CHAPTER – I

INTRODUCTION

Sport's most important contribution to children's physical and mental development is without a doubt the enhancement of their physical and mental development. Sport is one of the greatest things man has ever created because of its vast reach, unparalleled popularity, and foundation of positive values. It's also a strong tool that makes us feel good about ourselves, both physically and mentally, by breaking down all barriers. Sports are beneficial to children because they help them develop physical skills, health, make new friends, have fun, learn to cooperate as part of a team, learn about fair play, boost self-esteem, and so on. This isn't the end of the list of ideals that a child will learn and acquire through sports. Many positive aspects of sports show their true beauty.

There are a variety of hypotheses on why exercise is essential for cognitive performance. It is believed to enhance blood flow and oxygen supply to the brain. It's also been shown to boost levels of noradrenaline and endorphins, which can help you, relax and feel better. Ultimately, exercise has been shown to stimulate the development of new nerve cells and better their communication. Nerve cells release proteins known as neurotrophic factors when we exercise, as per animal studies. One, in particular, classified as a brain-derived neurotrophic factor (BDNF), stimulates the countless other chemicals that promote nerve cell health, influencing brain health and learning.

Aside from the physiological responses suggested, continuous participation of children in sports activities can improve classroom behaviour by increasing the focus

on the academic content of these lessons. There have been a few research performed on children that show the significance of exercise for brain development and cognition in children (Sànchez-Lopez M. 2015).

Students at Naperville Central High School who participated in a dynamic morning exercise program nearly doubled their reading scores and increased their math scores 20-fold, according to one analysis. According to other research, 30 minutes on the treadmill will help students solve problems up to 10% more effectively.

1.1 SLUM CHILDREN'S HEALTH STATUS

In the 20th century, rapid urbanization was followed by the rise of slums. Slums are home to approximately one-third of the world's population and more than 60% on average of urban populations in developing countries, including a hundred million children. Slums are areas of severe poverty, overcrowding, inadequate water and sanitation, substandard infrastructure, inadequate access to basic health and education facilities, and other burdens that children and their families face (e.g., high unemployment, violence). Despite the severity of the issue, little is known about the influence of slum life on children and adolescents' health. Stats saying better mortality and health outcomes in cities are concentrated on aggregated results, which can neglect major intra-urban inequalities. Children in slums have a higher infant and under-five-year mortality rate than children living in non-slum areas, according to limited but significant data. Children have higher rates of diarrhoeal and respiratory problems, malnutrition, and vaccination rates than adults. Slum parents are less likely to provide antenatal care and professional birth assistance because they are less educated. Adolescents have an earlier sexual debut, have a higher HIV rate, and

involve in risky activities that are affected by their social environment. Long-term health-related behaviour (e.g., diet and exercise) and non-communicable disease effects, such as obesity, cardiac disease, and mental disorder, are thought to be influenced by this form of early childhood. Understanding and addressing child wellbeing in slum settings is a top priority for paediatricians and those who care about children's health around the world. (Unger, A. 2013).

The benefits of physical activity for child development

Physical activity is more important than ever for a child's physical, mental, and emotional development. There is no doubt that physical activity has so many benefits for children that it should be promoted wherever possible.

Physical growth

Exercise, like food, is an important element of a child's physical development. Exercise aid in the growth of stronger muscles and bones in infants, as well as creating a stimulus for the body to adapt. Strong bone mass and density can be grown at a young age, minimizing the risk of developing bone-related diseases including osteoporosis later in life.

Better fitness

Physical strength is built by exercise, and being strong has numerous advantages for a growing child, including the ability to walk longer distances without being exhausted and the strength to achieve everyday activities. Flexibility and stability are also enhanced by exercise.

Refinement of motor skills

Physical activity during playtime aids the development of motor skills in younger children, who are responsible for helping them master the simple movements they require in daily life. Routine things like feeding oneself, tying one's shoelaces, and even writing can be done much faster as a child's motor skills develop.

Better posture

Many children slouch, and exercise will help to correct this negative trait by developing a child's posture by increasing core and spine strength. Healthy posture protects a child's spine from deformation caused by prolonged slouching and lowers the risk of developing body aches as a result of poor posture.

Cognitive development

Exercise is beneficial for more than just getting in shape; it also aids in cognitive function. Nerve cells in the hippocampus and prefrontal cortex of the brain multiply and form new connections as a result of activities. This leads to greater attention and memory, all of which are beneficial qualities for children’s educational needs.

Better mental health

While exercise can seem to some children to be a dreaded chore, once the child gets into the spirit of things, it becomes a cathartic experience. Physical exercise relieves stress and anxiety, and the release of feel-good hormones promotes positive moods. The sight of a happy child warms a parent's heart more than anything else.

Improved self-esteem

Exercise improves a child's emotional health and behaviour while also enhancing his self-esteem. Being competitive in a sport boosts a child's self-esteem. The fact that exercise aids in fat loss often aids in the creation of a positive self-image in children. Finally, exercise is a perfect place for children to meet new people, and being a member of an ethnic community raises a child's self-esteem.

Social skills development

Children will not only make new friends through exercise, but it also helps them learn and nurture their social skills. Team sports, for example, will help children hone vital communication skills like reading nonverbal cues, practising teamwork, and taking on leadership roles. **(Active Health, 2017)**.

1.2 FOOTBALL

Football is the world's most successful sport. It is a game in which two teams of eleven players (goalkeeper, defenders, midfielders, and strikers) attempt to handle the ball into the opposing team's goal using every portion of their bodies but their hands and arms. Only the goalkeeper is permitted to handle the ball, and only inside the own penalty area that surrounds the field. The team that scores the most goals is the winner.

People of all ages and abilities participate in the sport, and they can't seem to stop themselves from kicking a leather ball around or watching others do so. About 250 million people play the game regularly. If the players created a nation, it would be the fourth most populated on the planet (Goldblatt & Acton, 2018). Meanwhile, FIFA-PMSE estimates that the global viewing audience for the 2018 World Cup will

be 3.572 billion people and it's almost half of the world's population of 7.6 billion people **(worldometers).**

Football has developed into a highly athletic sport, and football players are steadily improving their intellectual performance. The sport's physical demands require a wide range of athletic abilities.

1.3 SMALL SIDED GAME (SSG)

Football is an open-skill team sport characterized by success under various circumstances, so different aspects of performance can be expected to vary based on the situation. **(Tessitore et al., 2006).** Coaches can generate a variety of drills by altering the size and shape of the playing field, the number of players, the rules, and the duration of the training. Via general conditioning bouts and training exercises, training sessions are currently focused on improving both physiological and technical tactical aspects of play. With the growing use of small sided games as a training tool in recent years, the research community has paid more attention to them. In reality, we found recent studies that concluded that physiological responses (e.g., heart rate, blood lactate concentration, and rating of perceived exertion) and technical/skill requirements can be adjusted during SSG in soccer by changing factors like the number of players, pitch size, game rules, and coach encouragement.

1.4 BENEFITS OF SMALL SIDED GAME

The effect of the small sided game formats in the technical requirements was addressed by two studies (Jones and Drust, 2007; Katis and Kellis, 2009), suggesting that Coaches in their team should carefully consider the number of players. According to the writers, since the number of technical actions increases as the number of

players decreases, a small-sided game with a small number of players can provide a more effective technical training stimulus.

The heart rate profiles of players were also observed taking into account the number of players involved (Jones and Drust, 2007). The findings are in accordance, with most authors stating that no significant in total distance managed to travel or total distance moved by walking or jogging was found. Despite this, there is no agreement on high-intensity efforts. Hill-Haas et al. (2010) have not found any differences between the amounts of players involved in games. According to Jones and Drust (2007), when the number of players is decreased, high-intensity efforts are increased. Platt et al. are the first to accept this conclusion (2001). The opposite was suggested by Hill-Haaset al. (2008), these researchers discovered that the number of players involved increased the maximal and mean sprint time and distance.

1.5 BENEFITS OF USING DIFFERENT PITCH DIMENSIONS IN FOOTBALL GAME

The demands of small-sided games can be influenced by the variation of the total area of the pitch. The relative pitch area per player is defined as the total pitch area divided by the total number of players (Hill-Haas et al., 2011). The majority of studies reveal that larger areas lead to an increase in acute physiological load compared to smaller pitches, independent of game-format and age category. The pitch areas in 3vs3, 4vs4, 5vs5, 6vs6, and 7vs7 are unanimous in their conclusions that larger areas (above 100 m2per player) statistically increase the heart rate responses, blood lactate concentrations, and perceived exertion in both youth and senior players. The physical impact of using different pitch dimensions is low, however; Under -17 players have increased distances and higher distances in the high-

speed running were covered in the two bigger area dimensions (175 and 273 m2perplayer) employed (Casamichana& Castellano, 2010). Similar observations have been made in collegiate players, with the two bigger area dimensions (120 and 200m2per player) led to increased total running distance, as well as the total number of accelerations and decelerations.

In the same investigation, Hodgson et al., (2014) found that during 4vs4SSGs, a smaller pitch size results in more pass, shot, and tackle. In U-15 players, during small sided games with a larger pitch size, the number of actions that each player performs on the ball tends to decrease, increasing the number of "off-the-ball" movements (Almeida et al., 2013). Joo et al. (2016) suggested that a smaller number of players with smaller pitch sizes may reduce the physical demand of youth players. This may be beneficial to coaches who are looking to control the physical load imposed on their players. From a tactical point-of-view, it was found in 4v4 SSGs that shorter pitches result in smaller longitudinal inter-team distance and surface area. In this age, the tactical demands differ depending on the form of SSG (U-11). According to Castelao et al. (2014), a 3vs3 SSG configuration promotes greater individual actions of players within the centre of the play, such as dribbling/carrying the ball, while 5vs5 required more positional play and coverage of spaces outside the centre of the play. Similarly, Silva et al. (2014) concluded that in 3vs3 situations, players are more aggressive, whereas, in 6vs6 situations, players are more cautious. This difference in behaviour appears to be related to the limited space available and the reduced complexity of 3vs3, which involves fewer player interactions (colleagues and opponents).

1.6 RATIONALE BEHIND SELECTING THE PROBLEM

Football is deemed to be a team sport. Football is the most widely marketed contentious sport in the world today. Becoming a professional footballer is not an easy task; there are many obstacles to overcome. Children in slum areas have respiratory disease, malnutrition, and vaccination rates. As a researcher with fifteen years of experience with football games and a slum background. Via football games, the researcher aims to help slum children lead better lives. Activities can help children grow physically, mentally, and emotionally as well being.

In light of the above facts, this research is a sincere attempt to study the effect of small-sided football training on selected physical, physiological, psychological, and performance variables among slum children.

1.7 THE OBJECTIVES OF THE STUDY

1. To ascertain the effectiveness of 20\20 area small-sided football training on selected physical, physiological, psychological, and performance variables among the slum area school children.
2. To ascertain the effectiveness of 30\40 area small sided football training on selected physical, physiological, psychological, and performance variables among the slum area school children.
3. To analogize the training effects between the experimental groups and the control group by the levels of enhancement on selected parameters.
4. To ascertain the divergence between the training groups and the control group by the levels of enhancement on selected parameters.

1.8 SIGNIFICANCE OF THE STUDY

This study is significant because no studies were located that examined the effect of small sided football games on physical, physiological, psychological, and performance variables of slum children. Moreover, the significance of this research study is as follows.

1. The results from this research study may provide useful information and knowledge about small sided game training for the enhancement of performance in children.
2. This research study helps to obtain acquaintance about the benefits of small sided football training on physical, physiological, and performance parameters among slum children.
3. This study may contribute valuable knowledge in the domains of sports training. And it would give sagacity to the sports scientist to conceive and conduct further research with the different combinations of sports training.
4. The information gained from this research will be fruitful to football coaches, physical trainers, and physical educationists to examine what type of training fits to enhance the performance of slum children dynamically and productively. And could plan the training programs accordingly to it for their players and teams.

1.9 STATEMENT OF THE PROBLEM

The main objective of this study was to find how for small-sided football training influences slum children's physical, physiological, psychological, and performance variables.

1.10 HYPOTHESES

1. It was hypothesized that there would be a significant enhancement on selected physical variables due to experimental training Small Sided Football Training in 20\20 Area (SSFT -20\20) and Small Sided Football Training in 30\40 Area (SSFT -30\40) among slum children.
2. It was hypothesized that there would be a significant enhancement on selected physiological variables due to experimental training Small Sided Football Training in 20\20 Area (SSFT -20\20) and Small Sided Football Training in 30\40 Area (SSFT -30\40) among slum children.
3. It was hypothesized that there would be a significant enhancement on selected psychological variables due to experimental training Small Sided Football Training in 20\20 Area (SSFT -20\20) and Small Sided Football Training in 30\40 Area (SSFT -30\40) among slum children.
4. It was hypothesized that there would be a significant enhancement on selected performance variables due to experimental training Small Sided Football Training in 20\20 Area (SSFT -20\20) and Small Sided Football Training in 30\40 Area (SSFT -30\40) among slum children.

1.11 DELIMITATIONS

The following delimitations were made to confine the field of the study.

1. This study was delimited with forty-five (45) slum boys from Manali area under Chennai corporation limit, Tamil Nadu.

2. The age of the subjects was between 12 and 15 years.

3. Total training period was sixteen weeks.

4. The study was delimited to (20\20) area small sided football training and (30\40) area small sided football training.
5. The study was restricted to the following selected dependent variables.
    a. **Physical variables**
        i. Speed
        ii. Endurance
        iii. Strength(strength endurance)
        iv. Coordination
    b. **Physiological variables**
        i. Haemoglobin
        ii. Anaerobic power
        iii. Vo2 max
        iv. mean arterial pressure
    c. **Psychological variables**
        i. Problem solving and Decision making
        ii. Mental Toughness
    d. **Performance variables**
        i. Passing
        ii. Dribbling
        iii. Shooting
        iv. Total performance.
6. Subjects were asked not to be engaged in any other training activities
7. Subjects were free from the circumstances that would limit their participation in the training program.

8. The data were obtained two days before and two days after the experimental period.

1.12 LIMITATIONS

The ungovernable factors related to the research were accepted as limitations, which are given below.

1. The previous exposure to sports and games, as well as previous fitness levels, which may have impact the training, were not taken into scrutiny.
2. The impact of weather conditions in particular atmospheric temperature, humidity, and metrological determinant during the experiment and measuring were also not considered.
3. The participants living conditions, lifestyle, diet, personal habits, family heredity, emotional status, the motivational factor will not be taken into consideration.
4. The participants' usual work was not controlled, and their possible impact on
5. This result of the study was noted as the limitation.
6. The subjects were prompted orally, and during the training stage, no work has been done to differentiate motivation levels.

1.13 DEFINITION OF TERMS USED

Speed

Speed may be defined as the capacity of an individual to perform successive movements of the same patterns at the fastest rate **(Norton and Olds, 2006).**

Strength

The ability of a muscle to exert force for a brief period of time **(Ajmer Singh et al. 2009).**

Endurance

The ability to deliver oxygen and nutrients to tissues, and to remove waste, over a sustained period of time **(Ajmer Singh et al. 2009)**.

Coordination

The ability to integrate the physical fitness components. So that effective movement is achieved **(Ajmer Singh et al. 2009)**.

HemoglobinHemoglobin

It is composed of a protein (globin) and a pigment (heme). Heme contains iron, which binds oxygen. Each red blood cell contains approximately 250 million haemoglobin molecules, so each red blood cell can bind up to a billion molecules of oxygen. There is an average of 15g of haemoglobin per 100ml of whole blood **(Jack. H. Willmore and David. L. Costill).**

Anaerobic power

Farlex (2012) Maximal power (work per unit time) developed during all out, short-team physical effort; reflects energy output capacity of intramuscular high-energy phosphates (ATP and PCr) and/or anaerobic glycolysis.

Vo2 max

Hill and Lupton (1923)the oxygen uptake attained during maximal exercise intensity that could not be increased despite further increases in exercise workload, thereby defining the limits of the cardiorespiratory system.

Mean arterial pressure

Peter B Raven et al. (2013) the average pressure exerted by the pressure wave of the blood against the blood vessel walls.

Problem solving

Problem solving is the process of constructing and applying mental representations of problems in finding solutions to those problems that are encountered in nearly every context **(David. H. Jonassen &Woei Hung).**

Decision making

Decision-making is regarded as the cognitive process resulting in the selection of a belief or a course of action among several possible alternative options, it could be either rational or irrational **(Herbert Alexander Simon, 1977).**

Mental toughness

Mental toughness is "Having the natural or developed psychological edge that enables you to: generally, cope better than your opponents with the many demands (competition, training, lifestyle) that sport places on a performer; specifically, be more consistent and better than your opponents in remaining determined, focused,

confident, and in control under pressure." **(Jones, Hanton, & Connaughton, 2002, p. 209).**

Passing

Systematic distribution of the ball from player to player in soccer is called passing skill. It is one of soccer's unique skills because its success hinges upon the co-operation of at least two players **(Menendy, et al., 1968).**

Dribbling

It may be defined as the art of using some part of the foot to control the ball or to roll it continues along the ground while running. The term dribbling refers to a sequence of short kicks or taps made by a player as he advances with the ball **(Tewatia& Mahesh Chand, 2006).**

Shooting

Jim Lennox (2006) the basic technique of striking a soccer ball clearly with the instep is the foundation for shooting with power and accuracy. While shooting tightening the muscles that act on the ankle joints, taking a long hop onto the supporting foot, making a concerted effort to more explosively extend the knee joint.

Football Performance

The ability of the player to execute the various techniques of the fundamental football skills, efficiently and accurately, according to the game situation or match situation.