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**Original Article**

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# The practice of physical activity related to self-esteem and academical performance in students of basic education

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## ABSTRACT

The present study was aimed to relate physical activity in the formation of self-concept, self-esteem and school performance in children of basic education. We had a sample of 531 students of the municipalities of Santarém, Torres Novas, Entroncamento and Tomar (Portugal), of which 295 students (55.6%) for males and 236 students (44.4%) than females, with a mean age of the sample of 9.13 years, ranging from a minimum of 8 years and a maximum of 10 years. From this sample, 394 students (74%) have the practice of physical activity at least one formal character extracurricular and 137 students (26%) of the total sample reported no physical activity. As an instrument of data collection used the concept of the Self Susan Harter validated for the Portuguese population (Martins, Peixoto, Mata & Monteiro, 1995), where we analysed descriptive and inferential data in order to confront levels average self-concept in the areas of scholastic competence, social acceptance, athletic competence, physical appearance, behaviour, and global self-esteem. Were also recorded income school students study the subject areas of Mathematics, English and Sciences Studies. The practice of regular physical activity not decisively proved a significant factor in the level of self-concept, self-esteem and academic performance of students. However, the variable self seems to assume an evolution with increasing number of sessions per week of physical activity, as apparently the practice of at least one sport elevates levels of self-esteem. Students with the highest number of weekly hours of physical activity regularly reveal a level of academic achievement significantly higher, compared to students with less hours without registration or practice regular physical activity weekly. **Key words:** PHYSICAL ACTIVITY, SELF-CONCEPT, SELF-ESTEEM, ACADEMICAL PERFORMANCE.

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## INTRODUCTION

Adherence to physical activity is a component of a complex process that involves the development, learning and assimilation of skills, values, norms, self-perceptions, identities and roles provided by different variables of family environment and social involvement, as socio-demographic group, profession, education and area of residence, which may be potential factors influencing the physical activity of children and adolescents in their free time (Yang, Telama & Laakso, 1996).

Cocke (2002), Tremblay, Inman & Willms (2000) Dwyer et al., (1983) and Shephard (1997), refer to the portion youth participating in regular physical activity tend to demonstrate better attributes such as increased respective brain activity and nutrition levels of concentration and energy, changes in body composition affecting the individual's self-concept and behaviour positively, which can give greater support to cognitive learning.

It seems clear also the association of physical activity with self-esteem and self-efficacy McAuley & Rudolph (1995) as well as for the emotional well-being seems to be evidence of a positive effect of physical activity in reducing depressive symptoms and anxiety (Brown, Wang and Ward, 1995, in scouts, 1999). Recognizing the pedagogy of physical activities, whose spectrum approach in infant age groups is quite wide, plays a predominant role in the overall training of its practitioners, allowing them to transfer the sporting context to their specific socio-cultural context. The practice of sport and physical activity contributes to the social and emotional development of children because their practice is full of important moral values. A child who practice physical activities and sports, learn to be disciplined, to trust itself, to acquire self-control and self-esteem, to adapt to new situations and problems, to cooperate, to compromise and resist (Batista & Cube Delgado, 2009, 2011).

Physical activity and sport has a scope of intervention in the cognitive, social and physical motor, as an excellent means of child's motor development, contributing to a good education and training of the same, in that it promotes healthy activities in a pleasant environment, promoted wellness physical and psychological. The psychological well-being meets a number of specific ways, including self-esteem, self-concept related component, where physical activity and sport, encourages the development and promotion of both.

According to Nash (1970) the body schema and body image are terms used to describe the body related components that are included in the self. Sastre (1999), Vasconcelos et al. (2004) among other factors relate to physical appearance and physical body as a factor of well-being.

Exercise as a means for health promotion is an accepted principle, and sometime this part includes the notion that psychological wellbeing is linked to rates of participation in physical activities by individuals (Biddle & Mutrie, 2001.).

Among the variables used to assess the psychological well-being, self-esteem seems to be the one that brings greater consensus (Sonstroem, 1984, 1997, Fox, 2000). Biddle & Mutrie (2001) claim that this is the most important variable to assess the welfare. In the opinion of Lucas, Diener & Suh (1996) self-esteem is strongly associated with psychological well-being.

The psychological well-being can be understood in at least two dimensions: cognitive (satisfaction) and affective (happiness). These two dimensions cover a range of concepts such as scholastic competence, social acceptance, athletic competence, physical appearance, self-efficacy, behavioural attitude, which are

components in the formation of self-concept. Vasconcelos Raposo, & Gonçalves Teixeira (2004) highlights the fact that body satisfaction is an aspect that tends to be overlooked by scholars in the field of scientific research of psychological well-being. Simon (2005), who reported the depreciation attributable to participation in extracurricular physical activity as a factor nothing beneficial for academic performance before the twentieth century, ultimately concluded that such participation positively affects academic achievement and that students who participated in extracurricular activities have higher perceptions of competence dimensions in school and social acceptance.

In its review Samulsky (2002) noted that the type of aerobic exercise has been shown to be an efficient means to obtain the psychological well-being, with positive effects on stress, mood, and self-concept. Not only for their possible relationships with the use / school performance, and for its potential to promote health and well-being, social motricity, but also as developers creating / maintaining healthy lifestyle habits and personal hygiene. This activity by its strength in shaping the personality of the individual should be subject to mandatory approach in the curriculum of physical education in the Portuguese educational system, like other European countries where it assumes a prominent place in France. Highlighted the benefits of physical activity and sports, we emphasize the psychological well-being and the factors that contribute to this state, where the self is of great importance, particularly in psychosomatic dependence on the design of the body itself and the subsequent provision of income school.

### **Study purpose**

The present work is developed under the theme of physical activity as a factor enhancer of the self-esteem and academic performance of students in the basic education and its main goal is:

1. To investigate the influence of physical activity on regular self-concept, self-esteem and academic performance of students in the basic education.

### **METHODS**

In this investigation the study variables were the self in its constituent dimensions (scholastic competence, social acceptance, athletic competence, physical appearance and behaviour), self-esteem and academic achievement, which were analysed in relation to variable capital volume, parent training, number of times weekly practice formal physical activity beyond physical education classes at school. We worked with a sample of 531 students of the municipalities of Santarém, Torres Novas, Entroncamento and Tomar (Portugal), between 2010 and 2011, of which 295 (55.6%) for males and 236 (44.4%) of females with an average of 9.13 years, ranging from a minimum of 8 years and a maximum of 10 years. From this sample, 394 students (74%) practiced at least one physical activity formal extra-curricular character, with experience ranging from 9 months to 5 years and ranks among white belt and green belt. As an instrument of data collection used the Self-Concept Scale Susan Harter validated her Portuguese population (Martins, Peixoto, Mata & Monteiro, 1995), where we analysed descriptive and inferential data in order to compare the mean levels self-concept, the dimensions of scholastic competence, social acceptance, athletic competence, physical appearance, behaviour, and global self-esteem. There were also income school students study in mathematics, English and environmental studies.

Specifically, this study focuses primarily on research-based quantitative correlation and causal, using data from a quantitative and qualitative, descriptive in nature, so it does not interfere with reality, just merely analyse it without stimuli applied in the study sample. For data analysis was used a computer program SPSS, version 17.0. The statistical procedure focused on parametric and non-parametric tests for comparison of means test "t" for independent samples ANOVA, test of Kruskal-Wallis H test and Mann-Whitney, Wilcoxon,

Pearson's R and T for Test Samples Related, from which it proceeded to the process of contrast of hypotheses under consideration.

## RESULTS AND DISCUSSION

In this chapter we will proceed to the descriptive analysis of the results obtained from the application of the scale of self-concept Susan Harter. We will describe the results of averages and standard deviation in the dimensions that make up the dependent variable self-concept, including scholastic competence, social acceptance, athletic competence, physical appearance and behaviour, as well as the dependent variables self-concept and self-esteem on the same-scale and school performance on the basis of the independent variables, sport, sports field, the context of sport, age group, number of workouts per week, full years of practice mode and graduation. Regarding the field of sports practiced by the children who participated in our study, we observed in figure 1 that students whose practice focuses on individual modalities (individual sports) showed an average value of self-esteem very similar to students whose practice focuses on collective modalities (team sports), respectively  $M = 2,4396$   $SD = 0,54$  and  $M = 2,4399$   $SD = 0,60$ . The following is the value of self-esteem presented by students whose practice focuses on the individual modality along with the collective mode, where  $M = 2,43$   $SD = 0,42$ , slightly lower than that of students who have only the practice of physical education curriculum institutionalized  $M = 2,42$   $SD = 0,47$ , and finally the students whose average self-esteem is lower focuses on students without any formal physical activity, where  $M = 2,34$   $SD = 0,38$ .

In the variable self-concept, strikes us the highest average value in students who have a practice of a single mode with a collective mode  $M = 2,51$   $SD = 0,27$ , followed by students whose practice focuses on individual modalities  $M = 2,49$   $SD = 0,33$ , students with physical education where  $M = 2,48$   $SD = 0,27$ , students who practice collective modalities have  $M = 2,476$   $SD = 0,4$ , recording the lowest average auto concept students who exhibit no regular practice of physical activity formal, where  $M = 2,36$   $SD = 0,26$ .

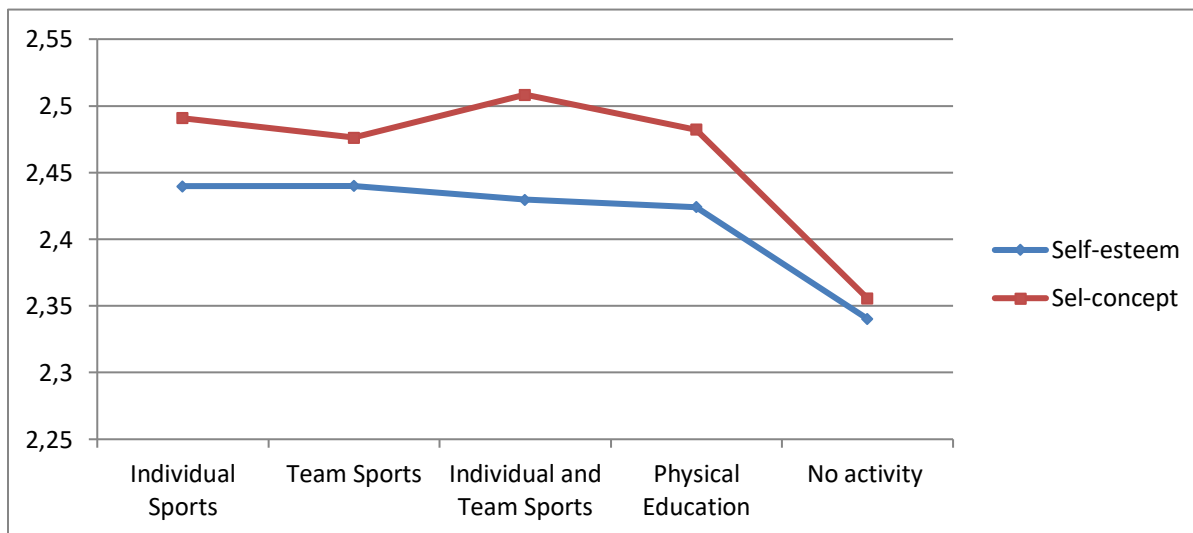


Figure 1. Variable means of self-esteem and self-concept as a function of the variable domain sports.

In the variable school performance, appears to us also the average higher in students who have a practice of a single mode with a collective mode  $M = 85,23\%$   $SD = 11,37\%$ , followed by students whose practice focuses on individual sports  $M = 81,18\%$   $SD = 11,94\%$ , with these two groups higher values than the average

school performance overall  $M = 79.04\%$   $SD = 14.01\%$ . Lower than the latter were the values of students without physical activity  $M = 78.28\%$   $SD = 15.06\%$ , students who practice collective modalities have  $M = 76.55\%$   $SD = 13.4\%$ , recording the lower average students with physical education where  $M = 72.19$   $SD = 17.05\%$ .

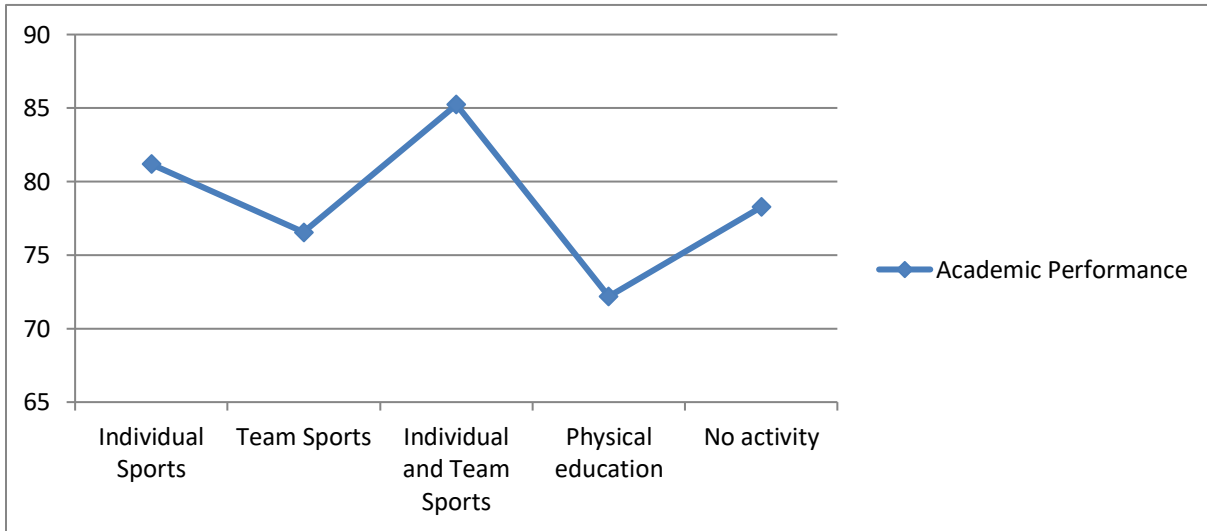


Figure 2. Average of variable academic performance depending on the sports field.

In the variable of total weekly physical activity, we observed an increasing trend with increasing number of days of weekly physical activity, both in self-esteem as a variable in the variable self-concept. Thus, the group that operates a total of 7 hours or more showed the highest level of self-esteem  $M = 2.65$   $SD = 0.73$  as well as the high-level concept of self  $M = 2.58$   $SD = 0.57$ .

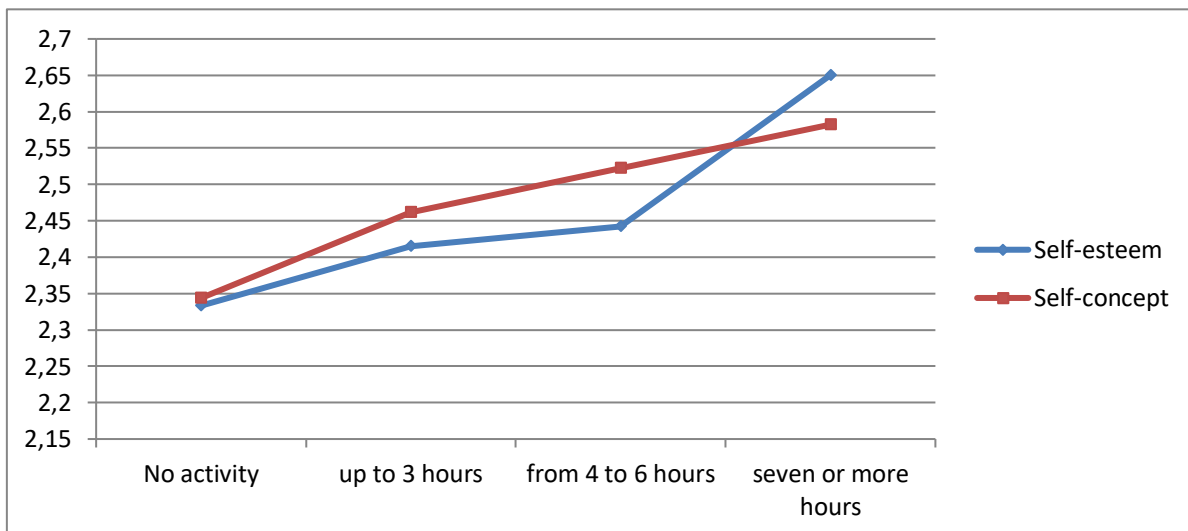


Figure 3: Variable means of self-concept and self-esteem as a function of the variable total weekly physical activity.

In the variable school performance was also observed a growing trend in pupil attainment, with the two groups that regular physical activity practice, the higher levels. The highest average value of school performance was recorded in the group practice between 4-6 hours per week where  $M = 81.43$   $SD = 12.74$ .

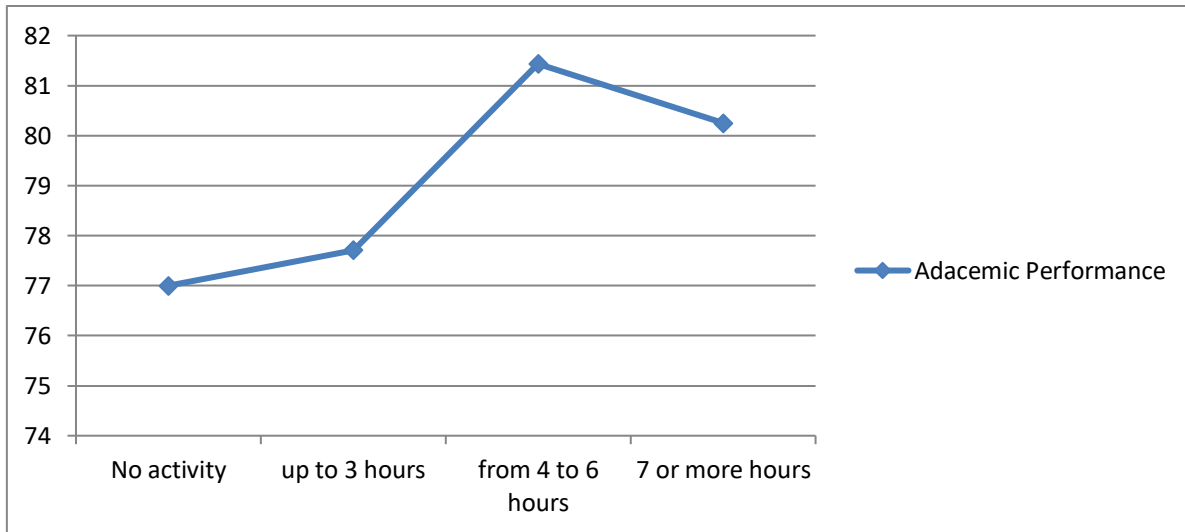


Figure 4. Average variable of academic performance due to the variable total weekly physical activity.

When assessing our observation of the descriptive variables self-esteem, self-concept and academic performance as a function of the variable type sports, we find that there is a predominance of higher values in students who have a formal practice of sports whose body contact is an integral part of regulation and culture of that mode. Thus, students who practice with body contact modalities showed average parameters of self-esteem  $M = 2.45$   $SD = 0.43$ , self-concept  $M = 2.52$   $SD = 0.25$  and  $M$  school performance  $81.39\%$   $SD = 12.62\%$ , compared to students whose sport has no body contact, self-esteem  $M = 2.43$   $SD = 0.57$ , self-concept  $M = 2.48$   $SD = 0.36$  and  $M =$  school performance  $80.95\%$   $SD = 12.14$ .

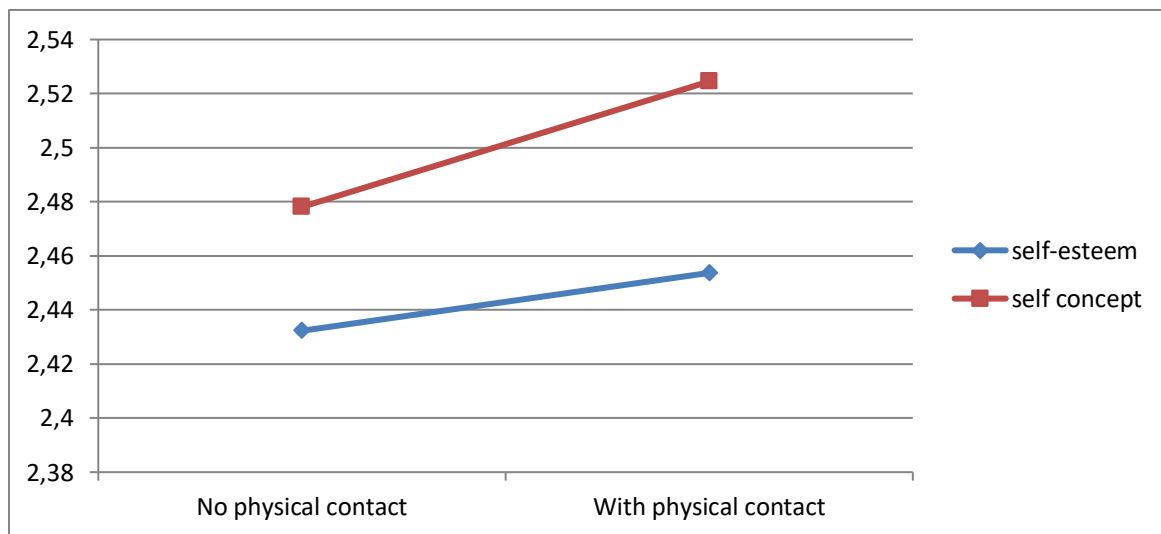


Figure 5. Summary of averages of the self-concept and self-esteem as a function of the variable type sports.

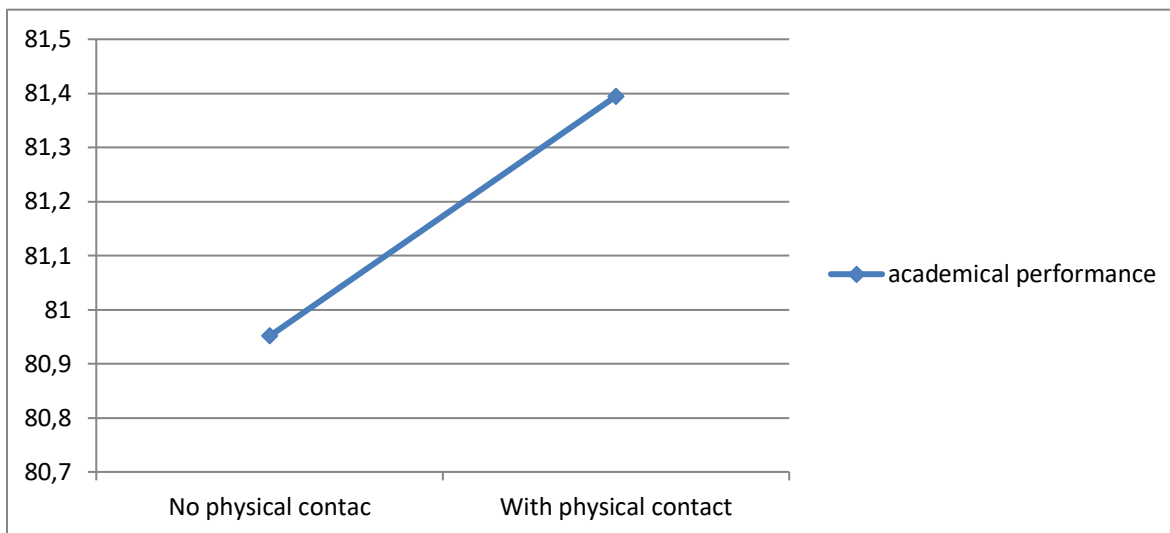


Figure 6. Summary of average variable academic achievement as a function of the variable type sports.

Starting comparisons in order to meet the objective of this study, we focus on the analysis of groups that have a practice of regular physical activity based in some sports field with the group of individuals without any physical activity.

We note therefore that the group has values higher self-concept is the group that brings together the physical activity of an individual and collective mode. The average self-concept below was recorded by the group without physical activity. To do the comparison group we selected the Kruskal Wallis test, where we obtained values of significance of  $\alpha = 0.214$ , and the value of  $p > 0.05$ , which leads us to reject the hypothesis of differences.

Table 1. Kruskal Wallis test of the self-concept in the variable field of sports.

	Sports domain	Nr of students	Mean	Station deviation	Kruskal Wallis Sig.
Self-concept	Individual sport	283	2,49	0,33	0,214
	Team sport	56	2,48	0,39	
	Individual and team sports	54	2,51	0,27	
	Physical education	114	2,48	0,27	
	No activity	24	2,36	0,26	

Legend: Sig.  $\alpha < 0,05$

From the ddescriptive analysis of the values of self-esteem due to the sports field with the group without physical activity, we found that the latter group notes again the lower value of the frame analysis. The highest values are recorded in the groups practice a form of individual and collective practice of a sport. Performing the Kruskal Wallis test found that the level of significance of  $\alpha = 0.999$  and therefore the value of  $p > 0.05$ , which leads us to reject the hypothesis of differences.

Table 2. Kruskal Wallis test of the self-esteem in the variable field of sports.

	Sports domain	Nr of students	Mean	Station deviation	Kruskal Wallis Sig.
Self-esteem	Individual sport	283	2,44	0,54	0,999
	Team sport	56	2,44	0,60	
	Individual and team sports	54	2,43	0,42	
	Physical education	114	2,42	0,46	
	No activity	24	2,34	0,37	

Legend: Sig.  $\alpha < 0,05$ 

By observing the descriptive data, we found that the group that has a higher value of school performance is the group that has a joint practice of a single mode with a collective mode. The group activity without presents a higher school performance with the group notes those only practice a team sport, or even just notes the practice of physical education. We selected the non-parametric Kruskal Wallis test to establish comparisons between groups.

Table 3. Kruskal Wallis test of the academic performance in the variable field of sports.

	Sports domain	Nr of students	Mean	Station deviation	Kruskal Wallis Sig.
Academic performance	Individual sport	283	81,18	11,93	0,000***
	Team sport	56	76,55	13,4	
	Individual and team sports	54	85,23	11,37	
	Physical education	114	72,19	17,04	
	No activity	24	78,28	15,06	

Legend: \*Sig.  $\alpha < 0,05$  \*\*Sig.  $\alpha < 0,01$  \*\*\*Sig.  $\alpha < 0,001$ 

By application of that test we note values of significance  $\alpha = 0.00$ , values which are highly significant as  $p < 0.001$ . The groups showed differences between them in the variable school performance, was the physical education group compared with the group that presents the practice a single modality or a modality individually and collectively. Values were also recorded difference in this variable between the group with the practice of a collective mode with the group that presents the practice of individual and collective mode. By observing the values of self-concept obtained as a function of the total hours of physical activity during the week, we found that the group has a practice of larger workloads shows a higher level, with the lower value presented by the group of individuals without activity. We selected the Kruskal Wallis test for comparison of groups, which revealed a level of significance of  $\alpha = 0.069$ , and the value of  $p > 0.05$ , which leads us to reject the hypothesis that students with more hours of practice regular physical activity have a higher level of self-concept towards students with fewer hours of practice.



Table 4. Kruskal Wallis test of the self-concept in the variable total weekly physical activity.

	Total weekly activity	Nr of students	Mean	Station deviation	Kruskal Wallis Sig.
Self-concept	No activity	24	2,34	0,28	0,069
	Up to 3 hours	308	2,46	0,29	
	4 a 6 hours	179	2,52	0,33	
	7 or more hours	20	2,58	0,57	

Legend: \*Sig.  $\alpha < 0,05$

Concerning the variable self-esteem showed the same trend of the previous frame to record the highest for the group of more hours of practice, as well as a lower value in the group without physical activity.

Table 5. Kruskal Wallis test of the self-esteem in the variable total weekly physical activity.

	Total weekly activity	Nr of students	Mean	Station deviation	Kruskal Wallis Sig.
Self-esteem	No activity	24	2,33	0,42	0,827
	Up to 3 hours	308	2,41	0,49	
	4 a 6 hours	179	2,44	0,52	
	7 or more hours	20	2,65	0,73	

Legend: \*Sig.  $\alpha < 0,05$

The comparison made by Kruskal Wallis obtained a significance level of  $\alpha = 0.827$ , then the value of  $p > 0.05$ , which leads us to reject the hypothesis that students with more hours of regular physical activity have a level of self-esteem more towards students with fewer hours of practice. Observing the descriptive values of the variable school performance found that the group has a higher average level is a volume group that has circulation of 4 to 6 hours per week. The group that has the lower level here is the group without physical activity weekly. Application of Kruskal Wallis obtained values of significance  $\alpha = 0.055$ . Not reject the hypothesis that students with more hours of regular physical activity have a higher level of academic achievement compared to students with less hours of practice, since it presents an evolutionary sense of descriptive parameters also supported at the level of statistical significance.

Table 6. Kruskal Wallis test of the academic performance in the variable total weekly physical activity.

	Total weekly activity	Nr of students	Mean	Station deviation	Kruskal Wallis Sig.
Academic performance	No activity	24	77	17,37	0,055
	Up to 3 hours	308	77,71	14,44	
	4 a 6 hours	179	81,43	12,74	
	7 or more hours	20	80,25	12,97	

Legend: \*Sig.  $\alpha < 0,05$

In this case we confront the values of self-concept presented by the group practicing individual sports with the group that practices collective modalities. Mean values are quite similar, and before the application of the selected test Mann Whitney U, obtained a significance level of  $\alpha = 0.515$ , where values for  $p > 0.05$  leads us to reject the hypothesis that students who practice individual sports have a higher level of self-concept compared to students of collective modalities.

Table 7. Mann-Whitney test of the self-concept in the variable field of sports.

	Sports domain	Nr of students	Mean	Station deviation	U Mann Whitney Sig.
Self-concept	Individual sport	283	2,49	0,33	0,515
	Team sport	56	2,48	0,40	

Legend: \*Sig.  $\alpha < 0,05$ 

By these results we focus on the self-esteem variable against the same analysis groups found identical values between these. Before the application of the same non-parametric aforementioned, we obtained a value of significance of  $\alpha = 0.9$ , which leads us to reject the hypothesis that students who practice individual sports have a level of self-esteem higher compared to students of collective modes.

Table 8. Mann-Whitney test of the self-esteem in the variable field of sports.

	Sports domain	Nr of students	Mean	Station deviation	U Mann Whitney Sig.
Self-esteem	Individual sport	283	2,43	0,54	0,900
	Team sport	56	2,43	0,60	

Legend: \*Sig.  $\alpha < 0,05$ 

Observing the values presented by the same descriptive analysis groups, we observed a higher value in favour of the group whose physical activity focuses on individual modalities. The application of the Mann-Whitney U test for comparison of means obtained a significance value of  $\alpha = 0.017$ , so for lower values of  $p < 0.05$ , not rejecting the hypothesis that students who practice individual sports have an income level senior school compared to students of collective modalities.

Table 9. Mann-Whitney test of the academic performance in the variable field of sports.

	Sports domain	Nr of students	Mean	Station deviation	U Mann Whitney Sig.
Academic performance	Individual sport	283	81,19	11,94	0,017*
	Team sport	56	76,55	13,40	

Legend: \*Sig.  $\alpha < 0,05$ 

Analysing the descriptive values presented by the groups of the typology sports, sport mode and without body contact with body contact, we found an average level of self-more highly in favour of the latter group. We selected the non-parametric Mann Whitney U to compare means where we recorded values of statistical significance set at  $p < 0.05$  where  $\alpha = 0.012$ , thus not rejecting the hypothesis that students who practice with body contact arrangements present a level of higher self-concept of modalities compared to students without body contact.

Table 10. Mann-Whitney test of variable in self-concept regarding sports type.

	Sports type	Nr of students	Mean	Station deviation	U Mann Whitney Sig.
Self-concept	Sports with no physical contact	283	2,48	0,36	0,012*
	Sports with physical contact	110	2,52	0,25	

Legend: \*Sig.  $\alpha < 0,05$

The same analysis to these groups but with variable incidence in self-esteem, values reveal descriptive next, although higher for the group practicing physical activity focusing on modalities with body contact. Applying the same test for nonparametric comparison of means revealed a value of  $p > 0.05$ , where  $\alpha = 0.305$ , which leads us to reject the hypothesis that students who practice with body contact modes have a level of self-esteem more high compared to students of modalities without body contact.

Table 11. Mann-Whitney test of variable in self-esteem regarding sports type.

	Sports type	Nr of students	Mean	Station deviation	U Mann Whitney Sig.
Self-esteem	Sports with no physical contact	283	2,43	0,57	0,305
	Sports with physical contact	110	2,45	0,43	

Legend: \*Sig.  $\alpha < 0,05$

In terms of school performance variable descriptive values obtained are also similar to registering a higher level again in favour of the group whose mode focuses on a type of body contact. Applying the same test of contrast medium showed a level of significance set at  $p > 0.05$ , where  $\alpha = 0.609$  which leads us to reject the hypothesis that students who practice with body contact modes have a level of income higher education compared to students of modalities without body contact.

Table 12. Mann-Whitney test of variable in academic performance regarding sports type.

	Sports type	Nr of students	Mean	Station deviation	U Mann Whitney Sig.
Academic performance	Sports with no physical contact	283	80,95	12,14	0,609
	Sports with physical contact	110	81,39	12,62	

Legend: \*Sig.  $\alpha < 0,05$

Concerning the purpose of the study, which sought to determine the influence of regular physical activity on self-concept, self-esteem and academic performance of students, this was achieved and it was found significant factors or trends compared to observation areas contrasted.

## CONCLUSIONS

The practice of regular physical activity not decisively proved a significant factor in the level of self-concept of students. Apparently not because students to practice regular physical activity that have a level of self-

concept significantly higher than students without any physical activity, although the variable self-concept seems to assume a change in the positive direction with increasing the number of weekly sessions physical activity, and the group has recorded seven practice sessions or more per week has values higher self-concept. In turn, students who do not register any session of physical activity levels show lower self-concept. The practice of individual modalities revealed not a factor that determines the level of self-concept student's face significantly higher in the practice of collective modalities. Students who combine the practice of an individual modality with a collective mode levels have higher self-concept. The practice of an individual modality seems to favour the evolution of self-concept, as the group of students that gives this kind of practice is also elevated in the variable analysed. Thus, the practice of a physical activity curriculum or extra curriculum in a regular periodic proved apparently quite important. By this, the practice of collective modalities, even raise levels of self-concept, suggests that this practice is not associated with individual modalities tends to reveal levels of self-concept more modest curiously lower than students who only practice the physical education curriculum. It was observed that the practice of body contact with arrangements by students promotes a significant increase in the level of self-concept compared to students who do not contact body arrangements.

In achieving the same objective, physical activity does not appear as a factor of significant relief in self-esteem of students compared to non-practicing practitioners. Apparently the practice of at least one sport elevates levels of self-esteem, as students who only have the physical education curriculum tend to show lower levels, continuing this trend for students who do not have any practical regular physical activity. On the other hand, with higher values, students with the highest number of weekly hours of physical activity does not have a regular level of self-esteem significantly higher compared to students with less hours without registration or practice regular physical activity weekly. The practice of individual modalities revealed not a factor that determines the level of self-esteem in students significantly higher compared to the practice of collective modalities. Although the results are descriptive and accomplices practice modalities with body contact in the evolution of the level of self-esteem, practice this type of arrangements by the students does not promote a significant increase in the level of self-esteem compared to students who practice modalities no body contact.

Given the variable school performance, results and trends were observed to accomplices this variable. The practice of regular physical activity has not proved a factor that models the levels of school performance, as the group without the practice of regular physical activity not revealed significantly lower than the other groups. Apparently the results revealed significant differences in favour of students who practice an individual modality and / or combine the practice of a collective mode with a single modality compared to students who only have physical education curriculum, as well as the practice of an individual modality and collective values revealed significant favourable compared to students who practice only collective modalities. This trend is also observed at the level of self-concept, suggests that the practice of at least one individual modality emerges as school performance enhancer. Students with the highest number of weekly hours of physical activity regularly reveal a level of academic achievement significantly higher compared to students with less hours without registration or practice regular physical activity weekly. The practice of individual modalities promotes academic achievement of students significantly higher compared to the practice of collective modalities, not revealing the typical characteristics of the sport practiced by the students a factor in school performance benefit, though, such as self-esteem and self-concept, academic performance also comes favoured the students who practice modalities with body contact.

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