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Nivel de actividad física evaluado con el cuestionario IPAQ en futuros profesionales de la actividad física y el deporte antes y durante el aislamiento de la enfermedad por coronavirus 2019

Physical activity level evaluated with the IPAQ questionnaire in future physical activity and sport professionals before and during the coronavirus disease 2019 isolation

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Resumen

Introducción: El aislamiento por coronavirus enfermedad 2019, ha incrementado el sedentarismo en la población. Este problema también ha limitado la práctica de actividad física en futuros profesionales de la actividad física y el deporte. El objetivo de esta investigación fue comparar los niveles de actividad física en futuros profesionales de la actividad física y el deporte antes y durante el aislamiento de la enfermedad por coronavirus 2019. Material y métodos: Participaron de la investigación ciento siete estudiantes universitarios de actividad física y deporte. Para evaluar los niveles de actividad

Abstract

Introduction: The isolation by coronavirus disease 2019, has increased the sedentary lifestyle in the population, this problem has also limited the practice of physical activity in future professionals in physical activity and sport, the objective of these research was to compare the physical activity levels in future physical activity and sport professionals before and during the coronavirus disease 2019 isolation. Material and Methods: One hundred and seven physical activity and sport university students participated in the research. To evaluate the physical activity levels,

física se utilizó el Cuestionario Internacional de Actividad Física (IPAQ), se realizaron mediciones antes y durante el aislamiento de la enfermedad por coronavirus 2019. Resultados: Para determinar la igualdad de varianza, se utilizó la prueba t de Student para muestreo independiente, lo que resultó en menos actividad física (56,7 Δ%), MET-minutos / semana antes que durante el aislamiento de la enfermedad por coronavirus 2019 en futuros profesionales de la actividad física y el deporte. (p = .000), Conclusiones: La actividad física fue baja en los estudiantes universitarios de actividad física y deporte durante el aislamiento de la enfermedad por coronavirus 2019. Pueden aprovechar los conocimientos que reciben en su formación profesional para realizar de forma autónoma la actividad física y el ejercicio con las medidas adecuadas para prevenir la infección.

Palabras claves: actividad física, enfermedad por coronavirus 2019, universidad, estudiantes.

we used the International Physical Activity Questionnaire (IPAQ), measurements were performed before and during the coronavirus disease 2019 isolation. Results: To determine the variance equality, the Student's t-test for independent sampling was utilized, resulting with less physical activity (56.7 Δ%), MET-minutes/week before than during the coronavirus disease 2019 isolation in future physical activity and sport professionals (p=.000), Conclusions: Physical activity was low in physical activity and sport university students during the coronavirus disease 2019 isolation. They can take advantage of the knowledge they receive in their professional training to autonomously perform physical activity and exercise with the appropriate measures to prevent infection.

Keywords: physical activity, coronavirus disease 2019, university, students.

Introduction

The World Health Organization (WHO) recommends adults to perform a minimum of 150 minutes a week aerobic physical activity of moderate intensity, or 75 minutes of vigorous aerobic physical activity. However, the World Health Organization (WHO) has also proposed isolation to prevent the spread of coronavirus disease 2019), which has limited physical activity, exercise, and sports for the population (Blocken, et al., 2020; Chen, et al., 2020). Therefore, in order

to maintain the health benefits derived from physical activity, and reduce the problems of a sedentary lifestyle, it has been recommended to exercise at home (Cortis, et al., 2020), being physical activity of moderate to vigorous intensity the more efficient (Dixit, et al., 2020).

It is estimated that, due to the coronavirus disease 2019 isolation, sedentary lifestyle will increase in the population, consequently increasing the rate of cardiovascular diseases (Lippi, et al., 2020). Therefore, professionals in physical activity, exercise, and sport are considered key elements in generating health strategies by increasing physical activity in the population (McKenzie, & Lounsbery, 2013; McKenzie, & Lounsbery, 2014). Within university education, degrees in physical activity and sport have been considered content of health and physical culture in their application on society (Oliiar, Slyvka, & Tyagur 2020; Myroslava, et al., 2020).

There is scientific evidence that indicates that the start of university studies in young adults coincides with a beginning of the increase in overweight and obesity and a progressive decrease in levels of physical activity (Sacheck, et al., 2010); In the case of students in physical education, physical activity, and athletic training, an increase in the percentage of body fat was identified (Ochoa-Martinez, et al 2017; Keska, et al 2018). Evidence from a systematic review and meta-analysis clearly shows that this factor is related to a sedentary lifestyle and that physically active young adults have less metabolic and cardiovascular risk factors (Hebden, Chey, & Allman-Farinelli, 2012; Plotnikoff, et al 2015).

The physical activity of future physical activity and physical sport graduates has been assessed, and the obtained values are higher than those of university students in training in other areas (Hall-López, Ochoa-Martínez, & Muñiz Murguía, 2013). Systematic reviews have identified the International Physical Activity Questionnaire (IPAQ) (Craig, et al. 2003), as the most widely used instrument to assess the level of physical activity in university students (Moreno-Arrebola, et al., 2018; Mella-Norambuena, et al., 2019). Currently, due to coronavirus disease 2019, questionnaires have been designed to identify the most appropriate places to perform physical activity for the population during the present health crisis (de Oliveira Neto, et al., 2020). In this research, the Google Drive tool was utilized to virtually assess physical activity (Álvarez Ferrón & Sánchez Cañizares, 2014), using the IPAQ (Craig, et al. 2003) to assess the level of physical activity in future professionals in physical activity and sport before and after the coronavirus disease 2019 isolation.

Methods

Participants and Procedure

The research was performed under a cross-sectional methodological design,

with non-probability sampling for convenience (Thomas, Nelson, and Silverman, 2015). It was registered with protocol 149/1823 in the Office of Graduate Studies and Research of the Autonomous University of Baja California. A total of 107 future graduates in physical activity and sport from the Faculty of Sport of the Autonomous University of Baja California in the city of Mexicali Baja California, Mexico participated. The average age of the participating subject was if 21.7 ± 2.8 years (65 men and 42 women). Students were invited to participate in the research, explaining in writing the purposes and benefits of conducting this study, as well as its impact, following the ethical principles of research involving human subjects of the declaration of Helsinki (Puri, et al. 2009).

To determine the levels of physical activity, the short form, Spanish version, of the international physical activity questionnaire was utilized (Craig, et al. 2003). With a reliability (re-test with accelerometers) of 0.8 (Spearman's P) and a validity with similar questionnaires of 0.30. Evaluating students before and after the coronavirus disease 2019 isolation.

Instrument

This questionnaire takes into account the description of the performed activities, the number of days in which they are performed, and the minutes that each one lasts. These activities include everything from walking, to activities considered vigorous, which were performed in the last 7 days. The levels of physical activity questionnaire was analyzed by classifying said variable into three levels: high, moderate and low, which depend on the METs values. These values were calculated based on the procedures reported by Ainsworth et al. (1993), thus all types of walking include an average MET value of 3.3. Excluding walking, all moderate intensity physical activities were classified as 4, and vigorous intensity activities as 8.

With these assigned values, the MET-minutes/week were calculated using the following formulas:

-walking= 3.3 MET * minutes of walking * days practiced per week.

-moderate physical activity = 4 MET * minutes of moderate physical activity * days practiced per week.

-vigorous physical activity = 8 MET * minutes of vigorous physical activity * days practiced per week.

Sum = walk + moderate physical activity + vigorous physical activity.

Once the sum was obtained, the subjects were classified into three levels of physical activity using the following criteria:

1. High level of physical activity, with two criteria:

-Vigorous physical activity at least three days a week achieving a total of at least 1500 MET-minutes/ week.

-Seven or more days of any combination of walking with moderate, and/or vigorous physical activity, achieving a total of at least 3,000 MET-minutes / week.

2. Moderate level of physical activity, was classified using any of the following three criteria:

-Three or more days of vigorous physical activity for at least 20 minutes per day.
-Five or more days of moderate physical activity or walking for at least 30 minutes per day.

-Five or more days of any of the combinations of walking, moderate, or vigorous physical activity achieving as minimum a total of physical activity of at least 3,000 MET-minutes/week.

3. Low Level of Physical activity, people who had walked, or performed another moderate or vigorous physical activity with a cumulative daily duration of at least 10 min, but who did not meet the criteria for moderate or vigorous level were classified into this level.

Statistical analysis

For the analysis of the data, the SPSS Version 23.0 program was utilized, descriptively classifying the variable into three levels: high, moderate and low, depending on the METs value. The inferential statistical analysis took into account the research design with the fixed variables of two groups 1) before coronavirus disease 2019 isolation or 2) during coronavirus disease 2019 isolation, and METs physical activity as a random numerical variable made by the student of the degree in physical activity and sport. The percentage difference (Δ%) was also determined. The normality of the groups and the homogeneity of variance of the data were verified through the Kolmogorov-Smirnov test with a degree of significance of P-Value ≥ .0.05.

Results

Descriptively, Table 1 presents the percentage distribution of the level of physical activity in future graduates in physical activity and sport before and during the social distancing brought by coronavirus disease 2019.

Table 1. Category of physical activity in percentages in future physical activity and sport professionals before and during the coronavirus disease 2019 isolation.

Physical Activity Level	Before coronavirus disease 2019	During coronavirus disease 2019
Low	5.5	37.5
Moderate	25.2	33.4
High	69.3	29.1

Inferential statistics using the student's t-test for independent samples, calculating the variance equality at a level of $\alpha \leq 0.05$ showed significant differen Área del gráfico ly energy expenditure of physical activity, expressed in MET/week (metabolic equivalent), with higher values before than during the coronavirus disease 2019 isolation (p=.000). The percentage difference values (Δ%) according to the levels of physical activity can be observed in Figure 2.

Figure 1. Total physical activity MET-minutes / week = sum of total (Walking + Moderate + Vigorous), before and during the coronavirus disease 2019 isolation.

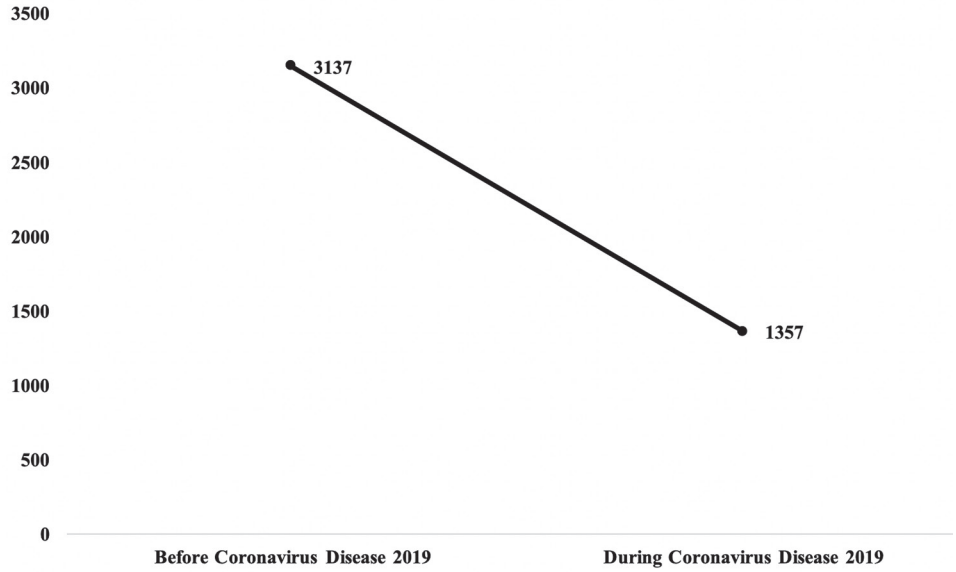
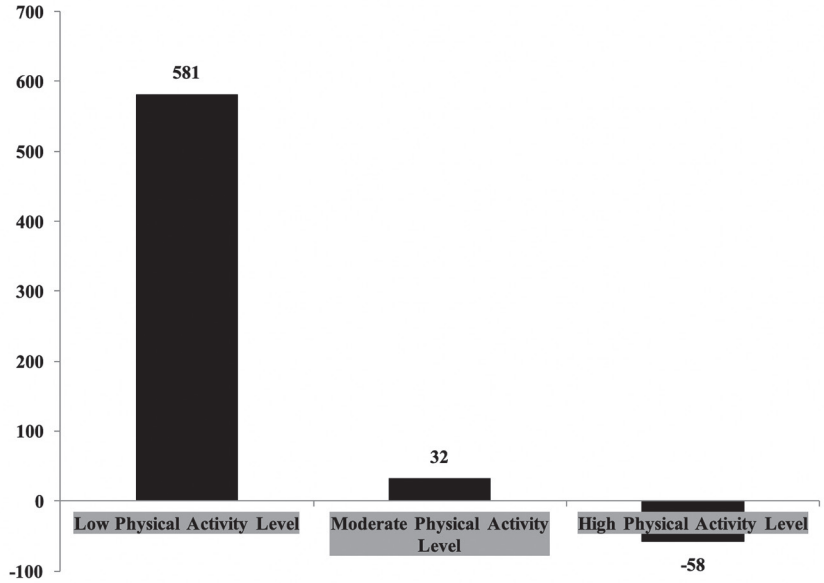


Figure 2. Percentage change (Δ %) of physical activity category in physical activity and sport students before and during the coronavirus disease 2019 isolation.



■Percentage of changes (Δ %) of physical activity category before and during the isolation by coronavirus disease 2019 in future physical activity and sport professionals.

Discussion

The main result of the study was that during coronavirus disease 2019 isolation, the physical activity MET/week evaluated by the IPAQ questionnaire, decreased significantly by 56.7 Δ%, compared to the physical activity performed before the coronavirus disease 2019 isolation. The foregoing is inferred to be the result of limitations established by the World Health Organization (WHO) to prevent any further spread of the disease.

When comparing results, prior to the coronavirus disease 2019 isolation in the Mexican adult population, the National Health and Nutrition Survey, using the IPAQ questionnaire, reports lower values of physical activity than those found in future professionals in physical activity and sport (Medina, et al. 2013). Another research performed in university students of physical activity and sport, where the same methodological instrument was also utilized, shows similar trends in the high (62.5 vs 69.3), moderate (35.8 vs 25.2) and low (1.5 vs 5.5) categories, than those of the present study (Hall-López, Ochoa-Martínez, & Muñiz Murguía, 2013).

Within its contents, the degree in physical activity and sport involves physical activity and physical exercise (Jiménez Moreno, et al. 2019), Hypothetically,

it could be explained that the measures taken for the suspension of university educational activities due to the coronavirus disease 2019 isolation had repercussions on the daily practice of physical activity of the future professionals of physical activity and sport (Ramos, 2020). The characteristics of the work of graduates in physical activity and sport benefit from performing daily physical activity with a light, moderate and vigorous energy expenditure, as well as having skills to monitor, conduct, and supervise their professional work (Trudeau, Laurencelle, & Lajoie, 2015; Ünlü, & Filiz, 2019).

Within work occupations, that of physical education professionals is predominately performed outdoors. A study associates a lesser presence of sedentary behaviors and a higher energy expenditure in the performance of their tasks than professionals who work in indoor environments (Smith, et al., 2016), for example, a research in physical education reports that to move, teachers walk approximately nine hundred steps (Rodriguez-Negro, & Yanci, 2018), reason for which we also infer that by not dedicating it time during the coronavirus disease 2019 isolation, it also limited physical activity as part of exercising their profession in practical activities (Hall-López, J., & Ochoa-Martínez, P. 2020; Hall-López, Ochoa-Martínez, & Alarcón Meza, 2021).

It could be established that due to being students of a profession in physical activity and sport, and receiving competencies for the teaching of physical culture, students would have elements of self-management to help them perform physical exercise autonomously (Soltyk et al., 2017; Jiménez Moreno, et al. 2019; Prystupa, et al., 2020) and follow recommendations for physical activity or exercise at home during the coronavirus disease 2019 isolation (Cortis et al., 2020). However, when comparing future university students of physical activity and sport with university students of other degrees, the level of physical activity and physical condition is higher (Hall-López, Ochoa-Martínez, & Muñiz Murguía, 2013; Popławska, Dmitruk, & Holub, 2019).

The performed research has limitations, due to it being conducted through a cross-sectional design, without evaluating other co-variables that could influence the study since the practice of physical activity of moderate to vigorous intensity in university students is multifactorial (Moreno-Arrebola, et al. , 2018), nevertheless, the instrument utilized to assess physical activity is reliable and IPAQ has been reported as the most widely used in that population (Mella-Norambuena, et al., 2019) and was utilized in a timely manner in a time of health crisis using the Google Drive tool to assess the trend (Álvarez Ferrón & Sánchez Cañizares, 2014).

Conclusion

It is documented that prior to the coronavirus disease 2019 isolation, future university students of physical activity and sport perform more physical activity and present higher levels of physical condition than university students of other degrees. During the coronavirus disease 2019 isolation, the physical activity of the undergraduate students in physical activity and sport decreased significantly, reason for which it is important, despite limitations to prevent coronavirus disease 2019 infection, to perform physical activity at home, taking advantage of the knowledge that they receive in their professional training to autonomously self-apply them.

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