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<table>
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<tr>
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<th>Course Duration</th>
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<tbody>
<tr>
<td>Bachelor of Physical Education (B.P.Ed.)</td>
<td>8 Semesters</td>
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<tr>
<td>Master of Physical Education (Sports Biomechanics)</td>
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<tr>
<td>Master of Physical Education (Exercise Physiology)</td>
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<td>M.A. in Yoga</td>
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<td>Post Graduate Diploma in Sports Coaching (PGDSC)</td>
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Further information on LAKSHMIBAI NATIONAL INSTITUTE OF PHYSICAL EDUCATION
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CONSTRUCTION OF PHYSICAL FITNESS PROFILE ON PRIMARY SCHOOL CHILDREN OF MAURITUS

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Dr. Deepak Sharma, Assistant Professor, LNIPE Gwalior

ABSTRACT
The purpose of the study was to construct a physical fitness profile on primary school children of Mauritius. 370 male subjects age ranged from 10 to 12 years old participated in the study and four physical fitness components were selected as variables. They were namely speed, cardiovascular endurance, flexibility and muscular strength. The descriptive statistics was calculated in order to find out the mean and standard deviation of each component. A rating scale also was constructed in order to determine the level of fitness of the primary school children. The rating scale was divided into five categories starting from excellent to very poor. The findings of the study showed that the primary school children performed quite well in all the variables of physical fitness except in one variable that is flexibility. It was seen that the school children lacked flexibility and this may be due to lack of stretching exercises and also due to modernization children are more prone to video games, tv, mobile phones rather than indulging in physical exercises.

Keywords: Physical Fitness, Primary School Children

INTRODUCTION
There are numerous factors which are responsible for the performance of a sportsman. These are physical, mental, technical and tactical. Among them, physical abilities are most important. Physical activity has positive effects on physical, psychological/social, and cognitive health on school-aged children and youth (Janssen & LeBlanc, 2010). Evidence showed that physical activity improved body composition and the prevention of overweight and obesity, improved skeletal (Gunter, Almstedt & Janz, 2012). So, this present study was undertaken to measure certain basic physical fitness parameters like flexibility, cardio-respiratory endurance and speed of school children. Nowadays we can see that children are more interested in playing video games rather than being involved in physical activities. So, for the children to grow up healthily it is important that they are physically active. Physical activity has benefits at every age, and helps kids: keep their heart and lungs strong and healthy, become more flexible, develop strong bones, keep a healthy body weight, lower the risk of several diseases and health problems.
MATERIAL AND METHODS

**Design of the study:** For the purpose of the study descriptive design was employed to find out the physical fitness variables among the school children of Mauritius.

**Participants:** Three hundred and seventy (N=370) boys age ranged from 10-12 years from New Educational school were selected for the study.

**Variables:** To study the physical fitness profiles of school children of Mauritius, the following physical fitness variables speed, cardiovascular endurance and flexibility were selected to determine the level of fitness of the children.

**Data collection:** The Running Speed was measured by 50m dash; Cardiovascular endurance was measured by 600m run/walk test and lastly Flexibility was measured by sit and reach test.

Prior to the administration of the test the investigator had a meeting with the subjects. The objectives and importance of intended tests was made clear to the subjects. Data on physical fitness was collected by the researcher with the help of trained assistants. The data, which was collected by administering tests, was statistically treated to develop norms for all the physical fitness components.

**Statistical Technique Descriptive:** The statistics included mean, standard deviation, kurtosis, skewness, range of score, highest and lowest score, and coefficient of variance. The level of significance was set at 0.05 level of confidence.

**RESULTS AND DISCUSSION**

The following tables illustrate the statistical results of the physical fitness variables among the school children.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Variables</th>
<th>Test to</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Speed</td>
<td>50 m dash</td>
<td>Seconds</td>
</tr>
<tr>
<td>2</td>
<td>Cardiovascular Endurance</td>
<td>600m run/walk</td>
<td>Seconds</td>
</tr>
<tr>
<td>3</td>
<td>Flexibility</td>
<td>Sit and reach</td>
<td>Inches</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statistics</th>
<th>50 m dash</th>
<th>600m/ walk/run</th>
<th>Sit and reach</th>
<th>Muscular strength</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>10.080</td>
<td>3.345</td>
<td>2.778</td>
<td>19.257</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>10.000</td>
<td>3.290</td>
<td>2.500</td>
<td>20.000</td>
</tr>
<tr>
<td><strong>S D</strong></td>
<td>0.986</td>
<td>0.579</td>
<td>0.538</td>
<td>5.683</td>
</tr>
<tr>
<td><strong>Skewness</strong></td>
<td>0.473</td>
<td>0.486</td>
<td>0.378</td>
<td>0.124</td>
</tr>
<tr>
<td><strong>Kurtosis</strong></td>
<td>0.436</td>
<td>0.337</td>
<td>1.629</td>
<td>0.822</td>
</tr>
<tr>
<td><strong>Highest score</strong></td>
<td>14.00</td>
<td>5.20</td>
<td>22.50</td>
<td>40.00</td>
</tr>
<tr>
<td><strong>Lowest score</strong></td>
<td>7.50</td>
<td>2.28</td>
<td>5.00</td>
<td>3.00</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>6.50</td>
<td>2.92</td>
<td>10.50</td>
<td>37.00</td>
</tr>
</tbody>
</table>
50m Dash: The mean and standard deviation for 50 m dash were 10.080 and 0.986 respectively. The score of the standard deviation was very low so we can say that the data points of 50 m dash were close to the mean. The value of skewness and kurtosis was 0.473 and 0.436 respectively. We can say that the statistical distribution was leptokurtic in nature. The highest score was recorded as 14.00 and lowest score was 7.50 which gave a range of 6.50.

To indicate the performance of the children, a rating scale was developed on the basis of theories of normal curve. The total area was divided into five categories starting from excellent to very poor.

600m run/walk: The mean and standard deviation for 600m run/walk were 3.345 and 0.579 respectively. The score of the standard deviation was very low so we can say that the data points of 600 m dash were close to the mean. The values of skewness and kurtosis were 0.486 and 0.337 respectively. We can say that the statistical distribution was leptokurtic in nature. The highest score was recorded as 14.00 and lowest score was 7.50 which gave a range of 6.50. Rating scale for 600m run/walk

| Excellent | < 2.75 |
| Good      | 2.75 – 3.35 |
| Average   | 3.35 – 3.92 |
| Poor      | 3.92 – 4.50 |
| V. Poor   | > 4.50 |
Flexibility: The mean and standard deviation for flexibility were 2.778 and 0.538 respectively. The score around the mean was scattered since the standard deviation was high. Therefore, we can say that the performance of the children in relation to flexibility was scattered around the mean. Rating scale for sit and reach

<table>
<thead>
<tr>
<th>Excellent</th>
<th>&gt;17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>10-15</td>
</tr>
<tr>
<td>Average</td>
<td>6-8</td>
</tr>
<tr>
<td>Poor</td>
<td>2-4</td>
</tr>
<tr>
<td>Very Poor</td>
<td>&lt;0</td>
</tr>
</tbody>
</table>

Muscular strength: The mean and standard deviation for muscular strength were 19.257 and 5.683 respectively. The score around the mean was scattered since the standard deviation was high. Therefore, we can say that the performance of the children in relation to muscular strength was scattered around mean. Rating scale for Muscular Strength

<table>
<thead>
<tr>
<th>Excellent</th>
<th>&gt;30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>24-30</td>
</tr>
<tr>
<td>Average</td>
<td>13-24</td>
</tr>
<tr>
<td>Poor</td>
<td>7-13</td>
</tr>
<tr>
<td>Very poor</td>
<td>&lt;13</td>
</tr>
</tbody>
</table>

DISCUSSION OF FINDINGS
➤ From the results above it was found that:
1. More than 200 students were excellent in 50 m dash and the rest of the students were in the rating scale of good.
2. In the 600m run/walk test, it was found that most of the students were in the range of average and poor.
3. In the sit and reach test, the students’ performance was very poor.
4. Lastly 20 students were in the excellent range while performing the pushups. Rest of the students was in the good and average range.
5. While comparing the performance of the Mauritian students with other countries it was found that the results were almost the same in all aspects except for the flexibility.

CONCLUSIONS
On the basis of the result of the present study rating was divided into five categories based on the theories of normal curve. They were excellent, good, average, poor and very poor. The subjects who fell in the category of excellence had a good level of fitness and the same applies to good but the subjects who were in the range very poor were in need of more improvement in the fitness level.

REFERENCES


EFFECT OF 5-WEEK SPECIALIZED TRAINING PROGRAMME ON SELECTED BOWLING ABILITY OF FAST BOWLERS IN LIMITED OVER CRICKET

Buddhesh Mani Pandey, Department of Exercise Physiology, LNIPE, Gwalior
Dinesh Kumar, Department of Exercise Physiology, LNIPE, Gwalior
Dr. Gayatri Pandey, Assistant Professor LNIPE Gwalior

ABSTRACT
The purpose of this study was to find the Effect of 5-week specialized training program on selected bowling ability of fast bowler in limited over cricket. For this study, five male interuniversity fast bowlers were selected from LNIPE, Gwalior as subjects. Pre-data of different type of bowling ability like bouncer, Yorkers and slower ball was collected after which the training was given for five weeks. The training was different for every week and focus on different type of bowling exercise like general training, high intensity bowling exercise, slower balls exercise, bouncer ball training and Yorkers ball training. Post data was collected after the training of each week except 1st week. The findings showed significance difference due to the training of high intensity bowling exercise (p <0.05), bouncer ball training (p < 0.05) and Yorker ball training (p < 0.05). However, there was no significant difference of slower ball exercises (p >0.05). The findings support the positive effect of training program on high intensity bowling exercises, bouncer ball training and Yorker ball training, but slower ball exercises do not show any positive effects.

Keywords: Bowlers, Bouncer, Yorker, Slower balls

INTRODUCTION
Fast bowling is one of two main approaches to bowling in the sport of cricket, the other being spin bowling. Practitioners of pace bowling are usually known as fast bowlers, quicks, or pacemen (en.wikipedia.org/wiki/Fast_bowling,2019). Fast bowlers have a vital position in a cricket team and there is an increasing body of scientific literature that has reviewed this role over the last decade. Fast bowlers are attracting increasing interest with regards to research in cricket as successful performance is linked to teams with these higher ‘rated’ individuals (Portus M. et. al, 2000). Whilst fast bowlers are a vital element in the cricket team.
bowling is one of two main approaches to bowling in the cricket. Pace bowling are usually known as fast bowlers, quick's, or pace men. The basic actions of fast bowlers are to run up fast and then just before the strong release, load up and boom. This load up and strong release can also help the bowl great Yorker (Ghosh Subhodeep, 2019).

**MATERIALS AND METHODS**

*Subject:* For the purpose of the present study, five male fast bowlers of Lakshmibai National Institute of Physical Education, Gwalior with age range from 20 to 24 years. All the subjects selected for the study will be free from any injuries. *Data Collection:* Pre-Data was collected on the three selected bowling ability namely bouncer, Yorkers and slower balling ability before the training. The training was administered for the five weeks different for every week and focus on different type of bowling exercise like general training, high intensity bowling exercise. The post-data was collected at the end of every week according variable that on which researcher had worked.  

**Length accuracy test** - Mark out an area on the pitch with tape about 1m long and 40cm wide on a hard length. Count how many times you pitch the ball in the area and give the marks out of 18. Similarly, Slower **ball skill test** - Mark out a box on the pitch with markers about 50cm x 50cm wide a little bit fuller than the hard length. Count how many times you pitch the ball in the area and give the marks out of 24. **Bouncer ball skill test** - For bowling good bouncer is more so judged on where it passes the batsman rather than where it pitches. Set up a target on the back of the net at about the height of an average batsman in your age bracket. If you get it somewhere around that target (don’t have to actually hit it) you get a point and gives the marks out of 30 and **Yorker ball skill test** - Set out 6 markers all touching each other creating a rectangle on the crease. That’s your target; see how many times the subject hits the markers out of 36. **Statistics:** All statistical analyses were performed using the SPSS 21.0 software (Statistical Package for Social Sciences) the groups mean of both the groups for different variables was compared using t-test at 0.05 level of significant.
RESULTS
Result of data analysis was shown in the following table.

*Table 1: t-table for Length Accuracy, Slower Balls, Bouncer Balls and Yorkers.*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D</th>
<th>PAIRED SAMPLE TEST</th>
<th>d.f.</th>
<th>Sig. (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRE</td>
<td>POST</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length Accuracy</td>
<td>10.60</td>
<td>12.60</td>
<td>-2.82</td>
<td>4</td>
<td>0.470</td>
</tr>
<tr>
<td>Slower Ball</td>
<td>11.60</td>
<td>12.00</td>
<td>-0.53</td>
<td>4</td>
<td>0.621</td>
</tr>
<tr>
<td>Boucher Ball</td>
<td>15.80</td>
<td>17.80</td>
<td>-4.47</td>
<td>4</td>
<td>0.011</td>
</tr>
<tr>
<td>Yorker Ball</td>
<td>7.60</td>
<td>10.60</td>
<td>-4.47</td>
<td>4</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Table 1 shows the pre and post- mean with SD of Length accuracy are 10.60 ± 1.07 & 12.60 ± .87 respectively, similarly pre and post- mean with SD of Slower balls are 11.60 ± 5.50 & 12.00 ± 4.79 respectively. Similarly, pre and post- mean with SD of Bouncer Balls are 15.80 ± 3.56 & 17.80 ± 2.77 respectively. Further pre and post- mean with SD of Yorkers Balls are 7.60 ± 2.88 & 10.60 ± 2.40 respectively.

Table 1 also show that p- Value for Length Accuracy is 0.47 > 0.05 this shows the difference is not Significant. Further Table 1 also show that p- Value for Slower Ball is 0.621 > 0.05 this indicates that difference is not Significant. Further table also represents that p- Value for Boucher Ball is 0.011 < 0.05 this shows the difference is Significant. Further Table 1 also represents that p- Value for Yorker Ball is 0.009 < 0.05 this shows the difference is Significant. Graphical representation of pre and post mean of selected variables shown in figure No.1.
DISCUSSION OF FINDING

The results showed significant effect of high intensity bowling exercises (p<0.05), bouncer ball training (p<0.05) and Yorker ball training (p<0.05). It is because the training of 5 week was a very highly intensive workout type program which is designed with help of Experts that helped the bowlers to improve their performance of high intensity bowling, Bouncer ball and Yorker ball. So, we can say that this modified-implemented training programme was a useful training strategy for Bouncer and Yorker bowling ability. Fast bowling is a CNS dominant activity. It’s less to do with the muscles but more to do with the brain telling the body to exert maximum force behind the ball in an all-out effort. It’s essential to real is when training to bowl fast that the more emphasis you place on the development of the central nervous system (CNS) (Steff Jones, 2016). If the person wants to turn out to be a better fast bowler, he necessity practice bowling frequently. Steff (2016) mentioned in his article that for improving skill optimally, the bowler must treat it like the process of skill acquisition. And that demands a high frequency of practice, and to maximize motor learning, each repetition must be performed with as little accumulated fatigue as possible.

However, the result also shows that there was no significant difference of slower ball and length Accuracy (p>0.05).The movement of slower ball is not benefited because ball movement is slow and requires a lot of control and does not require much of strength or high intensity and the bowling action needs only a basic movement that helps to bowl the ball (Australian Cricket Institute,2017).
REFERENCE


Steff Jones (2016). Training to bowl fast is all about managing the CNS. Linkedin.com.


A STUDY ON THE IMPACT OF HEALTH ON ACADEMIC PERFORMANCE IN HIGH SCHOOL STUDENTS

Caroline Satur, Principal, Govt. High School, Mahmand, Bilaspur C.G.
Dr. Sunil Gouraha, Sports Officer, RGPG College, Ambikapur C.G.

ABSTRACT

Schools are to be strengthened as the heart of health. To intervene for better outcomes in both health and academic achievement, identifying factors that impact children, is essential. The course of a child’s development arises from an interaction of congenital, familial, cultural, and environmental factors. These and a wide range of other factors play a crucial role in cognitive development and a child’s learning abilities. Cognitive performance is often related to physical health. Thus, children who experience medical distress are at risk for low academic achievement. Moreover, improper health impedes participation in daily school activities. Frequent absence, discomfort or pain, movement limitations, sleepiness, physical and psychological side effects of received medications among other factors limit students’ abilities to engage in the education process. In addition to the deleterious outcomes related to school functioning, children with medical conditions experience restrictions in developing critical emotional bonds not only with their parents, but also with their teachers. As research says, student health predicts low educational level, social and economic inequalities, and results in behavior problems in adulthood. Focusing on the crucial role health occupies in students’ educational development, it is important for school authorities to become responsible and make leading efforts to improve students’ health and consequently decrease the risk associated with various medical issues. Students who are unhealthy are at higher risk for school problems than students who are free from medical problems. Students with poor health have a higher probability of school failure, grade retention, and dropout. Student health and academic performance is a serious issue. Common manageable factors of student health are nutrition, maintaining healthy weight, and physical fitness. Through a comprehensive literature review the effect of health on school achievement and nutrition, maintaining healthy weight, and physical fitness are examined. Furthermore, the efficacy of educational programs to improve nutrition, maintain healthy weight, and increase physical fitness is evaluated. This paper not only deals with the effect of health on academic performance in High School students, but also deals with those areas which are responsible for future research and practice for school authorities. Immense efforts are also made to study the relationship and association between health assets and academic achievement, thus making great efforts to reduce inequalities in both academic achievement and student health.

Keywords: Academic achievement, health behavior, health assets, nutrition, pre-adolescence.

INTRODUCTION

Research indicates that healthy students perform better on academic measures than unhealthy students. Think about this statement for a moment. Why and how would physical health impact academic performance? Have you ever tried to take a test when you were hungry?
Have you ever missed a test because you were suffering from an illness such as the flu virus? If you answered yes to either of the aforementioned questions, you are already aware of several solid examples of how health impacts learning in children.

Having good mental health strengthens and supports a teen’s ability to have healthy relationships, make good life choices, maintain physical health and well-being, handle the ups and downs of life, and discover and grow towards one’s potential. Maintaining good physical health is proven to help academic performances. Academic benefits derived from physical activity include: academic achievement and above-average grades, improved academic behavior, and increased academic interest. Specifically, physical activity encourages attentiveness and concentration.

A child’s physical health, and in particular physical fitness, is associated with improved confidence, increased attention, reduction in health problems, improved social engagement, reduction in obesity, increased organization, and a host of potentially protective factors for students at risk for poor school outcome.

**Objectives of the study**

1. To find out how does mental health disorders affect students of High School.
2. To find out how stress effects the academic achievement of students of High School.
3. To find out how does poor physical health affect academic performance in High School students.
4. To find out how school authorities deal with students’ health problems.
5. To find out relationships and associations between health assets and academic achievement.
6. To examine cumulative effects of health assets on academic achievement.

**Design and method:** 940 students of classes 1X & X from 12 High Schools in Bilha block of Bilaspur District, Chhattisgarh were randomly selected. Data includes physical assessments, fitness testing, surveys, and records. Fourteen health indicators were gathered including physical health, health behaviors, family environment and psychological well-being. The focus is on three main factors-nutrition, physical activity, and family environment assessed within the social and environmental context in which students live, work, and attend school. Data were collected. Twelve schools were randomly selected from a total of 27 schools, and all agreed to participate. The sample was 9th and 10th class students, representing 88% of all eligible children. 2% of parents opted out, and 10% were absent during data collection. The analytic sample for this paper included 940 students (77%). Students were excluded if they did not have survey data (N =132) or standardized test scores (N = 134), or if they were missing data for >2 of 14 health assets (N = 20).
RESULTS
Students age ranged from 14 to 16, with mean age 14.8 years (SD = 0.73). Students were equally divided between 9th (51.2%) and 10th (48.8%), girls (56.1%). Rural background of students was 43.6%, 40.4% Urban, and 14.3% tribal.

Academic Achievement: More than one-half of students achieved goal or above in each test area: reading, writing, and mathematics. However, only 29.3% achieved goal. It is far below state wide performance of 10th students in which 54.7% of students achieved the goal or above on all 3 tests.

Health Results: On average, students met 7.1 health assets out of 14. Physical assessments revealed that 17.9% of children were classified as overweight (85th-95th percentile) and 26.6% as obese (≥95th percentile). About 30% were physically fit, based on state fitness testing. Regarding health behaviors, few students met current recommendations for fruit and vegetable intake and physical activity: 3.2 and 21.7%, respectively. Regarding family environment, over one-half ate a family meal ≥5 days/week and at a fast-food restaurant ≥1 day/week. Only 17.3% report no television in their bedroom. Roughly two-thirds reported emotional well-being and minimal sleep disturbance. About 54% reported feeling safe in their own neighborhoods.

Suggestions–implications for school health
- Integration of health-promoting strategies can build on school districts’ efforts to promote both learning and health.
- Include implementation and enforcement of District Wellness Plan.
- Systemic methods of reducing risk factors and increasing protective factors should be developed to meet the rise in these important risk factors.
- School medical agencies should expand their role to build a host of protective factors to build resilience in school-aged children at the preventative, at risk and clinical levels.
- Transmission of more universal practices preventative and necessary basic health knowledge.
- To promote positive school climate, healthy behaviors, and school connectedness; and before-/after-school programs to promote health and learning
- To conduct large scale physical fitness-health awareness educational programs for students, teachers and parents.

CONCLUSIONS
Some children simply do not get enough to eat. When children do not consume enough food, it can affect a child’s ability to learn, a factor stated in numerous studies. A healthy breakfast is an effective means to improve academic performance and cognitive functioning among undernourished kids. Children with iron deficiencies severe enough to cause anemia are also at an academic disadvantage, a health problem that can be remedied with iron therapy.
In order to adequately maintain a healthy weight consistent with improving student health, the second half of the equation that needs to be addressed is that of physical activity. Physical activity is a major component of any physical fitness program. Just as there have been notable increases in children consuming low nutrition-dense foods, there has been a marked decrease in the number of hours that school-aged children spend being physically active. Most schools have physical education as a major component of physical activity instruction during the school day. Systematic efforts to increase physical activity have the potential to improve physical fitness, mental health, and academic performance. Overall, we know that children need to be healthy in order to learn at their highest potential. Sometimes children suffer from a chronic disease that cannot be helped, and in those cases parents and teachers and children themselves can only do the best they can, considering the circumstances. But in most cases, it is not a chronic health issue, but one that is resolvable such as getting enough sleep or exercise, eating breakfast or addressing extra pounds. Children can’t tackle these issues alone; they need parental support.

REFERENCES


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COMPARISON OF SPORTS COMPETITION ANXIETY BETWEEN MALE AND FEMALE JUDOKAS

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Pooja Murmu, M.P.Ed., LNIPE, Gwalior

ABSTRACT
The present study was conducted to investigate the sports competition anxiety between the male and female judokas online, Gwalior. Total 20 subjects (10 males and 10 females) were comprised of state level players aged between 18 to 23 years. The research tool involved here was Sports Competitive Anxiety Test (SCAT) Questionnaire to measure the anxiety level of players who participate in competitive sport. The conclusion of the study depicts that anxiety level of female judokas is higher than the males. However, statistically no significant difference in anxiety levels of male and female judokas was observed.

Key words: Anxiety, Judokas, Sports Competitive Anxiety Test SCAT.

INTRODUCTION
Nowadays in sports field the role of abilities and psychosomatic preparations of sportspersons in sport successes and achieving desire performance in competitions and tournaments, even in some circumstance, be considered more important than the technical preparation. Anxiety is one of the psychological parameters which can be said to be a constant companion of sport. It is typically defined as “an unpleasant psychological state in reaction to perceived stress concerning the performance of a task under pressure”. Most athletes are the amateur or professional feel some form of anxiety prior to any competition. Most of the times the main source of anxiety may be fear of not winning one’s event. Anxiety can be seen as a sort of block for peak performance for athletes. It is characterized by increased heart rate, sweating palms, shivering and other reactions to threat”. Omeruah (1987) explained that perhaps the greatest obstacle in the way of impressive athletic performance, which the sports psychologist can help remove, is “anxiety in all forms, at all stages. Judo is a body combat game where strenuous exertion of physical and mental energy is required. As it is a direct body contact game, players get anxiety before bouts and anxiety tolerance level is must to overcome anxiety and to show required performance.

SCAT that is Sports Competition Anxiety Test is a psychological test used for the analysis of an athlete’s responses to a series of statements about how he/she feels in a competitive situation to determine their level of anxiety.
METHODOLOGY

Subjects: For the purpose of the study a total of 10 male non-elite judokas and 10 female judokas ranging the age between 18 to 23 years were selected as subjects. The subjects were from LNIPE, Gwalior (M.P) who represented state level tournaments. The tool used in obtaining data of each player’s anxiety level was the questionnaire of Sport Competition Anxiety Test (SCAT) developed by Rainer Martens et.al (1990). The SCAT consists of 15 questions. The questions were in the form of statements that the subjects used to describe themselves.

Collection of data: All participants were asked to take 2 minutes to read out each statement of the questionnaire and then decide if he or she response on any of the option responses “Rarely”, “Sometimes” or “Often” feels when they compete in judo competitions, and then tick in the appropriate box to indicate their response.

Scoring: The score for the response to each question according to the situation is 1, 2 and 3. The sum of score of each question is the SCAT score.

Norm of SCAT Score:

Less than 17: A Low level of Anxiety.
17 to 24: An Average level of Anxiety.
More than 24: A High level of Anxiety.

Statistics technique: In order to find out the significant difference, if any, between the two group means independent ‘t’ test was applied. The level of significance was set at 0.05.

FINDINGS AND RESULTS

The mean score of anxiety level and p-value of the male and female judokas under study are given in the Table 1.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean± SD</th>
<th>Mean Difference</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Judokas</td>
<td>20.9±3.44</td>
<td>2.0</td>
<td>1.16</td>
<td>0.25</td>
</tr>
<tr>
<td>Female Judokas</td>
<td>22.9±4.17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As the SCAT score indicates that the Anxiety level may be considered ‘average’ in case of obtained scores ranging between 17 to 24 and ‘high’ when the score is ranging above 24. It appears that the male and female Judokas were average in sports competition anxiety level.

Table 1 also presents the p-value comparing the anxiety level of the Male Judokas and Female Judokas shows that no significant difference exists between the groups= 0.25<0.05 level.
DISCUSSION OF FINDINGS
The reason for average anxiety level of both the players of each group under study might be due to moderate exposure of the subjects in the competitive sport. Further, both the groups insignificant difference in anxiety level might be due to homogeneity in experience. Elite athletes with higher skill level have been found to report low levels of anxiety (Sade, Bar-Eli, Bressler and Tenenbaum, 1990). Previous studies have shown that although elite and non-elite athletes both experience the same intensity of anxiety, elite athletes are better able to facilitate this response (Jones, Hinton & Swain, 1994).

CONCLUSIONS
Within the limitations of the study it may be concluded that there the groups of male and female judokas and both the groups were found average in levels of sports competition anxiety.

REFERENCES


COMPARATIVE STUDY OF SELECTED REPARATORY VARIABLE AMONG DIFFERENT PLAYING POSITION IN BASKETBALL

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Buddhesh Mani Pandey, Department of Exercise Physiology, LNIPE, Gwalior
Dr. Gayatri Pandey, Assistant Professor LNIPE Gwalior

The purpose of present study was to see the comparative difference between the selected respiratory variable among different playing position in basketball. For the purpose of this study 10 basketball players from LNIPE were selected aging 20-30 years, who had participated at national level competitions. These players were divided into 2 groups: Center (containing center and power forward players) and Guard (containing point guard and shooting guard players). Keeping the administrative feasibility in consideration, selected respiratory variable i.e. FVC (force vital capacity), VC (vital capacity), MVV (maximum voluntary ventilation) were selected for this study. The data collection was completed with the help of spirometer. To compare these respiratory variables among 2 groups, independent t-test was used with the help of SPSS Version 2.0 and level of confidence was set at 0.05. The finding of study showed that 2 groups i.e. center and guard, does not show any significant difference in FVC (p > 0.05), VC (p > 0.05) and MVV (p > 0.05). The findings conclude that players of different playing position in basketball at national level does not indicate or indicate very less difference in their lung capacities.

Key words: Force vital capacity, vital capacity and Maximum voluntary ventilation

INTRODUCTION

Team sport athletes require a high level of aerobic fitness in order to generate and maintain power output during repeated high-intensity efforts and to recover. Basketball players need to perform various skills under dynamic conditions, in most cases while moving with high speed or changing direction or jumping. McInnes et al. confirm the intermittent characteristics of this game, and note that on average there is a change in the direction of movement every two seconds in professional games. The evolution of rules and tactics in basketball has created three main player positions: guard, center and forward, each having a specific role in the
game. Centers move around the basket and use their superior size in ball acquisition during offensive and defensive rebounding, while guards have a more important role in the organization of play and generally keep away from the basket\(^2\).

The Narazaki et al. (2009) said that lung capacities and respiratory variables are potential indicator of good aerobic and anaerobic capacity of player. In basketball training and games drills are subdivided into perimeter and post players, there is a growing recognition of all guards and small forwards as perimeter players, while power forwards and centers as post players. This practical distribution is in accordance with criteria of performance for players of different positions (Trninic et al., 2000). Consequently, typical values of different respiratory variables could be measured using standardized equipment for perimeter and post players. It is a proven fact that for achieving the elite level performance in basketball a player must possess good aerobic as well as anaerobic capacity, but according to Nidhal Ben Abdelkrim (2006) time motion analysis centers spent significantly lower live time competing in high-intensity activities than guards (14.7\% (1\%) v 17.1\% (1.2\%); p<0.01) and forwards (16.6\% (0.8\%); p<0.05). vice versa guards show less jumping frequency during live time competition. Due to these variation in playing techniques between perimeter and post player it may be possible that there is difference in aerobic and anaerobic capacities needed to be a good basketball player on respective playing position. There has been no such study that tell us about difference among respiratory variables between different playing positions in basketball.

Therefore, the purpose the study was to compare the respiratory variables between different playing positions in basketball. As respiratory variables are good indicator of aerobic and an aerobic capacity, the study will be beneficial for the better understanding of the nature of playing position and needed respiratory capacities on that playing position.

**METHODOLOGY**

**Subject:** Ten male healthy, national level participated basketball player age (23.80 ± 2.50) from L.N.I.P.E, Gwalior, were purposively selected for the study. These 10 player are further divided into 2 group according to there playing position Center (player of center and power forward) height (190.80 ± 2.20) and weight (88.60 ± 4.02) and Guard (point guard and
shooting guard) with height $(178.20 \pm 3.11)$ and weight $(75.60 \pm 3.33)$ for the study, before starting the test it was ensured that all player are fit and in regular practice.

**Variable:** Form ensuring the lung capacity and keeping the administrative feasibility in mind selected respiratory variable were chosen force vital capacity, vital capacity and maximum voluntary ventilation. These variables were assessed with the help of spirometer available at L.N.I.P.E exercise physiology laboratory. **Exercise testing protocol:** Each subject was well rested before the test, and had not performed hard physical activity during the preceding 10 hours, before starting the test every athlete undergoes normal warm up exercise like stretching of limbs and jogging on treadmill. The spirometer was calibrated for the following tests, after warm up a complete demonstration with explanation was given for all three variable, 2 practice set was given to every subject so that they get familiar with the machine program after that the subject were asked to give data for every variable one by one. **Statistics:** All statistical analyses were performed using the SPSS 21.0 software both the groups mean for different variables was compared using t-test, level of significance was set at 0.05.

**RESULT AND CONCLUSION**

Descriptive statistics for the 10 basketball players are shown in Table 1. It is clearly shown in table 1 that center group players were larger and bigger in size compare to that of guard group players, it implies that center group player have bigger lung size.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Groups</th>
<th>Mean ± SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FVC (L)</strong></td>
<td>CENTER</td>
<td>4.57 ± 0.80</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>GUARD</td>
<td>4.12 ± 0.77</td>
<td>5</td>
</tr>
<tr>
<td><strong>VC (L)</strong></td>
<td>CENTER</td>
<td>5.28 ± 0.74</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>GUARD</td>
<td>4.95 ± 1.00</td>
<td>5</td>
</tr>
<tr>
<td><strong>MVV (L)</strong></td>
<td>CENTER</td>
<td>177.50 ± 30.09</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>GUARD</td>
<td>159.24 ± 23.00</td>
<td>5</td>
</tr>
</tbody>
</table>

*Table 1: Descriptive statistics of the FVC, VC and MVV of Center and Guard player*
Table 1 reveal that mean value and SD of center and Guard for FVC are $4.57 \pm 0.80$ and $4.12 \pm 0.77$ respectively, similarly VC of center and Guard are $5.28 \pm 0.74$ and $4.95 \pm 1.00$ respectively. Further MVV of center and Guard are $177.50 \pm 30.09$ and $159.24 \pm 23.00$ respectively.

<table>
<thead>
<tr>
<th>Variable</th>
<th>t-value</th>
<th>D.F.</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FVC</td>
<td>0.91</td>
<td>8</td>
<td>0.31</td>
</tr>
<tr>
<td>VC</td>
<td>1.08</td>
<td>8</td>
<td>0.31</td>
</tr>
<tr>
<td>MVV</td>
<td>0.59</td>
<td>8</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Table 2: t-table for the FVC, VC and MVV of Center and Guard Player

Table 2 shows the t-value and p-value for FVC, VC and MVV are 0.31, 0.31 and 0.57 respectively which is less than 0.05.

DISCUSSION OF FINDING

The findings of present study show that there is no significant difference between center and guard player in MVV, VC and FVC. The region behind the finding is that center players have bigger lung size and thus possess more respiratory values, but guard players do more movement and have duties in game which include highly intensive work load and thus the compensate the larger lung size of center and score nearly similar lungs capacity and volumes.

The MVV refers to the maximum rate of pulmonary ventilation, Normal values depend on size, age, and sex (Andrew B Lumb MB, 2017). MVV provides an estimate of the ventilator...
reserves available to meet the physiologic demands of exercise (Thomas A. Dillard), previous studies prove that guards had a significantly higher maximal oxygen uptake (VO2 max) than centers. Guards and forwards showed significantly better performance in the 10 and 30 m sprint tests than centers (Yusuf Köklü et.al., 2011) and thus need more volume of air exchange with environment to carry on such activities but again center players are tall and size and height play major role in MVV measurement, but due to load experience in game and practice guard players develop same capacities as centers despite smaller lunge size and height.

Previous studies shows that VC and FVC are directly proportional to the height and body size of individual, tall individuals have better VC and FVC at an average (Joseph Feher, 2017), studies relevant to basketball shows Centers spent significantly lower time competing in high-intensity activities than guards (Ben Abdel Karim N, El Fazaa S, El Ati J., 2007.), also positional related cardiovascular response study revealed large to very large differences for point guards and wings and moderate to large differences for centers, these studies shows that guard players have greater cardiovascular and respiratory load during basketball game compared to centers and significantly develop better lung capacities as a chronic response to that load but on other hand without doing much practice or bearing greater load centers have greater lung size compared to that of guards and thus possess same VC and FVC to that of guards. It can be possible that the study gives better result when we increase the sample size and do the test again with international basketball players.

**REFERENCE**


RELATIONSHIP AMONG KICKING ABILITY, LEG STRENGTH, THIGH CIRCUMFERENCE AND CALF CIRCUMFERENCE OF GRASSROOTS FOOTBALL PLAYERS

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Prof. Vivek Pandey, HoD Department of Exercise Physiology, LNIPE-Gwalior

ABSTRACT
The aim of this study was to determine the factors of kicking ability of Grassroots players. The objectives of the study were, (i) to find the relationship of kicking ability and leg strength, thigh circumference and calf circumference of the grassroots football players. (ii) To find interrelationship among leg strength, thigh circumference and calf circumference of the grassroots players. For the purpose of the study 22 boys of 11±1 years of age, 146±8 cm in height and 36.6± 6.4 kg weight were randomly selected from the different club of Manipur. Anthropometrical variables (thigh and calf circumference) were measured with a steel tape in nearest cm. Leg strength was measured with leg and back dynamometer in the kilogram. Kicking ability was tested by Kicking for distance in the meter. Multiple Correlation analysis was used to find the relationship between kicking ability, anthropometrical and physical variables. It was found that thigh circumference and calf circumference were significantly related; again, calf circumference was significantly related to leg strength. So it was concluded that at this age group calf and thigh circumference are determining the factor of leg strength but kicking ability cannot be determined by leg strength, thigh and calf circumference.

Keywords: - Football, grassroots, kicking, strength, circumference.

INTRODUCTION
Football is a team sport of 11 players which required frequent changes in the type of movements (e.g., walking, running, sprinting, jumping, tackling), speed (e.g., accelerations, decelerations), direction, and technical tasks for 90 minutes. Elite players are high skill, physically fit and emotional balance. Physical Prerequisite of a soccer player are strength, speed, endurance, flexibility, agility and coordination and complex form motor ability such as strength endurance, speed endurance and explosive strength; (Singh, M.K., Singh, K., Kumar,
and china). Development of strength is one of the main goals in football training as it relates to power, speed and agility and perform 1000-1400 powerful action in a match (Stolen, Chamari, Castagna, & Wisloff, 2005). With the maximum strength of lower limbs, the speed of kicking performance increase; (Taiana et. al. 1993). Kicking is the most important skill in football, which is used to pass a ball accurately over a desired distance under different situational contexts (Ball, 2011; Young and Rath, 2011).

Elite players concern with coaches, trainers, physical educationalists and sports scientist and it also directly relate with the inborn quality. There are numerous factors which influence performance like physical ability, skill ability, motor ability, psychological factor, social and environmental factors etc.

**Objectives**- The objectives of the study are: -

1. To find the relationship of kicking ability and leg strength, thigh circumference and calf circumference of 10-12 years grassroots football players
2. Interrelationship of anthropometrical variables (thigh circumference and calf circumference) and physical variable (leg strength) of Grassroots Football players.

**METHODS**

In this study 22- boys of 11±1 year are randomly selected from the football clubs of Manipur which are practiced at least 6 months. Those clubs are Eastern Football club (Imphal), Kakching football club (Kakching), Taobungkhok football club (Imphal West) and Komlathabi Football club (Chandel). The height of the boys was 146 ±8 cm in height and weight was 36.6+ 6.4 kg.

Anthropometrical variable (thigh circumference and calf circumference) were measured with a steel tape and will record to the nearest half a centimeter. Leg strength was measured with leg and back dynamometer in the kilogram. Kicking ability was tested by Kicking for distance in the meter. Data was collected during the practice hour in the morning.

Statistical analysis, multiple correlations were used to find the relationship among the kicking ability, leg strength, thigh circumference and calf circumference. All the variables were
normally distributed according to the Shapiro-Wilk test as their significant values were greater than 0.05. The statistical analysis was conducted using SPSS 16. The level of significance was 0.05.

**RESULT**

**Descriptive statistic :** Table 1 shows the descriptive statistic of the variables. The mean and standard deviation of thigh circumference is $37.92 \pm 2.98$, calf circumference is $28.73 \pm 1.16$, leg strength is $49.54 \pm 10.5$, and kicking for distance is $22.82 \pm 3.27$.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thigh circumference</td>
<td>37.92</td>
<td>2.98</td>
<td>22</td>
</tr>
<tr>
<td>Calf circumference</td>
<td>28.73</td>
<td>1.16</td>
<td>22</td>
</tr>
<tr>
<td>Leg strength</td>
<td>49.55</td>
<td>10.59</td>
<td>22</td>
</tr>
<tr>
<td>Average kicking distance</td>
<td>22.81</td>
<td>3.27</td>
<td>22</td>
</tr>
</tbody>
</table>

**Table 1: - Descriptive Statistics**

**Co-relational Analysis :** Table 2 shows the correlations among the thigh circumference, calf circumference, leg strength, and kicking ability. The correlation between the thigh circumference and calf circumference (0.63) found to significant at 0.05 level of significance as well as 0.01 level of significance. And the correlation between Leg strength and calf circumference (.53) found to significant at 0.05 level of significance.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Thigh Circumference</th>
<th>Calf Circumference</th>
<th>Leg Strength</th>
<th>Kicking Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thigh Circumference</td>
<td></td>
<td>.632**</td>
<td>.234</td>
<td>.169</td>
</tr>
<tr>
<td>Calf Circumference</td>
<td></td>
<td></td>
<td>.534*</td>
<td>.303</td>
</tr>
<tr>
<td>Leg Strength</td>
<td></td>
<td></td>
<td></td>
<td>.189</td>
</tr>
</tbody>
</table>

**Table 2: - Co-relational Analysis of thigh circumference, calf circumference, leg strength, and kicking ability.**
DISCUSSION

The present study was to find the interrelationship of kicking ability leg strength, thigh and calf circumference. At this age group of 10-12 years, boys kicking ability was not related to leg strength, thigh and calf circumference. But leg strength depends directly on calf circumference and indirectly on thigh circumference because tight circumference was related with calf circumference only but not leg strength. In the study of Taiana et. al. (1993), it was concluded that the maximum strength of lower limbs increased the speed of kicking performance. The contradiction of the study may be due to the immaturity of the players.

CONCLUSION

On the basis of the result of the present study, it can be concluded that leg strength was related to calf circumference and thigh circumference.

REFERENCE


PHYSIOLOGICAL PROFILE OF FEMALE SOCCER ATHLETE

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ABSTRACT
The purpose of this study was to develop a physiological profile of LNIPE female soccer athlete. Variables selected for the study were breath holding capacity, body’s fat percentage, resting heart rate, vital capacity, respiratory rate and maximum oxygen consumption. The data for the study were collected from 20 female soccer players who represented LNIPE, Gwalior in inter-university competition. The physiological profile of the female soccer player was compiled from results of each variable tested by the researcher. The findings of the study were as follows, breath holding capacity 49.65±17.04 seconds; body fat percentage 15.74±2.13 %; resting heart rate 56.60±8.06 beats per minute; vital capacity 3.23±63liter; respiratory rate 14.05±2.62 times /min; maximum oxygen uptake (VO2 max.) 41.75±4.08 ml/gm/min. Identification and measurement of these key physiological variables of the female soccer athlete may provide the standards and a baseline for trainers, coaches, players and future investigators.

Keywords: Soccer, Breath Holding Capacity, Resting Heart Rate, Vital Capacity, Respiratory Rate Maximum Oxygen Uptake

INTRODUCTION
Soccer, the most attractive and popular game in the world, is certainly not a sort of fashionable sport which come today and gone tomorrow. It is one of the most ancient sports and it is direct ancestor of American football, Canadian football, Rugby and several other sports (Narrolam Puri & V. Kirshna Swamy,1992). Modern soccer is a vigorous and fast game, which requires accelerating sprint, rough tackling, and power in kicking and endurance to sustain skillful play for minimum ninety minutes. Physical qualities such as speed, strength, agility, muscular power and endurance etc. are very important for a successful soccer player (Karl N Heddergott,1973).
It has been reported that during elite-level competition, players have to run about 10-12 km in ~90 minutes (Stolen, Tet.al,2005). Furthermore, improved aerobic running ability of soccer players has been shown to improve their field performances, such as increased distance coverage, more involvement with the ball, similar technical performance despite significantly higher exercise intensity, and increased number of sprints (Helgerud, J, Engen, LC, Wisloff, U, and Hoff, J.,2001). Physical fitness is also one of the important factors to differentiate players at the top level from those at the lower levels (Tumilty, D.,1993). It has been reported that the body weight and body mass index of Asian soccer players competing in 2002 and 2006 FIFA World Cups were significantly less than those players from other confederations (Wong, P, et. al, 2008).

The purpose of this study was to prepare a profile of physiological characteristics of LNIPE female soccer athletes. This study helps to know about the performance level of players. This study also helps coaches and trainers to add some knowledge regarding these physiological variables about this group. It may also help in comparing the physiological profile with other level of soccer players.

**METHODOLOGY**

For this study, the researcher selected 20 female soccer players as subjects from Lakshmibai National Institute of Physical Education, Gwalior whose age ranged between 18 to 24 years. The variables selected for the study were breath holding capacity, body’s fat percentage, resting heart rate, vital capacity, respiratory rate and maximum oxygen uptake (VO2 max.).

Breath holding capacity, resting heart rate and respiratory rate were measured manually with the help of stopwatch. The data for resting heart rate and respiratory rate were collected early in the morning. Subjects were asked to count their pulse rate and total number of breathings per minute respectively which were recorded. Body fat percentage was estimated from skin fold measurement at four different sites on the body surface. Vital capacity was measured with the help of dry spirometer. VO2 max was recorded with the help of Cooper 12 min run-walk test. After the completion of time, the distance was measured and then the following formula was applied:
\[ VO_2 \text{ max (ml/gm/min)} = 35.9712 \times (\text{Distance in mile for 12 min run walk}) - 11.2878 \]

**RESULTS**

**Table 1: Descriptive statistics of selected physiological variables of female soccer athletes**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breath Holding Capacity (in sec)</td>
<td>49.65</td>
<td>17.04</td>
<td>26.00</td>
<td>95.00</td>
</tr>
<tr>
<td>2</td>
<td>Body Fat %</td>
<td>15.74</td>
<td>2.13</td>
<td>12.10</td>
<td>19.10</td>
</tr>
<tr>
<td>3</td>
<td>Resting Heart Rate (Beats/min)</td>
<td>56.60</td>
<td>8.06</td>
<td>47.00</td>
<td>68.00</td>
</tr>
<tr>
<td>4</td>
<td>Vital Capacity (Liters)</td>
<td>3.23</td>
<td>0.63</td>
<td>2.40</td>
<td>4.80</td>
</tr>
<tr>
<td>5</td>
<td>Respiratory Rate</td>
<td>14.05</td>
<td>2.62</td>
<td>10.00</td>
<td>20.00</td>
</tr>
<tr>
<td>6</td>
<td>VO2 max (ml/gm/min)</td>
<td>41.75</td>
<td>4.08</td>
<td>36.54</td>
<td>50.17</td>
</tr>
</tbody>
</table>

Table 1 reveals the descriptive statistics (mean, standard deviation, minimum and maximum) of selected physiological variables of female soccer players. The mean and standard deviation of the variable breath holding capacity (49.65±17.04), Body fat % (15.74±2.13), Resting Heart rate (56.60±8.06), Vital Capacity (3.23±0.63), Respiratory Rate (14.05±.262) and VO2 max (41.75±4.08)

**DISCUSSION OF FINDINGS AND CONCLUSION**

Since the mean breath holding capacity of all soccer players were 49.65 seconds, it indicates that in general soccer players had better breath holding capacity. It may be because soccer players deal with vigorous training load so their anaerobic capacity increases. Average body fat percentage is also ideal i.e. 15.74% as athlete female players should have body fat of 14-20% (Willa C. Fornetti.,1999) Body fat percentage is the most important parameter which affects the soccer performance i.e. lesser the fat better the performance.

Vital capacity tells about the lung capacity of an individual. Female players have good lung capacity i.e., mean is 3.23 liters. However, the mean of maximum oxygen uptake is 41.75 liters which indicates the cardio-vascular fitness of soccer players is better than the untrained female athletes (Wong, Del P., 2009)
There is significant role of Body Fat %, Vital Capacity, Respiratory Rate and VO2 max in the female soccer performance. Breath Holding Capacity and Resting Heart Rate did not play a significant role in the soccer performance.

Though many international studies indicate that in soccer, Resting Heart Rate plays a very important role, but in this study Resting Heart Rate time was insignificant due to the reason that the standard of LNIPE female soccer players is very low than that of the international level.

REFERENCES


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