as such any bias that might have crept in to the subject response on their account may be considered as limitation.

2. The tests were administered at different points of time considering the availability of the subjects their mental status as a result of winning or losing a particular match.

**Definition and Explanations are of the form:-**

Anxiety is common word in support of several disorders that is the region of tension, fear apprehension and worrying. These disorder change that how players aware of an act. They be capable of clear real physical symptom whenever gentle anxiety be indistinct with upsetting, at the same time as severe nervousness causes very weakening have a serious impact on daily life.

A lot of knowledgeable people have worrying state that often before confronting and something challenging e.g. analysis, question paper, performance of interview this outlook justified easily and normal careful.

Symptoms interfere with problem when Anxiety is considered by the person. The ability of person sleep or else purpose i.e. generally spelling, nervousness occurs. At what time response is out of percentage capacity being generally predictable in a position.
Nervousness as well call anger otherwise be anxious be a Psychological with Physiological by means of somatic, affecting cognitive, with behavioral workings. It be the disappointing sentiment of horror also apprehension, significance of the statement nervousness be toward irritate and problem. During also are incidence or else deficiency of psychosomatic strain, nervousness be able to developed thoughts of horror, be anxious, apprehension as well as fear of concern. Anxiety is consider the normal reaction toward a stressor, it may possibly assist an personality toward contract by means of challenging circumstances through promoting them, toward survive by means of it, as nervousness become disproportionate it may possibly drop in the categorization of an be anxious disarray

The nervousness of objective effect may possibly contain, sensitivity palpitations, tachycardia, power weak point with strain weakness upper body sting, nausea, smallness of breathing stomachaches, headache As remains make toward transaction by intimidation, blood difficulty compassion speed. Respirations, the major cause of the blood flow muscle groups are increased.

The affecting things of worry can take in. Way of thinking of uneasiness if not fear, difficulty absorbed, sensitivity stressed otherwise nervous, anticipate the most horrible bad temper, impatience, study meant for symbols of danger, also feeling like your minds gone black as well as bad dreams, and feeling likes the whole thing be intimidating. The cognitive belongings of concern could comprise thought supposed danger, such the same as apprehension of disappearing You consider an extreme horror as you believe of last otherwise you may possibly suppose of it extra frequently than usual before cannot get a hold it exposed of your brainpower.

**Example:** - A nervous habit such as biting finger nails, and pen or pencil.

The behavioral property of anxiety may include with tone of voice from situations. It may have irritated from anxiety in the earlier period and worry be able to besides survive practiced during different habits which consist of change inside undeveloped pattern and also the worried lifestyle, greater than before coast nervousness approximating taping, anxiety included by the need to choose between similar options is increasingly being recognized as a problem for
individuals for association and organization. Today we are all faced with greater choice, more struggle and less time to consider our options or try to find the right advice. Lastly we consider the optimistic Psychology, within optimistic psychology, nervousness be describe while the intellectual situation, where the entire outcomes from a difficult challenges for which the subject has insufficient skills.

**Mental Toughness:**

A Mental Toughness is described by the term, commonly use by coach, sports psychologists, sports commentator and business leaders. Generally it is described by a collection of attribute that allow a person to continue through difficult circumstance (such as difficult training or difficult competitive situations in game) and emerge without losing self-assurance. And also the mental toughness is a contest term, in which many people use the term profusely to refer to any set of positive attribute that help a person to survive with difficult situation. The coach and sports commentator freely use the conditions of mental toughness to describe the mental state of athlete that persevere from start to end of difficult sports circumstance to succeed. Within the past ten years has scientific research attempt a formal definition of mental toughness. Mental toughness be not affect by anything but it depend on what is going on in the game or completion no matter what coach, other players or referee be doing. It's being also to black out what's not important.

Mental toughness behave the usual or developed psychological edge that enable you to generally cope better than your opponent with the many anxiety (e.g. competition, training& life style) to facilitate be specifically placed on you as a performer and to become more consistent. It is better than your opponent in left behind i.e. determined, alert, self-assured, flexible and also control in under pressure.

Sports persons who shares, in something i.e. it is full of mistakes and psychological Letdowns. The Emotional component for all time overshadows the technical aspects of performance the over shadows can be avoided only when sports participants are equally fit in mind and body, the individual success and failure. Determination lies in the individual’s practice to both Physical and mental skills.
The quality of mental toughness means that an individual has the ability, the master to naturally unmanageable desire of body, mind and bring them under a discipline to achievement and demanding goal and good result under stress. The most favorite game is cricket, if see, play in more than 110 countries. Physical and mental fitness play vital role in results, other aspects about cricket is that the fastest evolving game in the world.

The important of the study it was hypothesis is that there would be no significant difference among different age groups of cricket players, in their mental-toughness.

**Aggression:**

Violence in its broadest sense is a behaviour or a temperament, i.e. it be also forceful and hostile otherwise attacking. It might possibly occur either in retaliation or without irritation. In narrower definition to be us in social science and behaviour sciences. Violence is an intention on the way to cause harm otherwise an act intended to increase relative community dominance. Predatory or self-protective behavior among member of different species might not be considering aggression in same common sense. Aggression be capable of take an array of form and can be physical or be communicate verbally or nonverbally. Aggression differ from what be commonly called assertiveness although the condition be often use inter changeably among lay people e.g. on aggression sales person.

In psychology the behavior sciences are called combativeness refers to behaviour between member of the same species i.e. intended for the reason of pain or harm. It shows the predatory behavior between members of one species towards another species also describe as aggression. To exhibit aggression towards member of another species be common such as in these examples Lions are aggressive hunters of antelopes” and Eagles are aggressive hunter’s small mammals.

**Hypothesis:** - Hypotheses of the present study are given below

H1:- There will be no major differences between Anxieties among different level of participation in women cricket players.
H 2: - There will be no major difference between psychological hardiness among different level of participation in women cricket players.

H 3: - There will be no significant difference between Aggressions among different level of participation in women cricket player.

**Significance of the study:**

1- The current study may be accounts notifying coaches with the Psychological factors which are useful in the Modern sports not only during the training period but also higher sports competition.

2- The coach will know concerning the Psychological training in ensuring the peak performance among the player.

3- The Coach with the help of sports understands once the cause of the Psychological problem in the Cricketers. The various kinds Psychological of techniques may be applied and help may be rendered to overcome the excessive emotional problem, which affect their performance.

4- The finding of the study may provide guidelines to the future researcher, investigator in sports psychological and sports science to conduct further research in sports field.

**Selection of variables**

Out of innumerable of Psychological variables associated with outstanding physically fit or strong performance. It was really very hard to perform task to identify the most crucial ones. The cultural milieu in which a Player is born and brought up is a great influencing force, which moulds his Psyche. No doubt numerous Psychological variables have crystallized as very critical to athletic Performance through research studies yet to the choice of variables for such type of effort is not guided by extraneous considerations.

Secondly, availability of reliable and valid instruments is also an important consideration in directing one's ingenuity for the choice of variables. Many psychological instruments i.e. tests and inventories are relevant more often than not to the population on which they have been standardized and for which they have been constructed, therefore, based on literary evidence,
and discussion with the sports Psychologists, it was decided to focus attention on the following variables:-

1- Sports Anxiety  
2- Mental Toughness  
3- Sports Aggression

**Reliability of Data:-**

The reliability of data was insured by establishing the instrument reliability, and reliability of subjects.

**Measurement of Psychological Variables:-**

The selection of proper tools was of importance for the study since the aim was to assess the psychological variables among different levels of participation in Women Cricket players.

It was decided to use questionnaire. The investigator obtained the reflection of Psychological variables towards physical education. The validity of responses received greatly depends upon the integrity of the respondents and hence absolute could not be expected. However, the anonymous responses ensure the greater validity of the responses.

**Administration of the Questionnaire:-**

Psychological variables among different level of Women Cricket Players has been randomly selected for collection of data, in total 300 Women Cricket Players Researcher's has personally visited to all different level of Players for collection of data 300 complete questionnaire has been consider for the present study. All above work has been executed with the consultation of the guide.

**Aggression Test:-**

The aggression questionnaire prepared by Anand Kumar and P. S. Shukla this inventory consisted to 25 items in which 13 substance be key "Yes" and take it easy of 12 be No" the
statement which be key "Yes" be 1, 4, 5, 6, 9, 12, 14, 16, 18, 21, 22, 24 & 25. The statements which are key "No" were 2, 3, 7, 8, 10, 11, 13, 15, 17, 19, 20 and 23.

**Scoring**

For each item score was "1" The maximum score might be 25 and score might be zero.

Score obtained by each subject on each one report be further positive which represent one's overall achieve on top of violent behavior.

**Sport contest apprehension test Purpose**

The Sports contest worry test be most recent with mainly accepted game particular anxiety test whose point be toward review being difference within games aggressive feature nervousness otherwise the trend to reward contest situation at the same time as hostile also before toward react to these situation by important situation nervousness.

Sports contest anxiety test questionnaire (Scat) prepared through Rainer Martens (1986), was originally constructed for children (ages 10-15), its adult version was developed later on by suitably modifying the instructions and items. A reliability quotient of 0.85 had been reported for the adult version of SCAT.

**Procedure:**

The SCAT questionnaire (Appendix-A) contains fifteen items. The subjects were asked to indicate how they generally felt in competitive sport situations, and responded to every thing use a three position ordinal level (almost never, at times, otherwise frequently).

Out of fifteen substances only ten items review sports aggressive attribute concern proneness e.g., ("Before I compete I feel uneasy") and used for scoring purpose. These ten items were: 2, 3, 5, 6, 8, 9, 11, 12, 14 and 15. The remaining five test items were the spurious items, which were added to the questionnaire to diminish response bias towards the actual test items e.g "Competing against others is socially enjoyable." These five spurious items were not scored. These spurious were: 1, 4, 7, 10 and 13.
Every statement had three possible responses i.e.

1. Hardly ever
2. Sometimes
3. Often

While the subjects were responding to the questionnaire, the scholar went around verifying that they were recording answers sequentially and explained the meaning of the words in case of doubts.
Scoring

The scholar scrutinized the completed questionnaire in order to ensure that the subject responds to every item and there was no question left unanswered. The substance 2, 3, 5, 8, 9, 12, 14, 15 were worded during such a method that they were scored according to the following key:-

<table>
<thead>
<tr>
<th>Score</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hardly ever</td>
</tr>
<tr>
<td>2</td>
<td>Sometimes</td>
</tr>
<tr>
<td>3</td>
<td>Often</td>
</tr>
</tbody>
</table>

In the case of items 6 and 11 scoring was carried out according to the following key:-

<table>
<thead>
<tr>
<th>Score</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Often</td>
</tr>
<tr>
<td>2</td>
<td>Sometime</td>
</tr>
<tr>
<td>3</td>
<td>Hardly ever</td>
</tr>
</tbody>
</table>

However spurious questions i.e. 1, 4, 7, 10 and 13 were not to be scored as suggested by Rainer Martens.

If a subject deleted one of the test items, her prorated full scale score was obtained by computing the mean gain in support of the nine substance, answer, multiplying this significance as a result of ten values by ten, and rounding the product to the next whole number. When two or more items were omitted, the respondent's questionnaire was invalidated.

Total scores of SCAT ranged beginning 10 (low down aggressive concern toward 30 (elevated aggressive concern). The subjects were assigned to the following category according to the score obtained by them:
<table>
<thead>
<tr>
<th>Raw/Mean Score</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 17</td>
<td>Low Anxieties</td>
</tr>
<tr>
<td>17-24</td>
<td>Moderate Anxiety</td>
</tr>
<tr>
<td>More than</td>
<td>24 High Anxieties</td>
</tr>
</tbody>
</table>

Responses obtained from the subjects on each statements of sports competition anxiety questionnaires were subjected to statistical treatment keeping in view the purpose of study.

**Mental Toughness Questionnaire**

**Purpose:-**

The mental toughness questionnaire, Appendix-C was used to assess the stage of mental toughness the group. The analysis retest reliability of the questionnaire was reported to be 0.79.

**Procedure:-**

The analysis scheduled physical toughness, Appendix-C ready with Alan Goldberg (1995) have sixty substance, which has four categories namely: handling pressure category read "I think about my opponent's size, previous performance or reputation before I play a match".

The subjects were instructed to react toward each one thing according on the way to how they in general felt during aggressive games situation.

Every statement has two possible responses i.e. True or False.

There was no time limit for the completion of the questionnaire but the subjects were instructed not to ponder too long over any statement and respond to all the statements in the questionnaire independently.
Scoring:-

Response obtained from the subjects on each statement of mental toughness questionnaire was recorded for analysis of data.

A total score of 60 was possible of this questionnaire. The classification criterion given by Alan Goldberg is as follows.

<table>
<thead>
<tr>
<th>Raw/Mean Score</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-60</td>
<td>Mentally-Tough</td>
</tr>
<tr>
<td>48-54</td>
<td>Pretty Solid Mentally</td>
</tr>
<tr>
<td>40-47</td>
<td>Average Mental Toughness</td>
</tr>
<tr>
<td>Below 40</td>
<td>Need Mental Toughness Exercise</td>
</tr>
</tbody>
</table>

The responses of the players in each of the four categories i.e. handling pressure, Concentration, Mental rebound and Winning attitude were recorded for statistical treatment.

Statistical Procedure

Mean score and standard deviation of District (N=100), State (N=100), and National (N=100) and the sample (N=300) were calculated in all the four variables i.e. aggression, sports competition anxiety, mental toughness (consisting of four categories handling pressure, concentration, mental rebound and winning attitude).

One-day analysis of variance was applied to find out the significance of mean difference among national (N=100), state (N=100) and district (N=100) players in each of the variable. This was followed by Least Significance Difference Test (L.S.D) of Anova comparison to determine the significance of difference between ordered paired means at 0.05 levels.

Statistical model needed for Analysis of data descriptive Statistical including mean standard deviation and range will be calculated for each of some variables. These
variables as being representative of major dimension of the subjects were used for comparative analysis when two groups compared on a single variable. Students’ t’ test for independent sample was computed. A one way analysis of variables (ANOVA) was used. The t’ test and ‘F’ ratio was considered significant if their values exceeded the multivariable approach for comparative analysis was also used as discriminate analysis and factor analysis.
ABNORMAL BEHAVIOR IN OUR TIMES

The 17th century has been called the age of Enlightenment, the 18th age of reason, the 19th age of progress and the 20th age of anxiety with the conquest of many of the physical problems which have afflicted him throughout his history, man has become increasingly aware of the role of psychological factors in human existence. No longer are civilized men-at least the fortunate majority-the victims of famines and epidemics. The black plague has been replaced by a host of psychological plague-worry, value conflict, aloneness, disillusionment and doubts as to whether one can weave a successful course through the complex confusion of freeways and blind alley that make up modern existence.

Modern man’s path to happiness is not an easy one. It is beset by seemingly endless personal and social problems. Wars have disrupted personal life and left their wake of mutilations, grief, and social unrest. Periodic breakdown and runaways of the economic machinery-as well as automation and other technological innovations-have taken their toll in the millions of victim of unemployment and dislocation. The human population explosion is creating difficult political and social problems and tensions. Racial discrimination, with its unreasoned feelings of superiority, hatred, and resentment, hurts both the individual and the community. Homes broken by divorce leave emotional scars upon parents and children alike. Excessive competition, conflicting pressure groups, impersonal bureaucracy, rapid social change, and the ever present threat of global atomic war further aggravate modern man’s anxieties.

Ours is an age of great growth of knowledge. More scientific & technological discovery have been made in the past fifty years than in all previous recorded time, and science is having an increasingly profound effect on all phases of our life. In a short time man will set foot on a planet other than the one on which he was born. Yet paradoxically, his scientific advances have led to a shrinking of his world, so that he must daily face international problems as well as national and local ones. And as man ventures into the vast universe, he is increasingly and
inescapably confronted with the finiteness of his own individual existence and with questions as to its meaning. At the same time traditional values and beliefs no longer seem self-evident, and he lacks the comforting absolutes that gave security to his forebears, unfortunately, advances in the understanding of man have lagged far behind those in the physical sciences. We know much about the atom but not nearly enough about love or the values needed for a meaningful and fulfilling life. With all his uncertainties and anxieties, modern man has few moral beliefs to guide him. As a consequence, he stumbles around among a myriad of religions, philosophies, and social programs, seeking answers that will satisfy him.

Small wonder that on every day side we see anxious, unhappy, bewildered people who are missing the fulfillment of their best potential because they cannot achieve a satisfactory adjustment to problems that seem just too great. Instead of smooth, effective functioning, we see widespread symptoms of personality maladjustment. In this Age of Anxiety, Americans spend over 10 billion dollars a year on liquor, books on personality adjustment have become best sellers, and the volume of tranquilizing drugs sold is measured in hundreds of tons.

In most cases the symptoms we see merely hinder the best potential adjustment of the individual; he worries along and solves his problems after a fashion. But in many cases the stress of modern life proves too much for him, and he becomes a psychiatric casualty. It is startling to note that mental illness incapacitates more people than all other health problems combined, that mental patients occupy almost one half of the country’s hospital beds, and that approximately one out of ten persons now living in the United States will at some time be hospitalized for mental illness if present trends continue. And for each of those currently hospitalized for mental illness, there are at least twenty more who are not so severely maladjusted but nevertheless need psychiatric aid. Furthermore, these figures say nothing of the many kinds of organic illness brought on by emotional conflict or of delinquency and crime.
Abnormal behavior is thus the country’s Number One health problem. This does not mean that there are not many well-adjusted persons or that effective personality adjustment is not possible in modern life. It does mean, however, that many of us encounter serious difficulties in dealing with life’s problems—particularly problems centering around values and question of how one should live. Thus the study of abnormal behavior may be great value in bettering individual adjustment and in reducing the great toll of misery and lost productivity which maladjustment and mental illness are exacting in our modern society.

**Abnormal Behavior As the Layman Sees It**

When we think of abnormal behavior, we are most likely to think of extreme, spectacular examples, because, as in every other field, it is the bizarre and sensational things that command attention. The many examples of mental illness that have come down to us from history and those described in literature are apt to be extreme cases which, isolated and lumped together, give us a “chamber-of-horrors” picture of mental illness rather than the truer picture, in which less spectacular minor maladjustments are far more common. Undoubtedly, most of the popular present-day beliefs about mental illness have been shaped by these extremely interesting but often quite unscientific historical and literary descriptions. This has been inevitable, because it is only recently that scientific research has entered the field of human behavior.

Nevertheless, despite their shortcomings, a brief review of a few cases from the past and from literature will be of value in giving us a broader perspective of our problem, for most of the forms of severe mental illness we see today have been observed and reported in other ages too.

**Ideas Carried Over from History**

Some of the earliest writing of man—Chinese, Egyptian, Hebrew, and Greek—provide striking “case histories” of disturbed individuals. Saul, King of Israel in the eleventh century B.C., suffered from recurrent manic-depressive episodes. During an attack of mania (excitement)
he stripped off all his clothes in a public place. On another occasion he tried to kill his son Jonathan.

Cambyses, King of Persia in the sixth century B.C., was one of the first alcoholics on record. His alcoholic excesses were apparently associated with periods of uncontrollable rage during which he behaved “as a madman not in possession of his senses.” (Whitwell, 1936, p. 38) On one occasion, without making any provisions for the feeding of his army, he set out against the Ethiopians, who had greatly enraged him by calling the Persians “dung eaters.” He was shortly forced to return to Memphis, where he found the people celebrating the feast of Apis. Furious at what he took to be rejoicing at his failure, he ordered all the people taking part in the feast to be killed. Cambyses also defied Persian law by marrying one of his sisters and later killed his other sister by kicking her during pregnancy. On another occasion he used his friend’s son as a target for his arrows to demonstrate that his excessive drinking had not affected his skill or mental stability. His aim was true and he killed the boy, thus proving his point, at least to his own satisfaction.

Greek mythology contains many descriptions of mentally ill persons, which afford us some insight into the nature of the real-life cases from which the descriptions must have been drawn. For example, Hercules seems to have been afflicted with convulsive seizures accompanied by a homicidal fugue-type reaction. His attacks are graphically described by Euripides in the “Phrenzy of Hercules”: his eyes rolled, his consciousness clouded, he frothed at the mouth, showed violent fury, and attacked persons in his way, then fell, writhed, and finally fell into a deep sleep. Upon awakening he had complete amnesia for the seizure. During the course of several attacks. Hercules killed two of his own children, two of his brother’s children, his best friend, and his teacher. Ajax, too, became mentally disordered and slew a flock of sheep under the impression that he was attacking his enemies. On regaining his senses, he was no overcome with remorse that he committed suicide by throwing himself on his sword.
Many of the notables of later Greece and Rome, including Socrates, Democritus, and Alexander the Great, apparently suffered from mental disorders of one kind or another, and the ensuing period of the Middle Ages contains innumerable instances of abnormal behavior. The great oriental conqueror, Tamerlane (1336-1405) for example was particularly fond of building pyramids of human skills. One of his architectural achievements is reported to have contained some forty thousand of them.

In more recent times, George III of England suffered from service manic-depressive reactions. During periods of manic excitement he showed the typical unreal symptoms of this disorder: he used to move rapidly from one topic to another, asked impulsive questions without waiting for an answer. He used to take his food so fast that the members of his court had to bolt their food or leave the table hungry. He raced up and down the stairs, rides his horse to, indulged in obscene language and displayed the tireless energy typical of the manic that is just too busy to sleep.

The French philosopher Jean Jacques Rousseau (1712-1778) developed marked paranoid symptoms during the latter part of his life. He was obsessed with fears of secret enemies although the (Prussia, England, France, the king, priests) and others had waged a terrible war against him. He believed that his enemies will cause him to face all kinds of internal troubles, but his chief artifice torture him by devastating him for his own benefits and praise, even going so far to corrupt vegetable peddlers so that they would sell him better vegetables more cheaply. According to Rousseau, this was undoubtedly designed to prove his ignobleness and generosity. It would be interesting here to know whether this behavior was related to the fact that he and his wife had left each of their five children at a foundling hospital.

Rousseau became panicky during a visit to London and fled leaving all his luggage and money at the hotel. On his arrival at the coast the winds were not favorable for his departure, and in this he saw another indication of the plot against him. After his return to France, his invisible
enemies apparently stepped up their persecution. They corrupted his coffee merchant, his hairdresser, and his landlord; the shoebblack had no more blacking when Rousseau needed him; the boatman had no boats when this unfortunate man wished to cross the seine; his enemies even prevented his front door from opening. He demanded to be put in prison, but even this was prevented by his imaginary foes. No longer able to trust man, he turned to God, to whom he addressed a very tender and familiar letter. To ensure the arrival of the letter at its proper destination, he tried to place it on the altar of Notre Dame at Paris. Finding the railing closed, he find that heaven is also conspired against him. Finally he even came to distrust his dog.

The list of philosophers, painters, writers, and musicians who might also be mentioned in our discussion is a long and celebrated one. During the composition of the Requiem Mozart labored under the delusion that he was being poisoned. Beethoven, although miserably poor, was constantly changing his living quarters and sometimes had to pay for lodgings at three or four different places at once. Robert Schumann, in later life, was pursued by turning-tables which mention everything, and heard spirit voices and melodies and harmonies which developed into entire compositions.

On one occasion Van Gogh cut off his ear and sent it to a prostitute, an action apparently performed in a state of clouded consciousness resulting from his epileptic condition. Schopenhauer, Chopin, and John Stuart Mill suffered from attacks of depression. Rabelais, Tasso, Samuel Butler, Burns, and Byron used alcohol excessively. Coleridge’s “Kubla Khan” and Poe’s “Fall of the House of Usher” show the unmistakable effects of having been written under the influence of opiates.

As we approach contemporary times, the names of Mussolini, Hitler, Goering, and other notorious figures of modern history enter our discussion. Certain of these figures will come under scrutiny in connection with our discussion of particular abnormal patterns.
In reviewing these historical instances of abnormal behavior, it should be made clear that we are to some extent evaluating this behavior in the light of our present-day concepts of mental illness. In their own day, some of these men were looked upon as perfectly normal and others as only eccentric or unusual. It should also be emphasized that although many mentally ill individuals have played important roles in the shaping of history, it has been those men and women of more effective personality adjustment who have carried the major burden, particularly in the achievement of social progress.

**Demonology among the Ancients**

We have no knowledge of which soon psychiatry "some half a million years the Stone Age cave that is practiced by people. Mental illness is possible for certain forms of medication that the patient soon man now called repining disorder treated by a process, complaining of severe headaches and convulsive attacks have developed. This process is made with crude stone tools and cut through the skull was, until one of the scalp in the form of a circle chipping away area. Called a trephine opening, the possible escape of the problem, which was the evil spirit which is allowed, and incidentally brain on a certain amount of pressure can be relieved. In some circumstances a primitive man trephine skulls of individual action is survived and lived for several years after that show, opening around good show (Selling, 1943). This early brain, surgery left much to be desired in terms of technique, but it was even more inadequate in terms of the naïve, unscientific theory of demonology upon which it rested.

It was probably a very simple and logical step to extend this theory to peculiar and incomprehensible behavior in their fellows.

Including the spirit of good or evil spirit possession as to whether the decision is usually based on the patient's symptoms. Possessed person's speech or behavior appear to have a religious or mystical significance, it's usually a good spirit, he was in possession, that had been
thought. Such people often that it was super power, however, it was treated with much reverence and respect. In the Bible story, David took advantage of this popular belief when he simulated madness in order to escape from Achish, the king of Gath.

Most possessions, however, were considered to be the work of evil spirits, particularly when the patient become excited and over active and engaged in behaviour contrary to the teaching of priests and temple worshipers. Among the earliest Hebrews, such as possessions was thought to be represent the wrath and punishment of God. The primary treatment planned for demoniacal possession be exorcism which incorporated a variety of technique that were developed in support of cast, here evil spirit out of body which afflicted one. These varied considerably, but typically incorporated prayer invocation, noise making and the use of various horrific-tasting concoctions such as purgatives prepared from sheep’s dung and wine. In extreme cases flogging, starving, and other more severe measures were often used in an attempt to make the body of the afflicted one such an unpleasant place that the evil spirit would be driven out.

Such treatment was originally in the hands of medicine men, or shamans, but was eventually taken over in Greece, China, and Egypt by the priests, who were apparently curious mixtures of priest, physician, psychologist, and magician. Although these priests were dominated in the main by beliefs in demonology and established exorcist practices, they did make a beginning in more humanitarian and scientific healing of mentally ill. For example as early as 860 B.C. in the temples of Asclepius in Greece, the priests supplemented the usual prayer and incantation with kindness, suggestion, and recreational measures such as theatricals, riding, walking, and harmonious music. However, despite this modern note, treatment was not free of its barbaric aspects, and starving, flogging, and chains were still advocated for recalcitrant patients.

Membership in the medical priesthood of these Greek temples of healing was originally hereditary, but in time, as their influence started to wane, outsiders were admitted and various “schools” were formed. In one of these groups the celebrated Greek physician Hippocrates
received his early training. As we shall see, however, Hippocrates was to stray far from the fold of demonology.

**Early Medical Concepts of Mental Illness**

Against this background of primitive superstition, there occasionally appeared an outstanding figure or group who approached mental illness on a more scientific basis. Especially during the Golden Age of Greece we find considerable progress being made in the understanding and treatment of mental illness.

**Sex differences in aggression:**

Sports psychologists believe so as to males be naturally more aggressive than females. In our culture aggression has traditionally been viewed as desirable act for men, but not for women. Girls are taught not to be aggressive if so they may lose their feminist.

**Team Cohesion:**

Carron (1982) defines cohesion as “A dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goal and objectives”.

The common thread was that cohesion consists of two bases of dimensions. Task cohesion and social cohesion. Task cohesion refers to the degree that group member work together in the direction of achieve common goal and objectives, whereas group unity reflects the interpersonal attraction among group member.

The four major factors affecting the development of cohesion in sports and exercise settings are given below.

1. Environmental factor
2. Personal factor
3. Team factor
4. Leadership factor

Components of consistency

1. Social satisfaction
2. Sociometric cohesion

Social satisfaction pertains to the group members satisfaction with the groups in terms of its ability to allow a person to obtain desired goals. Sociometric cohesion refers to the amount of positive effect or liking among group members.

Sports engage extremely complex behavioral issue. As a consequence of intense competition sportsman behaviour may go through important changes. The intervarsity players had lower level of aggression while inter-regional players had higher level of aggression (Sharma et al., 2012).

The relation suffers when aggressions be related by means of a greeing dishonesty for boy and also physical aggression uniquely predict dishonesty, for controlling variance related with relational of aggression and in support of relational violent behavior presumption deception have a important role in physical aggression (Ostrov 2006).

The physical aggression which exhibit in teenagers along with young adults be the most important apprehension inside each and every one present society. It is to be sure that the possibilities of human being arrested with create on fault of immoral be high for the period of not on time teenagers along with near the beginning than next to several other point during life. More than the histories of 40 years hundreds of studies have attempt toward center of extra light going on how good-natured children grow to be aggressive young delinquents. Poor parental care relations fall apart unhelpful look closely influence with require contain everyone be exposed just before exist related through aggressive youthful misbehavior males explanation on behalf of the best part of arrest total intended for aggressive crime. The main clarification intended for aggressive have the next hostile learned responses to irritation, they preserve also to be well-read as instruments to achieve goal and the learning which occur by observing such model which may
be observed in family & among peers elsewhere, through mass media or in violent pornography (Tremblay 2002).

A satisfactory capacity of a excellence physical education program container supply a lot toward the on the whole quantity of reasonable toward concentrated physical activity of the educate period teenager. school too in could the probable toward authority the regular physical activity of children with encourage improved participation within additional sports instruction tricks with favor dynamic commute toward prepare and through provided that do exercise equipments also the command of early stages during their neighborhood. The majority of adolescent children include a extraordinarily optimistic manner towards the physical education. However the same as they grow up elder their sensitivity of physical education when a optimistic knowledge seem toward develop into extra unclear. From the small number of study presented, it seems expected to feature of physical education assist to continue primary encouraging perception. Upcoming do research be supposed to attend to factor influence the modify of perception because a youngster mature. During adding together toward contribution a eminence physical education, school must make sure that the totality daily quantity of physical education be satisfactory not single uphold except to one an improve a child's of bodily health(Trudeau & shepherd 2005).

Students’ prefers in support of a wider diversity within games as well as in physical condition actions has shown in enhance the stage of challenges during sports coaching curriculum, with an boost inspiration between the players in support of participate into behavior external of instruct. The players either accept or tolerate involvement in activities of physical fitness appropriate toward identified physical condition remuneration. The majority student like sports education group of students to include a few appearance active participation while having fun (Linda & Banville, 2006).

The inspiration in addition to personality-efficiency be the best predictors of free time physical doing participation. Which give confidence the student free time physical doings for contribution with also the involvement of institutions must arrangement as well as organize on the way to develop the optimistic attitude among student and growing their self-efficacy which motivated physical activity in participation (Lim, 2008).
The physical fitness along with well-being benefits, combined measure of recreational sports participation which have great significance. The relationship between entertaining sports participation, pleasure interpersonal & groups, physical fitness as well as educational benefits of participation and after graduation the significance of sports, physical fitness activities are very important. Considerate the impact of campus program faithful to influencing positive health behaviour including physical activity be a critical component in accepting the remuneration of recreational sports participation (Forrester et al 2006). The significance of science to students' life is also very significant. There is a need of innovative and subject base behavior, to enhance student attitude on the subject of the importance of skill (Siegel & Ranney 2003).

Thus athlete while fighting career sport Psychologist can help to manage with his revolution. The improved strain of competition be capable of grounds athlete to reach together with physically as well as emotionally within a behavior to facilitate harmfully affect their presentation of ability. They might well develop into nervous their heart rates are in race and also split keen on a cold sweat after breaking. They worry about their result which they find to do it hard to concentrate on inside hands. This show the way an example of coach to take a rising awareness in this field’s of sport psychology and as well within particular field of competitive anxiety. To facilitate their awareness have focused on technique to the athlete that be able to use the competitive, keep control and also optimize their performance. After learning this technique which allowed by coach to athlete for relax and also focus to his/her attention within a positive manner lying on the task preparing for participating during competition. Lastly, it be the fact that Psychology be an additional stick during the athlete’s armory within fast the attractive circumference.

Modern Sports has become a very complexes behavioural issue for excellence in serious competitive sports which includes genetic endowment, generally good environment and highly specialized psychological training that are needed to produce an individual sportsman of some reckoning. Psychology is behavioural science which has made its contribution in this regard. It has helped coach to more professionally and enhances sportsman performance more proficiently.

Success in competitive sports is no doubt related to a very high level of physical fitness, mastery over the skill particularly to a sports tactics and strategy applied in the particular position or
situation. The recent research reveals that besides these factors success in sports to a considerable extent depends upon the personality of the sportsmen. For instance sports participation may relieve aggressive behaviour in some and it may aggravate it in others. Some only gain proficiency in sports to overcome the high stress or tension whereas other may merely be depressed and disheartened and with drawl. Effort to achieve proficiency in competitive sports, performance according their particular personality type.

One of the other facts also reveal that the basic characteristics of sports experience is emotional, personal and situational rather than just being a physical experience, as it has been experienced in high level of soccer competition, which demand high level of physical aggression industriousness, tough mindedness, determination and practical for better performance. Week or wobbly legs, an increased heart rate, and increased oxygen consumption obviously can accelerate fatigue. Perhaps the most deleterious physical symptoms of anxiety, however, are increased muscular tension. Tension in antagonistic muscles interferes with the smooth functioning of needed muscle groups. It impairs the speed and force with which one can use ones muscles. Excessive tension contributes to early fatigue. It heightens awareness of the self-inflicted pain accompanying effortful performance. Anxiety takes it toll psychologically as well as physically. It results in a narrowing of the perceptual field and intentional focus. One becomes less capable of taking in and processing information. And one tends to lack flexibility. As a result athlete has greater difficulty adjusting to unanticipated events and tends to become confused more easily. Anxiety is one of the most common deterrents for good performance. At worst the effects of anxiety get the athlete’s so tied up in knot that it is frozen in fear. At best anxiety subtly impairs performance by distracting the attention. When athlete get anxious the heart rate increases, the blood pressure become elevated the breathing becomes more rapid and oxygen consumption increases. He may experience nausea, light headache, dryness of mouth or feeling of fatigue or weakness. He may yawn frequently, or engage in nervous activity (bite his nails, wiggle, his leg, twirl his hair etc.) he may sweat profusely, urinate frequently or have loose stools. He may have difficulty in getting into sleep. And inevitably have an increase in muscular tension. He may even have difficulty in breathing as the muscle of his neck and throat tense up causing him to choke (literally and figuratively).

Anxiety is one of the greatest problems of modern trends in scientific knowledge, cultural conflicts, economic problem, industrialization, all add to the problem of man, thus increasing the
anxiety level. Anxiety refers to that emotional state to mind where a fear of danger or loss hearing is a prominent feature. It usually arises as a result of unknown fear creates tension and anxiety.

Concern over the person eventually to fatigue and perhaps for psychosomatic disorders that can lead to someone niorona Muscular cerebral and emotional stress is a high level of activity.

An individual player's success or failure of the mental preparation and training well under pressure capacity, physical ability, conditioning depends. It is not is common to hear the coaches and athletes express disbelieves on how poorly their team perform against a certain opponents or how they feel apart in a crucial situation.

The effect of anxiety on performance depends directly on type of task considered. In most cases the heightened arousal state has been found to facilitate simple performance such as fingers tapping, eyelids, and conditioning and verbal memory task. One the other hand as anxiety reaches a certain level, a breakdown of psychological and physiological integrative mechanism of often seen to occur, resulting is less efficient performance is more complex task.

One of the most disrupting influences of anxiety is its tendency to elicit thoughts of avoidance and escape. When athlete perceives some danger and lack confidence in his ability to cope with it, he naturally looks for ways to hide or escape from it and reason to do so. Thoughts like “I don’t really want it” or “who cares” as well as cognitive searches for way out. “Coach, I don’t feel well” and prepared excuses (just in case of failure) may seemingly protect the athlete from some perceived danged associated with performance, but they assuredly impair motivation and enjoyment.

Person concerned has occurred, or is going to happen, that some discomfort incident response, which is a state of mind. Events in general, about the consequences of their presence and anxious person and also a source of concern Somatic anxiety or even in nature can be. Somatic symptoms of anxiety, mental confusion and fear is relative. In simple words, it is a kind of emotional distress.

Laboratory, field and clinical evidence demonstrates that athletic and motor skill performance can suffer if anxiety become too high and many youngsters report that various worries prevent them from playing their best when they compete. Competitive anxiety can affectyoungster’s
health by disrupting normal sleeping patterns or creating gastrointestinal problems. So cognitive approach and environmental approach are widely used in reducing anxiety.

Anxiety is related to emotional stability through mindedness, and self confidence, the more stability toughness and confidence a person has, the better he is equipped to handle anxiety and convert it into something very productive. The ability to deal effectively with anxiety is one of the prime considerations in athletics. Each athlete must learn to cope with anxiety involved in his career. The various behaviour indicating anxiety are rather disparate and one often hard to recognize as anxiety reactions what the athlete might do about anxiety is equally varied.

Anxiety is an emotional state or reaction characterized by (a) varying intensity (b) variation over time (c) the presence of the recognizable unpleasant feelings of intensity, pre-occupation, disturbance, and apprehensions and (d) a simultaneous pronounced activation of the autonomic nervous system. The state of anxiety or reactive anxiety arises as the reaction of a person to varied, most often socio-psychological stress factors (the expectation of a negative evaluation) or aggressive reaction, the perception of an unfavourable attitude toward oneself, a threat to one’s self esteem or prestige. On the other hand, personal anxiousness a trait anxiety, a characteristic, a disposition, gives a statement of individual difference in susceptibility, one’s proneness to the action of various stress factors Consequently it is a question here of the relatively stable disposition of a person to perceive threat to his “age” in the most varied situations with an increase in A-state. Individuals with high personal anxiousness, more often than low anxiety individuals, even in the most varied situations, develop a rise in state anxiety, which allow the prediction of the nature and intensity of his emotional reaction in similar situations in the future.

That is not to say that one cannot produce superlative performances when nervous, one can. In fact most athletes experience some anxiety before producing their top performances. However these superlative efforts come in spite of the anxiety, not because of it. By its nature, anxiety tends to interface with athletic performance.

When people compete they are confronted with a variety or situational demands. These demands which may pertain to performance evaluation, skill acquisition and improvement, and social interaction, represent “call for action” to which the individual must respond. Many people
view these demands primarily as sources of challenge and excitement. Although there individuals may sometimes experience anxiety or the negative effects while competing, they typically perceive competition as relatively non-thrusting and non-stressful. For some people, however, the challenge and excitement of competition often are accompanied or supplanted by anxiety or other stress responses. They frequently become tense and apprehensive prior to or during competition; instead of attending to the task at hand, they focus on their heightened emotional arousal or become preoccupied with worry.

Furthermore when athlete is anxious he may be overwhelmed with the intrusion of distracting and maladapted thoughts and images. Athlete tends to focus on all the things that may go wrong, how inadequate or incapable he is, how poorly he might do, and the consequences of possible substandard performances. These thoughts and images are good practice for performing poorly. And they are distracting. As a result they tend to become self-fulfilling prophecies. He becomes more likely to perform just a poorly as he feared he might. Play in an inherent characteristic of all creatures on this earth. Since man is superior in nature, therefore it has taken professional shaper for personal amusement, career, wealth, glamour and national pride. When play mode of expression with particular tools, it is known in the name of particular sport i.e. hockey, cricket, baseball, tennis, lawn tennis rugby, It every sports the player enjoys the game with a motive to compete with fellow rival. In this competition, the spectators enjoy the skill and spirit of the players with national pride. The organizers, sponsoring companies all invest in the event. This takes the shape of industry wherein systematic activities take place in collaboration with the organizers and players for the satisfaction of wants and wishes of the sporting people, spectators, and the nation. Here the teams compete as industry and produce the event as product. Thus the street game becomes a source of income and influences the GDP of the economic system. In this way, the study of sports becomes the subject matter of economic concern in terms of sports economics. As labour economics studies the conditions of labour, political economics studies the impact of political thought on economics development and social justice, likewise sports economics studies the sports which have got recognition in the commercial world as a profession generating job opportunities, income and healthy national spirit. Since the economics studies the human behavior so the sports economics offers wealth of data on human action. If such study is neglected future researchers will lack the knowledge necessary to use sports and understand behavior of sportsmen in particular. Sports events produce wealth and pure a challenge on the distribution of the same equally. It further discrimination, gender injustice, biased selection, lack of sportive spirit, corruption in infrastructure construction and lack of proper sports policy. Since the science of economics is primarily a
set of tools, as opposed to subject matter, than no subject, matter, than no subject, how offbeat, need be beyond its reach. It is the job of all economists to observe economics everywhere to study human beings in ordinary business of life. Sports generate many intrigue economics questions which remain unanswered because of legal jargon. Hence the legal economic study can suffice the demand of economics of sports. In general parlance, sports is not an amateur activity now. It is an organized industry creating wealth and distribution of the same, protection and promotion of players organizers and player relationships, international relation and sports, monopolistic and unfair practices in sports, sexual exploitation of women sports persons, corruption in selection in national and international event, social security of sportsmen, etc. The economics of sports also studies the infrastructural investment, sponsorship, satta in sport. Thus the economics of sports opens the door for the jurists to study the legal framework to control and regulate the behavior of parties to the events for the creation of wealth and their distribution for job creation, economic development and healthy nation.

In the context, the study of economics of sports intends to explore the significant contribution of sports in creation of wealth and the requirement of regulation of behavior of parties concerned. This is the reason that the law is emerging with the emergence of sports consciousness.

Although sports have been put under concurrent list in Indian constitution, yet very few states have taken it as one of the most important wealth generating industry. There is no sports policy at par with education, agriculture, industry heath etc. This is the reason that there in so no playgrounds, no sports teachers, therefore, no legal experts and the requirement of their services. Himachal Pradesh and Rajasthan have enacted sports legislation. But they are not so effective. There is lack of national legal framework. The sports ministry seems helpless in managing and control and promotion of the interest of players. The developed countries are also developed in sports policies for the promotion of the economics of sports. Since the share of sports is around 30% in world trade without polluting environment, therefore with the emergence of sports as part of economy, the emergence of sports law is natural. Thus the interdisciplinary study for cooperation and promotion of national health economy and pride is the utmost need of the hour.

It is evident from the global sports events, that sports have become an important tool to economic development. Sports events are organized in which trained and professional players are engaged who are paid their performance by the organizers. In the event, television companies, newspapers advertisement companies, business houses are the sharer. The government’s agencies accordingly in order to maintain law and order and control the crowd, traffic, back marketing of tickets. The event generates wealth which is distributed among players, management companies advertisers, and media and among various agencies. It becomes a source of income for small business groups too. In this way, sports generate wealth and
employment opportunities along with hard infrastructure. It also generates healthy mind an disciplined youth.

Generally the term infrastructure is referred to techno-physical structure that supports a society it is a set of interconnected structural elements that provide support for development, i.e. roads, bridges, water supply, sewers, electrical grids, telecommunications. All these are essential for social living conditions, but sports requires not only had infrastructure rather soft infrastructure also. Soft infrastructure includes. Physical as well as not physical assets, such as body of rules and regulations, governing the system, financing the system, human resource development system, professional training, accreditation and discipline. Sports include both and soft infrastructure which aid to the economics of sports. The study of Olympic Games events can enlighten the relationship between sports and economic development. The Olympics games are amongst the largest sports event in the world in which world class athletes participate and try to compete with others in front of thousands of spectators. Millions of sports fans watch the games worldwide on television. However, this game might have been founded on the ideology of pure amateur competition but in the late nineteenth century, It has become a big business, The participants are professional athletes and the organizers are highly compensated. Hosting the events involves huge investment in construction and renovation which takes 5-10 years time. It develops Khel Gaon (sports Village). Thus the huge investment in hard and soft infrastructure of sports has led it to commercialization. This in turn has let to corruption and scandal. Despite the sport events produce direct as well as indirect benefits. Direct benefits includes net spending by the foreign tourists which ad to the foreign exchange, spending on capital and infrastructure construction related to the event, improved road and rail link, impact on stock market employment to the manual worker and technicians in the gestation period. Indirect benefits includes the possible advertising effects about the city, tourist destination, benefits to the small and medium size traders, hotel industry and employment to the players and coaches. In this way, one national internal sports events mobilizes the economy and boosts up the economic development.

India has a tradition of sports culture. In recognition to the significance of sports in economy s separate department has been established in 1982 prior to the commencement of the ninth Asian games. In consequence, the first national sports policy was announced in 1984. Subsequently, ministry of HRDD (human resource development department) was created with a view to integrating the developmental process with education, women and child, arts and culture, youth affairs and sports. In order to implement the policy, sports authority of India was established in 1984 as a registered society. The main objective of the authority includes the effective and maximum utilization of various sports facilities, sport promotion and sports manage met. The sports authority of India is adding to the academics of sports through its
institutes as Patiala and Treivendrum. It has generated scheme for the creation of sports infrastructure like playgrounds, indoor and outdoor stadium swimming pools, sports hostels, state and district level sports complexes, training complexes grants for rural schools and for the infrastructural development, monthly scholarship to talented sports persons etc. Sports federations are financially assisted by the authority for organizing tournaments, coaching camps, selection camps etc. There is sports talent search scheme also. The government of India has introduced national sports policy in 2001 in order to encourage sports activities in general and achieve excellence in Olympics and other international events in particular. The government of India being aware of the economics of sports, notified national sports development code in 2011 as a national priority to promote active lifestyle sports, child and youth development, social inclusiveness, employment opportunities, and above all sense of belongingness with national pride. The sports have been put at par with public education and public health, and like those sports are a public good and sport development is a public function. This is the reason that national sports bodies, even though they are autonomous, come within the writ jurisdiction of Article 226 of the constitution because they perform state like function. Though they should be treated as state as its agency and instrumentality. The national sports bodies try to promote good governance in the management of sports. But there is a need to regulate sports in public and national interest as par with the policies of advanced countries. Racism, doping, betting and gambling, age fraud etc are common in sports. All these abuses are emerging with increasing opportunities and competition. In order to check these abuses relevant laws are required. Therefore promotion of professional management in sports is lacking in Indian sports policies. Although the government of India has taken various steps by notifying anti doping code bringing NSF under right to information act, guidelines for prevention of sexual harassment of women in sports and measures to combat age fraud in sports. In spite of all efforts, three is still no uniform sports law to protect the concerned stake holders and promote the sports for economic development.

Sports are an important part of the cultural life of U.S.A this reflect in the medal tally in Olympic events. U.S.A is superpower not only in economy and defense but in sports also. Although it was the cold war that encouraged the two superpowers that is Soviet Russia and America to Strengthen their military power, yet in 1950, president Eisenhower, concerned at the declining fitness level of American Children and established 'President' council on youth fitness. The council advocated improved fitness on the part of the entire population as a federal governments central goal. The slogan was given as "When in Rome (1960 games) as win at home". The successor of Eisenhower, John F Kennedy, took a broader view towards the relationship between sports and cold war. The Eisenhower and kennedy approaches to sports policies linked the imperative of physical fitness on the part of all Americans to the effective opposition
of the socialist challenge. ' We don't really know what we have in this country, and if we want to do well in the athletic field – and I feel it is important that we do – we could do much better that we have done in the past". Kennedy recognized the domestic campaign values of Olympic medals. It was nothing less than a sports manifesto which has been carried on by the succeeding presidents and which is evident in the Olympics events.

In the pursuit of excellence in sports, U.K. is no longer lagging behind. The U.K. sports council has policy to inspire children and young people awakening their interest and involvement in sports. U.K. sports policy covers health improvement and local economic development. Sports England seeks to engage with planners at regional and local level to help ensure that the interest of sports and active recreation are well represented and promoted actively, in the interest of all. It seeks to engage with the planning system for the promotion of sports with environmental sustainability, community safety, local economic viability, and improving quality of life and well being health improvement, and raising standards in schools.

Like India, China is also a country of villages. The rural population in China has played key role in the national development since 1949. Thus Chinese sports a politician starts with rural areas seeking and seeking and picking grass root sports infrastructure beginning from primary school level and promoting to the highest level. “Sport is a thermometer to measure the general power of a nation state and the level of social development. Our ultimate goal is to use sports to improve people fitness level and their living standards. Sport should serve the peoples all round development and facilitate the development of the country. Elite sports and mass sports should advance together to achieve sustainable development” . In 1995, the state council and the sports ministry in China notified the 'national fitness for all activities and recreation and to make fitness a lifelong physical activity. This program was supported by the society and welcomed by ordinary Chinese citizens consequently; the state council issued national fitness regulation for mass sports in China. India is the neighboring country without having such sports policies and program in spite of almost equal in population, geography and power.

It is evident that sports are manifested in human nature. But it is taken as a childhood activity. It is not taken as a fitness activity for healthy lifestyle and efficiency. It is a well known proverb that a healthy body keeps health mind. Thus the healthy body and mind together can create a healthy wealthy and prosperous society. But the national sports policy of India does not confirm to the Chinese as well as the US policies. Both the policies are concerned with fitness. it has been connected with national spirit and pride, youthful enthusiasm and competitiveness. Indian policy is regulatory, minus missionary. Indian policy is regulatory, minus missionary. India has no 'mass sports policy' In spite of right to education act
2009, there are no physical teachers in primary school even senior schools are without playground and coaches. Some universities and colleges have playgrounds without sports teachers. Villages and cites also are without playgrounds in the villages, the vacant lands which used as pasture and playground have been encroached by the 'dabangs' In the urban areas everything except sports grounds are available. Children are forced to play with their mates in the streets. The governments land acquisition policies is for the establishment of Industries, Universities, colleges, schools, construction of apartment roads canals parks etc. but no acqiuition of lands for construction of sports infrastructure facilities. Thus sports have no missionary goals. Elite sports have been given priority over mass sports. There are many sponsors for cricket but no one cares for other games. This is the reason that the talented young person avoids sports as career selection. There is lack of social security to the sports person after retirement. There is no movement for the promotion of sports . In this context India requires separate sports budget along with US and UK sports policy. As the Chinese policy is connected with fitness, so the Indian policy should be. As the American policy of mass fitness has brought revolution in the sports world the same can bring change in Indian Policy also. Thus along whit agriculture, industry, health, mass communication sports policy is essential for economic development of this nation. Along with, teaching of sports law in professional colleges as part of general education can boost up the moral of young aspirants. The economy of sports and the emerging law together can be a panacea to the slow development process.

In most cultures, sports have traditionally been divided along gendered lines, often reflecting the values and stereotypes underlying that notion of masculinity and femininity. Traditional 'male sport' often emphasized brute strength, aggression, or mimic war-like behavior while 'women's sports', such as dance, valued the properties of grace, delicacy and, in many contexts, mimicked or expressed forms of sexuality. Women and men who showed no interest or skill for these sports were considered less feminine or masculine, and crossing these gender lines was seen as a defiance of social norms.

Sports psychology in many ways is a scientific field of enquiry. Researchers are afforded with ample opportunity to observe, describe and explain the various psychological factors that influence diverse aspects of sport and physical activity. Athletes and coaches have often described the crucial “psychological factors” that resulted in a momentum shift during a game, or explained an important loss on the road as a function of the influential force of game location. While these “arm chair” opportunities are often afforded to us the fact that sport psychology is viewed as a science means that the process of observation, description and explanation must be conducted in a systematic, repeatable and valid manner. Science allows us to go beyond speculation or opinion that is based upon subjective experiences. Through scientific methods we can test our hunches about
new psychological factor that influences sport performance or new sport participation that may influence the athlete’s psychological development (Silva & Weinberg 1984).

Sport is a psycho-social activity. It has both psychological and social dimension besides physical, physiological & technical aspect. In this modern era of competition, a team of psychological training of teaching and scientific basis on various aspects of a game is even more important as skill. To play the game, but the game is designed not only to win. And to win the game, so take the victory, but more important than playing and to be able to work well in which the player's psychological makeup, which is not only proficiency in the skills.

The Scientific program offers broad spectrum of current research work in elite sports and gives an interesting overview on various models of scientific services in elite sports in different countries. Although an enormously high level achievement could be reached in high performance sports for nearly every sports type, the end of performance development is not yet in sight. Even when performance improvements are realized in even smaller increment, one can assume that they will continue in all sports a long time into the future. But in future improvement at international level performance may well proceed above all on the basis of improvement in the quality of training and not so much from increase in the scope of training.

High achievement sports have developed internationally into economically significant phenomenon. International events such as Olympic Games or World Championship are central media events. Consequently the phenomenon of high performance sports has also become very interesting from the scientific point of view, which has been confirmed by great number of sports science and sports medical conferences and publications. Training Science well supported by other sports science such as Sports Medicine, Sports Physiology, Sports Psychology, Sports Nutrition, Sports Biomechanics, etc., contributed a lot in optimization of sports performance level in various sports and games.

Sports Science encompasses several subjects such as medical science, physiology, psychology, training science, kinesiology and biomechanics, anthropometry, sports nutrition and other allied sciences. All the subject specialties have their own contribution to the final exceptional performance of an athlete. In broader sense the main sports disciplines also could be
considered as sports sciences. Execution of technique, skill and tactics of any sports requires human body action with physical and psychological aspects. None of these specialties can by itself lead to the final performance. There has to be concerted effort of all sports science disciplines including the main sports.

Each team consists of twelve players, but only one of nine players were selected in the area of competition. A match consists of two innings. Chase innings and 7 minutes of running each time. 9 member is an active follow-up and stand anywhere on the middle lane and be ready to chase after the team's eight members, contrast facing the opposite direction, the middle lane in eight categories sit down. Team member after touching with my hands but without making a wrong lane to take your opponent out of the middle. Kho-Kho all the action in 7 minutes of the game tries to play out and tries to dismiss chasers, Defender, is provided. Guardian may be dismissed in three ways:

1) If, an active chaser touch his opponent team member with his palm without committing a foul

2) If the player crosses the limits of his own in the game

3) If he enters the limit late.

Defender enters in three batches limit. Batch is the third out of the previous Defender, lost after a successful activation is provided by chaser, the boundary of the next batch should be recorded. Middle lane but can not change the direction of the active chaser is completely free to move on both sides, which is dedicated to. He can not cross the middle lane. Chase chasers in the form of a relay continues with an active chaser palm touching him from behind and shouting the word 'lost' by sitting chaser change his position to attack and pursue the same building through a series of lost.

**Description of Statistical Methods:**

For extracting information from the quantitative data especially in the field of human biology and sports sciences has turned to be an essential tool. For a better interpretation of results. The present data have been analysed by using the following statistical procedures.
**Arithmetic Mean:** It is quotient obtained by dividing the sum of observation by the number of observation we have ‘n’ observation \(x_1, x_2, \ldots, x_n\) the arithmetic mean or more simply the mean is expressed as

\[
\bar{x} = \frac{x_1 + x_2 + \ldots + x_n}{n}
\]

where the mean is indicated by a bar above the letter used for the observation (a common statistical conventions).

**Standard Deviation:** Standard deviation is a measure of the variation and is universally used to show the scatter of individual measurements around the mean of all the measurements in a given distribution. By definition it is square root of the average of the scattered deviations of measurement from their mean.

\[
S.D. = \sqrt{\frac{\sum (x - \bar{x})^2}{(n-1)}}
\]

where ‘x’ is the observed variable ‘n’ the number of student observed and the notation denote summation of all terms written immediately after it.

The number \((x - \bar{x})^2\) can be calculated more easily by using the formula.

\[
(x - x)^2 = x^2 - x_n (x)^2
\]

The advantage of this formula is that we work immediately with the observed value and their square where as if we use \((x - \bar{x})^2\) every difference \((x - \bar{x})\) has to be calculated separately and then squared. An addition advantage is that rounding off in the intermediate steps of calculation has to be done at a fewer number of places.

**Standard Error of mean:** This is calculated or defined the ratio of the standard deviation to the square root of the number of observations.

\[
\text{SEM} = \frac{SD}{\sqrt{N}}
\]

It helps to estimate the error around the mean.
**Standard Error of S.D.:** It measures the average dimension within which the standard deviation of a sample may vary. If the sample can be assumed to have come from a population having a normal distribution. It is given by a ratio of standard deviation to the square root of twice the number of subject under consideration and is expressed as follows.

\[
S.E.S.D = \frac{S.D.}{\sqrt{2n}}
\]

**Coefficient of Variation:** It is defined as the ratio of the standard deviation to the mean expressed as a percentage.

\[
C.V. = \frac{S.D.}{x} \times 100
\]

**Test of Significant:** This helps us to know whether the differences between the means of two sample is significant or not at any particular level of significance. The level of significance has been taken as 0.05 level in the present study. The values of 't' has been obtained by applying the following formula.

\[
t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\left(\frac{1}{n_1} + \frac{1}{n_2}\right)\left(n_1 - 1\right)S^2_1 + \left(n_2 - 1\right)S^2_2}}
\]

\[
\sqrt{n_1 + n_2 - 2}
\]

where \(n_1\) and \(n_2\) means the standard deviation \(\bar{x}_1\) and \(\bar{x}_2\) the mean. \(n_1\) and \(n_2\) the number of subjects for the respective groups the critical value of the statistical at 0.05 level is read in a table of student ‘t’ for \(n_1, n_2\) degree of freedom.

If the calculated value of ‘t’ is more than the critical value. Then The difference between the two groups is said to be significant.
**Correlation**: In biological statistical it is of improvement to know only that there is an association present. But to be able to measure the degree of such a relationship when the variables are of such a character, that they may be measured and the results expressed in quantitative unit and paired measurement of the two variables (x,y) are available for a group of individual and from their plot of a linear nature of relationship between variability is indicated. It is possible to calculate a constant known as Pearson correlation Correlation coefficient which will express the degree of liner relationship. This correlation coefficient denoted by ‘x’ is derived as the covariance by the product of the standard deviation of the two variables.
where $x$ and $y$ are the two observed variable $n$ is the number of paired value $(x, y)$ and as usual denotes summation.

The correlation coefficient is the required index of association between variables $x$ and $y$. The value of this coefficient may be $+ve$ and $-ve$. If both the variables are varying in the same direction i.e. if an increase in one variable is generally associated with increases in the other an average the correlation is said to be $+ve$, if on the other hand the variables are varying in opposite direction i.e. as one variable is increasing the other hand is decreasing or vice versa the correlation is said to be negative the value of $x'$ can vary only within the limits namely -1 and +1. When $x = 0$ then there is no correlation when $x = +1$, we say that the correlation is complete or perfect, when $x = -1$ there is a complete negative correlation.

It may be important to know whether the observed value is significant by different from zero, i.e. whether the hypothesis of independence is contracted by the data. Assuming that the population is bivariate normal we can use the following formula in this connection.

$$t = x \frac{(n - 2)}{\sqrt{1 - x^2}}$$

The calculated value to read in student 't', distribution taken for $(n-2)$ degree of freedom. We also have the table of 'significant value of $x'$ for each value of $n$ the number of pairs in case the correlation is non-significant at 5% level the regression line has not been drawn in the present investigation.

**Regression:-** The regression used the present investigation is the simple linear regression and not curve linear because the plotting of the two variables of a group on $x$ and $y$ areas of graph has always shown a linear relationship in any of the combination taken into consideration.
A method which express the relationship between the two variables \( x \) and \( y \) in the form of a mathematic equation is known as the regression analysis. In this analysis one variable called dependent variable is considered to be a function of another variable called the independent variable. The derived equation when plotted on a graph paper gives the regression line. The slope of this line is the regression coefficient of \( y \) and \( x \) and slope of this line is the regression coefficient of \( y \) and \( x \) and measure the average amount of by which \( y \) increase for a unit increase in \( x \). Let is suppose the equation of the true regression line is given by the expression.

\[
y = L + BX
\]

where for any given \( xy \) is equal to the corresponding true \( y \) mean the symbol ‘B’ is the true regression coefficient of \( y \) or \( x \) it is estimated as follows:-

\[
b = \frac{xy}{t} \frac{t}{\sqrt{x^2 - \left(\frac{x}{n}\right)^2}}
\]

the constant ‘a’ is now estimated by

\[
a = \bar{y} - bx
\]

the fitted regression line in this

\[
y = a - bx
\]

In the present investigation the regression line for each group has been plotted within the actual range of the independent variable.

**Note:** ‘t’ value were calculated less no. of sample as per KL program.