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Comparative study of development of physical fitness of softball players of rural and urban area of Jammu District

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Abstract

The term "Physical Education" refers to a variety of biological characteristics such as physical strength, development, health, and appearance. Physical education should try to improve the mass of players and provide them as much health struggle and stamina as possible to those who are unable to do so. Physical education is the process by which an individual's movement experience causes him to change. Physical education refers to some of the changes in an individual's motor ability brought on by experience. The project's goal is to discover a comparative study of softball players' physical fitness growth in rural and urban areas of Jammu District. Coaches and physical education teachers will benefit from this research in identifying good players. This will aid physical education instructors and coaches in the development of training plans. This will lead to future planning success. This will tell who has the better physical education of the two groups. The study's findings will provide a detailed picture of the physical fitness of softball players in Jammu 's rural and urban areas. In concluding part Rural softball player have more endurance and more agile, whereas urban softball players are stronger and have more will leg power.

Keywords: Physical fitness, softball players, rural and urban, physical education, strength. sports and games, fitness, skill, physical endowment, physiological and psychological or behavioural dimensions

Introduction

Sports are no longer merely games and sports. They are in the business of doing business all around the world. Sports have become huge business because to the increase in prize money and the practise of signing on the dotted line to endorse brands. Sports fans all across the world are relieved that well-known athletes are no longer required to adhere to a strict regimen of high thinking and low living.

Sports have become an integral part of our culture today. All of our social institutions, including education, business, the arts, politics, law, mass media, and even foreign diplomacy, are influenced by it. In reality, it has a huge scope. They draw large crowds for recreation, physical fitness, or as a full-time occupation. Science has taken over every element of life in today's globe, and sports are no different. Technology has forever transformed our society, and as a result, the necessity of measuring and controlling performance related to physical, physiological, and anthropometrical characteristics has increased dramatically.

The body is the temple of the soul, and physical fitness is required to achieve body, mind, and spirit harmony. As a result, we can secure a sound mind wherever there is a sound body, physically fit people can tolerate fatigue for longer periods of time than unfit people, according to research, and they are better equipped to handle physical stress. Physical fitness is associated with a stronger and more effective heart, and there is a link between mental alertness, lack of nervous tension, and physical fitness.

Physical education and sports

Because physical education and sports are such an important element of education, they have also been affected by scientific advances. It is quite difficult to compete in national or worldwide championships nowadays unless an individual selects the appropriate sports for his or her physical and physiological characteristics and undergoes extensive scientific

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training Physical education is critical in identifying hidden talent at a young age and assisting talented players in achieving high levels of performance. Every athlete must be physically and physiologically fit to compete. All significant performance is a result of the marking of these dimensions - fitness, skill, physical endowment, physiological, and psychological or behavioural dimensions regardless of a person's ability. The goal of physical education is to develop physical strength through the growth and development of various systems in the body, such as the respiratory and digestive systems. Participation in an effective physical education programme promotes structural and functional growth, strength, and endurance. In the course of human behaviour, physical education through physical activities is the basis of the function of the Muscular Strength so widespread in our difficult modern living. Participation in organised physical education programmes will release these strains and tension to a greater level. Many familiar exam batteries often used in schools use the term physical fitness. In many cases, including fitness in such names is a really terrible blunder. And one that theoretically may account for at least part of the current apathy of some people toward complete personal fitness. This isn't meant to be a criticism of fitness test batteries. While the majority of the batteries are great and include tests that are of some value, we believe that many of the tests in these batteries are not genuinely of physical fitness. Poor performance on standardised tests, particularly on areas like speed and agility, may not always indicate a lack of physical fitness. Physical fitness tests are more relative than absolute if functional fitness is an individual concern, and there is no such thing as a moderately healthy person who cannot enhance his physical fitness level.

Sports in Jammu & Kashmir

Jammu and Kashmir is emerging from a brutal two-decade conflict that has stifled the state's infrastructure, growth, and development. Education was the conflict's first tragedy, resulting in a large pool of ignorant children as well as a reduction in peace dividends. Sports, on the other hand, performed a dual role in assuring the continual engagement of youth's good energy, so ensuring peace, while also assisting in maintaining a stable enrolment in schools and institutions. Because of its mountainous geography, the adventure sports practised in Jammu and Kashmir have had the additional benefit of increasing sports tourism in the state and so directly contributing to the state's economy (Ministry of Tourism, 2015).

Every nook and cranny of the state hosts a variety of sporting tournaments. While cricket is the most popular sport in J&K, young people may also be seen playing Football, Hockey, Kabbadi, Badminton, and Baseball. In J&K, cricket is a popular sport that is played in huge play grounds, crop fields, roads, and lawns. With several outstanding performers at the Ranji level making it onto the National cricket team, such as Aabid Nabi, Parvez Rasool and Umran Malik, Abdul Samad this huge passion for cricket has reached incredible heights. Parvez Rasool and Umran Malik are great performers from Jammu & Kashmir who is now a part of the Indian Premier League (IPL), has established himself as a cricket icon and a huge source of inspiration for J&K young (Vivek, 2013). After the militancy dissipated in the early 2000s, the situation in Kashmir gradually improved, with sports playing a vital role

(Ganai, 2011). The DYSS's frequent organisation of sports activities at the school, college, and university level has not only refined Kashmiri youth's sporting skill, but has also directly contributed to peace by focusing youth's energy and attention on sports. This has resulted in an increase in the number of students enrolled in schools and colleges. The Department has taken advantage of young people's enthusiasm for athletics and exploited it to help them shift their thoughts and priorities.

Game softball

Softball was created as an indoor sport in Chicago in 1887. Indoor baseball was also known as mush ball, playground, soft bund ball, kitten ball, and ladies' baseball since it was played by both men and women. The game was given the name softball in 1926. The game gained popularity after a tournament hosted at the 1933 Chicago World's Fair. Rules of play are governed by the World Baseball Softball Confederation (WBSC). Softball is divided into two categories. Slow-pitch softball is the most popular variety; the ball must arch on its way to the batter, there are 10 players on a team, and bunting and stealing are prohibited. The pitch is quick, there are nine players on the field at once, and bunting and stealing are allowed in fast pitch softball. Softball rules differ from baseball rules in some ways. The ball must be tossed underhand - from 46 feet (14 metres) for men and 43 feet (13.1 metres) for women, as opposed to 60.5 feet (18.4 metres) in baseball - and a regulation game is seven innings rather than nine (The Columbia Encyclopedia) (2008). Despite its name, the softball ball is not especially soft. It has a circumference of around 12 in. (30.5 cm) (11 or 12 in. for slow-pitch), which is 3 in. (8 cm) larger than a baseball. Softball's infield is smaller than a baseball diamond's; each base is 60 feet (18 metres) apart, compared to baseball's 90 feet (27 m).

History of the game softball

In Chicago, Illinois, the first known softball game was played. It took place in 1887 at the Farragut Boat Club (Maag, Al). For his invention of the ball and an undersized bat, George Hancock is acknowledged as the game's originator. The Farragut Club swiftly established rules for the game, which quickly spread to outsiders. The sport was first conceived as a means for baseball players to keep their talents during the winter (David Levinson & Karen Christensen (1996). In the next year, the game was renamed "Indoor-Outdoor," and the first rules were published in 1889. In 1895 Lewis Rober, Sr. of Minneapolis arranged outdoor sports for firefighters as a form of exercise; this game was known as kitten ball, lemon ball, or diamond ball (after the first team to play it). Rober's version of the game used a ball that was 12 inches (30 cm) in circumference rather than the Farragut club's 16-inch (41 cm) ball. The Minneapolis ball eventually won out, despite the fact that the Minneapolis diamond's dimensions were ignored in favour of the Chicago diamond's. Rober might not have known the Farragut Club's rules. Rober's post. Fire Station No. 19 in Minneapolis, was placed on the National Register of Historic Places in part because of its connection to the sport's inception. In 1897, Toronto hosted the first softball league outside of the United States.

The term "softball" was coined in 1926. At a conference of the National Recreation Congress, Walter Hakanson of the YMCA coined the moniker (other names for the game

included "indoor baseball," "kitten ball," and "diamond ball." as well as "mush ball" and "pumpkin ball"). By 1930, softball had become well-known throughout the United States. Similar games with varied rules and names were played all throughout the United States and Canada in the 1930s. The founding of the Joint Rules Committee on Softball in 1934 standardised softball rules and names across the country. Sixteen-inch softball is a direct descendant of Hancock's original game, often known as "mushball" or "super-slow pitch." Fielding gloves are not permitted for defensive players. Sixteen-inch softball is popular in Chicago and New Orleans, where fans like the late Mike Royko consider it the "genuine" game. 16-inch softball is known as "Cabbage Ball" in New Orleans, and it is a popular team sport in area primary and high schools. Fast pitch began to take over the game in the 1940s. Despite the presence of slow pitch during the 1933 World's Fair, the major line of action was to extend the pitching distance. Slow pitch was officially recognised in 1953 when it was included to the Amateur Softball Association's programme, and it had exceeded fast pitch in popularity within a decade (David Levinson & Karen Christensen, eds (1996).

Playing method

Softball is a sport in which two teams compete on a large field with nine players from each team on the field at any given moment. The field is normally made up of a grass outfield and a dirt or brick-dust infield that contains the quadrilateral shape and running zones. Other firm and dry surfaces, such as artificial turf or asphalt, can be used in the field. The infield consists of four bases (first base, second base, third base, and home plate); the bases are normally 45 to 65 feet (13.7 to 19.8 metres) apart and are placed in a square. The pitcher's circle is towards the middle of the square, and within it is the "rubber," a small flat rectangular piece of rubber about foot and a half long. Depending on the age group and the league, the rubber can be 4 on 43 feet away from home plate. By batting (hitting) a ball into play and running around the bases, touching each one in turn, the goal of the game is to score more runs (points) than the opposing team. The ball is a light-weight sphere that is coated with leather or synthetic material. It has a circumference of 10 to 12 inches (or, in rare occasions, 16 inches) (28 to 30.5 centimetres). One or more neutral umpires officiate the game. When the ball is not in play, or when the conclusion of a play is known, players and umpires are normally free to request a momentary stoppage at any time (Austen, Jacob, 2005). The game is normally played over seven innings. Each inning is divided into two halves: a top half in which the visiting team bats and attempts to score runs while the home team occupies the field and attempts to record three outs, and a bottom half in which the roles are reversed. Most ASA and middle school regulations stipulate 5 innings and a maximum time of 1.5 hours for youth leagues; most ASA and middle school rules mention 5 innings and a maximum time of 1.5 hours for youth leagues,

The offensive sends a hitter to home plate to begin the game. At the start of the game, the batting order must be determined, and players may not bat out of turn. The pitcher for the defence stands atop the rubber and tosses the ball in an underhanded manner towards home plate. If the pitcher is in a quick pitch league, he or she must keep both feet on the pitching rubber at all times. If the pitcher is in a slow pitch

league, he or she may take one step back before releasing the ball during the forward movement. The batter uses a bat, which is a long, round, smooth stick made of wood, metal, or composite, to hit the pitched ball. A pitch must travel over home plate within the strike zone, which is defined as being above the knees and slightly below the shoulders (roughly the armpit or the shirt logo). As a result, the strike zone fluctuates from hitter to batter, and the umpire behind home plate is the only arbitrator of whether or not a pitch is acceptable. A ball is a pitch that is outside the strike zone, and if the batter reaches four balls, he is awarded first base. A strike is a pitch that crosses the strike zone, and a batter who receives three strikes is out (strikeout), and the next batter in the order is called to bat. A strike is also recorded when a batter swings at a pitch and completely misses it, as well as when a pitch is hit foul (out of play). Depending on the rules of the association and the local league, a foul ball may or may not result in a strikeout. Bunting a foul ball, on the other hand, results in a strikeout. Bunting is prohibited in various leagues and associations, and it results in an out.

The batter swings the bat and tries to hit the ball fairly (into the field of play): The hitter becomes a base runner (or runner) after a successful hit and must run to first base. The defence tries to field the ball and may throw it freely between players so that one player can field it while another goes to a position where the runner can be thrown out. The runner can be tagged by the defence by touching him with the ball while he is not on a base. The defence can also reach first base while in control of the ball; in this scenario, beating the batter to first base is sufficient, and a batter tag is not required. When two or more defensive players are involved in a play, the runner is said to be "thrown out." Runners cannot be put out when they touch a base, but only one runner can occupy a base at any given moment, and runners cannot pass each other. If there are no open bases behind them when a ball is hit into play, runners must attempt to advance. For example, a runner on first base must attempt to advance to second base if the batter bats the ball into play. In this case, the defence can throw to the base that the lead runner is attempting to steal (a force out), and then throw to the prior base. This can lead to a multiple-out play: a double play is two outs, while a triple play is three outs, which is a very unusual occurrence. Runners with an open base behind them are not required to advance and do so at their own risk; instead of tagging the base, the defence must tag such runners directly to throw them out.

A batter is out when a ball is struck in the air and caught before it hits the ground, whether in fair or foul zone. A fly ball is a ball that is hit high and deep, a pop fly is a ball that is shot high but not too far, and a line drive is a ball that is struck near to the horizontal. Runners must return to their original bases after catching the ball, if the defence tosses the ball to that base before the runner returns, the runner is also out, resulting in a double play. A runner who stays on the base until the ball is touched or returns to the base (tags up) after the catch may attempt to advance to the next base, but he or she runs the danger of getting tagged out in the process. In some game conditions, similar to baseball, the infield fly rule applies to prevent the defence from intentionally dropping an easy catch, resulting in repeated force-outs. The most basic offensive approach is to hit the ball well enough for the batter to reach base and for other runners to advance around the bases to score runs. The batter's aggressiveness is determined by the number of balls

and strikes. The offence may attempt a sacrifice bunt, with the hitter intentionally striking out to advance runners. Defensive strategy is more complicated, as changing situations (number of outs and base runner positions) and batters necessitate varied outfield positioning and tactical considerations. If the defence can get one or more outs, it may decide to allow a run.

Positions of players

At any given time, there are nine players on the field. Despite the fact that the pitcher and catcher have the most contact with the ball, each player has a unique role to play. The pitcher, catcher, first baseman, second baseman, shortstop, and third baseman all play in the infield. The outfield consists of three players: a left fielder, a centre fielder, and a right fielder. In slow pitch softball, there is an extra outfielder called a roamer who plays in the outfield. In most cases, the defensive team will have four outfielders: a left fielder, a left-center fielder, a right-center fielder, and a right fielder.

Importance of physiology for softball player

High-level performance in sports and games may be influenced by physiological makeup, and it has long been recognised that physiological proficiency is required for high-level performance. How much of a person's athletic skill can be attributed to genetics, and how much may be attributed to training and other adaptations made by the athlete. Certain body types are more adapted to certain sporting functions and actions than others. Due to the thin, generally long-striding population of that territory, who live at altitudes over 6,562 feet, the Rift Valley of Africa, which encompasses nations such as Kenya and Ethiopia, has produced more world and Olympic- champion distance runners than any other place on Earth (2,000 m). These physical characteristics have resulted in a human body that is ideal for long distance running. Lithuanians and Russians, for example, who reside near the Baltic Sea in northeast Europe, have tall, slim, muscular builds that are suitable for sports like basketball. These two examples are based on a wide spectrum of experience and athletic achievement in the sports mentioned.

The debate over how much of an athlete's performance is based on heredity against the influence of training and other factors is commonly referred to as "nature versus nurture." Although precise attribution of athletic nature and nurture is impossible, it is a widely accepted sport science proposition that genes account for approximately 50% of athletic variation in performance, with the remaining 50% attributable to both the individual athlete's responses to training and social factors such as the athlete's support in pursuing his or her goals.

Research methodology

The major goal of this research was to examine the physical fitness of rural and urban softball players in Jammu district. A total of 300 softball players from Jammu District were tested for this purpose, with 150 from each of the rural and urban areas.

Description of the tests

To collect the data following tests were conducted.

50-yard dash → Speed

Modified pushups → Strength

600 yard run and walk → Endurance

Shuttle run (4 X 10 mts.) → Agility

Strength → Leg power

1. 50 Yard Dash

Purpose: To measure speed.

Equipment: Stop watch, and marking powder

Procedure: At the start, the subjects to behind the starting line as soon as the command 'Go' was given; the subject ran across the finish line.

Scoring: The score was recorded to the nearest (second) tenth of a second.

2. Modified Push UPS

Purpose: To measure shoulder strength

Equipment: Stool and stop watch.

Procedure: The push-up test for players is performed on a 14-inch-high, 20-inch-long, 15-inch-wide stool. It has been put about six inches from a wall on the floor. The individual grabs the stool's outer edges and takes a front leaning rest position, with the balls of the feet resting on the floor and the body and arms creating a right angle. As many times as possible, lower the body till the upper chest contacts the stool's near edge, then raise it to a straight arm position. The subject's body should remain completely straight during the test. Half credit is provided if the body's ways or arches or if the subject does not go all the way up, up to 4 half credits.

Scoring: One point was given each time when the subject completed modified push-ups only one trial was permitted.

3. 600 Yard run/walk

Purpose: To measure endurance.

Equipment: Track or arca marked for 600 yard and a stop watch.

Description: At the signal, the subject takes a standing start and begins running a 600-yard distance. Walking can be substituted for running. It is conceivable to have a dozen students run at the same time if they are paired up prior to the start of the event. As the students cross the finish line, each child listens for and remembers his partner's time.

Rule: Walking is permitted but the subject is to cover the distance in the shortest possible time.

Scoring: Record in minutes and seconds.

4. Shuttle Run (4 x 10 mts.)

Purpose: To measure Agility.

Equipment: Steel tape, two stop watches and marking powder.

Description: When the instruction "go" was given, the subjects stood behind the line and began running towards the opposing line (a distance of 10 metres) and touching the line with their hands. They then turned towards the beginning line and touched the line again, quickly taking twin runs towards the same lines. When the subject crosses the starting line, Time Keeper begins his watch with the word 'go' and stops it. Scoring: Time was considered to rear half second.

5. Standing Broad Jump

Purpose: To measure leg power.

Equipment: A measuring tape and landing pit.

Procedure: The subject stood with his feet several inches apart behind a launch line. He then leapt forward by extending his knees and swinging his arms forward at the

same time. The jump was measured from the closest imprint left by the jumper on landing to the take-off location. Centimetres were used to measure distance.

Results and Discussion

The goal of this research was to examine the physical fitness of rural and urban softball players in Jammu District. The data acquired in this study was statistically analysed for this

purpose, the results are provided in this research paper. A total of 300 individuals were chosen for this study, including 150 rural and 150 urban players from the Jammu District. They were put through five different tests to examine five different aspects of physical fitness. The testing was carried out according to protocol. All five components' mean, standard deviation, and values are shown in separate tables.

Table 1: Showing the mean value ± standard deviation and 't' value of speed (50 Yard Dash), Strength (modified push-ups), Endurance (600-yard Run/Walk), Agility (Shuttle run 4 x 10 mts), Leg power (standing broad jump).

S. No.	Physical Fitness Components	Players	Sample Size	Mean ± S.D.	't' value
1	Speed	Rural Players	150	12.48±1.59	2.28*
		Urban Players	150	12.76±1.86	
2	Strength	Rural Players	150	6.20±1.7274	2.46*
		Urban Players	150	6.74±0.01696	
3	Endurance	Rural Players	150	2.82±0.4779	2.36*
		Urban Players	150	2.93±0.4779	
4	Agility	Rural Players	150	19.93±1.3998	2.32*
		Urban Players	150	20.21±1.3799	
5	Leg power	Rural Players	150	157.07±28.5252	2.10*
		Urban Players	150	161.63±28.9650	

Significant at 0.05 level

Table 2: Showing the Mean value + Standard deviation and 'V' score of the Speed (50 Yard Dash).

S. No.	Players	Sample Size	Mean ± Standard deviation	't' value
1	Rural Players	150	12.48±1.59	2.28*
2	Urban Players	150	12.76±1.86	

*Significant at 0.05 level

The mean value and standard deviation of the two groups, i.e., rural and urban players with 't' score, are shown in Table-2. The calculated 't' score is 2.28, which is higher than

the table value of 1.99 and significant at the 0.05 level. The outcome is consistent with the researcher's hypothesis.

Table 3: Showing the Mean value + Standard deviation and 't' score of the Strength (Modified Push-Ups).

S. No.	Players	Sample Size	Mean ± Standard deviation	't' value
1	Rural Players	150	6.20±1.7274	2.46*
2	Urban Players	150	6.74±0.01696	

*Significant at 0.05 level

The mean value and standard deviation of the two groups, i.e., rural and urban players with 't' score, are shown in

Table-3. The calculated 't' score is 2.46, which is higher than the table value of 1.99 and significant at the 0.05 level. The outcome is consistent with the researcher's hypothesis.

Table 4: Showing the Mean value + Standard deviation and 't' score of the Endurance (60 Yard run/walk).

S. No.	Players	Sample Size	Mean ± Standard deviation	't' value
1	Rural Players	150	2.82±0.4779	2.3587*
2	Urban Players	150	2.93±0.4779	

*Significant at 0.05 level

The mean value and standard deviation of the two groups, i.e., rural and urban players with 't' score, are shown in Table-4. The calculated 't' score is 2.3587, which is higher

than the table value of 1.99 and significant at the 0.05 level. The outcome is consistent with the researcher's hypothesis.

Table 5: Showing the Mean value + Standard deviation and 't' score of the Agility (Shuttle Run 4 x 10 mts.)

S. No.	Players	Sample Size	Mean ± Standard deviation	't' value
1	Rural Players	150	19.93±1.3998	2.3203*
2	Urban Players	150	20.21±1.3799	

*Significant at 0.05 level

The mean value and standard deviation of the two groups, i.e., rural and urban players with 't' score, are shown in Table-5. The calculated 't' score is 2.3203, which is higher than the table value of 1.9719 and significant at the 0.05

level. The outcome is consistent with the researcher's hypothesis.

Table 6: Showing the Mean value + Standard deviation and 't' score of the Leg power (Standing Broad Jump)

S. No.	Players	Sample Size	Mean± Standard deviation	't' value
1	Rural Players	150	157.07±28.5252	2.1008*
2	Urban Players	150	161.63±28.9650	

*Significant at 0.05 level

The mean value and standard deviation of the two groups, i.e., rural and urban players with 't' score, are shown in Table-6. The calculated 't' score is 2.1008, which is higher than the table value of 1.9719 and significant at the 0.05 level. The outcome is consistent with the researcher's hypothesis.

Summary and Conclusion

The goal of this study was to compare and analyse the specified physical fitness components of rural and urban softball players in Jammu district. The investigation was undertaken on 150 rural softball players and 150 urban softball players in the Jammu district to attain this goal. Five tests measuring five aspects of physical fitness were administered to the subjects. The results of these tests were examined using the 't' value to determine the difference in physical fitness between rural and urban softball players in the Jammu district of J&K. The following conclusions were taken from the results presented, taking into account the limitations of this study already mentioned.

- Rural softball players are faster, have more endurance, and are more agile;
- Urban softball players are stronger and have more leg power.

Significance of the study

- This study will aid in the promotion of physical fitness and the development of a physical education programme to assist students in achieving their goals.
- As a result of this study, participants in both rural and urban areas will be encouraged to engage in physical activity.

Recommendations

During the course of this study, the researcher became aware of several potential areas for additional investigation.

- Other variables, such as physiological, anthropometric, and psychological characteristics, may be investigated.
- The study could be undertaken on people of different ages.
- The same research might be done in other districts.

References

1. Jaya Sivarajan S. Effect of Plyometric Training and Detraining on Speed and Explosive Power. (Unpublished M.Phil Thesis, Pondicherry University, Pondicherry, November, 2013).
2. John Walsakom IL. B. Response of Selected Asanas on Balance, Flexibility, Muscular Endurance and Reaction Time, (Unpublished M.Phil Thesis, Pondicherry University, Pondicherry, 2020 July).
3. Karthikeyan P. Effects of Isolated, Complex Weight, Plyometric Trainings Detraining and Retraining on Selected Strength and Power Parameters Among Male Subjects. (Unpublished Doctoral Thesis, Annamalai University, Annamalainagar, 2013).

4. Kenneth Cooper H. Aerobics, (Bantam Publishing, 1968), www.en.wikipedia.org. July 25. 2019
5. Kodgire UD. Effect of yoga exercise on selected physiological variables of school girls. Scholarly Research Journal for Interdisciplinary Studies. 2013 March;1:947
6. Komathi R, Kalimuthu M. Effect of Yogic Practices on Abdominal Strength among School Boys. Recent Trends in Yoga and Physical Education. 2019 Aug;1:51.
7. Koutedakis Y. Effects of Three Months of Aerobic and Strength Training on Selected Performance and Fitness-Related Parameters in Modern Dance Students. Journal Strength Condition Research. 2017 Aug;3:8.
8. Kristal AR, *et al.* Yoga lowers blood sugar in diabetics. Altern. Ther. Health Med. 2005 July-Aug;11(4):28-33.
9. Kumar Kaul H. Yogasanas for everyone. (New Delhi: Surjeet Publicaiton, 2019), p. 1.
10. Kumar M, Sukh P Jagbir, Singh D. Effect of yoga life style intervention on bodyweight and blood chemistry of middle-aged women, Journal of Exercise Science and Physiotherapy. 2018;4(2):76-80.
11. Kyizom T, *et al.* Effects of paranayana and yoga asana on cognitive brain functions in type 2 diabetes-p3 event related evoked potential (ERP). Indian Journal-of-Medical- Research. 2020;131(5):636-64.
12. Lehri A, Mokha R. Effectiveness of aerobic and strength training in causing weight loss and favorable body composition in females. Journal of Exercise Science and Physiotherapy. 2016;2:96-99.
13. Liel, *et al.* The Effectiveness of An Aerobic Exercise Intervention on Worksite Health- Related Physical Fitness-A Case in A High-Tech Company, Chang Gung Medical Journal. 2013;1:6.