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Efficiency of Using Special Exercises for Preventing Scoliosis Initial Age Children

Key words: *children of younger school age, scoliosis, complex of special exercises, frontal and sagittal planes, recreational physical education.*

Annotation: *the article substantiates the effectiveness of the use of a set of special exercises in the treatment of scoliosis in primary school children.*

Priority. The law of the Republic of Uzbekistan "About Education" and "National Program of Personnel Training" defines state policy in the field of training, education systems throughout all life on the basis of comprehensive intellectual, spiritual and moral forming of competent person citizens (1,2). The human health depends, first of all, on a healthy lifestyle (3,4).

The most part of the population of Earth has a backbone problem, especially scoliosis. That is why workers of health care create new drugs for treatment of diseases. It is important to recognize that girls have more scoliosis, than at boys that is connected with their physiological properties. In more than 50% of cases patients have a scoliosis of the I and II levels (5). This disease is followed easy by sagging and insignificant pain. Scoliosis is divided into four levels:
The I degrees - from 50 to 100
The II degrees - from 110 to 300
The III degrees - from 310 to 600
The IV degrees – higher than 600

For treatment of any level of scoliosis therapeutic exercises are used because they are the most effective and harmful way to get rid of this disease. Depending on type of a disease there is a medical complex of physical culture. The purpose of the therapeutic agent is restoration of a vertebra, its stabilization and correction.

The aim of work: Creation of a specialized set of exercises for the patient of scoliosis and justification of its efficiency for the pupils studying in 1-4 classes.

Results of researches and their discussion. To define efficiency of various types of specially developed exercises, the same program was developed for all experimental groups, but the special and generalized exercises were used in different options.

Our research was conducted on specialized boarding school of scoliosis No. 4. In a research the special set of exercises (SSE) was used. School students are subdivided into the groups based on their levels of scoliosis.

The first group consisted of 57 patients with scoliosis of the I degree, 26 patients with scoliosis of the II group, 14 - scoliosis of the 3rd class and 9 with the IV scoliosis in group 4.

Anthropometrical parameters at the age of 8-11 and a complication of body composition were found during the research (table 1.2).

During the research the special schedule was developed for use of special set of exercises. Based on the table, pupils from 4 groups studied 2 times a week and 3 times out of a class within the first year in group 1. The second group consisted of 2 classes and 4 out-of-class occupations within a week, and their duration was from 30 minutes to 35 minutes. The third group consisted of 2 classes and 4 out-of-class occupations within a week, and their duration was from 30 minutes to 35 minutes Classes of group 4 were given individually from 5-6 weeks to 20-25 minutes a week.

It was heavier to choose special exercises which influenced on backbone spin. Therefore, to choose such special exercises, we used an extra miografiya in concrete laboratory. Results show that some exercises make effective impact on local muscles.

Thus, in addition to correction of disturbances of changes four exercises were entered:
1) exercises for relaxation of muscles;
2) strengthening of muscles (dry, dumbbells, a waist and a backbone, exercise on the right and right muscles of a stomach);
3) asymmetric exercise (the movement on structure of the movement - asymmetric load of the mainframe);
4) harmony and balancing of exercises.

Table 1.

Anthropometrical indicators of pupils at the age of 8-11 (in %)

№	Age pupil	Height (sm)	Weight (sm)	chest		
				Quiet state (sm)	At a breath (sm)	At an exhalation (sm)
1	8 (n=24)	123,8±4,9	33,4±3,8	48,4±4,1	50,8±4,0	47,8±4,2
2	9 (n=26)	126,5±5,2	34,7±3,9	50,3±5,2	51,7±4,2	49,1±4,0
3	10 (n=27)	131,8±5,8	36,8±4,6	52,6±4,9	54,6±4,9	51,4±4,8
4	11 (n=29)	134,2±5,6	38,9±5.1	54,5±5,4	56,8±5,3	55,1±5,2
Average value	9,5	129,1±5,4	36,0±4,4	51,5±4,9	53,5±4,6	50,9±4,6

Table 2

Complication in structure of a body of pupils at the age of 8-11 (initial indicators, in %)

Age	Total number of checked	The number of destructions on the frontal plane								The number of destructions on the sagittal plane							
Scoliosis level		I (5^0-10^0)		II (11^0-30^0)		III (31^0-60^0)		IV (more 60^0)		I (5^0-10^0)		II (11^0-30^0)		III (31^0-60^0)		IV (more 60^0)	
Number and %		n	%	n	%	N	%	n	%	N	%	n	%	n	%	n	%

8	24	6	25,0	3	12,5	1	4,2	1	4,2	5	20,8	5	20,8	2	8,3	1	4,2
9	26	7	26,9	4	15,4	2	7,7	2	7,7	7	26,9	2	7,7	1	3,8	1	3,8
10	27	8	29,6	3	11,1	2	7,4	1	3,7	8	29,6	2	7,4	2	7,4	1	3,7
11	29	7	24,1	3	10,3	2	6,9	1	3,4	9	31,0	4	13,8	2	6,9	1	3,4
In total	106	28±0,8	26,4	13±0,5	12,3	7±0,5	6,6	5±0,5	4,7	29±1,7	27,4	13±1,5	12,3	7±0,5	6,6	4±0	3,8

For correction of the sagittal plane two additional exercises were chosen:
1) exercise which improves growth strengthens static force (it is tightened, pulls, hangs with weapon);
2) exercise which strengthens muscles of a back, a forearm and muscles of a shoulder.

When using special exercises for restoration of a kyphosis the main attention is paid to correction of a chest part of a backbone, at the same time not enough attention is paid to lumbar area. The analysis of physical fitness showed that results of anthropometrical indicators of trainees, scoliosis complications in the frontal and sagittal plane, in medical groups, improved after pedagogical experience, i.e. positive changes (tab. 3) were noted.

On the sagittal status of 8-year age one pupil from the IV group in the III group, 1 pupil from the 3rd group in the II group and 2 pupils of the 2nd group took place in I, and two from the pupil with the I degree of scoliosis could survive. One of the pupil was in the first place in the III group, and in group III changes were not. In group II two the pupil were enlisted in group I, and two of the I group were transferred to the main group without scoliosis complications. The total the pupil at the age of 8 flyings improved for 20.8%.

On the sagittal status of 9-year age one pupil from the IV group in the III group, 1 pupil from the III group in the II group, 1 pupil from group II of group in group I and the 7th pupil of group I were transferred to the main group without scoliosis complications. i.e. 26.9% had no scoliosis disease.

From 10-year-old pupils one pupil of the IV sagittal group passed to the III group, no changes in the III group were observed, 1 pupil from group II and 2 pupils from group I were enlisted. On the basis of disturbance of scoliosis in the frontal plane in group 8 pupils were grouped, 2 of them were transferred to the main group. Using special exercises during the poll, 14.8% the pupil show that they can play physical culture and sport without scoliosis.

Table 3.

Change of complications in structure of a body of pupils at the age of 8-11 (a final indicator, %)

Age	Total number of checked	The number of destructions on the frontal plane	Количество разрушений на сагитальной плоскастиThe number of destructions on the sagittal plane

Scoliosis level		I (5^0-10^0)		II (11^0-30^0)		III (31^0-60^0)		IV (high 60^0)		I (5^0-10^0)		II (11^0-30^0)		III (31^0-60^0)		IV (high 60^0)	
Number and %		n	%	n	%	n	%	n	%	N	%	N	%	n	%	n	%
8	19	6	25,0	1	4,2	2	8,3	0	0,0	4	16,7	4	16,7	2	8,3	0	0,0
9	19	7	26,9	1	3,8	2	7,7	1	3,8	5	19,2	2	7,7	1	3,8	0	0,0
10	23	9	33,3	2	7,4	1	3,7	0	0,0	7	25,9	1	3,7	3	11,1	0	0,0
11	22	6	20,7	2	6,9	1	3,4	1	3,4	9	31,0	2	6,9	1	3,4	0	0,0
In total	83	28±1,4	33,2	6±0,6	7,2	6±0,6	7,2	2±0,6	2,4	25±2,2	30,1	9±1,3	10,8	7±1	8,4	0	0

One higher rate was observed at 11-year-old. During the training in 4 groups with the 16 pupils, 11 pupils were enlisted from group in group, 4 of which were translated in the main group. On the first line of the fourth group was 1 pupil, there were changes in it, but for transition to group there was no sufficient growth. And also 3 pupils were brought from the II group to I-1 the pupil, from 2 groups on the I group 1 pupil and from the I group on the main. From 11-year-old 7 of 29 pupils were delivered in the main group and made 24.1%.

Conclusion. Scoliosis - a dangerous disease, unfortunately, it meets at children more often. Early prevention of this disease allows to reveal and eliminate risk of development of chronic pathology. During the experiment it became clear that children with use of the special program of exercises developed during the research had very effective treatment of scoliosis. At the beginning of the research was 106 pupil then 83 persons remained in 4 groups, 23 pupils were transferred to the main group so 21.7% were noted.

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