

Associations between Fitness Level and Academic Achievement among Female Students of Palestine

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ABSTRACT

This study aimed to identify the relationship between the level of physical fitness and academic achievement among students of Palestine Technical College in Ramallah, in addition to determining their difference with place of residence, academic level, and academic specialization. A total of 128 female students (aged 19-20 years) were participated in this study. The present study showed a positive correlation was proved between physical fitness tests and academic achievement among student's girls. Also, a significant difference was detected between the average fitness level and specialization or academic level. However, no significant differences were showed between the average fitness level and place of residence.

Keywords: Fitness level, academic achievement, place of residence

INTRODUCTION

The theoretical and practical knowledge in the field of physical fitness is important for students of physical education (STAPS) because of its clear impact in the knowledge of the ways, methods and foundations on which the educational process is built. STAPS education presents various theoretical and physical activities as part of their university course, including physiology, sociology, psychology, ball games, swimming, athletics, gymnastic, combat sports, music, and dance etc.

Previous studies explored a possible relationship between physical activity and academic performance (Shepherd et al. 1994; Coe et al. 2006). The review of

Trudeau et al. (2008) revealed that most cross-sectional studies showed positive associations between academic performance and physical activity. However, it is difficult to draw an overall conclusion from previous studies, because most studies data of academic achievement and physical activity doing in school not a university.

In the other side, previous studies were interested to the relationship between academic achievement, intelligence, motivation, anxiety, sports activities, and fitness levels (Miller & Housner, 1998).

Additionally, variables such as academic achievement, academic level, and place of residence are not always accounted for in relationship with physical performance. Moreover, no studies have examined their relationship on female student.

The aim of this study is therefore to identify the effect of academic specialization, academic level, and place of residence on the level of physical fitness among students of Palestine Technical College Ramallah for girls, and to identify their relationships.

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METHODS

Participants

Ten healthy female physical education students aged 19-20 years (body mass: 57.38 ± 5 kg; body height: 1.64 ± 0.26 m) volunteered to participate in this study. The study was conducted according to the Declaration of Helsinki and the protocol was fully approved by the Ethic Committee of the University before the commencement of the assessments. All the participants were fully accustomed with the procedures used in this research and were informed they could withdraw from the study at any time of the experiment.

Design and Procedure

Subjects were required to participate in two testing sessions. All tests were completed within a two-week period and each test was separated by at least 48 hours. All subjects performed the Sprint 30m, throw medicine ball (2kg), zig-zag test, Flexibility test and push-up test.

Statistical Analysis

All analyses were carried out using SPSS 16 for Windows (SPSS, version 16 for Windows. Inc., Chicago, IL, USA). Values were expressed as mean and standard deviation (SD). The relationship between the level of physical fitness, place of residence, academic level, and academic specialization were evaluated using the bivariate correlations. Independent sample t-test was used to compare differences between groups of student level. The significance level was set at $p < 0.05$.

RESULTS

The result showed a significant correlation in speed, strength, agility, endurance and flexibility between session's tests (0.91; 0.87; 0.94; 0.93; 0.90 respectively).

Relationship between Fitness Level and Academic Achievement

Relationship between fitness tests performance were displayed in Table 1. Correlation coefficients (Pearson) between the scores of the sample were calculated in the dimensions of the variable fitness (strength (m), speed (w), endurance, flexibility (cm) and agility (w)) and their academic achievement scores. Results showed a significant correlation between academic

achievement scores and endurance or flexibility or agility tests ($r = 0.67^*$; $r = 0.47^*$; $r = 0.39^*$ respectively). However, no significant correlation was proved between academic achievement scores and Z strength test or speed ($r = 0.22$; $r = 0.07$ respectively).

Fitness Level and Specialization

It is clear from the results of the analysis that there are significant differences ($p < 0.05$) between the average fitness level (strength, speed, endurance, flexibility and agility tests) of students and specialization.

Fitness Level and Academic Level

Effects of academic level on physical fitness were showed in Table 2. Results showed a significant difference between levels study during tests of sprint, endurance, flexibility and agility ($p < 0.05$). However, no significant change of strength test between the two levels of study.

Fitness Level and Place of Residence

Table 3 represents the highest arithmetic mean between fitness level and place of residence. The results showed that the highest arithmetic mean test for strength test, sprint, endurance, flexibility and agility. Also, no significant differences was showed between the average fitness level of students of Palestine Technical College in Ramallah for girls attributed to the variable of the place of residence in tests of strength, speed, endurance, flexibility and agility.

DISCUSSION

The purpose of the present study was to identify the effect of academic specialization, academic level, and place of residence on level of physical fitness among students of Palestine. Results showed a positive correlation between physical fitness tests and academic achievement among student's girls. Also, a significant difference was proved between the average fitness level and specialization. Moreover, the present study showed a significant difference between the average fitness level and academic level. However, no significant differences proved between the average fitness level and place of residence.

First, a positive correlation was proved between physical fitness tests and academic achievement among student's girls.

Table 1: Relationship between fitness tests performance

Tests	Test	Retest	Correlation coefficient
Sprint 30m (sec)	5.40±1.34	5.38±1.09	0.91*
Throw medicine ball (m)	18.12±2.16	18.44±2.76	0.87*
Zig-zag test (sec)	29.58±1.60	30.08±2.03	0.94*
Flexibility test (cm)	59.71±0.56	59.75±0.77	0.93*
Push-up test (30 sec)	12.26±4.71	12.33±4.34	0.90*

Data are presented as mean±SD; significant correlation with $p < 0.05$

Table 2: Effect of academic level on physical fitness

Physical qualities	Academic level (license)		ddl	P value
	First year	Second year		
Strength	5.96±1.09	5.99±1.33	-0.11	0.91
Sprint	7.02±1.16	7.77±0.70	-4.53	0.0001*
Endurance	18.42±4.32	16.76±3.83	2.30	0.02*
Flexibility	35.09±7.56	36.15±7.84	-0.77	0.43*
Agility	4.64±1.30	5.72±1.25	-4.73	0.0001*

Data are presented as mean±SD; *significant different ($p < 0.05$)

Table 3: Fitness level and place of residence

Physical qualities	Place of residence		
	Camp	Village	City
Strength	5.72	6.03	5.98
Sprint	7.78	7.49	7.23
Endurance	16.38	17.55	17.83
Flexibility	35.19	36.97	34
Agility	5.46	5.38	4.95

The present study proved that the availability of fitness elements appropriately raise the level of efficiency of vital organs such as the heart and lungs, as it strengthens the body and mind, because there is some development on the state of the brain (Kock, et al, 2002) as a result of physical exercise in terms of increasing in blood flow to the brain which helps to improve the ability of various mental processes such as: thinking, concentration, remembering, attention, absorption, etc. which in turn positively affects the academic achievement of students. Individuals who practice sports - as some studies have suggested are more vigilant and productive, more able to stay up for longer hours, and when they sleep they sleep less, wake up and are all energetic, and are therefore qualified to have better educational

attainment than non-practitioners. They are less prone to stress and anxiety that precedes the exam. Improving the physical fitness level reduces the level of psychological anxiety among students, which leads to stability, good concentration and positive attitude towards academic achievement. This is in line with what Abu Tameh, (2006) and Kaddumi and Shaka'a, (2001) pointed out. In sports activities contributes to the reduction of tensions and psychological anxiety.

Second, the present study confirmed that the specialization of STAPS obtained the best results for the physical tests mentioned, because of the nature of the academic specialization and sports practice, and the application of most of these tests in practical lectures unlike other disciplines, and this is consistent with the study of both Barnett and Marian (Barnett & Marian 1994).

Moreover, the present study proved a significant difference between the average fitness level and specialization. Results showed that the first year during STAPS education present the best results for physical tests (speed, endurance and fitness), is the reason that the introduction of physical preparation and teaching material for the first time from the date of establishment of STAPS specialty, unlike the second year who did not in this regard, Al-Baik & Abbas, (2003) affirmed that physical preparation is considered the most important ingredient of success in the performance of motor activities as it aims to develop the ability of the individual sports and functionally psychological, and improves the level of physical and motor abilities to meet the requirements of rapid progress. This is consistent with the study (Haleeq & Abu Al-Zamaa, 2010), and for the rest of the disciplines and get better results compared with their counterparts of the same specialty, because the first year during the application of physical tests were given them the material of practical sports activity, on the one hand physiological and physical were ready More than their second year counterparts.

The present study proved no significant differences ($p < 0.05$) between the students who live in city or village or camp. Generally, all the families (in the city, the village, and the camp) are interested in the fitness of their children encouraged to practice sports activities and participate in them. Also, student of city or village or camp practiced sports activities especially

bodybuilding, with healthy food to have an excellent musculature.

CONCLUSIONS

In light of these study findings, positive correlation was proved between physical fitness tests and academic achievement among student's girls. Also Results, a significant difference was detected between the average fitness level and specialization or academic level specially with STAPS student. However, no significant differences were showed between the average fitness level and place of residence.

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Disclosure Statement

No potential conflict of interest was reported by the authors.

REFERENCES

- Shephard, R.J. Lavalley, H. (1994). Academic skills and required physical education: the trois Rivieres experience. *CAHPER. J Res Suppl*, 1, 1-12.
- Trudeau, F. Shephard, R.J. (2008). Physical education, school physical activity, school sports and academic achievement. *Int J Behav Nutr Phys Act*, 5, 10.
- Coe, DP. Pivarnik, JM. Womack, CJ. Reeves, MJ. Malina, RM. (2006). Effects of physical education and activity levels on academic achievement in children. *Med Sci Sports Exerc*, 38, 1515-9.
- Abdel Khalek. Essam. (1980). *Sports Training*, Dar Al Maaref, Egypt.
- Abu-Tameh. Bahjat, Ahmed. (2006). Anxiety arising from testing the physical and skill abilities of students applying to the physical education departments in Palestinian universities and institutes, *Al-Azhar University Journal in Gaza*, 8(1), 75-92.
- Al-Baik, Ali. Abbas, Imad, al-Din. (2003). *Athletic trainer in group games, planning and designing training programs and loads, theories and applications*, Institute Alexandria.
- Al-Bishtawi, Muhannad. Khawaja, Ahmad. (2005). *Principles of Sports Training* Dar Wael Publishing and Distribution, Amman.
- Allawi, Mohamed. (1994). *Science of sports training*, Dar Al-Maaref, Cairo.
- Barnett, Beth, E. Mariman William, J. (1994). Knowledge of physical Fitness in prospective physical education, *Teachers physical Educator*, 51(2), 74-80.
- Miller, MG. Housner, Lynn. (1998). A survey of Health- Related physical fitness knowledge preservice and inservice physical Educators 4(55), 176-186.