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Below is summarized translation of the study ***“Use of Method of Influencing Health Improvement of Individuals”*** (Practice HORA[®], author A.V. Atayan) as an Alternative Method of Maintaining and Correcting Posture and Flat-footedness in Elementary Age Children by Yu.Yu. Vishnyakova; Fedotova, T. V.; Belodedova, A. A. (Lesgaft NSU, St. Petersburg)

Abstract:

Use of "**Method of Influencing Health Improvement of Individuals**" (Practice HORA[®], author A.V. Atayan) as an Alternative Method of Maintaining and Correcting Posture and Flat-footedness in Elementary Age Children
by Yu.Yu. Vishnyakova; Fedotova, T. V.; Belodedova, A. A. (Lesgaft NSU, St. Petersburg)

"The Method of Influencing Health Improvement of Individuals" (Practice HORA), whose author is A.V. Atayan, is copyrighted in the Russian Federation by the Russian Patent Office (Patent No. 2121332 from 11/10/1998).

A.V. Atayan method for influencing improvements in health (Practice HORA) consists of the concurrent usage of pose, pressure with resistance, gymnastics, and also breathing exercises that produce sweat and growing heat in the body (allowing greater plasticity). These influencing exercises return function and form to the spine, improve the organs, give psychological relief and improve character in participants, and in personal health.

In conducting research, seven research groups from the ages of seven to eleven were organized. Participants all suffered from various degrees of clinically poor posture and flatfoot.

Results of a correction program indicated that

- 57% of children showed improvement in visibly poor posture, and
- 43% showed improvement in serious posture issues,
- flat-footedness was corrected in 43% of the children participating, and 57% of participants showed improvement.

This research was conducted under the auspices of the FGBOU VO "Lesgaft NSU, St. Petersburg" in the course of conducting research on "The Theory and Practical Application of Adaptive Physical Culture and Sport (improvements in mobility, education, upbringing and the social education of the individuals within the limits in terms of health)

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Introduction

Relevance. The changes in our country's society that have occurred in the past decade are characterized by the increased attention to the problems of the children who have poor posture and flatfeet, as well as the realization that these problems with Russian children have to be addressed as a priority on a nationwide level.

In the process of morphological development, the period of life of a human starting from the age of 6 is the most crucial time in the formation of a proper posture. At this stage of a growth spurt, children age 6 and 12-14 may develop defects of posture and flat feet.

A child's growth, development, and overall well-being, as well as the formation of a proper posture, are affected by the child's biological and social environment.

The main reason for the development of flatfoot is feebleness of muscles and ligaments that play a role in supporting the arch of the foot, but it can also be caused by tight footwear, especially the one with a narrow toe cap or a high heel, because it greatly reduces the natural flexibility of the foot.

The development of flatfoot and poor posture can be attributed to our inattentiveness to the lifestyle and activities we allow our children to engage in. The defects of posture are connected to the changes in the physiological curvature of the spine and their intensification or weakening in the sagittal plane. They are also characterized by the asymmetry in the shoulder girdle when one shoulder and shoulder blade is either higher or lower than the other. Forming of the posture is greatly affected by the condition of the lower extremities, specifically the flatfoot.

Flatfoot can be found in children rather often. That is why to prevent its development, it is important to diagnose this deformity in time and apply rational preventative measures. **Sedentary lifestyle makes the human organism practically defenseless against various diseases.**

In the past several years, for example, about 300,000 schoolchildren have been checked up in the Nizhny Novgorod country. The results have revealed that about 75% of them have disorders of the musculoskeletal system, 54% — spinal disorders (poor posture, scoliosis of the 1st and 2nd degrees), 15-23% — flatfeet, 14% — shortening of one of the legs, 12% — muscular weakness, lack of body mass, and about 9% of children have chest deformities.

It is presently known that conducting special complexes of physical exercises greatly reduce the probability of an occurrence and development of poor posture and flatfoot and, as a whole, aids in forming a physical health and well-rounded personality of a child. (Andreev Y.A., 1991; Bobyr' A.I., Nikitin V.V., 1999; Vasichkin V.I., 1997; Vydrin V.M., 1988; Evseyev S.P., 1996; Nikolaichuk L.V., Nikolaichuk E.V., 2004; Fonarev M.I., 1983; Hansen P., Taylor J., 1991; Yakovlev E., 1981).

Acknowledging a scientific value of the above mentioned materials, we believe it reasonable to study the possibility of implementing Adaptive Physical Culture (APC), massages, physiotherapy, breathing exercises, dynamic games, and swimming in remediating the poor posture and flat feet in grade-school children.

Clinical View on flatfoot

Flatfoot is a condition where the longitudinal or the transverse arch of one or two feet is flattened; combinations of both types of deformities are possible. In this condition, virtually the whole surface of the foot touches the floor (or the ground), and the footprint is missing the usual arch on the inside of the foot (pic. 1)

Most often, flatfoot develops in childhood when the load on the foot exceeds the capacity of its muscles. The earliest signs of flatfoot are dull pains in the foot, in the muscles of the shins, in the hips, and lower back. At the end of the day, one might have a swelling of the foot that goes away by the morning. As time goes by, the foot gets deformed, elongated, and widened in the middle. In more advanced stages of flatfoot, significant changes in the walk of the person are observed — it becomes awkward and forced.

Pic. 1. Footprints of adults



A. Normal footprint



B. flatfoot

Chapter 2. Goals, Methods, and Organization of the Study

2.1. Goals of the Study

The goal of the study is to collect the evidence that demonstrates the influence of the Adaptive Physical Culture and the “Method of Influencing Health Improvement of Individuals” (Practice HORA[®], author A.V. Atayan) on the alleviation and elimination of poor posture and flatfoot in grade-school children as well as these methods’ value in preventing the above mentioned disorders.

Objectives of the study:

1. To learn the contemporary methods of diagnosing and correcting flatfoot and poor posture among grade-school children; to discover the importance of their prevention and correction.
2. To design the complex of tools of APC to correct posture disorders and flatfoot in grade-school children by means of physical exercises and massage as well as the application of “Method of Influencing Health Improvement of Individuals” (Practice HORA[®], author A.V. Atayan) as an alternative method for prevention and of correction of malforming of children’s musculoskeletal system, eliminating existing deformities in the posture and arch of foot.
3. To evaluate the effectiveness of existing programs that are designed to correct poor posture and flatfoot in grade-school children.

The complex of exercises with children using “Method of Influencing Health Improvement of Individuals” (Practice HORA, author A.V. Atayan) is presented in Attachment 5 of the original study package (not included in this translation). In the process of initial screening to form the experimental group, seven children ages 7 to 11 were selected. It can be seen in Table 10 that mostly grade-school children participated in the study — 3 boys and 4 girls.

The results of the screening of the experimental group are presented in the test card in Attachment 2 of the original study package (not included in this translation).

Table 10: General information about the study subjects on whom “Method of Influencing Health Improvement of Individuals” (Practice HORA, author A.V. Atayan) was used

Child's initials	Age (years)	Gender
Experimental Group		
1. T.O.	9	F
2. H.A.	11	F
3. E.M.	7	M
4. B.CH.	9	M
5. T.G.	8	F
6. A.G.	10	M
7. I.T.	9	F
Average age	F - 9 M - 8	M – 3 indiv., F – 4 indiv.

The results on the test card revealed that the children in the experimental group have indications of flatfoot; poor posture, mobility of the spine, endurance of the extensor muscles of the back, and abdominal muscles (Table 11).

Thus, after the initial diagnostics of the children in the experimental group, we received the following results (Table 12)

Table 12: Aggregated data of the initial diagnostics of the children in the experimental group

Indicators of the initial diagnostics	Experimental Group	
	# of Participants	%
1	2	3
Posture deviation: - normal (N) -minor deviations (+) -major deviations (++)	0 4 3	0% 57% 43%
Plantography (Shtriter index), %: -hollow foot 0-40% (+) -normal 40-50% (N) -flatfoot 50-100% (++)	0 0 7	0% 0% 100%
Plantography (Godunov index): -normal (N) -1st degree flatfoot -2nd degree flatfoot -3rd degree flatfoot (+++)	0 3 4 0	0% 43% 57% 0%
Podometry (Freeland index) -normal 29-31 (N) -deviation (-)	0 7	0% 100%
Backward mobility of spine, cm. -normal 9-10 cm (N) -limited mobility, less than 9 cm	1 6	14% 86%
Extensor muscle endurance of the back: -normal 1-2 min (N) -deviation less than 1 min. (-)	1 6	14% 86%
Endurance of abdominal muscles: -normal 15-20 times(N) -deviation less than 15 times (-)	1 6	14% 86%

Thus, after studying the children in the experimental group, we concluded that they have various degrees of flatfoot and poor posture.

Based on the aggregated data collected during the initial diagnostics, it was found that in the experimental group:

- 57% of children have minor deviations related to poor posture, and 43% of children have major deviations from the norm.
- Flat foot was found in 100% of children; among those, 43% have 1st degree flatfoot and 57% have 2nd degree flatfoot;
- 86% of children have deviations from the norm in Pic. 1. Footprints of adult mobility of the spine, extensor muscle and abdominal muscle endurance.

Pic. 1. Footprints of adults The children in the experimental group were taken through correction program based on the "Method of Influencing Health Improvement of Individuals" (Practice HORA[®], author A.V. Atayan) as an alternative method for prevention and correction of malforming of children's musculoskeletal system; the method specifically aids in elimination of present deformities in the arch of the foot and in the posture.

The participants in the experimental group were participating in the individualized classes twice a week, 35-40 minutes each session, for two months. The focus of the sessions was on correcting poor posture and flatfoot. The effectiveness of the method was evaluated based on mathematical analysis and processing of the quantitative data. Also, overall well-being of the children and the presence (or absence) of complaints were taken into consideration.

After the final stage of the application of "Method of Influencing Health Improvement of Individuals" (Practice HORA, author A.V. Atayan), the children who had poor posture and flatfoot were examined once again to compare the quantitative data and evaluate the effectiveness of the method. Thereby, after the second set of diagnostics, we have received the following results in the experimental group. (table 14)

Table 14: Comparative analysis of the test cards of the experimental group before and after the experiment

Poor posture	Result			
	Before experiment		After experiment	
	# Kids	%	# Kids	%
Normal (N)	0	0%	4	57%
Minor deviations (+)	4	57%	3	43%
Major deviations (++)	3	43%	0	0%

Thus, after the secondary diagnostics of flatfoot, we received the following results in the experimental group (Table 16).

Table 16: Comparative data of the secondary diagnostics of flatfoot in the experimental group

Flatfoot	Result			
	Before experiment		After experiment	
	# Kids	%	# Kids	%
Normal	0	0%	3	43%
1st degree flatfoot	3	43%	4	57%
2nd degree flatfoot	4	57%	0	0%