INTRODUCTION

Physical school education is of great importance to assist in the development of students, the teacher has the duty to develop methods and strategies to encourage children and adolescents to initiate a sports practice, showing that physical activity combined with healthy habits promotes better performance in your day to day. Nowadays, it is known that health is a matter of education and that the school is characterized as one of the most privileged places to develop programs and strategies of health education and promotion of healthy habits of physical activity. (1)

In Brazilian schoolchildren, a high prevalence of low cardiorespiratory fitness was observed, as well as other components of physical fitness related to health. The systematic practice of regular exercises that favor the improvement of the components of physical fitness can help in the control of the corporal adiposity and Functional neuromotor capacity, thus benefiting in the quality of life and health. (4)

The relationship between physical activity and body fat in these children is fundamental, since it is at this stage that food and physical exercise patterns are established, especially in the school environment. However physical education classes often cannot achieve such necessary goals because of their short time, and often with high numbers of children per class. (3)

Data from the National Health and Nutrition Survey (PNSN) have identified a higher rate of overweight in adolescents with higher incomes. (5) Studies have indicated that satisfactory levels of health-related physical fitness may favor the prevention, maintenance and enhancement of functional capacity, reduce the likelihood of developing chronic degenerative dysfunctions such as obesity, diabetes, cardiovascular disease, hypertension, among others, thus providing better health conditions and quality of life for the population. (6)

With this concern and intention of this work to know if it is possible to identify the physical fitness levels of elementary school students from the network of public and private schools of the city of São José do Egito in Pernambuco, comparing the means of stature, cardiorespiratory fitness, strength, flexibility and body composition among schoolchildren of private, state and municipal public networks?

This study aimed to establish the level of physical fitness of elementary school students from the public and private schools of São José do Egito - PE. As a specific objective, to measure the levels of flexibility of primary schoolchildren in the public and private schools of São José do Egito - PE, to evaluate the levels of neuromuscular fitness of primary schoolchildren in the public and private schools of São José do Egito - PE, to measure the levels of cardiorespiratory fitness of primary schoolchildren from the public and private schools of São José do Egito - PE and, last but not least, to identify the physical fitness level of elementary school students in the network public and private sector of São José do Egito - PE.

MATERIALS AND METHODS

SEARCH CHARACTERIZATION

A cross-sectional descriptive study of Ex post facto typology was carried out, aiming at establishing the effects of behavioral and / or environmental patterns on study variables, but without establishing a causal relationship between the anthropometric profile and any other phenomena.

POPULATION AND SAMPLE

The population consists of approximately 1,500 students enrolled in the three segments, is municipal public, state and private or private schools, all of elementary education II from the 6th to the 9th year, with one of each segment of the urban area of the Municipality of São José do Egito - Pernambuco State and the sample composed of 300 (two hundred and forty) of the students resulting from the sum of a quantitative that added 20% of the number of students from each school that were present in the room of class in the chosen schools of each segment. The students were randomly chosen on the established date of distribution of the Free and Informed Term TCLE that was sent to the parents for signature by them.

Among the variables observed in the study were considered of interest of physical fitness related to health: age, flexibility, Localized Muscular Resistance and Cardiorespiratory Resistance.

The study was carried out in the second half of 2017, in the municipality of São José do Egito - PE, its population is constituted by approximately 35,000 inhabitants according to the last census. The Procedures were carried out in the gymnasium of the schools in a pre-defined place at the time of Physical Education classes.

The inclusion criterion to participate in the study was that the student was regularly enrolled in elementary education II from the 6th to the 9th year in the age group between 10 and 14 years of both sexes in the period of the research.

The data collection of strength, flexibility and cardiorespiratory endurance tests were performed by a team composed of three professionals and three academics of the Physical Education course. The evaluators were trained to perform all
necessary procedures, aiming at the standardization of data collection. Subsequently, each of them was responsible for the collection of a measure, in order to avoid the variability of the measures, in order to increase the reliability of the data.

In addition, training was conducted at a non-participating school of the sample for the purpose of testing the instruments and logistics of the field work.

The components of the flexibility test were the sit-and-reach test without the bench that followed the following protocol: a tape measure on the ground at the 38 cm mark of this tape placed a 30 cm piece of adhesive tape perpendicular. Fixed tape or tape measure on the ground. The subject to be evaluated was barefoot with the heels touching the tape at the 38cm mark and was 30cm apart. With his knees extended and his hands overlapping, the assessor slowly tilts and extends his hands forward as far as possible. The evaluated must remain in this position the time necessary for the distance to be noted. Two attempts were made (14).

For the test of localized muscular resistance the material used was gym mats and chronometer mark Cássio. The student is placed in dorsal decubitus with knees flexed at 90 degrees and arms crossed over the thorax. The evaluator attaches the student's feet to the ground. At the signal the student initiates the movements of flexion of the trunk until touching with the elbows in the thighs, returning the initial position (it is not necessary to touch with the head in the mat at each execution). The evaluator performs the counting out loud. The student should perform the largest number of complete repetitions in 1 minute (14).

For the cardiorespiratory resistance test, a flat spot was used in the sports gym with a stopwatch and a registration form. Numbered material to attach to the back of the students clearly identifying them so that the evaluator can control the number of turns. Measuring tape. Students are divided into groups appropriate to the size of the court. It is observed the numbering of the students in the organization of the groups, thus facilitating the registration of the annotators. For students with long hair, observe the length of hair to ensure that the number on the back is visible. Students are advised of the correct execution of the tests, emphasizing that they should run as long as possible, avoiding spikes of speed interspersed by long walks. It is advised that students should not stop along the course and that this is a running test, although they may walk eventually when they feel tired.

During the test, students were informed of the passage of time at 2, 4 and 5 minutes ("Warning: 1 minute is missing!"). At the end of the test, a signal (whistle) will sound and the students must stop the race, remaining in the place where they were (at the moment of the whistle) until the note is heard. All data were entered in Microsoft Excel. The data were processed and analyzed with the help of Microsoft Excel 2010. The statistical analysis was of the inferential type. For this purpose, the following statistical treatments were applied: ANOVA variance analysis test and Tukey Post Hoc test was used to observe the difference between the variables. The results were presented by mean and dispersion measurements (standard deviation - SD). An α = 5% was adopted for accepting the statistically significant differences.

In order to refer to the ApFRS evaluations, the criteria of the Pronto Esporte Brasil 13 were adopted because the investigations of this project are to delineate the profile of Brazilian children and youngsters regarding growth and somatomotor development and physical fitness related to health and performance sports Given the need for empirical data on somatic growth and physical fitness related to the health and motor performance of Brazilian children and young people, PROESP(14) proposes a battery of measures and tests for the evaluation of students aged between 7 and 17 years.

RESULTS AND DISCUSSION

The present study studied the characteristics of health-related physical fitness of 300 students belonging to the educational networks, State School, Municipal School and Private School of the city of São José do Egito-PE, enrolled in elementary education II, presenting the results below, according to the genera according to the tables below.

Table 1. Descriptive physical fitness for females

<table>
<thead>
<tr>
<th>SCHOOLS</th>
<th>AGE (MED + SD)</th>
<th>FLEXIBILITY (MED + SD)</th>
<th>LOCALIZED MUSCLE RESISTANCE (MED + SD)</th>
<th>RESPIRATORY CARDIO RESISTANCE (MED + SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE WORKS</td>
<td><strong>71.3 ± 7</strong></td>
<td><strong>98.9 ± 7</strong></td>
<td><strong>15.9 ± 8.1</strong></td>
<td><strong>69.7 ± 18.3</strong></td>
</tr>
<tr>
<td>MUNICIPAL</td>
<td><strong>12.5 ± 4.2</strong></td>
<td><strong>38.7 ± 5.1</strong></td>
<td><strong>17.4 ± 9.3</strong></td>
<td><strong>80.3 ± 17.2</strong></td>
</tr>
<tr>
<td>PRIVATE</td>
<td><strong>12.3 ± 6</strong></td>
<td><strong>45.4 ± 6.6</strong></td>
<td><strong>18.8 ± 8.4</strong></td>
<td><strong>85.0 ± 9.6</strong></td>
</tr>
</tbody>
</table>

**AGE:** - Better Flexibility; **BMI:** Best Localized Muscle Strengths; **CR:** Best Cardiorespiratory Endurances.

The analysis of the data in (1) shows the average of the female students, with a higher average in the State Schools segment, with a mean age of 12.7 ± 0.7 years, with no significant difference between them. When compared with respect to flexibility, the table shows a difference in favor of the Municipal Schools, 40.0 ± 6.4cm without presenting a significant difference between the other schools. In the localized muscle endurance test, the result appears better for the Private Schools that obtained the mean of 38.4 ± 8.4 rep / min, as the highest among the other schools. When the cardiorespiratory resistance was evaluated, the Private Schools obtained the highest average, being 70.3 ± 79 m, emphasizing, therefore, a significant difference between them. According to the PROESP grading scale, all schools showed above-average values, which indicates that the students are in a healthy condition. In studies conducted in developed countries the majority of schoolchildren exhibit adequate flexibility in health, while in underdeveloped countries schoolchildren of both sexes do not meet the minimum health criteria (11), already in this study all schools reached the pre-established average for PROESP for health. However, with the occurrence of menarche, there is an increase in the percentage of fat, which causes some disadvantages in the physical performance, contributing to the poor performance of the girls for the test of abdominal muscle resistance. (12)

The analysis of the data of (2) table, on the average of male schoolchildren, shows a higher average for State Schools, with a mean age of 12.9 ± 1.1 years, without showing a significant difference between the other schools. When confronted with the flexibility test, the Private Schools, with an average of 38.4 ± 7.5 cm, shows a significant difference. In the test of localized muscular resistance, the result appears better for the Municipal Schools, which obtained the mean of 47.9 ± 5.9 rep / min, standing out as the largest among the other schools. When the cardiorespiratory resistance was calculated, the Private Schools reached the highest average, being 805.3 ± 92.8 m, thus highlighting a significant difference. For males, it proposes that it is above the average suggested by the PROESP Table, which indicates that they are healthy.

Table 2. Description of physical fitness for males
The possible explanation for this would be the occurrence of menarche, which would accentuate the female sexual characteristics, which would highlight an increase in the percentage of fat and caused some disadvantages in the physical performance contributing with this poor performance of the girls for the flexibility 26, 27.

When analyzing the level of physical fitness of elementary school students in the state, municipal and private schools of São José do Egito - PE, the mean values of flexibility among them, which presented a significant difference. That according to the PROESP classification table (2012) 14 all present mean values for the variable, indicating that they are healthy; however, it can be seen that the students of the private network performed better than those of the state public network and the municipal network, in this order, which PROESP proposes (2012) 14. When the results obtained were compared to the FITNESSGRAM (2002) 22 test table, all the schools are classified in the established standard for the healthy zone.

The analysis of the data presented a significant difference (F = (5; 186,060) = 2.489; p = 0.312 for the localized muscular endurance test or abdominal test, (Figure 3) coinciding with Tukey's Post Hoc analysis that also did not indicate a difference between them. It is observed that the schools do not reach pre-established average values, all of them being within the health risk zone according to the established criteria of PROESP (2012) 14. In private schools, mean values were higher than those observed in public schools, followed by municipal and state schools, but all presented values below those expected for average age. What converges with results presented in other regions of Brazil 25.

The results for the tests performed in the boys showed similar behavior, where none of the schools managed to reach the standard established by PROESP (2012) 14. And all are in a state of risk. However, if compared to the tests proposed by FITNESSGRAM (2002) 22, students of both sexes present a classification for healthy physical fitness. Studies conducted in Brazil show that socioeconomic differences may not explain low values of physical fitness 28.

### Table

<table>
<thead>
<tr>
<th>SCHOOLS</th>
<th>AGE</th>
<th>FLEXIBILITY</th>
<th>LOCALIZED MUSCLE RESISTANCE</th>
<th>RESPIRATORY CARDIO RESISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MED</td>
<td>SD</td>
<td>MED</td>
<td>SD</td>
</tr>
<tr>
<td>STATEWORKS</td>
<td>11.9</td>
<td>1.1</td>
<td>32.3</td>
<td>5.9</td>
</tr>
<tr>
<td>MUNICIPALITIES</td>
<td>12.6</td>
<td>1.3</td>
<td>33.8</td>
<td>6.1</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>12.3</td>
<td>1.2</td>
<td>40.4</td>
<td>9.3</td>
</tr>
</tbody>
</table>

*AGE, **Better Flexibility, ***Best Localized Muscle Strength, ****Best Cardiorespiratory Endurance.

When all students are considered in an indistinct manner when the gender is observed that as far as age does not observe significant differences F = (5; 12,683) = 0.337, p = 0.012 among schools (Figure 1).

![Figure 1. Demonstration of the means of the ages of primary school students II of public, state and municipal networks.](image1)

![Figure 2. Demonstration of the means of flexibility of elementary school students II of public, state and municipal networks.](image2)

When comparing students' flexibility (Figure 2), a significant inter-group difference was observed for flexibility in the sit-and-reach test F = (5; 387,408) = 5.352; p = 0.000, but not confirmed in the Post Hoc Tukey.

![Figure 3. Demonstration of the means of the ages of primary school students II of public, state and municipal networks.](image3)
Figure 3. Demonstration of the means of localized muscular resistance of elementary school students II of public, state and municipal networks.

For the cardio respiratory resistance variable (Figure 4) in the 6-minute test, a divergence $F = (5; 128034,833) = 4,380; p 0.707$, and configuring the difference between the school of the state network, municipal and private network when compared confirmed in the Post Hoc of Tukey.

In the cardio respiratory variable for both sexes, even though there was a significant difference between them, all schools managed to reach the healthy zone according to the PROESP table (2012) 14. According to Guedes et al (2001), the results of the present study show that male adolescents present higher values for cardio respiratory fitness, according to the author, due to the greater participation of boys in activities that demand higher expenditure energy than girls29. Confirmation also configured when comparing the values between the adolescents of both sexes belonging to the public and private network was contacted that the average of the students of the public network was superior to those of the private network. Guedes et al (2012) 30, in a study carried out in Montes Claro, MG, showed that boys had better aerobic resistance results compared to girls, due to the influence of biological factors during puberty, body fat, greater leg length, and the most developed muscle mass.

Figure 4. Demonstration of the means of the Cardio respiratory Resistance of elementary school students II of the public, state and municipal networks.

In all tests carried out in schoolchildren, all school segments reached an average higher than the standard established by PROESP, indicating that all are healthy, and outside the risk zone. In a study carried out with public and private schoolchildren, it was verified that the students’ performances did not show great differences. In this perspective, the project proposes to collaborate by suggesting valid, reliable, low-cost and very easy-to-apply instruments, allowing Physical Education teachers in the numerous schools of our Brazil to use to follow up their students with regard to aspects of somatic motor growth and development, nutritional aspects, and physical fitness. Concluding that the physical fitness of schoolchildren depends more on biological than on socioeconomic characteristics. 13

CONCLUSION

It is concluded before the analyzes of the means of the variables observed are relevant for the acquisition of health and anticipation of diseases. The focus given to this work will contribute to the promotion of the practice of physical exercise, based on relevant data for the improvement of its practice. We disagree on differences where the socioeconomic environment and lifestyle are influential on the perspective of healthy living where the same teaching network also showed higher numbers. The motivational factors highlighted in this study can objectively guide the practice of teachers, therapists, and the family in the pursuit of health promotion, self-esteem, and youth well-being. From this exploratory study, further research on children and adolescents in the school context can contribute to a work better suited to the needs and aspirations of this population. Therefore, we suggest that more detailed studies be done in relation to the topic addressed and that strategies be promoted in order to encourage the practice of physical activities in the school environment, as well as healthy eating as a way to prevent overweight and obesity among other chronic diseases non communicable diseases.

REFERENCIAS


O aperfeiçoamento dos componentes da aptidão física permite a crianças e adolescentes a identificar esses componentes e seus benefícios à saúde, buscando estimular o desenvolvimento de um estilo de vida fisicamente ativo até a maioridade. O objetivo do presente estudo foi identificar os níveis de aptidão física de escolares do Ensino Fundamental II da rede pública e privada da cidade de São José do Egito em Pernambuco. A pesquisa teve um delineamento descritivo transversal de tipologia Ex pos facto, a amostra randomizada foi composta por trezentos alunos de ambos os sexos. Os dados foram processados e analisados com o auxílio do SPSS 20. O análise estatística foi de tipo inferencial. Aplicados os tratamentos estatísticos: teste de análise de variância ANOVA, para observar a diferença entre variáveis foi aplicado o Teste de Pearson. Os resultados apresentados por meio das medidas de tendência central mínimo, máximo e média e pelas medidas de dispersão (desvio padrão – DP), sendo adotado um α = 5% para a aceitação das diferenças estatisticamente significativas. Os Resultados quanto à idade não apresentaram diferença significativa, apresentando diferenças significativas quanto a flexibilidade, resistência muscular localizada e resistência cardiorespiratória, não corroboradas pelo teste de Post Hoc de Tukey. Conclui-se que sejam feitos estudos mais detalhados em relação ao tema abordado e promoção da atividade física e alimentação saudável no âmbito escolar, como forma de prevenção ao sobrepeso e obesidade.

PALAVRAS-CHAVE: Aptidão Física, Flexibilidade, RML, RCR, Escolares.