International University of Africa
Faculty of higher studies
Faculty of Medicine – Department of Physiology.

Correlation of pulmonary functions with the physical activity level, sedentary time and dietary habits among medical students at Omdurman Al Ahlia University

Thesis

Submitted for partial Fulfillment of the Requirements for the Degree of Master of sciences in Human Physiology

By:
Bader Eldeen Hassan Ibrahim Mohammed
B.Sc. (Physiology)
Faculty of Basic Medical Sciences
Omdurman Islamic University

Supervisor:
Dr. Asim Alaaeldin Osman – PhD.
Assistantprofessor of physiology

May, 2018

بســـــــــم الله الرحـــــــمن الرحـــــــــــيم

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(وَقُلِ اعْمَلُوا فَسَيَرَى اللَّهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ)

(سورة التوبة الآية (105))

DECLARATION

This thesis is a presentation of my original research work.

Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.

The work was done under the guidance of Dr Asim Alaaeldin Osman at the department of physiology, Faculty of Medicine, International Africa University.

Bader Eldeen Hassan Ibrahim Mohammed [signature]

In my capacity as supervisor of the candidate's thesis, I certify that the above statements are true to the best of my knowledge.

Dr. Asim Alaaeldin Osman [signature]

Date:

Dedication

At first, I thank God so much for guiding me to the truth.

And

I would like to dedicate this thesis to my family, whose support for me over the years has been the reason for this work.

And

Finally to my wife.

Acknowledgement
Those who do not thank people do not thank God

I am gratefully indebted to Dr. Asim Alaaeldin Osman, who has supervised this study and offered his invaluable supervision, direction, encouragement and guidance throughout this work. Endless thanks to the department of physiology staff .International University of Africa for their support and cooperation. And to Omdurman Al Ahlia University-Faculty of Medicine for their information support to bring out this work. Finally thanks to my parents, family and my friends for being on my side whenever I needed them.

الخلاصة

خلفية: هناك حقيقة معترف بها على نطاق واسع أن الأشخاص الذين هم أكثر نشاطا بدنيا ولديهم عادات غذائية صحية يميلون إلى الحصول على درجة أعلى من اللياقة البدنية والنشاط البدني التي يمكن أن تعزز صحة الجهاز التنفسي ، مما يزيد من كفاءة الوظيفة الرئوية .

الأهداف: دارسة مدى ارتباط وظيفة الرئة مع مستويات النشاط البدني ، والخمول البدني، والعادات الغذائية.

المواد والوسائل: هذه الدراسة هي دراسةمستعرضة أجريت خلال الفترة من أغسطس - ديسمبر 2017 ،في كلية الطب،جامعة أمدرمان الأهلية، أمدرمان، السودان. شملت هذه الدراسة 207 طلاب طب (100 ذكر - 107 إناث) أعمارهم بين 15-25 سنة. تم استبعاد المدخنين والمصابين بالربو. مجموعة الدراسة تمفرزها بعد ملء الاستبيانات (ATLAS). ونتائج قياسات الجسم البشري وقياسات وظائف الرئة (PFT) تم جمعها في ورقة جمع البيانات. وظائف الرئة تم قياسها بواسطة جهاز مقياس التنفس المحمول الرقمي، وأداة قياس تدفق الذروة (PEFR) وقطعة فموية، بعد شرح الطريقة القياسية لإستخدام الاجهزة للمشاركين.

النتائج: أظهر تحليل البيانات أن وظائف الرئة أعلى بشكل ملحوظ إحصائيا في الذكور أكثر من الإناث .وظائف الرئة أعلى بشكل ملحوظ في الاشخاص النشطين ، في حين أن الخمول البدني لا يؤثر على وظائف الرئة. وظائف الرئة مرتبطة بشكل إيجابي مع العديد من أنواع النشاط البدني. وظائف الرئة مرتبة بشكل سلبي ملحوظ مع بعض من انواع الأطعمة. وظائف الرئة مرتبة بشكل إيجابي مع الطول، الوزن ، و مجموع المكافئ الايضي. PEFR مرتبطة بشكل سلبي مع محيط الخصر، وإيجابي مع العمر .

الخلاصة: إن حقيقة التي خرجنا بها من دراستنا أن النشاط البدني والتمارين المنتظمة يحسنان الصحة الرئوية ، وأن نمط الحياة المستقر ليس له تأثير مباشر على الصحة الرئوية. انواع الغذاء ذات الألياف العالية أفضل من انواع الغذاء ذات الألياف المنخفضة للصحة الرئوية.

Abstract

BACKGROUND: There is a widely recognized fact that people who are more physically active and have healthy dietary habits tend to have a higher degree of fitness and physical activity that can promote respiratory health, which increases the efficiency of pulmonary function.

The aim of our present study to investigate the correlation of pulmonary functions with the physical activity levels, sedentary time and dietary habits.

Materials and Methods: This is a cross-sectional study performed during the period from August to December 2017, at Faculty of Medicine, Omdurman Al-Ahlia University, Omdurman, Sudan. The study included 207 medical students (100 males - 107 females) between the ages of 15-25 years. The smoker and the asthmatic were excluded. Study group sorting after filling out questionnaires (ATLAS). Results include anthropometric measurements and PFT are documented in the data collection sheet. PFT was measured by using digital portable spirometer and peak flowmeter instruments.

Results: Data analysis showed that PFT parameters statistically significantly higher in males than females (P value.000). PFT parameters are significantly higher in active subjects (P value 0.003), while the physical inactivity does not affect the PFT parameters. In addition, PFT parameters are significantly positively correlated to many physical activity types.PFT parameters are significantly negatively correlated to many foods staff.PFT parameters are significantly positively correlated to height, weight and sum of METs. PEFR is significantly negatively correlated to HC and positively to age.

Conclusion: -Our study concluded that physical activity and regular exercise improve the pulmonary function, and sedentary lifestyle has no direct effect on pulmonary function. Food staff with high fiber content was better than low fiber content for pulmonary function.

Symbols and abbreviations

Abbreviation	Means
PFT	pulmonary function tests
OAU	Omdurman Al Ahlia University
IUA	International University of Africa
ATLAS	Arab Teens Lifestyle questionnaire
FVC	Forced Vital Capacity
FEV_1	Forced Expiratory Volume in 1st Second
PEFR	peak expiratory flow rate
METs	Metabolic Equivalent-min per week
BMI	Body mass index.
WC	Waist circumference
HC	Hip circumference
W/H ratio	Waist/ Hip circumference ratio

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