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**PHYSICAL ACTIVITY LEVEL, LIFE STYLE AND SPORT PARTICIPATION
PROFILES OF THE STUDENTS OF UNIVERSITY OF COIMBRA**

Master's dissertation presented to the Faculty of Sport Sciences and Physical Education of University of Coimbra with a view to obtain the master degree in Physical Activity in School Context.

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To my parents Iva and Petr ...

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ABSTRACT

Present study evaluates physical activity level, life style habits and sport participation profiles of students of University of Coimbra. Aim of the study was to determine if the students are sufficiently active and if there are any differences according to their academic characteristics such as faculty frequented and cycle of studies. Study was made as an epidemiological study focusing on the issue of increasing physical inactivity in current population. Sample consisted of university students, both genders in the age from 17 to 28 years old. Total number of respondents was 1364 (936 females, 428 males). Instrument used was the IPAQ short form, Portuguese version extended by additional questions asking academic data, life style patterns and sport participation. Data were collected electronically, cleaned, calculated and analyzed in IBM SPSS Statistics 22. Descriptive statistics was used. Physical activity level was moderate in 54, 8%, high in 30, 8% of cases and low only in 14, 4% of students. Majority of students were active enough to reach the health benefits of physical activity. Male students had higher physical activity level than females, higher sport participation, better health status and weight status, higher consumption of tobacco and alcohol and spent less time on sedentary habit. Differences were found among individual faculties and among study cycles. Low physical activity level was increasing with higher cycle of studies. Faculty of Sport Sciences and Physical education turned out as the most active both in female and male students.

Key words: Physical activity. Physical activity level. IPAQ. Life style. Young adults.

RESUMO

O presente estudo avalia o perfil do nível de atividade física, hábitos de estilo de vida e da participação desportiva dos estudantes da Universidade de Coimbra. O objetivo do estudo foi determinar se os estudantes são suficientemente ativos e se existem diferenças de acordo com as características académicas, como faculdade frequentada e ciclo de estudos. O estudo é epidemiológico, com maior ênfase na inatividade física e os riscos associados. A Amostra foi composta por estudantes universitários, de ambos os sexos, na faixa etária entre 17 e 28 anos. Número total de participantes foi 1364 (936 mulheres, 428 homens). O instrumento utilizado foi o IPAQ versão curta em Português, complementada por questões adicionais sobre dados académicos, hábitos de estilo de vida e participação desportiva. Os dados foram coletados eletronicamente, limpos, calculados e analisados com recurso à estatística descritiva em IBM SPSS Statistics 22. O nível de actividade física foi moderado em 54, 8%, alto em 30, 8% e baixo em apenas 14, 4% dos estudantes. A maioria dos estudantes têm um nível de atividade física que permite a obtenção de benefícios para a saúde. Os estudantes do sexo masculino têm maior nível de atividade física, maior nível de participação desportiva, IMC mais adequado, e melhor índice de saúde, maior consumo de álcool e tabaco e apresentam níveis de sedentarismo inferiores. Foram encontradas diferenças entre faculdades e entre ciclos de estudos. O nível baixo de atividade física aumentou com ciclos de estudos mais elevados. A Faculdade de Ciências do Desporto e Educação Física acabou por ser a mais activa em ambos os sexos.

Palavras-chave: Atividade física. Nível de atividade física. IPAQ. Estilo de vida. Jovens adultos

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LIST OF ABBREVIATIONS AND ACRONYMS

BMI	Body mass index
DM	Duration of Moderate intensity activities
DV	Duration of Vigorous intensity activities
DW	Duration of Walking
FADU	Academic Federation of University Sports (Federação Académica do Desporto Universitário)
FM	Frequency of Moderate intensity activities
FV	Frequency of Vigorous intensity activities
FW	Frequency of Walking
IBM	International Business Machines Corporation
IPAQ	International Physical Activity Questionnaire
IPDJ	Instituto Portugues do desporto e juventude
M	Moderate intensity activities
PAL	Physical activity level
SPSS	Statistical Package for the Social Sciences
SPSS	Statistical Package for the Social Science
Total D	Total duration of all activities
V	Vigorous intensity activities
W	Walking
WHO	World Health Organization

1 Presentation of the problem

1.1 Introduction

One of the most serious problems of nowadays population is a lack of physical activity. Low levels of physical activity are a major risk of millions deaths every year all over the world. Numbers of deaths associated with insufficient physical activity and unhealthy life style had been increasing (Torres, 2010). Physical activity is one of the most important factors for improving a population health (Bauman, 2009). There are many scientifically approved benefits of regular physical activity and active life style. The benefits are not only physical but also psychological, or better psychosocial. Both of them are very significant. Within the physical ones, there are many studies approving that regular physical activity is an important determinant of reduction of many health risks (Camões, 2008; Bauman, 2009; Pate, 1995; Almeida, 1999; World Health Organization (WHO), 2010).

Ones of these risks are so called non-communicable diseases. The most severe and most common of them which can be reduced by regular physical activity is cardiovascular disease. Regular physical activity can also reduce the risk of hypertension, coronary heart disease, stroke, type 2 diabetes, bone and joint diseases, and breast and colon cancer. It improves functional health and it is fundamental factor of weight control and energy balance (Almeida, 1999; U.S. Department of Health and Human Services, 2008; WHO, 2010). In the other words, regular physical activity in adequate level is an important determinant of energy expenditure and reduction of obesity. The final product of regular physical activity is health related physical fitness which significantly affects employability and regeneration after work load. Speaking about psychosocial benefits, physical activity increases a sensation of well-being, reduces stress and depression and also increases level of auto-confidence. So, physical activity brings social and health benefits. It also brings significant economic benefits because physical inactivity costs lots of money according to health care costs every year (Brochado, 2010; Instituto Portugues do Desporto e Juventude (IPDJ), 2005; Matsudo, 2001).

Portugal is referring to one of the countries with highest rates of sedentarism and physical inactivity in Europe (Bauman, 2009; IPDJ, 2005). Camões (2008) found the highest prevalence of sedentarism, 87, 8%, in Portuguese population within fifteen European countries, elevated prevalence of weight excess and obesity. Physical inactivity is nowadays the largest community health risk factor in Portugal, and the decrease in its prevalence is significant to prevent diseases and improve the quality of life (IPDJ, 2005). Only 23 % of Portuguese population participates in some sport activity (Marivoet, 2001).

1.2 Definition of the problem

The purpose of the present study was to evaluate university students in terms of physical activity, active life style and sport participation. And hence determine the problem of physical inactivity and sedentary life style in the population of young adults. The main purpose was to find out if the students are sufficiently active compared to international physical activity recommendations and if there is an influence of their academic characteristics such as faculty or cycle of studies frequented and by the collected data describe the physical activity profile of theirs.

The specific objectives of the study were:

- Determine physical activity level of the university students.
- Determine student's sport participation in the past and in the presence and in sport events organized by Academic Federation of University Sports - Federação Académica do Desporto Universitário (FADU)
- Determine chosen life style habits of the students (smoking habit and tobacco consumption, drinking habit and alcohol consumption, sleeping habit).
- Describe physical activity profile of the students according to their academic characteristics.

1.3 Pertinence of the study

Despite all the proven benefits, physical activity significantly decreased in last decades and in some countries is still decreasing. Portugal is one of the countries with highest rates of sedentarism (IPDJ, 2005; Camões, 2008). The decrease is particularly caused by modernization of living and the way of everyday life. It is a so-called problem of modern population. The way of life changed significantly due to modernization. Many house works are done by robots and machines, transport is developed and work is mechanized a lot. For example, writing and delivering some paperwork differs a lot now and in the past. In the past, an officer had to write a paper by hand then put it in envelope, get up from the table and deliver it to another colleague by walk and go back to his own office. This could appear as no physical effort at all. But by this simple way a person spent some energy. Now an officer writes a letter on computer and then sends it by e-mail to his colleague without any movement still sitting on a chair. It is the same with students. In the past, students had to go to the library, carry the books, write by hand and so on. Now everything could be found on internet. There are online libraries, most of them with free access with the possibility of entering to databases. Paper works can be sent from home without any need of walking to the faculty. Moreover there are online courses which can be taken from “comfort of home”. Are the university students with the ongoing modernization of whole academic process becoming more inactive and sedentary? Is there an increasing physical inactivity among this population?

Some studies are reporting higher physical activity in the population of university students compared to normal population (Arai, 2006). Is that true? Next question is a lifestyle of university students. What are their habits determining the lifestyle? There are two types of factors influencing physical activity. Ones of them are socio-demographic factors, where determinants such as age, sex and education belong. The second ones are behavioral factors expressing person's life style choices in terms of behavior. As highly educated people university students should be aware of benefits of physical activity and also importance of compliance of some life style habits such as smoking, alcohol consumption and importance of sleeping hours. The study will show what are the habits of these young adults and if they are sufficiently active with the main focus on evaluating their physical activity level. It is inspired by

previous researches on the same topic and researches evaluating population health with an aim of updating the topic and bringing new results for Portuguese population and population of university students.

1.4 Assumptions and delimitations

The design, implementation and processing of the data in the present research were developed based on certain assumptions and delimitations, such as:

- a) The study is delimited to individuals referring to young adult age group, individuals between 17 and 28 years old.
- b) The study is delimited to individuals frequenting higher education - university students only.
- c) The period of university studies is usually connected with physical activity decline due to critical age and transfer between high school and university.
- d) The sample size was considered as a bounding factor of the study, considering the relevance of the study and the application with the young adults.
- e) The instrument used for the purpose of this research was in self-report form which can induce an error in answer due to subjective response of each individual.
- f) It is assumed that the answers given by the individuals are trustful and true and are corresponding to individual's real actual state.
- g) The instrument used is designed and proved for the use in self-report researches. This fact in some range minimizes the limitation mentioned above.
- h) It is assumed that the instrument used have corresponded with the protocols of data cleaning and data analysis to ensure that the results are assessed accurately.

2 Literature review

2.1 Introduction

In last decades there is an evident decrease in regular physical activity worldwide and one out of three adults is not active enough (WHO, 2014). Lack of physical activity is notable in nowadays population as in general (Brochado, 2010; Camões, 2008; WHO, 2010) as in the specific group of population of university students (Kilpatrick, 2005; Pedišić, 2014) despite all the health benefits physical activity brings (Almeida, 1999; Baptista, 2012; Brochado, 2010; Camões, 2008; Costa, 2003; Pate, 1995; Uijtdewilligen, 2014; WHO, 2010). Decline of physical activity was observed also as a part of leisure time activities (Baptista, 2012; Costa, 2003).

Physical inactivity is a reason of millions of deaths every year all over the world. It is identified as the fourth leading risk factor for global mortality (WHO, 2010). According to Bauman (2009), almost two millions deaths per year worldwide are attributable to physical inactivity. In the beginning of the century the mortality was strongly related to infectious diseases, up to date it is related to non-communicable diseases (Dias-da-Costa, 2005; IPDJ, 2005) which are the outcome of physical inactivity. Non-communicable diseases such as cardiovascular disease, diabetes, cancer and their risk factors of raised blood pressure, raised blood sugar and overweight account for nearly half of the overall global load of disease; six out of ten deaths are caused by non-communicable diseases (WHO, 2010). Physical inactivity undoubtedly affects global health. Amounts and domains of physical activity differ in between the countries (Bauman, 2012). Portugal is one of the European countries with lowest prevalence of physical activity (Bauman, 2009; Marques, 2014). The ratio of low levels of physical activity is elevated in Portuguese population (Camões, 2008). The rate of sedentarism in Portugal was found out to be 87,8% in leisure time activities, by Varo (2003). Referring to IPDJ (2005), 70% of Portuguese population in the age of 18 years old and more spent the most part of their leisure time by sedentary activities as watching television, reading and others, 37% is overweight and 13% obese. It was found by Marques (2014) that within the Portuguese adults

living in Lisbon only 33% of them are achieving recommended physical activity level during free time. Almeida (1999) is writing that Portugal is the country with the lowest rate of participation in some kind of physical activity, 40%, when for example Finland reaches the rate of 92% of physical activity participation within the population. In general, Nordic countries have higher percentage of physical activity participation and higher physical activity level than southern countries, speaking about European countries (Almeida, 1999).

Physical inactivity is a problem of all parts of nowadays population. Some groups of population are more risky; women, older people, people with lower education level or lower socioeconomic status, smokers; depending on the determinants of physical activity. Population of university students is a risky group, in terms of physical activity, life style choices and sport participation, to which should be given the attention. They make up a considerable part of global population. Academic life can cause life style changes connected to health (Brandão, 2011). To our knowledge, there are not many data about physical activity patterns of university students in Portugal. Quantitative research among adults in Portugal defining if the population is meeting physical activity recommendations is still limited (Marques, 2014). It is important to know the determinants and distribution of physical activity in order to identify strategies of promotion of physical activity and active life style (Bauman, 2012; Brochado, 2010; Kilpatrick, 2005; Pedišić, 2014) and improving the population health. The life style in combination with other factors is found to be one of the main health determinants (Torres, 2010).

2.2 Correlates of physical activity

Participation in physical activity is influenced by various factors. Only few of these which are consistently affecting the physical activity were identified (Uijtdewilligen, 2014). Investigation of factors influencing physical activity (determinants of physical activity behavior) is important for understanding how to increase physical activity level of current populations, improve public health and develop the effective physical

activity intervention strategies (Bauman 2012; Ferreira, 2007; Marques, 2014; Varo, 2003). Knowledge of key determinants of physical activity is essential for the identification of risk groups (Bauman, 2012). The influence of individual factors is changing along with the change of phase of life of each individual (Camões, 2008). There is a need of studies examining these relationships and physical activity determinants in different context (Uijtdewilligen, 2014). Bauman (2012) states that the effect of factors differ between physical activity domains and with country, age, sex, ethnicity and socioeconomic status. The differences between determinants and different types of physical activity remain future investigation (Camões, 2008). According to Uijtdewilligen (2014) longitudinal studies could better identify the factors with strong association to physical activity than cross-sectional studies which are in majority.

Determinants of physical activity are complex and multifactorial and appear in several categories. They can act as facilitators or barriers (Brochado, 2010). Not all authors use the same definition of factor groups. Trost (2002) divides the factors into personal, social and environmental. Camões (2008) is dividing them into individual characteristics (biologically determined) and ambient characteristics (determined by the environment in which an individual lives). Brochado (2010) classifies the physical activity determinants into six individual groups: 1) demographic and biological factors, 2) psychological, cognitive, and emotional factors, 3) behavioral attributes and skills, 4) social and cultural factors, 5) physical environment factors and 6) physical activity characteristics. There is large number of variables associated to physical activity. In the present study only certain determinants of physical activity will be used and its' specific division will be realized due to the purpose of the study. According to Brochado (2010) variables of physical activity have multiple dimensions and influence physical activity behavior in multiple ways.

Factor	Variables
Demographic and biological factors	Age, ethnicity, gender, income, socioeconomic status, marital status, race/ethnicity, body mass index
Psychological, cognitive, and emotional factors	Attitudes, barriers to exercise, control over exercise, enjoyment over exercise, expected benefits, health locus of control, intention to exercise, knowledge of health and exercise, lack of time, mood disturbance, normative beliefs, perceived health or fitness, personality variables, body image, psychological health, self-efficacy, self-motivation, stage of change, stress, value of exercise outcomes
Behavioral attributes and skills	Activity history during childhood/youth, activity history during adulthood, alcohol, contemporary exercise program, dietary habits, past exercise program, process of change, school sports, skilled for coping with barriers,
Social and cultural factors	Class size, exercise models, group cohesion, past family influences, physical influence, social isolation, social support from friend/family
Physical environmental factors	Actual access to facilities, perceived access to facilities, adequate lighting, climate/season, cost of programs, disruptions in routine, enjoyable scenery, frequently observe other exercising, heavy traffic, home equipment, high crime rates in the region, hilly terrain, neighborhood safety, presence of sidewalks, satisfaction with facilities, unattended dogs, urban location
Physical activity characteristics	Activity intensity, type, perceived effort

Figure 2.2.1 Factors of physical activity behavior among the adult population, divided into six sub-groups (adapted from Brochado, 2010).

Between the physical activity determinants, demographic and biological ones are well documented by previous researches (Brochado, 2010). Age and gender are the two most affecting factors of adults' physical activity behavior (Trost, 2002). The transition between young adult (adolescent) and adult age is critical (Arai, 2006). This transition age is associated with many physical and mental changes which may have an influence on physical activity participation; positive or negative (Lerner, 2011; Uijtdewilligen, 2014). There was observed a decline of physical activity and energy expenditure from adolescent to adult age (Camões, 2008; Ferreira, 2007; Lerner, 2011). It is estimated that 80% of young obese people become obese in the adult age as well (IPDJ, 2005). It is established by previous research that physical activity declines with increasing age (Almeida, 1999; Bauman, 2009; Quintino, 2014; Van Mechelen, 1999) and in general is higher in men than women (Camões, 2008; Seabra, 2008; Trost 2002; Van Mechelen, 1999). Costa (2003) writes that the tendency of lower participation in physical activity in women is observed already in childhood and adolescence. Kilpatrick (2005) besides different amount of physical activity finds different motives in men and women. Physical activity increases with education level (Brochado, 2010; Camões, 2008; Costa, 2003) and is negatively

associated to other behavioral factors of smoking and consumption of alcohol (Brochado, 2010; Camões, 2008; Trost, 2002). Higher levels of physical activity on the other hand can positively affect, reduce, the risk of smoking. Non-smoking man consuming alcohol over moderate level, were found more active (Uijtdewilligen, 2014). Moderate consumption of alcohol was associated with higher levels of physical activity in comparison to abstinence (Camões, 2008). Dias-da-Costa (2005) did not found any association between alcohol consumption and physical activity. It has been found a negative influence of overweight on physical activity (Bauman, 2012). Individuals with higher body mass index (BMI) were found to be less active (Camões, 2008). According to Almeida (1999) 31% of European population is overweight and 10% is obese and obese individuals were found less involved in physical activity. Another variable of health status and sport participation history, included in the present study, were found out to be the correlates of physical activity participation by Bauman (2012). Sport participation in youth and adolescence age is a good predictor of physical activity and sport participation in adulthood (Telama, 2006). Telama (2006) in his 21-year longitudinal study found that both men and women who participated in organized sport in youth were more active in adult age than the individuals which did not participate in sport activity in the past. Having as an outcome that youth sport is an important predictor of adult physical activity (Telama, 2006). Another, currently often discussed factor is time spent sitting or so called sedentary habit. Time spent sitting also affects the physical activity but the knowledge of this topic is limited (Uijtdewilligen, 2014).

In spite of higher educational level university students are insufficiently active. The transition from high school to university is associated with decline of physical activity (Pedišić, 2014). According to Kilpatrick (2005), half of all surveyed university students report a decrease in physical activity following graduation. Transition to college education was found to have a negative influence on physical activity which can be attributed to newly gained freedom of university life (Bray, 2004; Lerner, 2011). Influence of academic life on health and physical inactivity related risks was studied by Brandão (2011). Population of university students is considered to be vulnerable for adoption of health risk behavior of physical inactivity (Quintino, 2014). Better understanding why the students are active or not would help to increase physical activity level of this particular part of population.

2.3 Physical activity among the university students

Physical activity level and physical activity in general in the population of university students were investigated in the past. It has been written that higher education level leads to higher participation in physical activity (Dias-da-Costa, 2005). Arai (2006) is describing relationship between sedentary behavior and physical activity in male university students. He is using International physical activity questionnaire (IPAQ) for the study and characterizing several sedentary habits. Significant influence of time spent sitting was found on scores of sport and exercise. Study of physical activity of young people was done by Van Mechelen (1999) in Amsterdam. Van Mechelen (1999) is evaluating development of habitual physical activity in young Dutch male and female subjects in age of 13 to 27 years old. Results showed a decrease of total weekly time spent on physical activities both in male and female subjects by their increasing age. Another author focusing on young adult population and particularly on population of university students is Quadros (2009). His study *“Prevalence of physical inactivity amongst Brazilian university students: its association with socio-demographic variables”* is close to the present study. There were 762 respondents of both genders. Their level of physical activity was measured by IPAQ and several socio-demographic factors were reported. The results showed 13,8% prevalence of physical inactivity among freshmen students with higher percentage of female than male (Quadros, 2009). Variables as socio-economic status, work status, study period and parent’s educations were associated. Another study, made by Torres (2010) was assessing young university students’ behavior regarding health. Torres (2010) evaluated life style of Columbian students from six different universities. Physical activity, leisure time, eating habits, alcohol, cigarette and drug use, sleep, interpersonal abilities, coping and perceived emotional state were included. Some of these factors will be used in the present study. Very close study to the present one was made by Gordia (2010). There the IPAQ was used for the evaluation of physical activity level of high school students from Brazil. Association between study schedule and physical activity level was found. In case of university students, specific schedule or period of studies for example exam or graduation period can influence their physical activity level (Buckworth, 2004).

Students frequenting the morning classes are more probable to be physically inactive (Gordia, 2010). Gordia (2010) mentions that study schedule is a relevant socio-demographic factor of health status and life style habits in adolescents. He also states a lack of knowledge about the matter in youths. The scope of interest of the present study is another age group, young adults. There are many studies focusing on this age group, less of them are describing the population of university students (Torres, 2010). Information on the physical activity in relation with health related quality of life is scarce for a population in general and also for specific groups of population where the university students can be ranked (Pedišić, 2013). However the interest in this specific population is increasing lately. Impact of academic exposure on health status of university students was studied by Brandão (2011). After two years of follow up observations Brandão (2011) is founding an increase in overweight and smoking in students of University of Aveiro, Portugal, students exposed to academic life in comparison to freshman students. High rate of physical inactivity was found in 80% of cases. Freshman students appeared to have higher levels of physical activity than students of higher years, students exposed to academic life. Physical activity levels of these students were found significantly associated with gender. Brandão's (2011) study is a first of a kind evaluating the impact of academic life style on non-communicable chronic diseases. Present study is aimed to evaluate physical activity level and some of the life style determinants of students of University of Coimbra and associate them to their academic characteristics. More recent study made in Brazil with students of physical education, Federal University of Santa Catarina by Quintino (2014) described stages of change of behavior in physical activity of the students and identified the associated socio-demographic factors. Within the sample 18,6% of students were found physically inactive, where females were more likely to show inactive behavior (Quintino, 2014). Buckworth (2004) is also reporting higher inactivity and lower participation in sport in female than male students. Croatian university students, their physical activity level, self-related health and life style patterns were investigated in the cross sectional study by Pedišić (2014). IPAQ long form was used for the evaluation of physical activity of the students of University of Zagreb, Croatia completed by additional questions. Pedišić (2014) is closest to the concept of the present study by the methodology of his

research and aims of the study and one of the most recent in the topic. Different form of IPAQ will be used in the present study, IPAQ short form, where the physical activity is not divided into different domains. Additional questions of gender, age, year of studies, alcohol and tobacco consumption, BMI and self-related health were used in both. Prevalence of insufficient physical activity was found in 25,1% of female and 24,6% of male university students in Croatia. Surprisingly higher year of studies was associated with higher physical activity levels (Pedišić, 2014). Pedišić (2014) states that physical activity level of European university students is not improving and in global, 30 to 60% of them are insufficiently active. Bray (2004) was investigating physical activity during transition from high school to university in Canadian students. Results found that 66,2% of tested students reported sufficient activity in high school which declined to 44,1% during the first eight weeks of university (Bray, 2004).

According to previous researches the population of university students seems to be a critical group in terms of physical activity and health related risks. Prevalence of physical inactivity among the university students is increasing worldwide (Quintino, 2014). There is an obvious need of investigation in this area and consequent improvement of the situation. Transition between secondary school to university is a unique process for each individual and is associated with physical activity decline (Bray, 2004; Buckworth, 2004; Pedišić, 2014). This decline is disturbing because the habit of inactivity gained in the first year of studies according to Bray (2004) and Buckworth (2004) persist throughout the university life and to later adulthood period. Present study will be evaluating physical activity level of Portuguese university male and female students, their habits and sport participation. Study will be inspired by previous researches on the same topic and researches evaluating population health with an aim of updating the topic and bringing new result for Portuguese population. Differences in physical activity level according to academic characteristics such as faculty frequented and cycle of studies are tending to be found out. The most positive results are expected from students of Faculty of sport sciences and physical education.

2.4 Physical activity level

First it is important to define physical activity. Physical activity is often mistaken with terms such as exercise or practice. Physical activity is a complex behavior (Caspersen, 1985; Sjöström, 2008). There is a physical part and psychological part. It influences many processes and states of individuals and concurrently is influenced by them. Physical activity is an irreplaceable factor shaping and guiding the evolution (Bunc, 2009). Definition which is mostly used was given by Caspersen (1985): *“Physical activity is any bodily movement produced by skeletal muscles which results in energy expenditure.”* It is a key factor for improving population health (Bauman, 2009) and reaching healthy life style (Almeida, 1999; IPDJ, 2005; Marques, 2014). Lifestyle, in combination with other factors, has direct influence on persons' health and quality of life (Torres, 2010). Within the life style, physical activity and smoking habit are the two determinants which are highly prevalent and potentially modifiable (Varo, 2003).

U.S. Department of Health and Human Services (2008) states, that some physical activity is better than none. But not every physical activity must be good for an individual and contribute to health (Bunc, 2009). It is necessary to know which activity is adequate for each individual. Only regular physical activity corresponding with adequate volume may lead to a positive impact on the human body (Kovář, 2006). Volume of activity is given by its' intensity, duration and frequency. The volume of activities can influence the magnitude of their effect on chronic diseases (Dias-da-Costa, 2005). The most important point of physical activity in a health perspective is regularity. To reach the benefits of physical activity the performance must be regular (Bunc, 2009; Ferreira, 2007; WHO, 2010). Physical activity appears in several domains, depending in which context they are performed. IPAQ Group (2005) distinguishes four domains of physical activity; work related (occupational), domestic and garden chores, leisure time, active transportation. As was previously written, it does not depend so much on domain in which is activity performed such as on the amount (volume) of the activity (Almeida, 1999). Every person performs physical activity in order to sustain life (Caspersen, 1985). The question is in which

amount and if this amount is sufficient for reaching the physical activity health benefits.

To express the amount of physical activity as a number there is a term of physical activity level. Physical activity level can be described as energy expenditure in a given period of time; includes all types of physical activities and is highly subjective (Caspersen, 1985). Time periods differ from a day to a year and also longer ones can be used. The most commonly used and as so will be in the present study is a period of one week. Physical activity level is very often classified in metabolic equivalents (METs). METs are expressing the energetic cost of physical activities. METs are defined as multiples of the resting metabolic rate. One MET corresponds to 3,5 ml/kg/min of oxygen (Sjöström, 2008). IPAQ Group (2005) established three categories of physical activity level to classify population: low, moderate and high. As so it will be used in present study. High physical activity level is a category which corresponds to higher levels of participation in physical activity. To reach this category it is proposed to do at least one hour per day or more, of moderate-intensity activity or at least half an hour of vigorous-intensity activity per day. It corresponds to 3000 and more MET-min/week. It can be also associated to steps. At least 12,500 steps per day are necessary to reach the high physical activity level category (IPAQ Group, 2005). Moderate physical activity level corresponds to interval from 600 to 2999 MET-min/week. To reach this category it is proposed to do half an hour of at least moderate-intensity activity on most days. The moderate physical activity level category is used for population health recommendations (IPAQ Group, 2005). The category of low level of physical activity is defined as not meeting any of the previous categories and its' criteria (IPAQ Group, 2005). It corresponds to 599 and less MET-min/week. The categorical classification of high, moderate and low physical activity level is based on continues scores of MET-min/week of physical activity. MET-minute is the MET score multiplied by the minutes of activity performed. MET-minutes are equivalent to kilocalories for a 60 kilogram person (IPAQ Group, 2005). Ratios of METs of physical activities was established by Ainsworth (2000) in the Compendium of physical activities and actualized by Ainsworth (2011) in the second edition of this compendium. Resumed, physical activity level is calculated from the physical activity

ratio for each activity (in METs), multiplied by the time spent in that activity (in minutes) and consequently multiplied by the frequency of activity (number of days in which was the activity performed within one week). There is not an exclusive way how to express physical activity level, recommended amounts of physical activity or define the intensity of activity. In the present study the definitions were taken over from IPAQ Group and WHO because of their best match with the interest of the study.

According to the physical activity level the life style can be defined. WHO (2010) in cooperation with IPAQ Group (2002) defined three options of life style in terms of activity **Chyba! Nenalezen zdroj odkazů..** Lifestyle is described as a set of attitudes and habits which are associated to each individual (Jacobs, 2011). It depends on the personal choices in several different areas. Areas evaluated in this study will be physical activity with conclusion in physical activity level, alcohol and tobacco consumption, health status, sleeping habit and sport participation.

Physical activity level	Life style
LOW	INACTIVE
MODERATE	ACTIVE
HIGH	VERY ACTIVE

Figure 2.4.1 Life style categories defined by physical activity level (Adapted from WHO, 2010; IPAQ Group, 2002).

Assessment of physical activity level is possible in different ways. Matsudo (2001) presents three types of techniques. First of them are techniques using information given by people for physical activity level assessment. There the questionnaires, interviews and diaries can be included. These techniques are low cost, can be used in big population samples but have a certain limitations due to their subjectivity in the answers. Questionnaires are the most frequently used for assessing the physical activity level of big population groups (Hagströmer, 2006) because their general acceptance by participants and low cost (Baptista, 2012; Tehard, 2005). Then there are techniques using physiological data as oxygen consumption or heart rate which are more accurate and objective. And the last are movement sensors (Matsudo,

2001). Both physiological and movement sensors methods are financially demanding and more frequently used with smaller samples. Each of the techniques has its advantages and disadvantages. It is difficult to establish, what is the best option for evaluation of physical activity level (Sjöström, 2008). Lee (2011) states that there is not any perfect criterion for evaluation of physical activity level. For the purposes of the present study questionnaire was used, concretely IPAQ.

2.5 IPAQ

There are plenty of questionnaire for evaluating habitual physical activity and physical activity level. They have been scientifically proved but their results can't be compared one to another. Varo (2003) is mentioning the need of assessment of physical activity issue in a homogeneous way across different countries. There was a need of universal instrument, usable all over the world to compare different countries in terms of health enhancing physical activity (Bauman, 2009; IPAQ Group, 2005; Rütten, 2004; Sjöström, 2006), the instrument which would permit to make an international research of physical activity level prevalence (Matsudo, 2001; Maddison, 2007) including all contexts of physical activity (Hagströmer, 2006). IPAQ is fulfilling these characteristics and is often used for international comparison studies with the advantage of quick and practical use in large population samples (Matsudo, 2001). It is considered as international standardized instrument assessing physical activity in different intensities within the different contexts (Omar, 2004). It was used by Guthold (2008) in the study: *“Worldwide Variability in Physical Inactivity: A 51-Country Survey”*. Another use was by Bauman (2009) in his study: *“The International Prevalence study on Physical activity: Results from 20 countries”*. Rütten (2004) is also using IPAQ in his study: *“Prevalence of physical activity in the European Union”*. IPAQ has high level of cultural equivalence and there are various language versions. In Portugal, there is also a frequent use of the IPAQ. Research of physical activity level of young adults, the same age group of present study, using IPAQ as an instrument was made by Coelho (2009). Esperança (2004) used the IPAQ for his study of habitual physical activity of Azorean adults. IPAQ is suitable not only for its usability in different countries and cultures but also for its validity and reliability.

Matsudo (2001) shows similar validity and reliability of IPAQ as of other physical activity questionnaires with similar results for both short and long form of the questionnaire. Short form showed better acceptance among the respondents, the long form was found to be lengthy and tedious. To mention is that there are also some disadvantages of IPAQ. It is a self-reported measure where should be counted with possible overestimation of the amount of physical activity by the participants (Baptista, 2012; Lee, 2011; Tehard, 2005). Baptista (2012) also mentions the error emerging by inaccurate estimation of intensity of the activity by participants. This particular error is tried to be removed by exact explanation of terms and definitions in the questionnaire guidelines and in case of present study once more by the clear information in the accompanying e-mail. According to Bauman (2009) and Craig (2003) IPAQ is internationally comparable, reliable and validated instrument. IPAQ showed acceptable validity and reliability in developed and also in developing countries (Craig, 2003). Guedes (2005) finds the IPAQ as the most accessible instrument for assessing habitual physical activity in epidemiologic studies. IPAQ was developed for investigation within the adult age group; most suitable showed up to be for young and middle aged adults (IPAQ Group, 2002). It is suitable for big population groups' surveys and no financially demanding. These are the reasons for use of IPAQ as the instrument in the present study.

2.6 Physical activity recommendations

To reach the required physical activity level and related health benefits it is necessary to meet physical activity recommendations. There was a need of development of recommendations of physical activity on international level which would define the connection between intensity, frequency, duration, type and total amount of activity (WHO, 2010). Hence, WHO started the work on the Global Recommendations on Physical Activity for Health in January 2008. In several phases the guidelines were finished and in June 2010 approved by Guideline review committee. With evolution physical activity guidelines prescriptions of structured and intense aerobic exercise previously used passed to less structured ordinary forms of everyday activities such as walking or stairs climbing (Kilpatrick, 2005). There is not requirement for special equipment or facilities to perform this type of activities

(Almeida, 1999); activities of everyday life which could contribute to better health same as structured exercise. According to Almeida (1999) walking is easily attainable by almost all parts of population and it can be used in problematic groups as older aged or overweight and obese people. By U.S. Department of Health and Human Services (2008), active adults are less likely to develop non communicable diseases and they gain many health benefits regardless of ethnicity, race or sex.

The Global Recommendations on Physical Activity for Health (WHO, 2010) designated the following amounts of physical activity for adults in age from 18 to 64 years old. Accomplishment of the recommendations leads to improvement of cardiorespiratory and muscular fitness, bone health, reduction of risk of non-communicable diseases and depression. To reach the mentioned health benefits adults should perform:

- 150 minutes of moderate-intensity aerobic physical activity throughout the week
- or at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week
- or an equivalent combination of moderate- and vigorous-intensity activity.

For additional health benefits adults should:

- increase their moderate-intensity aerobic physical activity to 300 minutes per week
- or increase their vigorous-intensity aerobic physical activity to 150 minutes per week
- or an equivalent combination of moderate- and vigorous-intensity activity.

Muscle-strengthening activities involving major muscle groups should be done twice or more a week. Mentioned aerobic activity (both of moderate and vigorous intensity) should be performed in bouts of duration at least 10 minutes (WHO, 2010). Some of the authors also refer to eight minutes long intervals of physical activity (IPDJ, 2005). The Global Recommendations on Physical Activity for Health developed by WHO have large use in Europe and are applicable worldwide. U.S. Department of Health and Human Services is recommending the same in the Physical Activity Guidelines for Americans (2008). These recommendations according to Marques (2014) emphasize the moderate intensity activities benefits and provide the possibility of activity accumulation throughout the day in bouts. Discovered by Baptista (2012) high

percentage of population is performing activity in periods which are too short (shorter than 10 minutes) for giving the stimulus for increase in aerobic capacity. However, some amount of physical activity, even in short bouts, was found by Almeida (1999) to be better than no activity at all. Cavill in the publication issued by WHO (2006) states a recommended physical activity for student. The recommendation is presented as daily walk or cycle to and from university, taking every opportunity to be active (using stairs, manual tasks), two to three sport sessions during the week days and longer walks, cycling, swimming, sport activities, home chores and gardening during weekends (Cavill, 2006).

Physical activity recommendations should be proportionally modified to suit the most to the needs of each individual (Cavill, 2006). As could be seen from the name Global Recommendations on Physical Activity for Health, the recommendations are general (Sjöström, 2008). Individual adjustment of recommendation specifics can reflect age, gender, culture, country, health condition (disabilities, pregnancy, etc.). Further specification of the recommendations according to the pretended health benefits are needed (Almeida, 1999). That was the aim of the Global Recommendations on Physical Activity for Health, to provide information about dose-response relationship of physical activity and health benefits (WHO, 2010). Sjöström (2008) is defining that to prevent the weight excess leading to overweight and obesity it is required 45 to 60 minutes of daily moderate intensity activity and to prevent weight regain in formerly obese individuals 60 to 90 minutes of daily moderate intensity activity is needed. The Global Recommendations on Physical Activity for Health are relevant for the outcomes of:

- Cardiorespiratory health (coronary heart disease, cardiovascular disease, stroke and hypertension)
- Metabolic health (diabetes and obesity)
- Musculoskeletal health (bone health, osteoporosis)
- Cancer (breast and colon cancer)
- Functional health
- Depression

(by WHO, 2010).

3 Methods

3.1 Introduction

The study has a character of applied research. It was made as an epidemiological cross-sectional study focusing on the issue of increasing physical inactivity in nowadays population and related risks. The study is evaluating the physical activity level of university students, their sport participation and several life style habits in health perspective and perspective of active life style and consequently comparing it to physical activity recommendation for adult population. To obtain the data pretended self-report method in the form of online questionnaire was used.

3.2 Variables

Physical activity is affected by diverse factors (Bauman, 2012). According to the purpose of the study and instrument used there are variables which could be divided into four groups. The first group of variables includes demographic and personal characteristics. Because all the individuals of the present research have the same education level, university level of education, the second group of variables describes their more exact academic characteristics. The third group of variables includes sport participation and the last fourth group includes life style characteristics and habits.

Precise division of variables was as following:

- a) Demographic and personal characteristics – sex, age, height, body weight, BMI, health status
- b) Academic characteristics – faculty frequented, cycle of studies frequented
- c) Sport participation – sport participation in the past, sport participation in the present, sport participation in the events organized by FADU
- d) Life style and habits – physical activity level, sleeping habit, smoking habit, alcohol consumption, sitting habit

3.3 Sample

Sample of the study consist of university students, particularly students of University of Coimbra, Portugal. There are eight individual faculties of University of Coimbra which will be all included in the research. In original names the faculties are as following:

- Faculdade de Letras
- Faculdade de Direito
- Faculdade de Medicina
- Faculdade de Ciências e Tecnologia
- Faculdade de Farmácia
- Faculdade de Economia
- Faculdade de Psicologia e Ciências de educação
- Faculdade de Ciências do Desporto e educação física

* (Faculty of Arts and Humanities, Faculty of Law, Faculty of Medicine, Faculty of Sciences and Technology, Faculty of Pharmacy, Faculty of Economics, Faculty of Psychology and Education Sciences, Faculty of Sport Sciences and Physical Education)

Participants were in the age from 17 to 28 years old, corresponding to young adult's age group. Both genders, male and female, were represented in the study. There were participants from first (Bachelor), second (Master) and third (PhD) cycle of studies. Maximum possible number of participants was pretended to include in the research. The exact numbers of participants were 1364 in total, 936 females and 428 males.

All the faculties were represented in the sample. The highest number of respondents was obtained from Faculty of Science and Technology. The lowest rate of responses was obtained from Faculty of Psychology and education sciences. The following table is showing the exact numbers of participants from individual faculties, in total, for females and for males.

Table 3.3.1 Composition of the study sample in numbers of respondents divided by the faculty frequented (for total sample, for females and males individually).

Faculty frequented	Number of respondents		
	Total	Females	Males
Faculty of Arts and Humanities	221	157	64
Faculty of Law	273	213	60
Faculty of Medicine	143	93	50
Faculty of Sciences and Technology	342	203	139
Faculty of Pharmacy	180	152	28
Faculty of Economics	100	69	31
Faculty of Psychology and Education Sciences	36	27	9
Faculty of Sport Sciences and Physical Education	69	22	47
Total	1364	936	428

3.4 Instrument used

The instrument used was the International Physical Activity Questionnaire, constructed by work group of scientists in Geneva, Switzerland, 1998. There are more possible forms of IPAQ depending on:

- form of application (auto-application, phone interview, interview)
- questionnaire form (short, long)
- physical activity criterion (usual/normal week, last week)

Short form of the questionnaire, auto-application and usual/normal week was used for the present study. Portuguese version of IPAQ was used (Matsudo, 2001). This questionnaire was developed for population surveillance of physical activity among adults (IPAQ Group, 2005). Short form of the questionnaire is featuring three specific types of physical activity: walking, moderate-intensity activities and vigorous-intensity activities. These three types of physical activity were evaluated separately and then summed into the total physical activity score showing the physical activity level of each participant. IPAQ is asking all main characteristics of physical activity necessary for evaluation of physical activity level. There are questions about duration and

frequency of walking, moderate-intensity activities and vigorous-intensity activities (Sjöström, 2008). The short form of the questionnaire is assumed to be more suitable for young adults (Guedes, 2005). On the contrary from the long form it is evaluating all domains of physical activity (leisure time, work, domestic and garden chores, active transportation) together (Bull, 2003). Questions about time spent sitting during a normal day and during weekend were included. IPAQ has been proved as eligible and frequently used for the researches which include a large number of subjects (Bauman, 2009; Guedes, 2005; Sjöström, 2008). It is based on current recommendations of moderate and vigorous physical activity (Tehard, 2005), recommendations featured by WHO.

The original questionnaire was extended by additional questions according to the purpose of the study. Additional questions were asking sport participation in the past (before entering to the faculty), sport participation in the present (during university studies) and participation in the sport events organized by FADU. Next additional questions were examining several life style habits (sleeping habit, smoking habit and alcohol consumption). Smokers were divided into two groups dependently on the tobacco consumption. Group of regular smokers (daily consumption) and group of occasional smokers (consumption of less than once a day) was defined. Similar classification was done within the alcohol drinkers. There was group of regular drinkers with consumption of alcohol of at least once a week or more and group of occasional drinkers with the consumption of alcohol of at least once a month. Participants were asked the average number of sleeping hours per night. Socio demographic factors were included (sex, age, height, body weight, weight status, health status). Self-assessment of health status was made by participants within the given scale where the options were: bad, reasonable, good, very good or excellent. Then there were added questions about academic characteristics (faculty frequented and cycle of studies frequented).

The final version of questionnaire was transferred into the online version by the application of "Google docs".

3.5 Data collection

Data collection was realized electronically, online. The online version of IPAQ extended by the additional questions was sent to students of University of Coimbra. All the faculties of University of Coimbra were asked individually to forward the questionnaire to the mailing list of their appropriate students. By this way the maximum possible number of participants – answers were pretended to collect. The questionnaire was sent together with instructive email including more specific guidance and information about the purpose of the study. Data collection began in the first week of May 2014. Responses were automatically collected back in the application of Google docs, into the personal account and final file containing all the answers was build. Data collection was finished in the second week of June 2014 and the data analysis proceeded.

3.6 Data administration

The data collected online were transferred into Microsoft Excel 2010 program where the final data table was created. The data administration consisted of data cleaning, definition of new columns of the table and data calculation, calculation of continuous scores and transfer to the categorical scores. Steps of data administration connected to the IPAQ were done according to the Guidelines for Data Processing and Analysis of IPAQ given by IPAQ Group (2005).

Before the data could be analyzed they need to be cleaned. The study was limited by the age of young adult age group, minimum 17 and maximum 28 years old. All the respondents out of this age range were excluded from the study. From initial 1543 respondents 179 respondents were excluded, all of them exceeding the upper limit of given age range interval.

There are minimum and maximum values for duration of physical activity, speaking about all three types of activities included – moderate intensity activities, vigorous intensity activities and walking. The minimum time spent on each activity is

10 minutes continuously. Supposing those 10 minutes of continuous aerobic physical activity is the shortest episode of time for reaching the health benefits (WHO, 2010). When the response was lower than 10 minutes it was automatically coded as zero. Subsequently the frequency of the activity was coded to zero as well (IPAQ Group, 2005). Maximum value of the total sum of duration of all the three types of activities was set on 16 hours (960 minutes) per day. According to IPAQ Group (2005) and their Guidelines for Data Processing and Analysis of IPAQ a person spent 8 hours per day sleeping, on average. Cases exceeding this value were excluded from the study. Another limit was used for duration of individual types of activities. Each one of them could not exceed 3 hours (180 minutes). In case of exceeding this limit the given value was re-coded to be equal to 180 minutes (IPAQ Group, 2005).

One part of the instrument used is about amounts of physical activity performed. There are three types of activities included, vigorous intensity activities (V), moderate intensity activities (M) and walking (W). There are two types of questions in the mentioned part of questionnaire. One is asking frequency of activity and the other is asking duration of activity, how many days per week was the certain type of activity performed and for how long period of time per day. New columns with frequency (in days per week) and duration of activity (in minutes per day) were created for the purposes of further analysis for each type of activity. New column of total duration of all activities (in minutes per day) was created. Maximum value of this item couldn't exceed 960 minutes per day according to maximum values of activity. The coding of newly created columns was as following:

- Frequency of Vigorous intensity activities FV
- Frequency of Moderate intensity activities FM
- Frequency of Walking FW
- Duration of Vigorous intensity activities DV
- Duration of Moderate intensity activities DM
- Duration of Walking DW
- Total duration of activities Total D (DV+DM+DW)

In case of duration of activity performed all the responses were converted into minutes only instead of initial hours and minutes answered. The numbers of frequency and daily duration of activity performed are crucial for creating the follow up continuous scores which are needed for the final data analysis.

Continues scores are defined by MET-minutes per week. For each type of activity there is a MET score derived. MET-minutes per week were calculated by multiplying the duration and frequency of activity by the MET score of an activity. By this way all types of activities can be summed, compared or analyzed together because they are in the same units. The following MET values were used for the analysis of IPAQ data: V = 8.0 METs, M = 4.0 METs and W = 3.3 METs (IPAQ Group, 2005). The continuous scores of physical activities were calculated according to following formulas defined by IPAQ Group (2005):

- V MET-min/week = 8 (METs) * DV (minutes/day) * FV (days/week)
- M MET-min/week = 4 (METs) * DM (minutes/day) * FM (days/week)
- W MET-min/week = 3,3 (METs) * DW (minutes/day) * FW (days/week)

After calculation of the individual ones the Total continuous score – Total MET-min/week of physical activity was defined by summing the individual continues scores of V MET-min/week, M MET-min/week and W MET-min/week. Special new column was created in the data table. The Total MET-min/week score is crucial for definition of categorical score of physical activity level which is the main indicator of the study.

- Total MET-min/week = V MET-min/week + M MET-min/week + W MET-min/week

In this part of data administration BMI was calculated from weight and height of the respondents and noted in a new column of data table. The BMI value was rounded to one decimal place. It is defined also as continues score which was as well as the Total MET-min/week continues score transferred into categorical score, score of weight status. The calculation was done according to known formula:

- $BMI = \frac{\text{Weight (kg)}}{\text{Height}^2 \text{ (m)}}$

Transformation of continuous scores into categorical ones was the next step of data administration. Categorical scores are more clear and useful for presenting the results of the study. They present the results of the study by categories. Continuous score of Total MET-min/week was transferred into the categorical score of Physical activity level. There were three categories of physical activity level used : low, moderate and high. The exact transfer of Total MET-min/week into physical activity level is shown in the Table 3.6.1. The same process was done with BMI score which was transferred into weight status score. Four categories of weight status were defined: underweight, normal weight, overweight and obesity. Transfer of BMI values into weight status is shown in the Table 3.6.2.

Table 3.6.1 Transfer of continuous scores of Total MET-min/week of physical activity into categorical scores of Physical activity level.

Total MET-min/week (Continuous Score)	Physical activity level (Categorical Score)
0 – 599	LOW
600 – 2999	MODERATE
≥ 3000	HIGH

(Adapted from IPAQ Group, 2005)

Table 3.6.2 Transfer of continuous scores of BMI (kg.m^{-2}) into categorical scores of Weight status.

BMI (kg.m^{-2}) (Continues Score)	Weight status (Categorical Score)
Bellow 18,5	Underweight
18,5 – 24,9	Normal weight
25,0 – 29,9	Over weight
30,0 and above	Obesity

(Adapted from Centre for disease control and prevention, 2011)

Sitting question asking time spent on sedentary activity (time spent sitting) was included to the study. Up to date there are only few data on sedentary behavior and there are none internationally accepted values for presenting the sedentary habit in the form of categorical scores (Varo, 2003). There was time spent sitting per week (Total sitting min/week) and average time spent sitting per day (Average sitting min/day) counted in the study. Average sitting min/day was rounded to whole minutes, zero decimal places. Sitting variable is giving an outline as an additional indicator of life style. It was not included into the summary of physical activity level score.

- Total sitting min/week = weekday sitting min*5 + weekend day sitting min*2
- Average sitting min/day = (weekday sitting min*5 + weekend day sitting min*2) / 7

3.7 Data analysis

For the data analysis Statistical Package for the Social Sciences (SPSS) version 22 designed by International Business Machines Corporation (IBM) was used. First step was transformation of the final data table created in Microsoft Excel 2010 into IBM SPSS Statistics 22. Descriptive statistics were used to analyze physical activity level, life style habits and sport participation profiles of the students of University of Coimbra. Statistical analysis included calculation of frequencies (units and percentages) and calculation of descriptive statistics (minimum, maximum, mean, standard deviation). Statistical analysis was performed according to sex. Within the sexes the sample was analyzed by academic characteristics; faculty frequented and cycle of studies frequented.

3.8 Pilot test

Pilot test was done before starting the study itself. It was testing the practicability of chosen methods and mainly the chosen instrument. Twenty three subjects were included into the pilot test. It was pretended to have at least two subjects of each faculty of University of Coimbra. The sample of pilot test is described in Table 3.8.1.

Table 3.8.1 Composition of the sample of the pilot test divided to individual faculties.

Individual Faculties of University of Coimbra	Number of subjects included into pilot test of present study
Faculty of Arts and Humanities	3
Faculty of Law	2
Faculty of Medicine	2
Faculty of Sciences and Technology	3
Faculty of Pharmacy	2
Faculty of Economics	2
Faculty of Psychology and Education Sciences	2
Faculty of Sport Sciences and Physical Education	7
TOTAL	23

The questionnaire was distributed to randomly chosen subjects. All procedure was the same as was described in the methodology above. After filling the questionnaire first the received answers were checked and then the subjects were asked about the questionnaire filling process. After checking the collected answers there was found no error in the online version of questionnaire. Small editing was done so the online application was asking the respondents to fill certain questions obligatorily (to not skip any question). Each subject of pilot test was subsequently asked if there were some difficulties in filling up the questionnaire. All of them referred easy and comprehensible filling process. There were six subjects referring to the length of supporting text in the questionnaire in a negative way. The text was found to long according to the same instructions in the accompanying instructive email. Some of the text was consequently cut off. To sum up the results of the pilot

test, the questionnaire was found easily understandable and filling up process clear and concise according to given information. There were no more adaptations done in the original version of the questionnaire.

Specific questions which the subjects were asked about the filling up process, according to IPAQ Group (2005):

- a. Did you understand all the words?
- b. How clear was the intent of the question? (Do you know what is being asked?)
- c. Do you have any questions about it?
- d. How could the wording be clearer?
- e. Did any of the questions make you feel uncomfortable?

4 Results and Discussion

Three areas of results were investigated in the present study. First of them were physical activity determinants where weight status, health status and physical activity level (PAL) were included. The second area was describing sport participation of the sample where sport participation in the past, before entering to the university, sport participation in present, during the university studies, and sport participation in the sport events organized by FADU were included. The third area was describing life style habits. Smoking habit and tobacco consumption, drinking habit and alcohol consumption, sitting habit and sleeping habit were included. Gender specific prevalence of mentioned items by cycle of studies and by faculty frequented was found out.

4.1 By Cycle of studies frequented

Gender specific prevalence of variables determining the physical activity profile of the sample split by the cycle of studies frequented is shown in following tables. There is a possible influence of cycle of studies frequented on physical activity profile. The study had as aim to find out the differences between 1^ocycle (bachelors), 2^ocycle (masters) and 3^ocycle (PhD) students.

Table 4.1.1 shows the results of gender specific prevalence of weight status, health status and PAL. By the variable of weight status there was not found high prevalence of obesity (2, 9%) neither of overweight (14, 1%) in the entire sample. Majority of the sample (74, 8%) falls within the category of normal weight. Underweight (8, 2%) was also represented in the sample. Overweight is decreasing with higher cycle of studies in females. No more regular tendencies depending on cycle of studies were found out. There was a higher prevalence of underweight (10, 1%) than obesity (2, 8%) in females. In males underweight and normal weight had lower prevalence compared to females. Higher percentage of overweight and obesity compared to females were found out. Overweight was slightly increasing from 1^o to 3^o cycle in male subjects. The fact of higher percentage of overweight and obese subjects in males than females could be dependent on the specifics of body

composition. Higher weight status should not necessary express that the individual is fat. There could be an influence of higher muscle mass. The present study did not included questions defining more specifically the body composition. Highest percentages were found within the category normal weight both in females and males.

Participants of the study were asked to self-assess their health status. In total highest rates of responses were found within the category good (35, 6%) and very good (42, 1 %). 14, 9 % of subjects evaluated their health status as excellent. 7, 0% of subjects reported their health status as reasonable and only 0, 4% as bad. In females bad health status appeared only in 3 subjects (0, 3%), all of them in the 1^ocycle of studies. Categories of bad and reasonable are decreasing from 1^oto 3^ocycle in females as so the category of very good. Category of good health status had the opposite direction and showed the highest percentages in females. 3^ocycle female students reported the highest percentage of excellent heat status. Males showed to have more positive self-evaluation of actual health appearing in higher percentages of excellent category. By transition from 1^oto 3^ocycle in male students there was decreasing number of reasonable and good and increasing number of very good and excellent health status.

PAL is the main value which was intended to be analyzed by the present study. In entire sample the low PAL was reported by 14, 4%, moderate PAL by 54, 8% and high PAL by 30, 8% of individuals. These results are showing that majority of evaluated students of University of Coimbra are sufficiently active in terms of international physical activity recommendations. Only 14, 4% of the students are not active enough to reach the physical activity benefits. Low levels of physical activity are found to be increasing with higher cycle of studies, both in females and males. There are differences in moderate and high PAL of females and males. In females the moderate PAL increased with higher cycle of studies. On the contrary high PAL decreased passing from 1^o to 3^o cycle. In male students the highest percentage of high PAL was found within the 1^ocycle students with a decrease in 2^ocycle and an increase again in 3^ocycle. The same tendency had the moderate PAL in males. Male students were found to be less active in 2^ocycle of studies and most active in 1^ocycle of studies.

Results of sport participation by cycle of studies frequented are shown in Table 4.1.2 . Big decrease in sport participation from past, before entering to the university, to present, during the university studies, was found in both females and males of all study cycles with the worst results within the 1° cycle female and male students. Decline in sport participation from past to present was in total 49, 2%. 973 students reported sport participation in the past. Only 301 of them reported sport participation in present. Participation in sport events organized by FADU was very low, 3, 7% within the entire sample and was higher in males. Female students of 1°cycle had the highest sport participation in the past. The Sport participation in present by female students was highest in 3°cycle of studies. In male students also the ones attending 3°cycle of university showed to have the highest sport participation in present. The highest decline in sport participation from past to present was found in male 1°cycle male students, where the decline was 54, 2%. All the students of University of Coimbra were participating significantly more in sport activities before entering the university.

Life style habits of the sample by cycle of studies were described. The results of smoking habit, drinking habit, sitting and sleeping habit are shown in Table 4.1.3. Majority of all students are no-smokers, 78, 6%. Within smokers 7, 0 % of them were occasional and 15, 2 % regular. Highest number of smokers in female students was in 1°cycle. Lower number of smokers was found in 2°cycle and the lowest in 3°cycle female students. There was a reduction of smokers in transition from 1° to 3°cycle also in male students. In females the reduction was more notable in occasional smokers and in male students it was in regular smokers. Consumption of alcohol was higher than consumption of tobacco. In the entire sample 69, 9% are drinkers from which 47, 1% reported occasional and 22, 8% reported regular consumption of alcohol. Higher percentage of drinkers was found in male than female students. There was a reduction of female drinkers from 1° to 3°cycle. No big differences noted in occasional drinkers but regular female drinkers were the most from 1°cycle (19, 5%) less from 2°(15, 3%) and the lowest number of regular drinkers were from 3°cycle studies (4, 7%). The same appeared in males with 37, 3% of regular drinkers in 1°cycle, 32, 5% in 2°cycle and 32, 4% in 3°cycle of studies. Occasional male drinkers were the most represented in 2°cycle of studies where was also found the highest percentage of total male drinkers.

Evaluation of sitting habit searched for the total minutes spent sitting during one usual week. In female students it was in average 2995, 2 minutes (49,9 hours) per week in male students 2883, 6 (48,1 hours) which corresponds to females 427, 9 minutes (7,1 hours) and males 411, 9 minutes (6,9 hours) spent sitting in average per normal day. Minimum and maximum reported values of time spent sitting differed a lot in both females and males across all the study cycles. In females less mean time spent sitting per normal week was reported by 3°cycle students in males it was by 1°cycle students. The minimum and maximum values of average time spent sitting per day varied from 77, 0 min/day to 977,0 min/day in female and from 60, 0 min/day to 900,0 min/day in male students. No big differences were found between the three study cycles. Mean time spent on sedentary habit per day in females was 427, 9 min/day and in males 411, 9 min/day. By these results an average student spent approximately 7, 0 hours per day sitting. Summing this value with assumed 8, 0 hours of sleep per day there are 9, 0 hours left for other activities. Females spent in general more time on sedentary activities than males. Sleeping hours per night in a usual week were investigated. The mean value of sleeping hours per night was 7, 6 in females and 7, 5 in males. Female students of 1°cycle reported the highest range of sleeping hours from the minimum of 4 hours per night to maximum of 12 hours per night. The most stable in the range of sleeping hours were 3°cycle students both male and female. The lowest mean sleeping time was found in 2°cycle male students, 7, 3 hours per night. Male students stand out to spend less time sleeping than females. All the results are shown in Table 4.1.4.

Table 4.1.1 Gender specific prevalence of Weight status, Health status and Physical activity level (PAL) by cycle of studies.

Variable	Females N (%) Cycle of studies				Males N (%) Cycle of studies				Total
	1°	2°	3°	Total	1°	2°	3°	Total	
Weight status									
Underweight	57 (10,6)	31 (8,8)	7 (16,3)	95 (10,1)	13 (5,8)	4 (2,4)	0 (0,0)	17 (4,0)	112 (8,2)
Normal	408 (75,7)	277 (78,2)	33 (76,7)	718 (76,7)	164 (72,9)	115 (68,0)	23 (67,6)	302 (70,6)	1020 (74,8)
Overweight	62 (11,5)	32 (9,0)	3 (7,0)	97 (10,4)	42 (18,7)	44 (26,0)	10 (29,4)	96 (22,4)	193 (14,1)
Obesity	12 (2,2)	14 (4,0)	0 (0,0)	26 (2,8)	6 (2,7)	6 (3,6)	1 (2,9)	13 (3,0)	39 (2,9)
Total	539 (100,0)	354 (100,0)	43 (100)	936 (100,0)	225 (100,0)	169 (100,0)	34 (100,0)	428 (100,0)	1364 (100,0)
Health status									
Bad	3 (0,6)	0 (0,0)	0 (0,0)	3 (0,3)	1 (0,4)	1 (0,6)	0 (0,0)	2 (0,5)	5 (0,4)
Reasonable	48 (8,9)	29 (8,2)	2 (4,7)	79 (8,4)	10 (4,4)	7 (4,1)	0 (0,0)	17 (4,0)	96 (7,0)
Good	201 (37,3)	140 (39,5)	19 (44,2)	360 (38,5)	71 (31,6)	50 (29,6)	5 (14,7)	126 (29,4)	486 (35,6)
Very Good	230 (42,7)	149 (42,1)	17 (39,5)	396 (42,3)	91 (40,4)	71 (42,0)	16 (47,1)	178 (41,6)	574 (42,1)
Excellent	57 (10,6)	36 (10,2)	5 (11,6)	98 (10,5)	52 (23,1)	40 (23,7)	13 (38,2)	105 (24,5)	203 (14,9)
Total	539 (100)	354 (100,0)	43 (100,0)	936 (100,0)	225 (100)	169 (100,0)	34 (100,0)	428 (100,0)	1364 (100,0)
PAL									
Low	83 (15,4)	63 (17,8)	8 (18,6)	154 (16,5)	19 (8,4)	19 (11,2)	4 (11,8)	42 (9,8)	196 (14,4)
Moderate	293 (54,4)	198 (55,9)	25 (58,1)	516 (55,1)	117 (52)	97 (57,4)	18 (52,9)	232 (54,2)	748 (54,8)
High	163 (30,2)	93 (26,3)	10 (23,3)	266 (28,4)	89 (39,6)	53 (31,4)	12 (35,3)	154 (36,0)	420 (30,8)
Total	539 (100,0)	354 (100)	43 (100)	936 (100,0)	225 (100)	169 (100)	34 (100)	428 (100,0)	1364 (100,0)

Table 4.1.2 Gender specific prevalence of Sport participation (sport participation in the past, sport participation in present, sport participation in events organized by FADU) by cycle of studies.

Variable	Females N (%)				Males N (%)				Total
	Cycle of studies				Cycle of studies				
	1°	2°	3°	Total	1°	2°	3°	Total	
Sport participation in the past									
Yes	381 (70,7)	235 (66,4)	27 (62,8)	643 (68,7)	172 (76,4)	133 (78,7)	25 (73,5)	330 (77,1)	973 (71,3)
No	158 (29,3)	119 (33,6)	16 (37,2)	293 (31,3)	53 (23,6)	36 (21,3)	9 (26,5)	98 (22,9)	391 (28,7)
Total	539 (100,0)	354 (100)	43 (100,0)	936 (100,0)	225 (100,0)	169 (100,0)	34 (100,0)	428 (100,0)	1364 (100,0)
Sport participation in the present									
Yes	106 (19,7)	68 (19,2)	12 (27,9)	186 (19,9)	50 (22,2)	49 (29,0)	18 (52,9)	115 (26,9)	301 (22,1)
No	433 (80,3)	286 (80,8)	31 (72,1)	750 (80,1)	175 (77,8)	120 (71,0)	16 (47,1)	313 (73,1)	1063 (77,9)
Total	539 (100)	354 (100,0)	43 (100,0)	936 (100,0)	225 (100,0)	169 (100,0)	34 (100,0)	428 (100,0)	1364 (100,0)
Sport participation in FADU events									
Yes	19 (3,5)	13 (3,7)	1 (2,3)	33 (3,5)	9 (4,0)	8 (4,7)	1 (2,9)	18 (4,2)	51 (3,7)
No	520 (96,5)	341 (96,3)	42 (97,7)	903 (96,5)	216 (96,0)	161 (95,3)	33 (97,1)	410 (95,8)	1313 (96,3)
Total	539 (100,0)	354 (100,0)	43 (100,0)	936 (100)	225 (100,0)	169 (100,0)	34 (100,0)	428 (100,0)	1364 (100,0)

Table 4.1.3 Gender specific prevalence of smoking habit (with tobacco consumption) and drinking habit (with alcohol consumption) by cycle of studies.

Variable	Females N (%)				Males N (%)				Total
	Cycle of studies				Cycle of studies				
	1°	2°	3°	Total	1°	2°	3°	Total	
Tobacco consumption									
Non-smokers	415 (77,0)	287 (81,1)	37 (86,0)	739 (79)	171 (76,0)	133 (78,7)	29 (85,3)	333 (77,8)	1072 (78,6)
Smokers	124 (23,0)	67 (18,9)	6 (14,0)	197 (21,0)	54 (24,0)	36 (21,3)	5 (14,7)	95 (22,2)	292 (21,4)
Occasional	44 (8,2)	27 (7,6)	1 (2,3)	72 (7,7)	16 (7,1)	12 (7,1)	2 (5,9)	30 (7,0)	102 (7,5)
Regular	80 (14,8)	40 (11,3)	5 (11,6)	125 (13,4)	38 (16,9)	24 (14,2)	3 (8,8)	65 (15,2)	190 (13,9)
Total	539 (100,0)	354 (100,0)	43 (100,0)	936 (100,0)	225 (100,0)	169 (100,0)	34 (100,0)	428 (100,0)	1364 (100,0)
Alcohol consumption									
Non-drinkers	179 (33,2)	121 (34,2)	21 (48,8)	321 (34,3)	52 (23,1)	28 (16,6)	10 (29,4)	90 (21,0)	411 (30,1)
Drinkers	360 (66,8)	233 (65,8)	22 (51,2)	615 (65,7)	173 (76,9)	141 (83,4)	24 (70,6)	338 (79,0)	953 (69,9)
Occasional	255 (47,3)	179 (50,6)	20 (46,5)	454 (48,5)	89 (39,6)	86 (50,9)	13 (38,2)	188 (43,9)	642 (47,1)
Regular	105 (19,5)	54 (15,3)	2 (4,7)	161 (17,2)	84 (37,3)	55 (32,5)	11 (32,4)	150 (35,0)	311 (22,8)
Total	539 (100,0)	354 (100,0)	43 (100,0)	936 (100,0)	225 (100,0)	169 (100,0)	34 (100,0)	428 (100,0)	1364 (100,0)

(Occasional smoker = smoker with tobacco consumption of less than once a day; Regular smoker = smoker with daily consumption of tobacco. Occasional drinker = drinker with consumption of alcohol at least once a month; Regular drinker = drinker with consumption of alcohol of at least once a week or more.)

Table 4.1.4 Gender specific prevalence of Sitting habit (Total sitting minutes per week, Average sitting minutes per day) and Sleeping habit (number of sleeping hours per night) by cycle of studies in females.

Variable	Females					Males				
	N	Min.	Max.	Mean	SD	N	Min.	Max.	Mean	SD
Total sitting min/week										
1° cycle of studies	539	720,0	6840,0	3030,9	1120,7	225	510,0	6300,0	2841,9	988,1
2° cycle of studies	354	720,0	6600,0	2953,9	1070,4	169	420,0	6300,0	2944,0	1163,6
3° cycle of studies	43	540,0	5760,0	2886,3	991,5	34	1080,0	5340,0	2859,7	938,2
Total	936	540,0	6840,0	2995,2	1096,0	428	420,0	6300,0	2883,6	1056,1
Average sitting min/day										
1° cycle of studies	539	103,0	977,0	433,0	160,1	225	73,0	900,0	406,0	141,2
2° cycle of studies	354	103,0	943,0	422,0	152,9	169	60,0	900,0	420,6	166,2
3° cycle of studies	43	77,0	823,0	412,3	141,6	34	154,0	763,0	408,5	134,0
Total	936	77,0	977,0	427,9	156,6	428	60,0	900,0	411,9	150,9
Sleeping hours/night										
1° cycle of studies	539	4,0	12,0	7,5	1,1	225	4,0	11,0	7,7	1,0
2° cycle of studies	354	4,0	10,0	7,5	1,0	169	5,0	10,0	7,3	1,0
3° cycle of studies	43	6,0	11,0	7,7	0,9	34	6,0	9,0	7,4	0,7
Total	936	4,0	12,0	7,6	1,1	428	4,0	11,0	7,5	1,0

4.2 By Faculty frequented

As it was described there is a possible influence of specific academic characteristics on physical activity patterns and life style choices. This part of results will show physical activity profile of the sample in relation to faculty frequented. There were found differences between students of individual faculties. Gender specific prevalence of variables determining the physical activity profile of the sample split by the faculty frequented is shown in the following tables and result description.

Weight status in females was found the best in students of Sport Sciences and Physical Education faculty. None of them felt in the category underweight neither obesity, 95, 5% of the female sports students were normal weight and only one student (4, 5%) was found overweight. The highest percentage (22, 2%) of underweight subjects was found in female students of Psychology and Education sciences. The highest percentage (13, 0%) of overweight subjects was in faculty of Economics. Speaking about overweight and it's prevalence it was lower than 8, 0 % in Medicine, Pharmacy and Sport Sciences and Physical Education female students. Rates of obesity were also low, with the highest number in faculty of Arts and humanities where the obesity was 5, 1%. Results of weight status prevalence in female students are shown in Table 4.2.1.

In male students the best results of weight status were found in faculty of Law. There was the highest rate of normal weight (78, 3%), lowest rate of overweight (16, 7%) and one of the lowest rates of obesity (1, 7%) among all the faculties. The worst results in male students according to weight status were found in faculty of Psychology and Education Sciences where only 55, 6% of subjects were normal weight, when the other faculties were all reaching over 60% of normal weight subjects, and 44, 4 % of them were found overweight when the rate of overweight of other faculties was between 16, 7% and 28, 1%. However there was no obese male subject in faculty of Psychology and Education Sciences. Highest percentage of male obese subjects was found if faculty of Economics and underweight subjects in faculty of Sciences and technology. The detailed results for males are shown in Table 4.2.2.

Health status of female students by faculty frequented is shown in Table 4.1.1. Best results were represented by Sport Sciences and Physical Education faculty with

no records of bad and reasonable health status and highest percentage of very good health status. On the contrary did the faculty of Sciences and Technology. Where percentage of bad and reasonable health status was overcoming the average value, in category good the percentage was under average, in category very good it was the lowest prevalence within all the faculties and excellent health status was also under average value compared to other faculties. Good results of weight status were represented by Medicine faculty with 52, 7% of very good classification and Psychology and Education Sciences with 22, 2% of excellent classification.

The best health status in male students was also found in Sport Sciences and Physical Education faculty where percentage of excellent health status was 36, 2% highly overcoming the average 24, 5% and with low percentage in negative categories of bad and reasonable. Faculty of Pharmacy showed very balanced results in the positive health status categories; 33, 1% good, 35, 7% very good and 32, 1% excellent. No bad or reasonable health status was found in male students of Pharmacy. Highest percentage in category of good health status was by Psychology and Education Sciences students which could be according to small number of subjects. Students of Arts and humanities reported rate of 9, 4% in reasonable health status category which was the highest among the faculties. Results of prevalence of health status in male students by faculty frequented are shown in Table 4.2.2. The described health status was a reflection of self-assessment of the students not a real actual state of health. There could be differences between how the people see their health and how their health actually is.

PAL was more than in a half of cases moderate among all faculties. That means that major parts of all students are active enough. Summing the moderate PAL plus high PAL the number of active students will be even higher. Inactivity, how can be characterized the low PAL was found the highest in Psychology and Education Sciences faculty (25, 9%) than in Pharmacy (23, 0%) and Economics (17, 4%). These three faculties were found less active compared to the others. Special case was Sport Sciences and Physical Education faculty where moderate PAL was below the 50% rate but then the high PAL was higher, reaching 54, 5%. As was assumed the female students of Sport Sciences and Physical Education faculty were the most active among the other faculties with low PAL only in 4, 5 % of cases (one student).

High percentage of high PAL was found also in Arts and humanities (35, 7%) and Law (35, 2%) female students. To order the individual faculties comparing their activity according to how many students are reaching the physical activity benefits from the most to less active was as following: Sport Sciences and Physical Education, Medicine, Law, Arts and Humanities, Sciences and Technology, Economics, Pharmacy, Psychology and Education Sciences. Exact numbers are shown in Table 4.2.1.

Majority of the male students were found sufficiently active. The results for male students and their PAL are shown in Table 4.2.2. The worst results with high rate of low PAL was found again in Psychology and Education Sciences students. There the number of insufficiently active students is more outstanding than in females. 44, 4% of male Psychology and Education Sciences students had low PAL, they are not active enough. Comparing to females from the same faculty males did not have any representative in high PAL category. The opposite case is again Sport Sciences and Physical Education faculty where 59, 6% of male students had high, 36, 2% moderate and only 4, 3% low PAL. Descending order of the faculties by reaching the physical activity benefits would be: Sport Sciences and Physical Education, Medicine, Law, Sciences and Technology, Economics, Arts and Humanities, Pharmacy, Psychology and Education Sciences. Female and male students showed very similar results in PAL by faculty frequented. There are many possible factors influencing the PAL of the students of individual faculties. For example study plan characteristics, time schedule of the lessons, physical activity promotion strategies and many more. None these possible factors were investigated by the instrument of the present study and could be good possible extension how to continue the research and define more precisely the relationship of academic characteristics on PAL and physical activity profile of male and female university students.

Sport participation in the past by the faculties was the highest in Sport Sciences and Physical Education both in females (95, 5%) and males (93, 6%). Also in present the sport students reached higher numbers than the students of other faculties, but also in their case, there was a big decline in sport participation from past to present. In female sport students the decline was 34, 4% in male sport students 34, 0%. Sport participation in the past was the worst in students of Psychology and Education

Sciences in females as well as males. There were no big differences within the rest of six faculties including both genders. The lowest prevalence of sport participation in present was found in female students of Pharmacy where only 13, 8% are participating in sport activities in present and in male students of psychology where only 11, 1% are participating in sport activities in present. Big decline in sport participation from past to present was observed in both genders of all evaluated faculties. In females the decrease was lower than in males. Pharmacy female students had a decrease in sport participation from past to present of 55, 9%. This percentage means that 55, 9% pharmacy female students who were in the past actively participating in some sport activity are not participating in any sport activity in present, in their actual university life. The second highest decrease was found in females students of Sciences and Technology. In male students the biggest decrease was found in Law. Surprisingly students of psychology appeared to had the lowest decrease in sport participation from past to present, females by (18, 6%) and males by 33, 3%. It could be according to smaller number of subjects of the present study. Or the decrease could be smaller due to low sport participation in the past. As there was not high participation in the past there was not such a decrease to present situation. These are only assumptions which would need additional research. As with the previous variables there are two outstanding results in between the individual faculties. There are very good results in Sport Sciences and Physical Education and bad results in Psychology and Education Sciences students, both males and females, according to physical activity, health and sport participation. Good results of sport students were expected supposing their area of studies and interest in sport area. Bad results of psychology students were not expected. The question is why is that so? That could be a motive for further investigation. There was a very low rate of participation in sport activities organized by FADU among all faculties. Only faculty reaching higher value (27, 3%) was faculty of Sport Sciences and Physical Education, females. Why is the participation in university sport activities so low, is also a question? There are issues of organization and promotion of the activities, schedule availability and approach to the university sports by individual faculties, personal and institutional priorities. Nevertheless a higher participation in university sport organized by FADU would be appreciable. Sport participation is shown in Table 4.2.3 for female and Table 4.2.4 for male students of individual faculties.

Evaluating the smoking habit in female students, faculty of Medicine with 6, 5% of smokers had the lowest consumption of tobacco. Highest consumption of tobacco was students of psychology, 40, 7%. In all faculties there were higher percentages of regular smokers than percentages of occasional smokers with an exception of faculty of Medicine. An interesting phenomenon was found in female sport students were rate of smokers was 22, 7% from which all of them were regular. In male students the lowest rate of smokers was also in faculty of Medicine (10, 0%) and highest in faculty of Psychology and Education Sciences (77, 8%). High rates of smokers were also found in faculty of Arts and Humanities (32, 8%) and faculty of Law (30, 0%). There was the same phenomenon of higher percentage of regular smokers than occasional ones in male students of all faculties, except Medicine faculty. Both in females and males lowest percentage of smokers was found in students of Medicine. More detailed results are shown in Table 4.2.5 for females and Table 4.2.6 for males.

Between the individual faculties in female students the fewer drinkers were found in Medicine faculty. The highest percentage of drinkers was in Sport Sciences and Physical Education. There the number was higher than in other faculties with high rate of drinkers. Among all the faculties the consumption of alcohol is more occasional than regular. Female drinking habit and alcohol consumption is shown in Table 4.2.5. In male students, with the results shown in Table 4.2.6, the lowest rate of drinkers was found in faculty of Arts and Humanities and highest in faculty of Pharmacy. Higher values of regular consumption of alcohol were found in male students compared to females. However, all the values of alcohol consumption are elevated among all the faculties, at least 75, 0% of the students of all faculties drink alcohol occasionally or regularly.

Comparing the time spent on sedentary habit, time spent sitting per normal/usual week, less mean time spent sitting was by students of Sport Sciences and Physical Education in females and males. The highest mean time spent sitting in a normal week in females is by students of Medicine and in males by students of Sciences and Technology. Results of sedentary habit are shown in Table 4.2.7 with the results of sleeping habit. There were no big differences found in sleeping hours comparing the faculties. Both in females and males less mean sleeping hours were reported by students of Medicine and more mean sleeping hours by Psychology students.

Table 4.2.1 Prevalence of Weight status, Health status and Physical activity level (PAL) by faculty frequented in females.

Variable	Females N (%)								Total
	Arts and Humanities	Law	Medicine	Sciences and Technology	Pharmacy	Economics	Psychology and Education Sciences	Sport Sciences and Physical Education	
Weight status									
Underweight	16 (10,2)	20 (9,4)	6 (6,5)	20 (9,9)	14 (9,2)	13 (18,8)	6 (22,2)	0 (0,0)	95 (10,1)
Normal	115 (73,2)	166 (77,9)	78 (83,9)	153 (75,4)	122 (80,3)	45 (65,2)	18 (66,7)	21 (95,5)	718 (76,7)
Overweight	18 (11,5)	24 (11,3)	6 (6,5)	24 (11,8)	12 (7,9)	9 (13,0)	3 (11,1)	1 (4,5)	97 (10,4)
Obesity	8 (5,1)	3 (1,4)	3 (3,2)	6 (3,0)	4 (2,6)	2 (2,9)	0 (0,0)	0 (0,0)	26 (2,8)
Total	157 (100,0)	213 (100,0)	93 (100,0)	203 (100,0)	152 (100,0)	69 (100,0)	27 (100,0)	22 (100,0)	936 (100,0)
Health status									
Bad	1 (0,6)	1 (0,5)	0 (0,0)	1 (0,5)	0 (0,00)	0 (0,0)	0 (0,0)	0 (0,0)	3 (0,3)
Reasonable	16 (10,2)	18 (8,5)	2 (2,2)	26 (12,8)	9 (5,9)	7 (10,1)	1 (3,7)	0 (0,0)	79 (8,4)
Good	58 (36,9)	93 (43,7)	29 (31,2)	74 (36,5)	64 (42,1)	27 (39,1)	9 (33,3)	6 (27,3)	360 (38,5)
Very Good	69 (43,9)	85 (39,9)	49 (52,7)	77 (37,9)	62 (40,8)	29 (42,0)	11 (40,7)	14 (63,6)	396 (42,3)
Excellent	13 (8,3)	16 (7,5)	13 (14,0)	25 (12,3)	17 (11,2)	6 (8,7)	6 (22,2)	2 (9,1)	98 (10,5)
Total	157 (100,0)	213 (100,0)	93 (100,0)	203 (100,0)	152 (100,0)	69 (100,0)	27 (100,0)	22 (100,0)	936 (100,0)
PAL									
Low	21 (13,4)	26 (12,2)	9 (9,7)	40 (19,7)	35 (23,0)	15 (21,7)	7 (25,9)	1 (4,5)	154 (16,5)
Moderate	80 (51,0)	112 (52,6)	54 (58,1)	114 (56,2)	91 (59,9)	42 (60,9)	14 (51,9)	9 (40,9)	516 (55,1)
High	56 (35,7)	75 (35,2)	30 (32,3)	49 (24,1)	26 (17,1)	12 (17,4)	6 (22,2)	12 (54,5)	266 (28,4)
Total	157 (100,0)	213 (100,0)	93 (100,0)	203 (100,0)	152 (100,0)	69 (100,0)	27 (100,0)	22 (100,0)	936 (100,0)

Table 4.2.2 Prevalence of Weight status, Health status and Physical activity level (PAL) by faculty frequented in males.

Variable	Males N (%)								Total
	Arts and Humanities	Law	Medicine	Sciences and Technology	Pharmacy	Economics	Psychology and Education Sciences	Sport Sciences and Physical Education	
Weight status									
Underweight	1 (1,6)	2 (3,3)	1 (2,0)	12 (8,6)	1 (3,6)	0 (0,0)	0 (0,0)	0 (0,0)	17 (4,0)
Normal	41 (64,1)	47 (78,3)	39 (78,0)	92 (66,2)	21 (75,0)	21 (67,7)	5 (55,6)	36 (76,6)	302 (70,6)
Overweight	18 (28,1)	10 (16,7)	9 (18,0)	32 (23,0)	6 (21,4)	8 (25,8)	4 (44,4)	9 (19,1)	96 (22,4)
Obesity	4 (6,3)	1 (1,7)	1 (2,0)	3 (2,2)	0 (0,0)	2 (6,5)	0 (0,0)	2 (4,3)	13 (3,0)
Total	64 (100,0)	60 (100,0)	50 (100,0)	139 (100,0)	28 (100,0)	31 (100,0)	9 (100,0)	47 (100,0)	428 (100,0)
Health status									
Bad	0 (0,0)	0 (0,0)	1 (2,0)	1 (0,7)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	2 (0,5)
Reasonable	6 (9,4)	4 (6,7)	2 (4,0)	4 (2,9)	0 (0,0)	0 (0,0)	0 (0,0)	1 (2,1)	17 (4,0)
Good	17 (26,6)	18 (30,0)	10 (20,0)	46 (33,1)	9 (32,1)	12 (38,7)	6 (66,7)	8 (17,0)	126 (29,4)
Very Good	29 (45,3)	26 (43,3)	21 (42,0)	55 (39,6)	10 (35,7)	13 (41,9)	3 (33,3)	21 (44,7)	178 (41,6)
Excellent	12 (18,8)	12 (20,0)	16 (32,0)	33 (23,7)	9 (32,1)	6 (19,4)	0 (0,0)	17 (36,2)	105 (24,5)
Total	64 (100,0)	60 (100,0)	50 (100,0)	139 (100,0)	28 (100,0)	31 (100,0)	9 (100,0)	47 (100,0)	428 (100,0)
PAL									
Low	7 (10,9)	5 (8,3)	4 (8,0)	13 (9,4)	4 (14,3)	3 (9,7)	4 (44,4)	2 (4,3)	42 (9,8)
Moderate	35 (54,7)	29 (48,3)	32 (64,0)	79 (56,8)	16 (57,1)	19 (61,3)	5 (55,6)	17 (36,2)	232 (54,2)
High	22 (34,4)	26 (43,3)	14 (28,0)	47 (33,8)	8 (28,6)	9 (29,0)	0 (0,0)	28 (59,6)	154 (36,0)
Total	64 (100,0)	60 (100,0)	50 (100,0)	139 (100,0)	28 (100,0)	31 (100,0)	9 (100,0)	47 (100,0)	428 (100,0)

Table 4.2.3 Prevalence of Sport participation (sport participation in the past, sport participation in present, sport participation in events organized by FADU) by faculty frequented in females.

Variable	Females N (%)								Total
	Arts and Humanities	Law	Medicine	Sciences and Technology	Pharmacy	Economics	Psychology and Education Sciences	Sport Sciences and Physical Education	
Sport participation in the past									
Yes	108 (68,8)	141 (66,2)	62 (66,7)	148 (72,9)	106 (69,7)	43 (62,3)	14 (51,9)	21 (95,5)	643 (68,7)
No	49 (31,2)	72 (33,8)	31 (33,3)	55 (27,1)	46 (30,3)	26 (37,7)	13 (48,1)	1 (4,5)	293 (31,3)
Total	157 (100,0)	213 (100,0)	93 (100,0)	203 (100,0)	152 (100,0)	69 (100,0)	27 (100,0)	22 (100,0)	936 (100,0)
Sport participation in the present									
Yes	33 (21,0)	39 (18,3)	21 (22,6)	40 (19,7)	21 (13,8)	10 (14,5)	9 (33,3)	13 (59,1)	186 (19,9)
No	124 (79,0)	174 (81,7)	72 (77,4)	163 (80,3)	131 (86,2)	59 (85,5)	18 (66,7)	9 (40,9)	750 (80,1)
Total	157 (100,0)	213 (100,0)	93 (100,0)	203 (100,0)	152 (100,0)	69 (100,0)	27 (100,0)	22 (100,0)	936 (100,0)
Sport participation in FADU events									
Yes	3 (1,9)	6 (2,8)	5 (5,4)	4 (2,0)	5 (3,3)	0 (0,0)	4 (14,8)	6 (27,3)	33 (3,5)
No	154 (98,1)	207 (97,2)	88 (94,6)	199 (98,0)	147 (96,7)	69 (100,0)	23 (85,2)	16 (72,7)	903 (96,5)
Total	157 (100,0)	213 (100,0)	93 (100,0)	203 (100,0)	152 (100,0)	69 (100,0)	27 (100,0)	22 (100,0)	936 (100,0)

Table 4.2.4 Prevalence of Sport participation (sport participation in the past, sport participation in present, sport participation in events organized by FADU) by faculty frequented in males.

Variable	Males N (%)								Total
	Arts and Humanities	Law	Medicine	Sciences and Technology	Pharmacy	Economics	Psychology and Education Sciences	Sport Sciences and Physical Education	
Sport participation in the past									
Yes	49 (76,6)	44 (73,3)	36 (72,0)	108 (77,7)	20 (71,4)	25 (80,6)	4 (44,4)	44 (93,6)	330 (77,1)
No	15 (23,4)	16 (26,7)	14 (28,0)	31 (22,3)	8 (28,6)	6 (19,4)	5 (55,6)	3 (6,4)	98 (22,9)
Total	64 (100,0)	60 (100,0)	50 (100,0)	139 (100,0)	28 (100,0)	31 (100,0)	9 (100,0)	47 (100,0)	428 (100,0)
Sport participation in the present									
Yes	13 (20,3)	10 (16,7)	11 (22,0)	35 (25,2)	7 (25,0)	10 (32,3)	1 (11,1)	28 (59,6)	115 (26,9)
No	51 (79,7)	50 (83,3)	39 (78,0)	104 (74,8)	21 (75,0)	21 (67,7)	8 (88,9)	19 (40,4)	313 (73,1)
Total	64 (100,0)	60 (100,0)	50 (100,0)	139 (100,0)	28 (100,0)	31 (100,0)	9 (100,0)	47 (100,0)	428 (100,0)
Sport participation in FADU events									
Yes	2 (3,1)	1 (1,7)	1 (2,0)	7 (5,0)	0 (0,0)	1 (3,2)	0 (0,0)	6 (12,8)	18 (4,2)
No	62 (96,9)	59 (98,3)	49 (98,0)	132 (95,0)	28 (100,0)	30 (96,8)	9 (100,0)	41 (87,2)	410 (95,8)
Total	64 (100,0)	60 (100,0)	50 (100,0)	139 (100,0)	28 (100,0)	31 (100,0)	9 (100,0)	47 (100,0)	428 (100,0)

Table 4.2.5 Prevalence of smoking habit (with tobacco consumption) and drinking habit (with alcohol consumption) by faculty frequented in females.

Variable	Females N (%)								Total
	Arts and Humanities	Law	Medicine	Sciences and Technology	Pharmacy	Economics	Psychology and Education Sciences	Sport Sciences and Physical Education	
Tobacco consumption									
Non-smokers	115 (73,2)	161 (75,6)	87 (93,5)	162 (79,8)	132 (86,8)	49 (71,0)	16 (59,3)	17 (77,3)	739 (79,0)
Smokers	42 (26,8)	52 (24,4)	6 (6,5)	41 (20,2)	20 (13,2)	20 (29,0)	11 (40,7)	5 (22,7)	197 (21,0)
Occasional	15 (9,6)	18 (8,5)	5 (5,4)	14 (6,9)	9 (5,9)	8 (11,6)	3 (11,1)	0 (0,0)	72 (7,7)
Regular	27 (17,2)	34 (16,0)	1 (1,1)	27 (13,3)	11 (7,2)	12 (17,4)	8 (29,6)	5 (22,7)	125 (13,4)
Total	157 (100,0)	213 (100,0)	93 (100,0)	203 (100,0)	152 (100,0)	69 (100,0)	27 (100,0)	22 (100,0)	936 (100,0)
Alcohol consumption									
Non-drinkers	63 (40,1)	74 (34,7)	41 (44,1)	60 (29,6)	59 (38,8)	14 (20,3)	7 (25,9)	3 (13,6)	321 (34,3)
Drinkers	94 (59,9)	139 (65,3)	52 (55,9)	143 (70,4)	93 (61,2)	55 (79,7)	20 (74,1)	19 (86,4)	615 (65,7)
Occasional	60 (38,2)	102 (47,9)	49 (52,7)	110 (54,2)	73 (48,0)	37 (53,6)	11 (40,7)	12 (54,5)	454 (48,5)
Regular	34 (21,7)	37 (17,4)	3 (3,2)	33 (16,3)	20 (13,2)	18 (26,1)	9 (33,3)	7 (31,8)	161 (17,2)
Total	157 (100,0)	213 (100,0)	93 (100,0)	203 (100,0)	152 (100,0)	69 (100,0)	27 (100,0)	22 (100,0)	936 (100,0)

(Occasional smoker = smoker with tobacco consumption of less than once a day; Regular smoker = smoker with daily consumption of tobacco. Occasional drinker = drinker with consumption of alcohol at least once a month; Regular drinker = drinker with consumption of alcohol of at least once a week or more.)

Table 4.2.6 Prevalence of smoking habit (with tobacco consumption) and drinking habit (with alcohol consumption) by faculty frequented in males.

Variable	Males N (%)								Total
	Arts and Humanities	Law	Medicine	Sciences and Technology	Pharmacy	Economics	Psychology and Education Sciences	Sport Sciences and Physical Education	
Tobacco consumption									
Non-smokers	43 (67,2)	42 (70,0)	45 (90,0)	113 (81,3)	24 (85,7)	23 (74,2)	2 (22,2)	41 (87,2)	333 (77,8)
Smokers	21 (32,8)	18 (30,0)	5 (10,0)	26 (18,7)	4 (14,3)	8 (25,8)	7 (77,8)	6 (12,8)	95 (22,2)
Occasional	6 (9,4)	2 (3,3)	3 (6,0)	12 (8,6)	1 (3,6)	1 (3,2)	3 (33,3)	2 (4,3)	72 (7,7)
Regular	15 (23,4)	16 (26,7)	2 (4,0)	14 (10,1)	3 (10,7)	7 (22,6)	4 (44,4)	4 (8,5)	125 (13,4)
Total	64 (100,0)	60 (100,0)	50 (100,0)	139 (100,0)	28 (100,0)	31 (100,0)	9 (100,0)	47 (100,0)	428 (100,0)
Alcohol consumption									
Non-drinkers	16 (25,0)	14 (23,3)	10 (20,0)	32 (23,0)	2 (7,1)	6 (19,4)	1 (11,1)	9 (19,1)	90 (21,0)
Drinkers	48 (75,0)	46 (76,7)	40 (80,0)	107 (77,0)	26 (92,9)	25 (80,6)	8 (88,9)	38 (80,9)	338 (79,0)
Occasional	22 (34,4)	21 (35,0)	28 (56,0)	67 (48,2)	15 (53,6)	12 (38,7)	6 (66,7)	17 (36,2)	188 (21,0)
Regular	26 (40,6)	25 (41,7)	12 (24,0)	40 (28,8)	11 (39,3)	13 (41,9)	2 (22,2)	21 (44,7)	161 (17,2)
Total	64 (100,0)	60 (100,0)	50 (100,0)	139 (100,0)	28 (100,0)	31 (100,0)	9 (100,0)	47 (100,0)	428 (100,0)

(Occasional smoker = smoker with tobacco consumption of less than once a day; Regular smoker = smoker with daily consumption of tobacco. Occasional drinker = drinker with consumption of alcohol at least once a month; Regular drinker = drinker with consumption of alcohol of at least once a week or more.)

Table 4.2.7 Gender specific prevalence of Sitting habit (Total sitting minutes per week, Average sitting minutes per day) and Sleeping habit (number of sleeping hours per night) by faculty frequented.

Variable	Females				Males			
	Min.	Max.	Mean	SD	Min.	Max.	Mean	SD
Total sitting min/week								
Arts and Humanities	720,0	6300,0	2849,2	1171,5	1020,0	6300,0	2976,4	989,9
Law	720,0	6300,0	2979,2	1025,6	510,0	4320,0	2730,8	903,1
Medicine	1020,0	5700,0	2959,4	1013,4	840,0	6300,0	3151,2	990,8
Sciences and Technology	540,0	6720,0	3239,7	1156,2	720,0	6000,0	3100,0	1183,0
Pharmacy	750,0	5820,0	2910,6	1069,4	540,0	6060,0	2757,9	1150,2
Economics	720,0	5760,0	3052,6	1017,8	1320,0	4440,0	2756,6	752,6
Psychology and Education Sciences	780,0	4560,0	2833,3	847,5	2280,0	4440,0	3080,0	711,2
Sport Sciences and Physical Education	1080,0	6840,0	2689,1	1381,5	420,0	4200,0	2148,8	804,0
Total	540,0	6840,0	2995,1	1096,0	420,0	6300,0	2883,6	1056,1
Average sitting min/day								
Arts and Humanities	103,0	900,0	407,0	167,4	146,0	900,0	425,2	141,4
Law	103,0	900,0	425,6	146,5	73,0	617,0	390,1	129,0
Medicine	146,0	814,0	422,8	144,8	120,0	900,0	450,2	141,5
Sciences and Technology	77,0	960,0	462,8	165,2	103,0	857,0	442,86	169,0
Pharmacy	107,0	831,0	415,8	152,8	77,0	866,0	394,0	164,3
Economics	103,0	823,0	436,1	145,4	189,0	634,0	393,8	107,5
Psychology and Education Sciences	111,0	651,0	404,8	121,1	326,0	634,0	440,0	101,6
Sport Sciences and Physical Education	154,0	977,0	348,2	197,4	60,0	600,0	307,0	114,9
Total	77,0	977,0	427,9	156,6	60,0	900,0	411,9	150,9
Sleeping hours/night								
Arts and Humanities	4,0	11,0	7,6	1,2	4,0	10,0	7,5	1,2
Law	4,0	12,0	7,7	1,1	6,0	10,0	7,6	1,0
Medicine	5,0	10,0	7,3	0,9	6,0	11,0	7,4	1,0
Sciences and Technology	4,0	10,0	7,4	1,1	5,0	10,0	7,5	1,1
Pharmacy	5,0	10,0	7,7	0,9	6,0	9,0	7,7	0,8
Economics	6,0	10,0	7,6	0,9	6,0	9,0	7,6	0,8
Psychology and Education Sciences	5,0	10,0	8,0	1,3	7,0	10,0	8,1	0,8
Sport Sciences and Physical Education	5,0	10,0	7,6	1,1	5,0	10,0	7,6	1,1
Total	4,0	12,0	7,6	1,1	4,0	11,0	7,5	1,0

5 Conclusion

To conclude, the students of University of Coimbra reached good results in the evaluation of their PAL profile. These results are showing that majority of evaluated students of University of Coimbra are sufficiently active in terms of international physical activity recommendations. Their PAL was found in 54, 8% moderate in 30, 8% high. Only 14, 4% of the students had low PAL which means that they are not active enough to reach the health related benefits of physical activity. The number of inactive students was low according to previous researches among the student population or health researches made in Portugal. Moderate PAL corresponds to reaching physical activity benefits and high PAL corresponds to reaching additional physical activity benefits. To sum up, 85, 6 % of students of University of Coimbra are active enough and they are reaching the health related benefits of regular physical activity. Students of University of Coimbra were found active compared to normal population. The results could be affected by the subjectivity of answers given through filling up the instrument. It was assumed that the answers were trustful and true and corresponding to individual's real actual state. Also with consideration of possible error caused due to the self-report technique used in the study the number of active students was high. Instrument used was previously tested according to its reproducibility and validity and found out as one of the most suitable between the self-report instruments with application to big population samples.

Dividing the sample in females and males, male students reported higher levels of physical activity, better health status and weight status. Evaluating the sport participation it was also higher in male than female students. There are not big differences in participation in sport events of FADU between the genders. In males there was a higher decrease in sport participation from past, before entering the university, to present, during the university life. Male students were found out to have higher consumption of tobacco and alcohol. Within the other life style habits, male students spent less mean time sitting than females and less mean time sleeping. Average sleeping hours per night were 7, 6 in females and 7, 5 in males.

The sample was evaluated by cycle of studies. Some differences were found between the 1^o cycle (Bachelor's) 2^o cycle (Master's) and 3^o cycle (PhD) students comparing their PAL, life style habits and sport participation profile. There was found an increase in low PAL in transition from 1^o to 3^o cycle of studies both in females and males. Moderate PAL was found to be increasing and high PAL decreasing with higher cycle of studies in females. In males there was not found a regular increasing or decreasing tendency. The highest percentage of high PAL in males was found within the 1^o cycle students. Male students were found to be less active in 2^o cycle of studies and most active in 1^o cycle of studies.

The results showed that overweight is decreasing with higher cycle of studies in female students. In male students the overweight was slightly increasing from 1^o to 3^o study cycle. Self-assessment of health status was changing along the individual study cycles but with no regular tendency. Categories of bad, reasonable and very good were found decreasing from 1^o to 3^o cycle in females. There was an increase of good health status from 1^o to 3^o cycle of studies in females. 3^o cycle female students reported the highest percentage of excellent heat status. By transition from 1^o to 3^o cycle in male students there was decreasing number of reasonable and good and increasing number of very good and excellent health status. Big decrease in sport participation from past to present was found out with the highest percentage in 1^o cycle female and male students. Within the lifestyle habits it was found that the percentage of smokers is decreasing from 1^o to 3^o cycle students. In female the decrease in tobacco consumption was more notable in occasional and in male students in regular smokers. Prevalence of alcohol consumption appeared in high rate in both genders. Female students had the highest consumption of alcohol 1^o cycle and the lowest in 3^o cycle of studies. Male students had the highest consumption of alcohol in 2^o cycle of studies. In females less mean time spent sitting per normal week was reported by 3^o cycle students in males it was by 1^o cycle students. There were not big differences in sleeping habit within the different cycles of studies in both genders.

Comparison of the student's physical activity, life style habits and sport participation by the faculty frequented did not found big differences. Outstanding results were found in Faculty of Sport Sciences and Physical Education. Sport

students were more active with higher PALs, sport participation and lower time spent sitting. On the other and they had the high prevalence of smoking habit and alcohol consumption. The opposite case was Faculty of Psychology and Education sciences which in several evaluated variables reached the worst results. PAL varied in between the faculties. With the highest rate of low PAL in females were found faculties of Psychology and Education Sciences faculty (25, 9%), Pharmacy (23, 0%) and Economics (17, 4%). The worst result in males was by Faculty of Psychology and Education Sciences students where the low PAL was 44, 4%. The faculties can be ordered according to the PAL level from the most active to the less active. The descending order in female students would be as following: Sport Sciences and Physical Education, Medicine, Law, Arts and Humanities, Sciences and Technology, Economics, Pharmacy, Psychology and Education Sciences. In males it would be: Sport Sciences and Physical Education, Medicine, Law, Sciences and Technology, Economics, Arts and Humanities, Pharmacy, Psychology and Education Science.

There is an intention to continue the research and bring new information about the reasons of physical activity, sport participation and life style choices among the student's population. Understanding the reasons and causes would help to better promote physical activity and healthy life style and improve the public health interventions. Why are students of some faculties more active? What are the boosts and what are the hold backs for the university students to be physically active? Further research to find out the reasons is pretended to be done with an aim of making the physical activity a part of everyday life.

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Annexes

QUESTIONÁRIO INTERNACIONAL DE ATIVIDADE FÍSICA

Forma curta complementada por questões adicionais sobre hábitos do estilo da vida e participação desportiva

As suas respostas ajudarão a entender QUÃO ATIVOS SÃO OS ESTUDANTES DA UNIVERSIDADE DE COIMBRA em relação aos seus pares de outros países. As perguntas estão relacionadas com o tempo despendido para a atividade física numa semana NORMAL. As suas respostas são MUITO importantes. Por favor responda a cada questão mesmo que considere que não seja ativo.

*Obrigatório

Idade*

Sexo*

- Masculino
 Feminino

Estatura* (em cm)

Peso * (em kg)

Faculdade*

Qual das faculdades frequenta?

- Letras
 Direito
 Medicina
 Ciências e Tecnologia
 Farmácia
 Economia
 Psicologia e Ciências de Educação
 Ciências do Desporto e Educação Física

De forma geral a sua saúde está:*

- Excelente
- Muito boa
- Boa
- Razoável
- Má

Atividade Física em uma semana normal/habitual

Para responder às questões seguintes pedimos que considere:

- ATIVIDADES FÍSICAS VIGOROSAS são aquelas que precisam de um grande esforço físico e que aumentam consideravelmente a intensidade e frequência da respiração.
- ATIVIDADES FÍSICAS MODERADAS são aquelas que precisam de algum esforço físico e que aumentam ligeiramente a intensidade e frequência da respiração.

Pense somente nas atividades que você realiza por pelo menos 10 minutos contínuos de cada vez.

1a. Em quantos dias de uma semana normal realiza atividades VIGOROSAS por pelo menos 10 minutos contínuos?*

como por exemplo correr, fazer ginástica aeróbica, jogar futebol, pedalar rápido na bicicleta, jogar basquetebol, fazer serviços domésticos pesados em casa, no quintal ou no jardim, carregar pesos elevados ou qualquer atividade que o faça suar BASTANTE ou aumentem MUITO a sua respiração ou batimentos cardíacos).

1b. Nos dias em que você faz essas atividades vigorosas por pelo menos 10 minutos contínuos, quanto tempo no total gasta fazendo essas atividades por dia?

em horas e minutos

 : :

2a. Em quantos dias de uma semana normal realiza atividades MODERADAS por pelo menos 10 minutos contínuos?*

como por exemplo pedalar leve na bicicleta, nadar, dançar, fazer ginástica aeróbica leve, jogar vôlei recreativo, carregar pesos leves, fazer serviços domésticos em casa, no quintal ou no jardim como varrer, aspirar, cuidar do jardim, ou qualquer atividade que o faça suar LEVEMENTE ou aumente MODERADAMENTE a sua respiração ou batimentos cardíacos (POR FAVOR NÃO INCLUA CAMINHADA).

2b. Nos dias em que você faz essas atividades moderadas por pelo menos 10 minutos contínuos quanto tempo no total gasta fazendo essas atividades por dia?

em horas e minutos

 : :

3a. Em quantos dias de uma semana normal caminha por pelo menos 10 minutos contínuos?*

em casa ou no trabalho, como forma de transporte para ir de um lugar para outro, por lazer, por prazer ou como forma de exercício?

3b. Nos dias em que você caminha por pelo menos 10 minutos contínuos quanto tempo no total gasta caminhando por dia?

em horas e minutos

 : :

Estas últimas perguntas são em relação ao tempo que gasta sentado ao todo no trabalho, em casa, na faculdade e durante o tempo livre. Isto inclui o tempo que gasta sentado no escritório ou a estudar, visitando amigos, lendo ou assistindo televisão.

4a. Quanto tempo por dia fica sentado num dia de semana?*

em horas e minutos

 : :

4b. Quanto tempo por dia fica sentado durante o fim de semana?*

em horas e minutos

 : :

Participação desportiva e hábitos do estilo de vida

5. No passado, antes de entrar para a universidade, participou ativamente em alguma atividade desportiva?* (atividade organizada pelo clube ou organização / instituição)

- Sim
 Não

6. Agora durante os seus estudos universitários participa ativamente em alguma atividade desportiva?* (atividade organizada pelo clube ou organização / instituição)

- Sim
 Não

7. Você já participou em alguma das atividades desportivas organizadas pela FADU (Federação Académica do Desporto Universitário)?*

- Sim
 Não (prossegue à Pergunta 8a.)

8a. É fumador?*

- Sim
- Não (prossigue à Pergunta 9a.)

8b. Qual é o seu consumo de tabaco?

- fumador regular (consumo diário)
- fumador ocasional (menos de uma vez por dia)

9a. Consome bebidas alcoólicas?*

- Sim
- Não (prossigue à Pergunta 10a.)

9b. Qual é o seu consumo do álcool?

- bebe regularmente (pelo menos uma vez por semana ou mais)
- bebe ocasionalmente (pelo menos uma vez por mes)

10. Quantas horas normalmente dorme por noite?*

em horas

- OBRIGADO PELA SUA PARTICIPAÇÃO -