

Influence of Regular Sports on the Quality of Life of Students

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Abstract

A systematic increase in the level of physical fitness, stress resistance, and social adaptation of young people is an important task of modern society. Its solution helps to improve the health of the younger generation and increase its labor potential. This is especially true for a wide range of modern young people with a low level of physical development and various chronic diseases. A stable increase in motor activity stimulates the adaptive and regulatory capabilities of all internal organs and forms the basis of socially responsible behavior in students. As a result of increased physical activity, the functions of the cardiovascular, respiratory and musculoskeletal systems increase, and the body's sensitivity to emotional and physical overload decreases. In addition, regular exercise increases a person's social contacts, creativity, and quality of life. Regular football, volleyball, and basketball activities significantly improve the quality of life of youth students. As a result of playing sports, they increase the level of physical fitness, stress resistance, and the degree of socialization. Analyzing the data obtained, it can be argued that amateur sports develop the

physical qualities of students, strengthen their psychological characteristics and contribute to their fuller inclusion in society.

Keywords: Quality of life, Adolescence, Students, Physical development, Stress resistance, Social adaptation

Introduction

Regular physical activity contributes to the overall strengthening of the body and an increase in its protective capabilities (Bespalov *et al.*, 2018a; Makhov & Medvedev, 2018a; Alghamdi *et al.*, 2020; Hanawi *et al.*, 2020). This is especially important in adolescence to ensure maximum stability of the body in the process of active development of a future profession and preparation for work (Medvedev, 2018a; Medvedev *et al.*, 2021).

Strong systematic physical activity contributes to the development of the main part of striated muscles, increases bone strength and ligaments, increases joint mobility (Zavalishina, 2018a; Karpov *et al.*, 2020a). Regular physical activity has a very beneficial effect on the integrating organism - the blood system (Mal *et al.*, 2018a). In this regard, dosed feasible physical activity is considered by modern science as an effective, affordable, and necessary biological stimulator of the whole organism in conditions of norm and pathology (Mal *et al.*, 2018b; Medvedev, 2018b; Mikhaylova *et al.*, 2021b).

A steady increase in the pace of life makes it necessary for the successful functioning of a young organism to increase the level of physical fitness, stress resistance, and social adaptation (Bespalov *et al.*, 2018b; Zavalishina *et al.*, 2021a). This is especially significant for young people who have had a long-term low level of physical activity and suffer from any chronic diseases (Makhov & Medvedev, 2018b; Mal *et al.*, 2020; Mikhaylova *et al.*, 2021a).

Regular training in any kind of sports activity can increase the adaptive and regulatory potential of the main systems of the body and form socially responsible behavior in those who train (Skoryatina & Medvedev, 2019; Makhov & Medvedev, 2021). As a result of this, the cardiovascular, respiratory, motor systems of the body are strengthened and the emotional stability of those involved in various social situations increases (Medvedev, 2018c; Zavalishina *et al.*, 2021b).

It was noted that an athlete's qualification level is closely related to the degree of development of his physical qualities, the number of

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his social contacts, the level of stress resistance, the degree of creativity, and, ultimately, with the quality of his life (Dorontsev & Svetlichkina, 2020; Karpov *et al.*, 2021a; Medvedev *et al.*, 2021c). At present, the presence of regular sports activities is considered as an important criterion for assessing the quality of life, which makes it possible to accurately assess the basic psychophysiological parameters of a person, the level of his social adaptation, and the state of physical development (Skoryatina & Zavalishina, 2017; Zavalishina *et al.*, 2021c). In this regard, it was decided to conduct this study.

Purpose of the study: to assess the quality of life of adolescent students involved in sports.

Materials and Methods

The study was carried out on 196 young men 17-20 years old (average age 18.6 ± 1.1 years), studying at the university and being clinically healthy.

The study students were divided into two groups. The first group consisted of athletes of mass sports categories in team sports: volleyball, basketball, and football. The second group consisted of students receiving regular physical activity only in academic physical education classes at the university twice a week.

Quality of life was assessed using the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36). This questionnaire consisted of 36 questions. The results were evaluated on 8 scales in points (from 0 to 100). The total value of the scores received reflected the quality of life. The higher the result, the higher the quality of life. The following scales were used in the study: the scale of general physical condition (the subjects assessed their general health), the scale of physical functioning (the subjects assessed the severity of their physical activities, including walking, running, climbing stairs, carrying weights), the scale of role-based

physical activity (the subjects determined the influence of their physical state on everyday role activity), the scale of role emotional functioning (the subjects assessed how much the emotional state allowed or limited their performance in educational activities, daily work and participation in competitions), the scale of social functioning (the subjects determined the degree to which they physical or emotional state allowed or limited their general social activity), the disability scale (the subjects assessed the number of days when their activity was limited for medical reasons), the life activity scale (the study The subjects assessed the positive attitude and the level of general activity), the scale of self-assessment of mental health (the subjects assessed the general mood, anxiety index, the presence of positive emotions) (Yankevich *et al.*, 2013; Karpov *et al.*, 2020b).

The following indicators were assessed in all examined traditionally: running time for 100 meters, running time for 60 meters, distance covered during a long jump, Cooper's test indicator (distance covered during 6 minutes of running), number of pull-ups on the bar, the number of body lifts from a lying position, in 1 minute, shuttle run time 4x9.

During the statistical processing of the data obtained in the work, the statistical software package "STATISTICA-16" was used. The significance of the differences in mean values was determined by the Student's test (t). Differences were considered significant at $p < 0.05$. To identify the relationship between the level of physical fitness and quality of life indicators, a correlation analysis was carried out.

Results and Discussion

Students experiencing physical activity higher than that of everyday life, only in university physical culture classes were inferior in terms of mental and physical health, as well as in terms of the general level of vitality, to the surveyed athletes (**Table 1**).

Table 1. Subjective perception of their health by the surveyed

Indicators	1 group, n=97, M \pm m	2 group, n=99, M \pm m	P
general health, points	80.1 \pm 3.3	67.0 \pm 2.9	0.01
physical activity, points	88.5 \pm 7.0	40.5 \pm 6.9	0.01
role-based physical functioning, points	67.4 \pm 5.5	49.0 \pm 5.1	0.01
role emotional functioning, points	66.9 \pm 6.0	50.0 \pm 6.7	0.01
social functioning, points	75.1 \pm 2.9	50.9 \pm 2.7	0.01
duration of incapacity for work, points	77.5 \pm 2.9	48.3 \pm 3.2	0.01
life adaptation, points	69.5 \pm 2.3	50.4 \pm 2.1	0.01
mental health, points	75.7 \pm 2.8	56.1 \pm 1.9	0.01
Points total	600.7 \pm 17.2	412.2 \pm 21.6	0.01

The general state of health in the first group of the surveyed exceeded the level in the second group by 19.5%. The level of physical activity among the representatives of the first observation group was 2.2 times higher than in the second group. The second group of subjects was inferior to the first group in role-based physical functioning by 37.5%, in terms of role-based emotional

functioning by 33.8%. In terms of the value of social functioning, the athletes in the first group exceeded the indicators of the students in the second group by 47.5%. At the same time, the duration of temporary disability during the year in the first group was shorter by 60.4% than in the second. In athletes, indicators of life adaptation and mental health turned out to be advantageously

higher than in physically untrained students of the second observation group by 37.9% and 34.9%, respectively.

Significant differences were observed between both groups of students in the total amount of points obtained as a result of the

questionnaire, which reflected the differences between them in the level of their quality of life: 600.7±17.2 points and 412.2±21.6 points, respectively (p<0.01). In both surveyed groups, general physical fitness was assessed (**Table 2**).

Table 2. The level of physical fitness of the surveyed

Indicators	1 group, n=97, M±m	2 group, n=99, M±m	P
Running for 100 meters, s	13.2±1.03	16.9±0.73	0.05
Running 60 meters, s	8.3±0.94	10.8±1.14	0.01
Long jump from a spot, m	1.99±0.16	1.55±0.19	0.01
Cooper's test (6 minutes run), m	1411.5±62.4	1062.3±49.3	0.01
Pull-up on the crossbar, number	8.2±0.72	5.5±1.02	0.01
Number of body lifts from a prone position in 1 minute, reps	65.1±0.62	45.7±0.87	0.01
Shuttle run 4x9, s	6.5±0.21	8.9±0.17	0.01

The level of development of speed-power qualities among athletes was higher than in the second group in the test of 100 meters running by 28.0%, in the test of running at 60 meters by 30.1%, in the test of standing jump by 28.4%.

Judging by the results of the 6-minute run test, the level of endurance development among athletes exceeded this indicator in the second observation group by 32.8%. The more pronounced development of athletes' strength capabilities was indicated by the prevalence of their indicators in the pull-up test on the bar (by

49.1%) and in the test of lifting the trunk from a prone position (by 42.4%). The results of the shuttle run test indicated the best development of the athletes' coordination abilities. This indicator in the first group of observation turned out to be shorter than in the second group by 36.9%.

To assess the degree of relationship between the parameters of the quality of life and indicators of physical development in the surveyed of the first group, correlation analysis was applied (**Table 3**).

Table 3. Results of the correlation analysis of physical readiness indices and components of the quality of life in the first group

Indicators	Running 100 meters	Running 60 meters	Standing long jump	Cooper's test	Pull-up on the bar	Raising the torso from a prone position	Shuttle run 4x9
general health	-0.73**	-0.70**	0.67**	0.66**	0.67**	0.65*	-0.72**
physical activity	-0.71**	-0.68**	0.62**	0.71**	0.68**	0.70**	-0.68**
role-based physical functioning	-0.52*	-0.57*	0.59*	0.58*	0.61**	0.63**	-0.60**
role emotional functioning	-0.50*	-0.47*	0.46*	0.52*	0.48*	0.53*	-0.57**
social functioning	-0.46*	-0.48**	0.45*	0.45*	0.40	0.41	-0.50*
duration of incapacity for work	0.74**	0.73**	-0.67**	-0.62**	-0.68**	-0.72**	0.69**
life adaptation	-0.42	-0.43	0.47*	0.46*	0.42	0.43	-0.53*
mental health	-0.56*	-0.53*	0.55*	0.57*	0.54*	0.57*	-0.52*

Note: reliability p <0.05 - *, reliability p <0.01 - **.

In athletes, when conducting a correlation analysis between the indicators of their physical development, on the one hand, and their quality of life, on the other hand, we found mainly reliable direct and feedback links of average strength. The most pronounced connections, which reached the level of a strong connection in several positions, were revealed between the indicators of physical

fitness, on the one hand, and the general state of health, physical activity, and duration of disability, on the other hand.

In the survey of the second group, to assess the degree of interconnection between the parameters of the quality of life and indicators of physical development, a correlation analysis was also applied (**Table 4**).

Table 4. Results of the correlation analysis of indicators of physical fitness and components of the quality of life in the second group

Indicators	Running 100 meters	Running 60 meters	Standing long jump	Cooper's test	Pull-up on the bar	Raising the torso from a prone position	Shuttle run 4x9
general health	-0.74**	-0.71**	0.66**	0.65**	0.68**	0.66*	-0.74**
physical activity	-0.72**	-0.67**	0.63**	0.74**	0.65**	0.73**	-0.64**
role-based physical functioning	-0.51*	-0.54*	0.56*	0.59*	0.60**	0.61**	-0.65**
role emotional functioning	-0.51*	-0.46*	0.49*	0.53*	0.44*	0.52*	-0.53**
social functioning	-0.45*	-0.49**	0.44*	0.46*	0.42	0.43	-0.52*
duration of incapacity for work	0.76**	0.75**	-0.68**	-0.63**	-0.67**	-0.76**	0.65**
life adaptation	-0.43	-0.41	0.45*	0.45*	0.40	0.41	-0.52*
mental health	-0.54*	-0.52*	0.57*	0.53*	0.52*	0.54*	-0.51*

Note: reliability $p < 0.05$ - *, reliability $p < 0.01$ - **.

When conducting a correlation analysis between the indicators of physical development, on the one hand, and the quality of life, on the other hand, in the second group of the surveyed, mainly reliable direct and feedback links of average strength were found. The most pronounced connections, which reached the level of a strong connection in several positions, were found between the state of physical fitness, on the one hand, and the general state of health, physical activity, and duration of disability, on the other hand.

Considering the results of the correlation analysis, it can be argued that among student-athletes and students who experience physical activity only in physical culture lessons, there is a correlation between their physical capabilities and indicators that determine their quality of life. Moreover, the most pronounced connection in both groups was found between physical fitness and the physical components of the quality of life (Mikhaylova *et al.*, 2021c). They were somewhat inferior to reliable connections of physical fitness with emotional, psychological, and social components of the quality of life (Medvedev *et al.*, 2021b). The results obtained give reason to believe that regular physical activity, providing a certain level of physical fitness, is very significant for the development of all adaptation mechanisms of a person, which contributes to an increase in the quality of his life (Vorobyeva *et al.*, 2018; Zavalishina, 2020).

Considering the results obtained in the study, it is very important to create the most favorable conditions for students for regular sports activities (Zavalishina, 2018b; Karpov *et al.*, 2021b). They are future specialists in all spheres of work, who will replace those who are now working in the workplace (Glamazdin *et al.*, 2021). Only with a good level of their physical fitness is it possible to ensure a high quality of their life, which allows them to master their future profession in the best possible way (Karpov *et al.*, 2018; Medvedev, 2021a). Only in this way is it possible to create optimal conditions for high-quality professional training of students during their studies at the university. In this regard, the provision of conditions for a high quality of life for students with the help of available regular lessons in a game sport can provide

them with more comfortable conditions for professional development in the course of training.

Conclusion

Dosed regular physical activity is considered very beneficial for the development of all functional parameters of the body. One of its most effective options is systematic sports games. Such training leads to an effective increase in motor capabilities and strengthens the body as a whole. Regular playing sports provide a high level of development of power capabilities, speed-power parameters, coordination abilities, and increase the level of endurance. In the course of the study, it was found that playing sports has a positive effect on the quality of life of adolescent students. Physical training in the framework of playing sports contributes to the development of their psychological qualities and significantly expands the range of their social interaction. Regular muscle activity only in physical culture lessons less effectively strengthens the general physical status of students and to a lesser extent improves their quality of life. It is clear that systematic playing sports have a pronounced positive effect on the general level of physical fitness, on the development of locomotor capabilities, and significantly increase the quality of life of adolescent students.

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