

SURVEY FOR ANALYSING THE IMPACT OF PHYSICAL ACTIVITY ON PAIN AFTER COVID-19 DISEASE

Bassel Tahboub

National Sport Academy “Vassil Levski”

ORCID 

Bassel Tahboub – <https://orcid.org/0000-0003-3456-7761>

ABSTRACT

Physical activity is important for better health as it can improve your health with immediate and long term health benefits. Physical activity, health and Quality of life (QOL) are closely linked. The human body is designed to move and therefore needs regular physical activity to function optimally and to avoid illness. The purpose of this study to analyse and establish the effectiveness and impact of physical activity on pain after Covid-19 disease. 57 people were in the study aged between 25-65 years and were observed and examined with a survey. They were given to complete the survey either face-to-face or by filling the survey as an online form. The mathematic-statistic results have been processes by MS Excel via percentage frequency distribution and graphical analysis. The results showed that there is a big influence whether men and women have trained or not, on how long the pain lasts, those who train more, the percentage of pain in less than a month is higher. The percentage of people not training is higher in those who have had pain for more than a month, regardless of whether they have suffered from Covid-19 or not. In conclusion the results of the survey summarize that there is a clear relationship between whether people train and are more active in whether their back pain will be affected by duration and whether it will decrease overall after illness and Covid-19 disease.

***Keywords:** Physical activity, pain, quality of life, chronic, health, exercises, Covid*

INTRODUCTION

The Covid-19 pandemic has highlighted the importance of international solidarity and unity in the face of the worst global health and economic crisis in our lifetime. It also underlines the importance of early warning systems and the need to heed public health advisories, based on the best possible science (WMO, 2021)

Covid-19 is a new coronavirus also known as SARS-CoV-2. The WHO announced it for the first time in December 2019 (WHO, 2021). According to studies in 2021 most common accompanying symptoms after shortness of breath are muscle (myalgia), neuropathic and joint pain. (Weng et al., 2021)

Chronic pain increases stress, restricts physical activity, disrupts sleep and reduces the possibility of complete recovery (Geneen et al., 2017). In all cases, the adequate treatment of the disease and the control of the pain increase the QOL of the patient (Megari, Kalliopi, 2013).

In other words inadequacy to control pain leads to patient's inability to fully realize his / her intellectual, physical, educational and professional abilities (Bogduk, 2006, Ahmed, Modic, 2003).

Pain worsens the QOL as it does not allow for a fully emotional and social life. Pain is a biological phenomenon with a negative sign, but with a positive sense. It is the first and most important sign of discomfort and should therefore be sought, localized and characterized (Kolarov, 2003).

According to World Health Organization (WHO), motor-physical activity is defined as any body movement produced by skeletal muscles that requires energy expenditure, physical inactivity (lack of physical activity) has been identified as the fourth leading risk factor for global mortality (WHO, 2021). Studies show that in sedentary lifestyle, physical activity helps and affects QOL (D'Silva, 2018), even people with chronic musculoskeletal pain (Luque-Suarez et al., 2018). Studies show that a significant and moderately strong positive relationship exists between level of physical activity and QOL in adults with spinal cord injury (Sandy et al., 2008), and even helps people with multiple sclerosis (Motl, Robert, 2009).

Physical activity, health and QOL are closely linked. The human body is designed to move and therefore needs regular physical activity to function optimally and to avoid illness (Hills et al., 2015). It has been shown that sedentary lifestyles are a risk factor for the development of many chronic diseases, including back pain, one of the major causes of discomfort and decreasing the QOL in the western world (COM, 2008). Pain threshold is not a constant magnitude for a patient in different periods of disease progression (chronic) (Borenstein, 2000, Chou, 2007).

There are three predisposing factors in the aetiology of back pain that stand out for everyone else (Chou, 2007, McKenzie, 1981). The first and most important factor is the sitting / seated position /. The correct sitting position supports the spine curves. The second factor leading to pain and its recurrence is the reduced volume of lumbar extension. It affects seat positions, standing and rotation. Many people, even before the age of 30, are unable to preserve their normal extensions. The third protective factor for the presence of pain in the spine is the frequency of flexion (McKenzie, 2021).

The predisposing factors for back pain and its repetition are largely related to the positions and their maintenance.

The Working Group in WHO defines QOL as "perceiving individuals for their own position in life in the context of the cultural and values systems in which they live and in relation to their goals, expectations, standards and care" (WHO, 1997). It has been proven that a pain, if it

becomes chronic and chronic, increases stress, restricts motor activity, disrupts sleep and reduces the possibility of complete recovery. In all cases, the adequate treatment of the disease and the control of the pain increase the QOL of the patient.

The main goal of physical activity for health is to develop physical education tools and methods aimed at enhancing the functional capabilities of the endocrine and immune system for its vital functioning (Sulejanov, 2009).

Pain can occur accrue in different locations of the spine and can be treated differently depending on the location and type of pain, several medications may be used to reduce pain (Zdziarski et al., 2015). In nowadays treatment of pain involves eliminating its cause by using intra-articular injections (Vincent, 2013) and NSAIDs (Wertli, 2018, Chou, 2007) but they can painful and not long lasting or with side effects.

However other treatment options can be used, as the studies shows that regular exercise has been identified as a primary preventive and management of pain (Sulejanov, 2009, Lizier et al., 2012, Washif et al., 2019). Esteve et al. considers that there is a strong connection with Covid-19 with the worsening of the pain. (Esteve et al., 2021).

Physical (motor) activity during the Covid-19 pandemic is considered to be interrelated, the higher the levels of physical activity the higher the level of quality of life (Zhang, 2020), respectively as lowering physical activity decreases the level of QOL (Burtscher et al. 2020, Zhang et al., 2020). During the pandemic the physical activity was decreased and musculoskeletal pain was increased, but no relationship between exercise and musculoskeletal pain was found which might be related to psychosocial state (Efe Is et al. 2021)

The impact of pain on changes in physical activity during the COVID-19 pandemic is unknown, but the analytic survey in studies made in 2021 on adults who had pain after the COVID-19 suggests that they have lower physical activity levels after the COVID-19 In comparison of people that hadn't have pain during the Covid-19 (Hirase et al. 2021).

The purpose of this study to analyse and establish the effectiveness and impact of physical activity on pain after Covid-19 disease.

METHODS

Research methods they survey was complete either face-to-face or by filling the survey as an online form. The survey included ten questions and was completed by all individual.

Subject of the study is the impact of physical activity on pain after Covid-19 disease.

Object of study is the effectiveness of physical activity.

Contingent of the study were 56 people aged between 25-65 years (27 of them experimental group - 29 control group) were observed and examined with a survey. The experimental group will be subjected to a methodology of physical activity after this study.

Mathematical-statistical methods, data were arranged and analysed through Microsoft Excel, after mathematical-statistical processing the answers received from the survey using percentage frequency distribution and graphical analysis.

RESULTS

Tables 1-2 and Figure 1-2 present the data on the results of the frequency analysis for processing the survey questions.

Table 1. *Distribution by sex, age, weight, height by group in percentages*

Gender	n	men	women					
KG	29	59%	41%					
EG	27	44%	56%					
Age	n	under 25	25-35	35-45	45-55	55-65	over 65	
KG	29	3%	7%	14%	28%	24%	24%	
EG	27	4%	37%	30%	7%	22%	0%	
Height	n	under 160	160-170	170-180	180-190	over 190		
KG	29	7%	48%	14%	28%	3%		
EG	27	0%	52%	37%	11%	0%		
Weight	n	under 50	50-60	60-70	70-80	80-90	90-100	over 100
KG	29	0%	7%	35%	21%	17%	14%	7%
EG	27	4%	33%	15%	22%	11%	7%	7%

The results from Table 1 Shows that majority of the individuals in the control group were men with a percentage of 59% and the majority of the experimental group were women with 56%. The data shows the largest percentage of individuals in the control group were aged between 45-55 years with a percentage of 28% and the largest percentage in the experimental group were aged between 25-35 years with 37%. It seems that the majority of the individuals in the control group are between 45 and 46 years old, and in the experimental group they are between 25 and 45 years old. The largest percentile of control group is within 160-170 cm tall with a percentage of 48% as in the experimental group they are also 160-170 cm tall with 52%. As it shown in Table 1 people weighed between 60-70 kg in the control group are 35% and the largest percentage in the experimental group weighed between 50-60 kg with 33%. The control group exceeded the percentage of the experimental in weight of 80-90 kg and the two groups have the same percentage in weight over 100 kg.

Table 2. Results of the answers of the two groups to the survey questions in percentages

How long does the pain last	n	less than a month	more than a month				
KG	29	55%	45%				
EG	27	59%	41%				
How would you define pain	n	under 160	160-170	170-180	180-190		
KG	29	7%	48%	14%	28%		
EG	27	0%	52%	37%	11%		
Are you taking pain treatment	n	Medications	positional exercises	strengthening exercises	pnf stretching	something else	without treatment
KG	29	66%	17%	7%	0%	3%	7%
EG	27	0%	41%	22%	0%	0%	37%
How often do you exercise	n	I don't play sports	once a week	2-3 time a week	4-5 times a week	every day	
KG	29	38%	28%	35%	0%	0%	
EG	27	37%	11%	30%	22%	0%	

The results from Table 2 Show that the individuals in the control group exceeded for more than a month the pain by a percentage of 45% and the experimental by 41%. As well as the experimental group exceed the pain for less than a month by 59% and the control by 55% We notice that both groups have a larger share with duration of pain of less than a month.

As it seems from the results the largest share of the individuals in the control group defined the pain as idiopathic by 55%, and the largest share of the experimental group defined the pain similar to spasms by 41%. We notice that both groups have the smallest share of pain due to pressure.

The results from Table 2 also Show that the largest share of the individuals in the control group treated the pain with medication with a predominant difference from the other ways by 66%, and the largest share of the experimental group treated the pain with positional exercises with 41% and second without treatment with 37%.

It appears that the largest percentage of individuals in both groups did not play sports with approximately the same percentage of 38% for the control and 37% for the experimental, and the smallest share of the two groups played sports every day with 0% for both groups. It seems that the average percentages of the two groups trained 2-3 times a week, exceeding the control in 1 time and the experimental in 4-5 times a week.

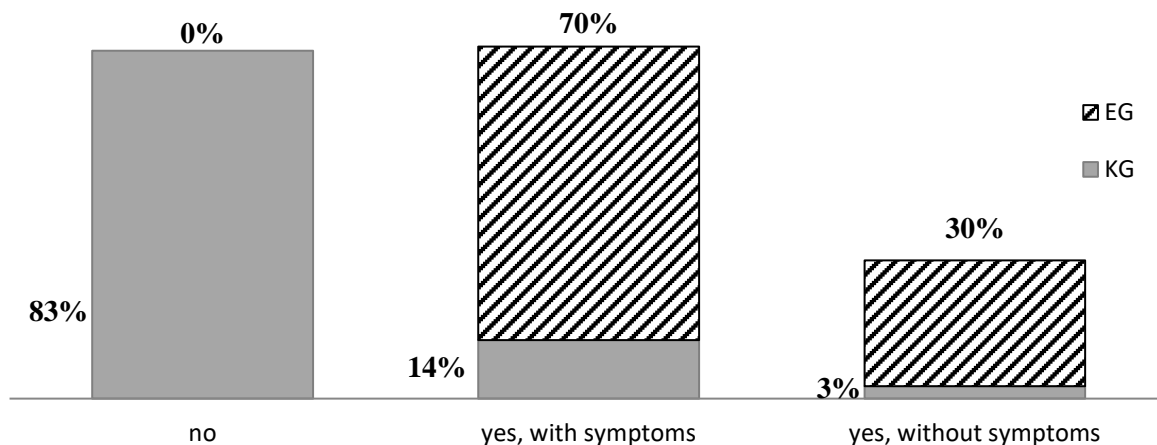


Figure 1. Results of Covid-19 disease ratio of KG and EG

The data illustrated on Figure 1 Shows that the largest percentage of individuals in the control group did not suffer from Covid by 83%. As the experimental group exceeds in "yes, with symptoms" by 70% and the control 14%. It seems that the most of the people in the control group did not get Covid unlike the people of the experimental group who most of them got Covid.

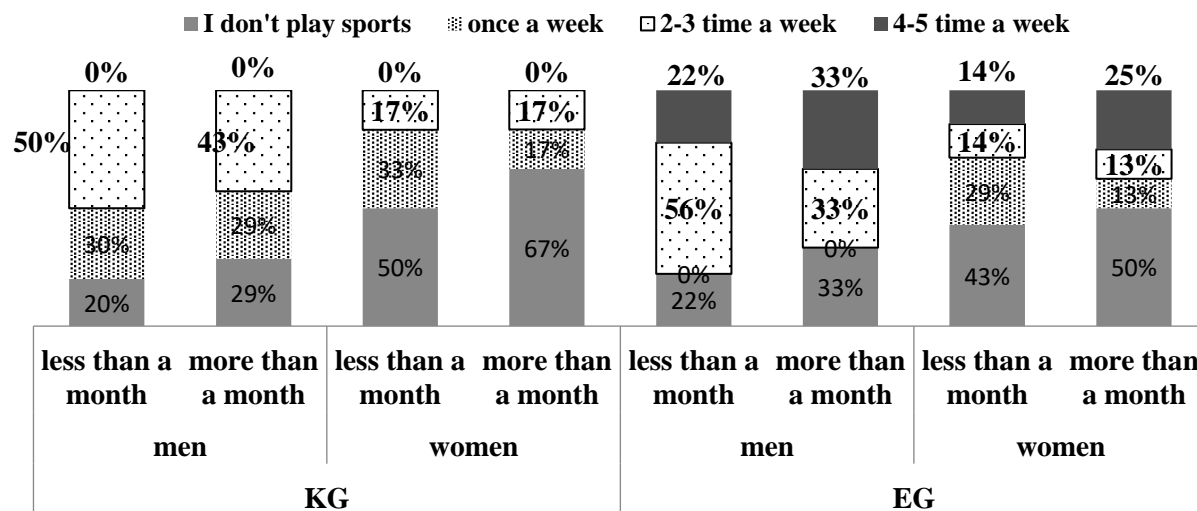


Figure 2. Comparison of the three-dimensional distribution of frequencies of KG with EG

The results from Figure 2 shows that in the control group, men who trained more often 50% trained 2-3 weeks had pain for less than a month and also men in this group only 20% of them did not train. Men from the experimental group had similar values with 56% training 2-3 weeks and having pain for less than a month and only 22% did not train in this group. This shows that the values of men who have trained less or do not train have pain for more than a month in both groups.

In women we can see similar comparisons as in men. As in the control group, women who had pain for more than a month trained less, 67% of them did not train. With similar values in women from the experimental group who had pain for more than a month, 50% of them did not train. This shows that the values of women who have trained more often have pain for less than a month in both groups.

DISCUSSION

The data from this comparison of the three-dimensional distribution of frequencies gives us a clear assessment that there is an influence whether men and women have trained or not, on how long the pain lasts. Those who train more, the percentage of having pain for less than a month is higher. It seems that in all cases the percentage of non-trainees is higher in those who have had pain for more than a month in men and women, regardless of whether they have suffered from Covid-19 or not. As the impact of pain is unknown on changes in physical activity from Covid-19 (Hirase et al. 2021) however, during the pandemic was found that the physical activity was decreased and musculoskeletal pain was increased (Hirase et al. 2021).

Therefore, this study confirms that they are related during the pandemic and suggests that people should be encouraged to do exercise and be more active after suffering from covid-19 disease to have impact on pain.

CONCLUSION

In conclusion the results of the survey can summarize the following that there is a clear relationship between whether people train and do physical activity in whether their pain will be affected in duration and whether it will decrease overall after falling ill of Covid-19 disease. Hence, these results give us better clarity that a person being more active and doing physical exercises can influence on his pain after Covid-19.

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Corresponding author:

Bassel Tahboub, PhD student

Department of “Heavy athletics, boxing, fencing and sport for all”

National Sports Academy “Vassil Levski”

Studentski grad, 21, Acad. Stefan Mladenov Str.

Sofia 1700, Bulgaria

e-mail: basselt@abv.bg