

## FREQUENCY AND DURATION OF PHYSICAL ACTIVITY PRACTICE OF UNIVERSITY TEACHERS AND SERVANTS

### FREQUÊNCIA E DURAÇÃO DA PRÁTICA DE ATIVIDADE FÍSICA DE DISCENTES E SERVIDORES UNIVERSITÁRIOS

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#### ABSTRACT

Physical inactivity is considered a risk factor with unfavorable conditions to health. This study aimed at comparing the frequency and duration of physical activity practice between the students and staff of the university known as *Universidade Federal do Vale do São Francisco* (UNIVASF). The sample comprised 483 students, 49 professors and 153 subjects of the administrative staff. The short form of the International Physical Activity Questionnaire and a sociodemographic data questionnaire were used. The results showed that 61.8% of the participants were more physically active, and highlighted that women practice more moderate activities, whereas men do more vigorous ones, in addition to the fact that the individuals inserted in the human field with master and doctorate degrees practice less walking in days and minutes per week. In conclusion, when considering the frequency and duration of physical activity practice, the students were more active than the professors and the administrative staff; moreover, the individuals with master and doctorate degrees who are inserted in the human field were less active in walking.

**Keywords:** Physical Activity. Students. University staff.

#### RESUMO

A inatividade física é considerada fator de risco para condições desfavoráveis à saúde. Objetivou-se comparar a frequência e duração da prática de atividade física dos discentes e servidores da Universidade Federal do Vale do São Francisco (UNIVASF). A amostra foi composta por 483 alunos, 49 docentes e 153 técnicos administrativos. Foram utilizados o Questionário Internacional de Atividade Física - versão curta e um questionário de dados sociodemográficos. Os resultados mostram que 61,8% dos participantes foram mais ativos fisicamente, evidenciando que as mulheres praticam mais atividades moderadas enquanto os homens mais atividades vigorosas, e indivíduos da área de humanas e com nível de escolaridade de mestrado e doutorado praticam menos caminhada em dias e minutos por semana. Conclui-se que os alunos foram mais ativos que os docentes e técnicos administrativos em relação a frequência e duração da prática de atividade física, destacando que indivíduos com mestrado e doutorado e pertencentes à área de humanas foram menos ativos na caminhada.

**Palavras-chave:** Atividade Física. Estudantes. Servidor Público. Universidade.

#### Introduction

The Chronic Noncommunicable Diseases (NCDs) encompass epidemic dimensions in Brazil and throughout America, which offers injury to the population's health<sup>1</sup>. Such a scenario may get worse due to physical inactivity, which is considered the fourth leading death risk factor worldwide<sup>2</sup>. Physical inactivity adds condition risks that are antagonistic to health<sup>3</sup>, which becomes an epidemic that has been increasingly growing in the last three decades<sup>4</sup>, accounting for 5.3 million deaths<sup>5</sup>.

Considering the world, one in three adults does not practice regular physical activity, however the policies to fight against physical inactivity are in practice in 56% of the countries that are members of the World Health Organization (WHO), which estimates a reduction of physical inactivity of 10% up to 2025<sup>6</sup>. Lee et al.<sup>5</sup> state that worldwide elimination of physical

inactivity would extinguish 5.8% of cardiovascular diseases and increase longevity by 0.68 years.

Regular physical activity or physical exercise is one of the primary and secondary preventive measures for more than 25 chronic medical conditions and premature mortality<sup>7</sup>. The Canadian Physical Activity Guidelines (CPAG) and WHO recommend that adults aged 18-64 years to accumulate at least 150 minutes per week for moderate aerobic physical activity or 75 minutes of vigorous aerobic physical activity, or an equivalent combination of moderate and vigorous activities<sup>8-10</sup>.

Recent data suggest that 31% of the adult population do not meet the recommendations for physical activity<sup>11</sup>, besides emphasizing that the financial factor, high working hours, education level, among other factors, may influence the physical activity practice. A study carried out with public servants found a low level of physical activity prevalence of 49.4% in the state of Bahia, northeastern Brazil, and 56.7% in southern Brazil<sup>12</sup>.

Current research has investigated the physical activity level (PAL) and/or the frequency and duration of physical activity practice among students, professors and administrative staff by only comparing either the profession or education level; however few studies establish a confrontation with diverse segments (sex, university link, field of study and education level), which are essential for a better understanding of the reasons for low rates of physical activity.

The present study is relevant as it establishes the need for internal policies that favor the adoption of healthy habits, such as the physical activity practice for the academic community at the university. Therefore, this study aimed at comparing the frequency and duration of physical activity practice between the students and staff of the *Universidade Federal do Vale do São Francisco* (UNIVASF).

## Methods

### *Population*

The study population comprised some students and staff from UNIVASF. For measuring the sample size, the formula for finite sample was used, with a 95% confidence level, 5% of estimation error and an expected proportion of 50%<sup>13</sup>. Currently, UNIVASF has approximately 7,000 students enrolled in undergraduate courses in the six campi, and 900 civil servants (550 professors and 350 individuals who belong to the administrative staff). The minimum sample for this study was of 366 subjects, consisting of all the students, professors and administrative staff who had enrolled to participate in the Extension Project referred to as *Academia Universitária* (University Academy) of UNIVASF, Petrolina city, state of Pernambuco (PE), with a total of 702 individuals. However, 17 subjects were excluded from the survey because they had not answered the questionnaire correctly, thus, 685 subjects were part of the research, that is, 483 students, 49 professors and 153 individuals of the administrative staff of both sexes (285 men and 400 women). All participants voluntarily signed the Free Informed Consent Form (FICF).

### *Instruments*

A sociodemographic questionnaire created by the researchers themselves was used for collecting the variables, that is, education level, field of study, university link, sex, age, body mass, height, and the city where the subjects lived. Based on the information obtained in the questionnaire, the body mass index (BMI) of each subject was calculated by dividing the mass (kg) of the individual by the square of his/her height (m). It is worth mentioning that the height and body mass were self-reported.

The frequency and duration of physical activity were assessed by using the short form of the International Physical Activity Questionnaire (IPAQ), which is validated for the Brazilian population<sup>14</sup>. The frequency (in days) and duration (in minutes) weekly in the form of walking, moderate-to-vigorous activities in the different contexts of physical activity were considered for the evaluation.

### *Procedures*

The research was integrated into the *Academia Universitária* extension project under opinion n° 383969/2010 of the Research Ethics Committee (REC) on Human Beings. Initially, an authorization was requested along with the coordination of the project already mentioned. Data collection was carried out in the first half of 2015 at the university, and at the sites where the project was being developed. The questionnaire was applied in an average of 30 minutes by duly trained individuals.

### *Statistical analysis*

For data analysis, frequency and percentage were used for the categorical variables. For the numerical variables, the data normality was initially verified by using the Kolmogorov-Smirnov Test (KS-test). As the data did not have a normal distribution, Median (Md) and Quartiles (Q1; Q3) were used for characterizing the results. The Mann-Whitney U test was used for comparing two groups, in addition to the Kruskal-Wallis Test for comparing more than two groups followed by Mann-Whitney U test for pairs of groups ( $p < 0.05$ ). A significance level of  $p < 0.05$  was considered. Data were analyzed by using the SPSS version 22.0.

## **Results**

A total of 702 subjects were included in this research; however, 17 of them were excluded, thus, 685 remained in the study that comprised 483 students, 49 professors and 153 individuals of the administrative staff of both sexes (285 men and 400 women) with a 19-36-age group. Such individuals were inserted in the following fields of study: humanities (visual arts, social sciences, natural sciences and administration); exact sciences (agricultural and environmental engineering, agronomic engineering, civil engineering, computer engineering and production engineering); health sciences (biological sciences, pharmaceutical sciences, physical education, nursing, health management and psychology), and agrarian sciences (veterinary medicine and animal science).

Table 1 shows the prevalence of the students (70.50%), followed by the administrative staff (22.30%) and professors (7.20%). Considering the field of study, a higher prevalence of individuals belonging to health sciences (48.90%) was seen, followed by humanities (28.80%), exact sciences (13.00%) and agrarian sciences (9.30%). It is worth mentioning that there was a higher proportion of individuals with Undergraduate degree/Specialization (52.40%), followed by students with High School/Technical Education concluded (38.80%) and the ones with Master/Doctorate degrees (8.80%). Regarding the body mass, 45.7% of the participants showed a normal BMI, but there was also overweight (24.8%), obese (15.3%) and underweight (14.2%) individuals.

**Table 1.** Frequency distribution of the profile of the individuals committed with the extension project referred to as *Academia Universitária* of UNIVASF

VARIABLES		<i>F</i>	%
<b>Sex</b>	Male	285	41.60
	Female	400	58.40
<b>University link</b>	Students	483	70.50
	Professors	49	7.20
	Administrative Staff	153	22.30
<b>Field of Study</b>	Health Sciences	335	48.90
	Exact Sciences	89	13.00
	Human Sciences	197	28.80
	Agrarian Sciences	64	9.30
<b>Education</b>	High School/Technical Education	266	38.80
	Undergraduate degree/Specialization	359	52.40
	Master/Doctorate Degrees	60	8.80
<b>BMI</b>	Underweight	97	14.20
	Normal weight	313	45.70
	Overweight	170	24.80
	Obesity	105	15.30

Source: the authors

The evaluation of the sample anthropometric characteristics showed that the average age of the project participants was of  $28.0 \pm 8.7$  years; weight of  $70.2 \pm 15.3$  kg and height of  $1.7 \pm 0.1$  meters. Regarding the BMI, it was seen that the subjects had, on average, a value considered normal ( $24.8 \pm 4.6$  kg/m<sup>2</sup>).

Table 2 shows that there was a significant difference in both, the number of days of moderate activities ( $p = 0.020$ ) and the minutes of moderate activities per week ( $p = 0.001$ ) when comparing the sexes. It should be highlighted that when considering both variables, women spent more time practicing these activities. It was also found a significant difference in both, the number of days of vigorous activities ( $p = 0.004$ ) and the minutes of moderate activities per week ( $p = 0.014$ ), which indicates that men practice more vigorous activities compared to women.

**Tabela 2.** Comparison of the number of days and minutes per week of walking, moderate activities and vigorous activities of the women and men committed with the extension project referred to as *Academia Universitária* of UNIVASF

Variable	Men (n=285)	Women (n=400)	p
	Md (Q1-Q3)	Md (Q1-Q3)	
Days of walking	3,0 (1,0-5,0)	4,0 (1,0-5,0)	0,923
Minutes of walking per week	137,5 (30,0-280,0)	120,0 (30,0-300,0)	0,910
Days of moderate activities	1,0 (0,0-3,0)	2,0 (0,0-3,0)	<b>0,020*</b>
Minutes of moderate act. per week	60,0 (0,0-178,7)	120,0 (0,0-240,0)	<b>0,001*</b>
Days of vigorous activities	0,0 (0,0-3,0)	0,0 (0,0-1,0)	<b>0,004*</b>
Minutes of vigorous act. per week	0,0 (0,0-180,0)	0,0 (0,0-90,0)	<b>0,014*</b>

Note: \*Significant difference -  $p < 0,05$ : Mann-Whitney U Test

Source: the authors

When comparing the number of days and minutes per week of walking, moderate and vigorous activities of the students, professors and administrative staff participating in the

extension project referred to as *Academia Universitária* shown in Table 3, there was a significant difference in the number of days ( $p = 0.001$ ) and minutes ( $p = 0.001$ ) per week of walking, evidencing that students practice more walking, when compared to administrative staff and professors.

Considering the moderate activities, a significant difference was found in the number of days ( $p = 0.043$ ), which indicates that the students practice moderate activities more days a week than the professors. No significant difference ( $p > 0.05$ ) was found in the number of days and minutes per week of vigorous activities.

**Table 3.** Comparison of the number of days and minutes per week of walking, moderate and vigorous activities of students, professors and administrative staff participating in the project referred to as *Academia Universitária*

Variable	Students	Professors	Technical staff	P
	(n=483)	(n=49)	(n=153)	
	<b>Md (Q1-Q3)</b>	<b>Md (Q1-Q3)</b>	<b>Md (Q1-Q3)</b>	
Days of walking	4,0 (2,0-5,0) <sup>a</sup>	2,0 (0,0-3,5)	2,5 (0,0-5,0)	<b>0,001*</b>
Minutes of walking per week	125,0 (60,0-300,0) <sup>b</sup>	60,0 (0,0-180,0)	90,0 (0,0-270,0)	<b>0,001*</b>
Days of moderate activities	2,0 (0,0-3,0) <sup>c</sup>	1,0 (0,0-3,0)	1,5 (0,0-3,0)	<b>0,043*</b>
Minutes of moderate activities per week	80,0 (0,0-240,0)	60,0 (0,0-165,0)	80,0 (0,0-191,2)	0,498
Days of vigorous activities	0,0 (0,0-2,0)	0,0 (0,0-1,0)	0,0 (0,0-1,0)	0,235
Minutes of vigorous activities per week	0,0 (0,0-150,0)	0,0 (0,0-45,0)	0,0 (0,0-120,0)	0,410

**Note:** \*Significant difference -  $p < 0,05$  (Kruskal-Wallis Test): a) Students, Professors and Technical Staff; b) Students, Professors and Technical Staff; c) Students and Professors

**Source:** the authors

When comparing the number of days and minutes per week of walking, moderate and vigorous activities of the participants of the *Academia Universitária* extension project of UNIVASF according to the fields of study shown in Table 4, there was a significant difference in the number of days ( $p = 0.001$ ) and minutes ( $p = 0.001$ ) per week of walking, highlighting that the individuals involved in human sciences practice less walking when compared to the participants engaged with health, exact and agrarian sciences. No significant difference ( $p > 0.05$ ) was found in the number of days and minutes per week of moderate and vigorous activities.

**Tabela 4.** Comparison of the number of days and minutes per week of walking, moderate and vigorous activities of the participants committed with the extension project referred to as *Academia Universitária* of UNIVASF in relation to their field of study

Variables	Health Sciences (n=335)	Exact Sciences (n=89)	Humanities (n=197)	Agrarian Sciences (n=64)
	Md (Q1-Q3)	Md (Q1-Q3)	Md (Q1-Q3)	Md (Q1-Q3)
Days of walking	4,0 (2,0-5,0)	4,0 (2,0; 5,0)	3,0 (0,0-5,0) <sup>a</sup>	3,0 (1,0-5,0)
Minutes of walking per week	150,0 (60,0-300,0)	132,5 (60,0-300,0)	90,0 (0,0-240,0) <sup>b</sup>	135,0 (50,0-268,7)
Days of moderate activities	2,0 (0,0-3,0)	2,0 (0,0; 3,0)	1,0 (0,0-3,0)	1,5 (0,0-3,0)
Minutes of moderate activities per week	80,0 (0,0-210,0)	60,0 (0,0-180,0)	85,0 (0,0-240,0)	60,0 (0,0-285,0)
Days of vigorous activities	0,0 (0,0-2,0)	0,0 (0,0-3,0)	0,0 (0,0-2,0)	0,0 (0,0-1,0)
Minutes of vigorous activities per week	0,0 (0,0-120,0)	0,0 (0,0-153,7)	0,0 (0,0-120,0)	0,0 (0,0-77,5)

**Note:** \*Significant difference -  $p < 0,05$  (Kruskal-Wallis Test): a) Human, Health and Exact Sciences; b) Human, Health and Exact Sciences

**Source:** the authors.

When comparing the number of days and minutes per week of walking, moderate and vigorous activities of the participants of the *Academia Universitária* extension project of UNIVASF according to the education level in Table 5, there was a significant difference in the number of days ( $p = 0.001$ ) and minutes ( $p = 0.023$ ) of walking, which shows that the subjects with Master/Doctorate degrees practice less walking when compared to the participants with a lower education level. No significant difference ( $p > 0.05$ ) was found in the number of days and minutes per week in relation to the moderate and vigorous activities.

**Tabela 5.** Comparison of the number of days and minutes per week of walking, moderate and vigorous activities of the participants of the extension project referred to as *Academia Universitária* of UNIVASF according to the education level.

Variables	High School/ Technical Education (n=266)	Undergraduate degree/Specialization (n=359)	Master/ Doctorate degrees (n=60)	P
	Md (Q1-Q3)	Md (Q1-Q3)	Md (Q1-Q3)	
Days of walking	4,0 (2,0; 5,0)	3,0 (1,0; 5,0)	2,0 (0,0; 4,0) <sup>a</sup>	<b>0,001*</b>
Minutes of walking per week	122,5 (40,0; 300,0)	150,0 (50,0; 300,0)	60,0 (0,0; 195,0) <sup>b</sup>	<b>0,023*</b>
Days of moderate activities	2,0 (0,0; 3,0)	2,0 (0,0; 3,0)	1,0 (0,0; 3,0)	0,319
Minutes of moderate activities per week	60,0 (0,0; 210,0)	90,0 (0,0; 200,0)	60,0 (0,0; 232,5)	0,799
Days of vigorous activities	0,0 (0,0; 2,0)	0,0 (0,0; 2,0)	0,0 (0,0; 1,7)	0,448
Minutes of vigorous activities per week	0,0 (0,0; 120,0)	0,0 (0,0; 150,0)	0,0 (0,0; 105,0)	0,655

**PS:** \*Significant difference -  $p < 0,05$  (Kruskal-Wallis Test): a) Master/Doctorate degrees, High School/Technical Education and Undergraduate degree/Specialization; b) Master/Doctorate degrees, High School/Technical Education and Undergraduate degree/Specialization

**Source:** the authors

## Discussion

This study compared the frequency and duration of physical activity practice of students, professors and administrative staff. The results showed that the students were more active than the university staff, and those with master and doctorate degrees and who work in the human field practiced less walking in days and minutes per week, which shows that they are less active.

Most subjects were men and students, with greater performance in the health field who had undergraduate degree/specialization with a normal BMI.

Regarding the frequency and duration of physical activity, it was shown that women practice more moderate activities, whereas men practice more vigorous activities and are certainly more active than women. Corroborating with the study, a research with Brazilian university students found that female students were less physically active than their male counterparts in all the studies assessed<sup>15</sup>. Other research carried out at the *Universidade Federal do Piauí* (Federal University of the state of Piauí) sustained a higher proportion of sedentary women ( $p = 0.003$ ) (63.95%); lack of time was the main reason for such behavior pointed out by these sedentary individuals<sup>16</sup>. In addition, in an evaluation by PAL with university students inserted in the health field, a higher level of sedentary women was seen compared to men, and it showed that a lower PAL is seen from the early stages of life for women<sup>17</sup>.

In the present study, the majority of the subjects assessed belonged to the health field who reached the minimum of the weekly recommendations for physical activity, probably due to the knowledge field intrinsic to information and propagation of the benefits on healthy habits. One possible explanation for such an association is the relation of the courses with the approximation of the health field, in addition to the contents directed to health that are inserted in the course curriculum<sup>18</sup>.

The relationship between university students of the health field and a good frequency of weekly physical activity had also been assessed in other studies, such as the research by PAL with undergraduates from four different courses in the health/biological fields of the *Universidade Federal de Juiz de Fora* (Federal University of Juiz de Fora city, state of Minas Gerais) that showed good indexes of physical activity of the students enrolled in the Biology and Physical Education course<sup>19</sup>, besides high indicators of a predominance of very active and active individuals in an institution in Minas Gerais<sup>20</sup>.

The professors and administrative staff of the present research showed a lower frequency and duration of physical activity than the students, and they admitted to be less physically active as evidenced in other investigations. A study by PAL in a university community in Campinas city showed that the majority of the individuals were active (60.0%) and 11.0% of them were sedentary; the administrative staff (21.6%) and professors (15.7%) were the groups with the highest sedentary frequency<sup>21</sup>. On the other hand, counteracting to the high index of the university staff, a high prevalence of active and very active students (86%) and a low prevalence of sedentary students (14%) was seen at the *Universidade Federal do Espírito Santo* (Federal University of the state of Espírito Santo)<sup>22</sup>, in addition to 'active' and 'very active' male and female students in a university in Curitiba city, state of Paraná<sup>23</sup>.

Other studies investigated the PAL of university staff, and found a prevalence of sedentarism of 72.1% at the *Universidade Federal do Maranhão* (Federal University of the state of Maranhão)<sup>24</sup>; moreover, an evaluation in the different domains of professors of elementary education in Morro Redondo city in the state of Rio Grande do Sul showed that 89,0% were considered insufficiently active during displacement, in addition to finding low

levels of physical activity in the domains of leisure, displacement and work<sup>25</sup>. A study carried out with some professors from the state of São Paulo showed a prevalence of a low level of physical activity of 46.3%, and moderate and high levels represented 42.7% and 11%, respectively<sup>26</sup>.

The students, as shown in the present study, were more active in walking and moderate activities, whereas the staff with master and doctorate degrees used to practice less walking. Highlighting the relationship between the low weekly frequency of physical activity and the highest level of education, a study carried out at the *Universidade Pública do Paraná* (Public University of the state of Paraná) found that the staff with the highest educational level had 73% more chances of being insufficiently active when compared to those with lower academic levels<sup>12</sup>.

Some factors may justify the greater physical inactivity of the professors, which suggest that the teaching activities involve, besides giving classes, administrative work, planning, updating and constant investigation, in addition to advising students<sup>25</sup>. Besides, there are other reasons that still interfere in the decrease of physical activity, such as lack of time for leisure, facilities, adequate motivation for physical exercise, and the accumulation of work and hours of study<sup>27</sup>.

Similar to the subjects with a higher level of education, researchers of the human field practiced less walking in days and minutes per week, being less physically active than the individuals from other fields. In order to contribute to the research, it was verified the practice of leisure physical activities of 1,232 university students from the state of Bahia, inserted in the fields of Exact and Earth Sciences, Biological Sciences, Engineering, Agrarian Sciences, Social and Applied Sciences, Humanities, Linguistics, Literature and Arts, with a predominance of the Engineering field in the practice of vigorous activities, and less predominance for students of Human Sciences<sup>18</sup>.

The present study had some limitations: first, since some measures were self-reported by the subjects through a questionnaire, it is assumed that the data reported are satisfactory, given the validation and compatibility of the measures (weight and height) which were self-reported and assessed in relation to some studies<sup>28,29</sup>. Second, a questionnaire was used to assess the frequency and duration of physical activity practice; although it is a questionnaire validated and used on a large scale. Third, the combination of students, professors and administrative staff according to their fields restricted detailing the results in relation to the identification of the frequency and duration of physical activity practice by the groups.

## Conclusion

The students were more active than the professors and administrative staff in relation to the frequency and duration of physical activity practice, which highlights that the subjects with Master and Doctorate degrees and belonging to the human field were less active in walking when compared to those who had concluded High school/Technical Education, in addition to the individuals with Undergraduate degree/Specialization who belonged to the health, exact and agrarian fields. However, low rates of physical activity are a significant result in face of the great risks associated with sedentarism, which requires interventions involving physical activity to stimulate healthy habits.

Further longitudinal investigations and more reliable electronic monitoring are required in order to assess the frequency and duration of physical activity of students and university staff so as to achieve more effective results.



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