



## Physical and mental health components condition in the life quality of students who regularly practice kickboxing and yoga

### Authors' Contribution:

A - Study Design  
B - Data Collection  
C - Statistical Analysis  
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E - Funds Collection

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### Abstract

*The influence of physical exercises on health components of the quality of life of students is discussed. It is found that physical and mental component indicators of the quality of life of students who do yoga are much lower than those of students practicing kickboxing. The level of mental health component is lower than the level of physical health component. The obtained results indicate the psycho-emotional condition and existence comfort during the investigation. Statistical correlations between the quality of life indicators are determined and discussed.*

**Keywords:** quality of life, health, students, yoga, kickboxing.

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## INTRODUCTION

Scientific studies have shown that regular physical exercises play an important role in maintaining and strengthening young people's health, enhancing their physical performance, increasing life expectancy, and forming important personal qualities [1,2,3,4]. Physical education is an important factor of the healthy life style, disease prevention, leisure formation of human values, and creation of the conditions for comprehensive harmonic development [5,6,7,8,9,10]. However, scientists have not studied the effect of physical activity on the life quality.

According to the World Health Organization, life quality is the person's definition of his or her place in life in the context of culture and system of values in which he or she lives, in connection with the objectives, expectations, standards and the interests of this person. Consequently, the life quality is an economic and philosophical category, which is constantly evolving; it characterizes the human existence comfort. Thus, each person defines the life quality for him- or herself, recognizing how well he or she feels physically, emotionally, how he or she is satisfied with their welfare, work, friends, and state policy.

The works, in which theoretical and methodological basis and life quality determination of individual groups were performed, were published in Ukraine There have been numerous reports on theoretical and methodological determination of life quality for various groups of people published in Ukraine [11,12,13,14,15] and abroad [16,17]. However, studies of the life quality of students, who are practicing various types of sports have not been conducted.

In contemporary research, the overall life quality is seen as an integral characteristic of its state; it consists of physical and mental components [18,19]. Each component in turn comprises separate factors: (delete comma) physical, such as ability to perform physical work or the self-service ability, and mental, such as anxiety, depression, conduct. The comprehensive study of these factors allows to determine the life quality of individuals as well as of entire groups of people, and to define its improvement factors.

## METHODS

To determine the quality of life, we applied the procedure elaborated by The International Centre for the Study of Quality of Life of Boston, USA. We used the international general questionnaire MOS SF-36 designed by Ware and Gandek [20]. Two factors influencing the quality of life were of our interest: the physical health component and psychological health component. The physical component summary (PCS) included physical functioning (PF), role-physical functioning (RP), bodily pain (BP), and general health (GH). Mental component summary (MCS) comprises vitality (VT), social functioning (SF), role-emotional functioning (RE), and mental health (MH). Each component was evaluated in on 0 to 100 scale. Low rates indicated lower limits of physical and mental functioning of students, and thus a reduction of their life quality.

513 students of all grades from Lesya Ukrainka Eastern European National University and from Lutsk National Technical University took part in the study. Among them there were 54 students practicing kickboxing and 51 students practicing yoga.

## RESULTS

The values of the physical health component in the life quality of the students are collected in Table 1. The results of the evaluation of the Mental component in the quality of life of the students are collected in Table 2. In table 3 summarizes the physical and mental health components in quality of life of students incorporating various activities in their lives. Tables 4-

6 include the values of the factors of PCS and MCS evaluated for students who practice yoga or kickboxing.

Table 1. The physical health component in the quality of life of students incorporating various physical activities in their lives.

Indicators	Do not exercise systematically		Systematically practice yoga or kickboxing	
	men	women	men	women
Physical Functioning (PF)	93.8	89.8	95.1	92.6
Role-Physical Functioning (RP)	70.2	66.5	85.5	77.1
Bodily Pain (BP)	72.6	68.6	73.1	72.5
General Health (GH)	73.4	66.6	79.6	78.3

Table 2. The mental component in the quality of life of students incorporating various activities in their lives.

Indicators	Do not exercise systematically		Systematically practice yoga or kickboxing	
	men	women	men	women
Vitality (VT)	65.2	58.3	72.1	69.0
Social Functioning (SF)	80.4	74.8	88.2	76.3
Role-Emotional Functioning (RE)	66.6	56.1	84.5	72.2
Mental Health (MH)	69.9	64.4	76.9	75.2

Table 3. The physical (PCS) and mental (MCS) health components in quality of life of students incorporating various activities in their lives.

Indicators	Do not exercise systematically				Systematically practice yoga or kickboxing			
	men		women		men		women	
	PCS	MCS	PCS	MCS	PCS	MCS	PCS	MCS
maximum	61.9	62.8	60.4	62.8	63.7	59.5	66.3	61.5
minimum	34.6	26.5	36.6	27.1	31.8	21.2	33.7	14.6
mean	52.7	51.6	52.0	48.3	51.4	46.6	51.8	41.7
standard deviation	5.37	7.76	5.96	8.96	6.85	9.73	6.81	10.19
standard deviation of the mean	0.64	0.93	0.99	1.49	0.94	1.33	0.74	1.11

Table 4. The physical component of health value characterizing the quality of life of students who do yoga or kickboxing

Indicators	Yoga		Kickboxing	
	men	women	men	women
Physical Functioning (PF)	90.0	91.8	97.4	98.7
Role-Physical Functioning (RP)	69.3	74.5	93.1	81.2
Bodily pain (BP)	75.5	71.5	73.0	79.7
General Health (GH)	73.9	76.7	82.4	89.7

Table 5. The metal component of health value characterizing the quality of life of students who do yoga or kickboxing

Indicators	Yoga		Kickboxing	
	men	women	men	women
Vitality (VT)	68.6	68.9	73.8	70.0
Social Functioning (SF)	82.9	74.2	90.6	93.6
Role-emotional functioning caused by emotional state (RE)	71.2	72.9	90.7	66.6
Mental Health (MH)	70.3	74.8	80.1	78.0

Table 6. The physical and the mental components of health value characterizing the quality of life of students who do yoga or kickboxing

Indicators	The physical component summary (PCS)				The mental component summary (MCS)			
	Yoga		Kickboxing		Yoga		Kickboxing	
	Men	Women	Men	Women	Men	Women	Men	Women
maximum	61.9	58.9	60.9	60.4	62.8	62.1	62.2	57.1
minimum	34.6	36.6	40.0	51.1	28.4	27.1	26.6	33.9
mean	50.9	51.5	53.5	55.9	48.1	48.2	53.2	49.4
standard deviation	7.49	6.0	3.86	4.47	8.93	8.94	6.65	8.5
standard deviation of the mean	1.59	1.06	0.56	2.23	1.91	1.58	0.97	2.24

Table 7. Correlations between the factors of the physical and the mental components of the students' life quality

	PF	RP	BP	GH	VT	SF	RE	MH	PCS	MCS
PF	-	0.33	0.30	0.36	0.31	0.34	0.22	0.32	0.62	0.18
RP	0.33	-	0.38	0.28	0.34	0.39	0.42	0.33	0.65	0.30
BP	0.30	0.38	-	0.37	0.35	0.33	0.28	0.32	0.69	0.24
GH	0.36	0.28	0.37	-	0.48	0.38	0.30	0.48	0.55	0.41
VT	0.31	0.34	0.35	0.48	-	0.55	0.45	0.77	0.25	0.76
SF	0.34	0.39	0.33	0.38	0.55	-	0.51	0.62	0.26	0.73
RE	0.22	0.42	0.28	0.30	0.45	0.51	-	0.52	0.05	0.80
MH	0.32	0.33	0.32	0.48	0.77	0.62	0.52	-	0.14	0.87
PCS	0.62	0.65	0.69	0.55	0.25	0.26	0.05	0.14	-	-0.03
MCS	0.18	0.30	0.24	0.41	0.76	0.73	0.80	0.87	-0.03	-

Notes: PF - Physical Functioning, RP - Role-Physical Functioning, BP - Bodily pain, GH - General Health, VT - Vitality, SF - Social Functioning, RE - Role-emotional functioning caused by emotional state (Role-Emotional), MH - Mental Health, PCS - Physical component summary, MCS - Mental component summary.

## DISCUSSION

Physical functioning reflects the level at which physical condition limits the physical performance (self-service, walking, climbing a ladder, carrying loads, etc.). On average, this indicator is large for all groups of students (89.8 - 93.8 points), indicating the absence of physical performance problems.

Role-Physical Functioning mirrors the influence of physical condition on everyday role functioning (work, routine chores). The average indicators for the students who do not exercise systematically are 70,2 and 66,6 points for men and women, respectively, considerably lower than those for students who exercise. Students who systematically practice yoga or kickboxing

evaluate their RP much higher: the average values are 85.5 and 77.1 for men and women, respectively. These findings indicate that weaker physical condition causes certain life activity limitation for the students. According to the responses to SF-36 questionnaire, 19,8 % of students had to cut down their time devoted to work or other activities, and 46,2 % felt they were limited in certain activities.

General Health indicator is evaluated on the basis of a respondent's self-assessment of their current overall health. On average, GH for the students, (no comma) who do not exercise systematically are 73,6 and 66,6 for men and women, respectively. Only 34,8 % of these students believe their health is perfect or very good. Almost half of the respondents (49,2 %) evaluate their health as good; 17,0 % - mediocre or poor. It is of concern that 11% of the respondents believe that they are more illness-prone than the others, and 9% (no hyphen here) expect health deterioration. The students who systematically practice yoga or kickboxing have higher GH: 79,6 and 78,3 for men and women, respectively.

Vitality is determined by how energetic and vital respondent feels. The average values of VT for the various groups of the students are rather low (58,3 - 72,1), which indicates that most of the students experience a decrease in their vital activity. According to the students' responses, during the last 4 weeks only 46,5% of them felt full of life and cheerful, and 42,0% felt full of energy and vitality.

Social Functioning relates to the degree to which physical or emotional condition limits social activity. Each group of students have high value of that indicator (74,8 - 88,2), which indicates good social life.

Role-Emotional Functioning refers to the degree to which emotional condition influences work or other routine activities, decrease of workload, and lowering the quality of work done). Average values of RE for the physically inactive students are 66,6 and 56,1 for men and women, respectively. These values are rather low. The responses given in the survey indicate that 31,8% of the students experienced emotional problems over the last 4 weeks (depression, anxiety), which resulted in need to cut down the working hours; 35,3% could not work as they used to and they were performing less attentively; 53,9% did less than they wanted to. The average values of RE for students who systematically practice yoga or kickboxing are much higher: 84,5 and 72,2 for men and women, respectively.

Mental Health characterizes mood, feelings of being depressed, anxiety, and is a general measure of positive emotions. Relatively low indicators, achieved by students, who do not exercise systematically (64,4 - 66,9 points) indicate signs of depression and disturbing emotions. During the last 4 weeks only 28 % often felt happy. Respondents with higher physical activity had higher indicators as to mental health.

Results of the study of the physical component summary - PCS and Mental component summary - MCS in the life quality of students, who systematically practice yoga and kickboxing, and of those, who do not, are given in Table 3.

According to the obtained results, the physical component of health values characterizing the quality of life of students who regularly do yoga or kickboxing are 52.7 points and 52.0 for men and women, respectively. The values of that factor for students who do not do any sport on regular basis are 51.4 and 51.8, for men and women, respectively. In general, We observe that PCS value is higher in respondents who are physically more active.

It is not surprising that the values of the physical component of health are high for students in their twenties. Due to their physical development and bodily strength they sustain a high level of comfort in all areas of life. Still, almost 35% of the respondents, mostly those who keep a low level of physical activity, indicated physical difficulties in some areas of their lives.

In general, despite the level of physical activity, men report higher values of the physical and the mental components of health. Research results show that the students who do kickboxing report higher values of the physical component of health. There is no significant difference between the two groups of respondents as far as physical functioning, bodily pain,

and general health indicators are concerned. However, male kickboxers have 23.8 points higher results in the level of functioning caused by physical state (Table 4).

According to the results, there is no significant differences in the levels of vitality, social functioning (men), role-emotional functioning (women) between students who do yoga or kickboxing. Interestingly, the men who do kickboxing report 19.5 points higher indicators of role-emotional functioning than the men who practice yoga. Similarly, female kickboxers report 19.4 points higher indicators in social functioning level compared with the women doing yoga (Table 5).

Overall, the students who practice kickboxing on regular basis indicate significantly higher values of the physical and the mental components of health than the students who practice yoga (Table 6).

The values of the mental component of health of respondents physically active are slightly lower than the values of the physical component of health. The results do not indicate morpho-functional impact of systematic yoga and kickboxing trainings on the body, but the psycho-emotional state of a person at the time of the investigation. The investigation also sheds light on the possible relationships between the components of the students life quality (Table 7).

## CONCLUSIONS

Indicators of physical and mental component summary of the quality of life of the students who do yoga are much lower compared with the kickboxers. The total value of the mental component of health of the respondents is lower than the value of the physical component. The results indicate the human psycho-emotional state and existence comfort at the time of the investigation.

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