

**2. HUMAN PLUS MOTION**

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**Аннотация.** С каждым годом физическая активность детей снижается, что обусловлено возросшим интересом к цифровому миру, который предполагает физическую пассивность. Малоподвижный образ жизни ребенка может привести к неразвитию таких качеств, как ловкость и гибкость, обеспечивающих хорошую физическую подготовку человека, а значит, и его здоровье. Авторы видят решение данной проблемы в использовании танцевальных и фитнес упражнений. В настоящее время фитнес и танцы являются одним из наиболее популярных направлений деятельности детей, в том числе и дошкольного возраста, и не вызывают отрицательных эмоций, как, например, занятия физической культурой. В данной статье представлены результаты эксперимента, проведенного на базе дошкольной образовательной организации «Центр развития ребенка – детский сад № 165» г. Магнитогорска. Целью исследования являлась проверка гипотезы, что танцы и занятия фитнес-аэробикой позволяют развить у детей такие физические качества, как гибкость и ловкость. Исследование осуществлялось с опорой на труды известных методологов в области физического развития детей дошкольного возраста, а инструментами исследования стали методики по определению ловкости В. И. Ляха, В. Г. Гришина, Е. Н. Вавиловой, а также по установлению уровня сформированности гибкости по методике Л. Б. Лагутина. Экспериментальная работа проводилась в полевых условиях, полученные данные носят первичный характер. В статье представлены результаты эксперимента, которые показали положительную динамику по развитию ловкости и гибкости у детей после проведения с ними танцевальных занятий и фитнес-аэробики. Поэтому разработанные и представленные в работе комплексы упражнений могут эффективно применяться при решении поставленной задачи.

**Ключевые слова:** физические качества, ловкость, гибкость, танцевальные упражнения, фитнес-аэробика, дети старшего дошкольного возраста, физическое развитие.

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**Abstract.** Every year the physical activity of children decreases, which is due to the increased interest in the digital world, which implies physical inactivity. A sedentary lifestyle of a child can lead to the underdevelopment of such qualities as agility and flexibility, which ensure good physical fitness of a person, and therefore their health. However, we see a solution to this problem in the use of dance and fitness exercises. Currently, fitness and dancing are some of the most popular activities for children, including those of preschool age, and, unlike physical education, do not cause negative emotions. This article presents the results of an experiment conducted on the basis of the preschool educational organization “Child Development Center - Kindergarten no.165” in the city of Magnitogorsk. The aim of the study was to test the hypothesis that dancing and fitness aerobics can develop in children such physical qualities as flexibility and agility. The study was carried out based on the works of well-known methodologists in the field of physical development of preschool children, and the research tools were methods to determine dexterity worked out by V. I. Lyakh, V. G. Grishin, E. N. Vavilova, as well as to establish the level of flexibility development according to the method of L. B. Lagutin. The experimental work was carried out in the field, and the obtained data are of a primary nature. The article also presents the results of the experiment which showed positive dynamics in the development of dexterity and flexibility in children after conducting dance classes and fitness aerobics with them. Therefore, the complexes of exercises developed and presented in the work can be effectively used in solving the task.

**Keywords:** physical qualities, dexterity, flexibility, dance exercises, fitness aerobics, senior preschool children, physical development

**Introduction**

In the modern world, special attention has been paid to the problems of preserving the health of senior

preschool children in the digital era. Excessive use of gadgets, immersion in virtual reality through simulators significantly reduces the physical activity of children, which, of course, is an alarm signal. The authors of the article «Comprehensive health care support for older preschool children» note that at present it is necessary to use educational technologies that will «contribute to the improvement of the younger generation of Russians, the purposeful development of the child, the formation of their needs, readiness to be prosperous» [23], which means to be healthy. In this regard, the state sets the most important task for preschool educational organizations (pre-school) – the preservation and development of the intellectual and physical qualities of the child, and the methods and means of work should meet modern trends in education. We have chosen dancing and fitness as methods of working with preschool children, the use of which allows us to develop such physical qualities as flexibility and dexterity.

### ***Methodology***

The methodological basis of the study are the works related to:

– the theoretical foundations of the problems to develop flexibility and dexterity in senior preschool children, which we find in the works of such researchers as V. I. Lyakh [9], E. V. Bondarenko [2], N. A. Bernstein [1], V. N. Shebeko [22], A. B. Lagutin [8] and others;

– studies of the influence of dance exercises on the development of flexibility and dexterity of older preschoolers. Researchers such as O. N. Rybkina, [18], E. G. Saikina [19], A. Nelson [13] and others were engaged in solving this problem;

– the peculiarities of the organization of pedagogical activity in preschool institutions. Research on this problem can be found in the works of O. N. Rybkina [18], E. A. Pokrovsky [15], N. N. Bumar [4], E. V. Sulim [21], Yu. V. Semenov [20] and others.

Researcher N. A. Bernstein writes about the need to develop dexterity [1]. He experimentally proves that it is dexterity that ensures coordination of movements and spatial accuracy. And dexterity, in turn, is inseparably connected with flexibility, the development of which is possible when you perform special physical exercises.

Researcher V. Ya. Rusakov [17] noted that exercises aimed at developing flexibility contribute to strengthening joints, increasing the strength and elasticity of muscles, ligaments and tendons, improving the coordination of the neuromuscular system, which largely prevents the occurrence of injuries of the musculoskeletal system.

In the study, we hypothesized that dancing and fitness allow children to develop such physical qualities as flexibility and dexterity. Dance exercises consist of fitness aerobics, movements, steps and gymnastics accompanied by dance. One of the advantages of fitness aerobics is the fact that, unlike in professional sports and sports aerobics, there are no risky and traumatic elements here. [19].

Children's fitness aerobics combines various general strengthening exercises. Classes can consist of exercises strengthening the muscles of the back, as well as exercises with objects, choreography and other types of physical activity [8]. In such classes, children not only develop dexterity and flexibility, but also splash out the accumulated energy by playing with other children.

The use of elements of dance exercises in preschool (in physical education classes, as part of additional education) allows children to increase the amount of motor activity, the level of physical fitness, introduces the capabilities of the body, teaches them to get pleasure and confidence from movements and physical activity, increases interest in physical exercises and, as a result, improves their health [21].

During such classes, children train their cardiovascular and respiratory systems, develop general endurance, acquire motor skills and abilities that contribute to strengthening the health of preschoolers, and develop interest and need for physical education and sports. Simulator sessions start with simple exercises from the very beginning of the lesson.

Fitness aerobics can be started from early preschool age. During classes, the child's flexibility develops, the correct posture is formed and relaxation of all muscle groups of the musculoskeletal system is achieved. Purposeful development of flexibility should begin from the age of 6-7 since at this age, flexibility develops almost twice as effectively as at senior school age. This is due to the fact that children of this age have a great extensibility of the musculo-ligamentous apparatus.

It is advisable to first perform flexibility exercises with an incomplete swing, for example, do 2–3 half inclines, and then a full incline, 2-3 half squats, then deep squats. This is necessary in order to prepare the muscles and not get injured from the amplitude and sharp execution of the movement. Flexibility exercises also include exercises such as bridge, splits, fold etc. Play stretching exercises are interesting for children as

they have clear names for children (animals or imitation actions) and are performed in the course of role-play games that are based on a fairy-tale scenario. The lesson offers a fairy tale game where children turn into various animals, insects, and physical exercises are performed in this form.

With the imitation of the image, children get acquainted with the technique of sports and dance movements and games, with their help, children develop creative and motor activity, memory, orientation in space, reaction speed, attention. The effectiveness of imitative movements lies in the fact that through images it is possible to carry out frequent changes in motor activity from various starting positions and with a wide variety of types of movement, which gives a good physical load on all muscle groups [5].

Fitness aerobics for children, as well as any other physical education classes, consists of a preparatory, main and final part. During a 10-minute warm-up, it is best to focus on exercises aimed at general development and strengthening of the body. It is better to start classes for children with static exercises for flexibility and warming up of all muscle groups. After such exercises, you can move on to walking and running exercises [3].

Now fitness aerobics is a very popular trend, and it is divided into several types according to Figure 1.

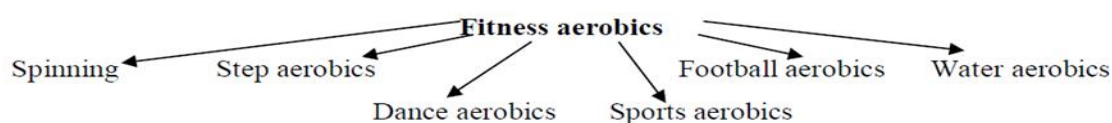


Figure 1 - Types of fitness aerobics

Step aerobics must be included in classes as it helps to develop joints and shape the arch of the foot, develops endurance, coordination and balance, trains the heart and the vestibular apparatus, and normalizes blood pressure. Also, this kind of fitness aerobics is quite effective for those muscle groups that are very difficult to use: buttocks, back of the thigh and the adductor muscles of the thighs [11].

Exercises with objects allow you to strengthen different muscle groups, develop dexterity, attention, increase flexibility, and most importantly, arouse interest in children. When you develop a fitness aerobics program for older preschool children, it is necessary to take into account the following theoretical conditions:

- physical exercises are selected taking into account the anatomical, physiological, psychological and pedagogical characteristics of schoolchildren;
- the child's actions related to movements and bodily sensations, being repeated many times, gradually move into the inner plane, forming into concepts;
- games develop motor improvisations, communication skills and the expressiveness of non-verbal means of communication: gestures, pantomime, facial expressions, intonation. The effectiveness of communication largely depends on its emotionally expressive side;
- music is of great importance when you work with older preschool children. Voice and motor self-expression to music can be considered as the most important means of developing the emotional-bodily experience of the child and their personality as a whole;
- game situations help children to build friendly relationships with others. Dancing games with changing partners remove artificial barriers and create equal communication conditions for everyone;
- the organization of the lesson should encourage the child to fill the entire space of the hall where the game, relay race etc. takes place. This is very important so that the child can navigate in it and not be afraid to make a variety of movements. Therefore, fitness aerobics is an unusual and interesting means of developing physical qualities in children, where exercises are performed by children with interest, and the emotional background of children improves.

The experimental basis for conducting research on the hypothesis was the Municipal preschool educational institution «Child Development Center – Kindergarten Number 165» of the city of Magnitogorsk. The study, which engaged 17 older preschool children, was conducted from September 2020 to June 2021.

The diagnostics of the level of developing dexterity and flexibility of older preschool children was carried out by a teacher, while a nurse monitored the condition of children, their reaction to the performance of this motor task. In order to find the initial level of the basic physical qualities of senior preschool children, testing was carried out as part of a class (directly educational activity) in physical culture. Before performing

these exercises, there was a warm-up which contained walking, running, breathing and other preparatory exercises.

It is advisable to divide the development indicators of the level of dexterity and flexibility by gender and age groups (boys and girls). To obtain objective data, the primary and repeated examinations were carried out under the same conditions. The test result is counted if the child coped with the task in accordance with the diagnostic method. Comments and error analysis are not allowed during the performance of test tasks (they must be considered in the learning process). The following safety measures were observed when children were tested for agility and flexibility:

- the tests corresponded to the age characteristics of the children and took into account their state of health and development;
- children who had no contraindications to the performance of control tests for health reasons were admitted to the examination;
- special attention was paid to children with increased excitability and motor disinhibition;
- the examination was performed no earlier than 30 minutes after eating;
- before testing, the child's body was prepared for the upcoming muscle load;
- insurance of children was carried out when performing endurance tasks and motor tasks, especially running and jumping.

### **Results**

The primary data were obtained in the field by the method of E.N. Vavilova [6]. The results are presented in Table 1.

Table 1

The results of testing the level of dexterity development in children of the experimental group according to the method of E. N. Vavilova

Number	Full name	Time (seconds)	Dexterity development level
1.	girl 1	13.0	Average level
2.	boy 1	12.6	Average level
3.	girl 2	13.6	Low level
4.	boy 2	11.5	High level
5.	girl 3	13.2	Average level
6.	boy 3	13.3	Low level
7.	girl 4	14.0	Low level
8.	boy 4	11.3	High level
9.	boy 5	12.4	Average level
10.	girl 6	13.0	Average level
11.	boy 6	13.5	Low level
12.	girl 7	14.1	Low level
13.	girl 8	14.0	Low level
14.	boy 7	12.6	Average level
15.	girl 9	12.0	High level
16.	girl 10	13.3	Average level
17.	girl 11	11.6	High level

Also, the research methodology of muscle dexterity in distance running in older preschool children by V. I. Lyakh was used as a research tool [10]. The obtained results are presented in Table 2.

Table 2

The results of testing the level of dexterity of children in the experimental group according to the method of V. I. Lyakh [10]

Number	Full name	Time (seconds)	Dexterity development level
1.	girl1	5.0	High level
2.	boy 1	7.1	Low level
3.	girl 2	6.0	Average level
4.	boy 2	4.9	Average level
5.	girl 3	5.5	Average level

Number	Full name	Time (seconds)	Dexterity development level
6.	boy 3	4.9	Average level
7.	girl4	5.7	Average level
8.	boy 4	4.7	High level
9.	boy 5	7.4	Low level
10.	girl 6	7.8	Low level
11.	boy 6	5.0	Average level
12.	girl 7	6.1	Low level
13.	girl 8	6.2	Low level
14.	boy 7	5.5	Average level
15.	girl 9	6.0	Low level
16.	girl 10	5.1	High level
17.	girl11	5.7	Average level

The methodology by V. G. Grishin [7] for determining dexterity and coordination in older preschool children – throwing and catching a ball – gave us the following results presented in Table 3.

Table 3

The results of testing the level of dexterity of children in the experimental group according to the method of V. G. Grishin

Number	Full name	Attempt 1	Attempt 2	Level
1.	girl1	4	15	Average level
2.	boy 1	7	21	Average level
3.	girl2	12	26	Average level
4.	boy 2	11	29	Average level
5.	girl 3	7	14	Low level
6.	boy 3	25	19	Average level
7.	girl 4	29	30	High level
8.	boy 4	6	35	High level
9.	boy5	35	11	High level
10.	girl 6	5	18	Average level
11.	boy 6	13	14	Low level
12.	girl 7	4	20	Average level
13.	girl 8	6	22	Average level
14.	boy 7	11	15	Low level
15.	girl 9	6	16	Average level
16.	girl 10	10	30	High level
17.	girl 11	7	4	Low level

Table 4 shows the level of dexterity development in children of the experimental group obtained on the basis of the results of methods 1, 2 and 3 at the beginning of the experiment.

Table 4

The level of dexterity development in children of the experimental group at the beginning of the experiment

Number	Full name	The result of method 1	The result of method 2	The result of method 3	The final level of dexterity development
1.	girl 1	Average level	High level	Average level	Average level
2.	boy 1	Average level	Low level	Average level	Average level
3.	girl 2	Low level	Average level	Average level	Average level
4.	boy 2	High level	Average level	Average level	Average level
5.	girl 3	Average level	Average level	Low level	Average level
6.	boy 3	Low level	Average level	Average level	Average level

Number	Full name	The result of method 1	The result of method 2	The result of method 3	The final level of dexterity development
7.	girl 4	Low level	Average level	High level	High level
8.	boy4	High level	High level	High level	High level
9.	boy 5	Average level	Low level	High level	High level
10.	girl 6	Average level	Low level	Average level	Average level
11.	boy 6	Low level	Average level	Low level	Low level
12.	girl 7	Low level	Low level	Average level	Average level
13.	girl 8	Low level	Low level	Average level	Average level
14.	boy 7	Average level	Average level	Low level	Low level
15.	girl 9	High level	Low level	Average level	Average level
16.	girl 10	Average level	High level	High level	High level
17.	girl 11	High level	Average level	Low level	Low level

Therefore, after analyzing the results obtained, we found out that at the beginning of the experiment, the children of the experimental group had an average level of dexterity development, and 18 % of the pupils had a low level of dexterity development. Further study was aimed at establishing the level of development of flexibility in children of the experimental group according to the methodology of the author L. B. Lagutin [8]. Table 5 shows the results of testing the flexibility of children in the experimental group.

Table 5

The results of testing the level of flexibility of children of the experimental group according to the method of L.B. Lagutin

Number	Full name	Result (centimeters)	The level of flexibility development
1.	girl 1	5	Average level
2.	boy 1	3	Low level
3.	girl 2	8	High level
4.	boy 2	4	Average level
5.	girl 3	7	Average level
6.	boy 3	6	Average level
7.	girl 4	9	High level
8.	boy 4	8	High level
9.	boy 5	2	Low level
10.	girl 6	5	Average level
11.	boy 6	7	Average level
12.	girl 7	12	High level
13.	girl 8	8	High level
14.	boy 7	2	Low level
15.	girl 9	8	Average level
16.	girl 10	6	Average level
17.	girl 11	4	Average level

Thus, after analyzing the results presented in the tables, we found out that less than half of the children in this group had a high level of flexibility development. Therefore, we can say that the development level of flexibility at the beginning of the experiment in most children of the experimental group was normal or below normal. As a means to develop children's flexibility and dexterity to an average and high level, we have offered dance exercises, which are presented in a complex. Each complex is designed for one month. Complex number 1 was compiled using the exercises of A. Nelson [14].

1. Head tilts and turns. The starting position – basic stance, arms at sides.  
To the beat 1 and 2 tilt your head to the right side.  
To the beat 3 and 4 return to the starting position.

Do the same on the left side.

Repeat the exercise 3-4 times.

2. Exercise «Dunno» – raising and lowering the shoulders. The starting position – basic stance, arms at sides.

Raise and lower your shoulders to the beat.

Repeat the exercise 3-4 times.

3. Exercise «Swing» – lifting the shoulders in turn. The starting position – basic stance, arms at sides.

Lift your shoulders to the beat.

Repeat the exercise 3–4 times.

4. Circular shoulder movements. The starting position – basic stance, arms at sides.

Perform a circle movement with your shoulders to the beat 1, 2, 3, 4.

Perform a circle movement with your shoulders to the beat 1, 2.

Perform a circle movement with your shoulders to the beat 1.

Repeat the rotation in the opposite direction.

Repeat the exercise 3–4 times.

5. Exercise «Giraffe» – raising and lowering on tiptoe. The starting position – legs in dance position 6, knees together.

To the beat 1 and 2 stand on tiptoe, heels together;

To the beat 3 and 4 return to the starting position.

Repeat the exercise 4 times.

6. Exercise «Spring». The starting position – legs in dance position 6, arms at sides.

To the beat squat pressing the heels on the floor.

Repeat the exercise 3-4 times.

7. Exercise «Tumbler 1» – soft rolling on the floor from the tailbone to the neck and back. The starting position – lying on the floor, legs 90° wide, arms at sides. Musical timing 2/4:

To the beat 1 and 2 roll from the tailbone to the neck.

To the beat 3 and 4 roll with the pelvis pushing it back as much as possible.

8. Exercise «Tumbler 2» – pulling the body forward behind the arms, while the legs are on the floor in a 90° position. The starting position – lying on the floor, legs 90° wide, arms at sides. Musical timing 2/4:

To the beat 1 and 2 roll your body to the right leg.

To the beat 3 and 4 return to the starting position.

Do the same with the left leg.

Complex number 2 was compiled using the exercises of N. N. Bumar [4].

1. Exercise «Artists» is an exercise when you draw a circle with your head (chin). The starting position – basic stance, arms at sides.

To the beat 1 and 2 draw a circle with your head (chin) to the right side.

To the beat 3 and 4 draw a circle with your head (chin) to the left side.

Repeat the exercise 3-4 times.

2. Exercise «Dunno» is an exercise to draw a square with your shoulders in the air. The starting position – basic stance, arms at sides.

To the beat 1 and 2 draw a square with your shoulders forward.

To the beat 3 and 4 draw a square with your shoulders back.

Repeat the exercise 3-4 times.

3. Exercise «Medal» is an exercise when you move your chest back and forth. The starting position – basic stance, arms at sides.

To the beat 1 and 2 move your chest forward;

To the beat 3 and 4 move your chest back.

Repeat the exercise 6 times.

4. Exercise «Spring». The starting position – legs in dance position 6, arms at sides.

To the beat squat pressing the heels on the floor.

Repeat the exercise 3-4 times.

5. Exercise «Springboard» is jumping in the sixth position. The starting position – legs are in dance position 6, arms at hips.

Jump to the beat, stretch your knees in the air, land in a “spring”.

At first the jumps should be long, then small and fast ones.

Repeat the exercise 6 times.

6. Exercise «Sunny» helps to stretch the lateral muscles of the trunk, preserves the flexibility of the



spine, the mobility of the hip joints. The starting position is a wide stance, the right foot is turned outward, arms at sides.

To the beat 1-4 tilt to the right. With your left arm at hip, try to reach the wall (the side) with your right hand.

To the beat 5-8 stand in the tilt.

To the beat 1-4 slowly straighten up.

Do the same to the opposite side.

Repeat the exercise 3 times to each side.

7. Exercise «Berry» is aimed at the development of muscles and ligaments under the knees. The starting position: sitting on the floor, legs stretched forward, back straight, we try to press the knees hard into the floor and crush the invisible berry, while the socks are on themselves.

To the beat 1 and 2 press your knees to the floor;

To the beat 3 and 4 rest.

Repeat the exercise 6 times.

Complex Number 3 was compiled using the exercises of L. V. Morozova [12].

1. Exercise «Artists» is an exercise for drawing a circle with your head (chin) on the floor plane, with your ears on the wall plane and with your nose in front of you. The starting position – basic stance, arms at sides.

To the beat 1 and 2 draw a circle with your head on the right.

To the beat 3 and 4 draw a circle with your head on the left.

Repeat the exercise 3-4 times.

2. Exercise «Dunno» is an exercise in which we draw a circle with one shoulder in the air and a square with the other. The starting position is the basic stance, arms at sides.

To the beat 1 and 2 draw a circle with one shoulder in front of you.

To the beat 3 and 4 draw a square with the other shoulder behind you.

Repeat the exercise 3-4 times.

3. Exercise «Medal» is an exercise in which the chest moves to the right and left. The starting position is the basic stance, arms at sides.

To the beat 1 and 2 move your chest to the right.

To the beat 3 and 4 move your chest to the left.

Repeat the exercise 3-4 times.

4. Exercise «Spring» is an exercise with steps squatting on the heels with pressure on the floor. The starting position: legs are in dance position 6, arms at sides.

To the beat walk squatting on the heels with pressure on the floor.

Repeat the exercise 3-4 times.

5. Exercise «Tucked in» is jumping in the sixth position. The starting position: legs are in dance position 6, arms at hips.

To the beat bend your leg at the knee, bringing your foot up under you until your heel is touching your bottom, land in a “spring”.

At first, the jumps should be long, then small and fast.

Repeat the exercise 6 times.

6. Exercise «Mahi» is a stretch on the back of the thigh. The starting position: lying down, legs are in dance position 6, arms at sides.

To the beat, perform a sharp rise of the straight leg to the head.

Alternate the right and left legs.

Repeat the exercise 6 times for each leg.

7. Outdoor game «Sails»

The purpose is to restore breathing, reduce the excitement, develop the ability to feel part of a whole.

The music is calm, instrumental. The pace is slow.

This is an exercise for tension and relaxation. The group is built in the shape of a wedge, depicting a sailing ship.

Stage 1. At the teacher's command to “raise the sails”, everyone raises their hands to the sides, slightly pulling them back, and freezes, standing on tiptoes.

Stage 2. At the command “to lower the sails”, everyone lowers their arms, crouching down.

Stage 3. At the command “tailwind” the group moves forward, keeping the shape of the ship.

Stage 4. At the command “complete calm” everyone stops.



Repeat the exercise 3-4 times.

Below we offer complexes for the development of dexterity through fitness aerobics.

Complex Number 1 was compiled using exercises by E. A. Pokrovsky [15].

1. Exercise «Wave» is a side wave with the body. The starting position is the basic stand, arms at sides.

To the beat 1 and 2 wave your body to the right side;

To the beat 3 and 4 wave your body to the left.

Repeat the exercise 4 times in each direction.

2. Exercise «Sun» is based on stretching the body. The starting position is the basic stance, arms at hips.

To the beat 1-4 make a circular movement of the body to the right.

To the beat 5-8 make a circular movement of the body to the left.

Repeat the exercise 4 times.

3. Exercise «Horse» is aimed at developing mindfulness, dexterity.

The children line up and at first walk around the hall, then start running. The teacher sets the movement as a dance run, gallop, jumps, steps etc.

Repeat the exercise 2 times.

4. Outdoor game «Steam locomotive» is aimed at developing dexterity and ability to work in a team.

The children stand in a line, their hands on the shoulders of their neighbor. The first one sets the rhythm, the rest should adjust to it. Repeat the exercise 4 times.

5. Outdoor game «Houses»

The purpose is the development of dexterity and a sense of rhythm. The children stand in their places at the points, when the music is turned on, they start to run, when the music is turned off, the children should run to their places in a short period of time.

6. Outdoor game «Figure».

The purpose is the development of dexterity, the ability to build figures in space, the ability to work in a team. The children improvise to the music, when the music is turned off, the teacher names the figure, and the children should line up according to the named figure by standing in a circle or line and raising their hands up.

Complex Number 2 was compiled using the exercises of V. I. Lyakh [9].

1. Exercise «Lock» is aimed at stretching the muscles of the arms and shoulders. The starting position is the basic stance, the hands are behind the back in “*a lock*”. To the beat 1 and 2 the children bend forward, trying to touch the floor with their hands. To the beat 3 and 4 the children return to the starting position. Repeat the exercise 6 times.

2. Exercise «Waves» with hands forward and to the side. The starting position is the basic stance.

To the beat 1–4 make a wave with the right hand. To the beat 4–8 make a wave with the left hand. Repeat the exercise 6 times for each hand.

3. Exercise «Ostrich» is a stretch on the back of the thigh. The starting position is the basic stance, arms are up. To the beat 1 and 2 bend forward, touch the floor with your palms. To the beat 3 and 4 return to the starting position. Repeat the exercise 8 times.

4. Outdoor game «The fastest dance»

The purpose is the development of dexterity, imagination, and attentiveness. The children improvise to music, the teacher sets the speed of movement from the slowest to the fastest. The children should react quickly and complete the task.

5. Outdoor game «Puppet»

The exercise is performed to music. The children are divided into pairs. One of the pair is a puppet, the second is a puppeteer. The child who plays the role of the puppeteer pulls the invisible strings that are attached to each part of the puppet’s body. The child who plays the role of the puppet should understand which part of the body and in what direction they should move. Then the children swap the roles.

5. Outdoor game «Ladoshka (The palm)».

The purpose is the development of dexterity, imagination, the ability to work in a team.

One volunteer is selected. The rest form a tight circle around him. The children in the circle put their palms on different levels. The child who stands in the circle should quickly touch all the palms with different parts of the body, moving to the music. Afterwards the children change the level and direction of their palms. Then the child who dances in the center is changed.

Complex Number 3 was compiled using the exercises of O. N. Rybkina [18].

1. Outdoor game «The Sly Fox».

The purpose is the development of dexterity and jogging skills. The players stand in a circle at a distance of one step from each other. To the side, outside the circle, is the house of the “fox”. At a signal from the teacher, the children close their eyes, and the teacher walks around them and touches one of the players, who becomes “the sly fox”. Then the children open their eyes and ask in chorus 3 times (with a small interval) (at first quietly, then louder): “Sly fox, where are you?” After the third time, «the sly fox» quickly runs out to the middle of the circle, raises their hands and says: *I'm here!* All the players run around, and “the sly fox” tries to catch them (touches their hands). After the “fox” catches 2-3 children and takes them to their house, the teacher says: «*In a circle!*». And the game resumes. If the «fox» cannot catch anyone, then a new «fox» is chosen.

## 2. Outdoor game «The deaf phone»

The purpose is to develop dexterity, attention, the ability to work in a team. The children stand in a line with their eyes closed, the first child sets the movement, shows his neighbor and closes his eyes, the neighbor shows the movement to the next person and so on until the end. At the end, everyone opens their eyes and looks at how accurately they managed to convey the movement. Then the game repeats.

At the end of the experiment, the levels of flexibility and dexterity development in older preschool children were determined. In total, 17 children were examined. To develop flexibility and dexterity, the sets of exercises which are described above were used throughout the year. At the end of the experiment, the same experimental group was retested using the techniques that had been used at the beginning of the experiment. The results of the development level of dexterity and flexibility in children of the experimental group at the end of the experiment are presented in Tables 6 and 7.

Table 6

The results of the study of the level of dexterity development in children of the experimental group at the end of the experiment

Number	Full name	The result of method 1	The result of method 2	The result of method 3	The final level of dexterity development
1.	girl 1	High level	Average level	High level	High level
2.	boy 1	Average level	Average level	High level	Average level
3.	girl 2	Average level	High level	Average level	Average level
4.	boy 2	Average level	Average level	Average level	Average level
5.	girl 3	High level	Average level	Average level	Average level
6.	boy 3	Low level	Average level	Low level	Low level
7.	girl 4	Average level	High level	High level	High level
8.	boy 4	High level	High level	Average level	High level
9.	boy 5	High level	Average level	High level	High level
10.	girl 6	Average level	Average level	Low level	Average level
11.	boy 6	Average level	Average level	Low level	Average level
12.	girl 7	Average level	Average level	Average level	Average level
13.	girl 8	Low level	Average level	Average level	Average level
14.	boy 7	Average level	High level	Average level	Average level
15.	girl 9	Average level	Average level	Average level	Average level
16.	girl 10	High level	Average level	High level	High level
17.	girl 11	High level	Average level	Average level	Average level

Table 7

The results of the study of the level of flexibility development in children of the experimental group at the end of the experiment

Number	Full name	The result of method 4	The result of method 5	The final level of dexterity development
1.	girl 1	Average level	Average level	Average level
2.	boy 1	Average level	Average level	Average level
3.	girl 2	High level	Average level	High level
4.	boy 2	Average level	Average level	Average level
5.	girl 3	High level	Average level	High level

Number	Full name	The result of method 4	The result of method 5	The final level of dexterity development
6.	boy 3	Low level	Average level	Low level
7.	girl 4	High level	High level	High level
8.	boy 4	High level	High level	High level
9.	boy 5	Low level	Average level	Average level
10.	girl 6	Average level	Average level	Average level
11.	boy 6	High level	Average level	High level
12.	girl 7	High level	High level	High level
13.	girl 8	High level	High level	High level
14.	boy 7	Average level	Low level	Low level
15.	girl 9	Average level	High level	High level
16.	girl 10	Average level	High level	High level
17.	girl 11	Average level	Average level	Average level

Throughout the experiment, the children's interest in fitness aerobics classes was not lost. The classes were supplemented with game moments and musical accompaniment, which, in our opinion, allowed to preserve the interest of children. Special emphasis was placed on the correct performance of each exercise, in order to avoid injury to children. To this end, the teacher corrected the children both verbally and haptically.

The comparative results of the ascertaining and control stages of the experiment are presented in Tables 8 and 9 and in Figures 2 and 3.

Table 8

Comparing the results of the study of the level of flexibility development in children of the experimental group at the beginning and at the end of the experiment

Levels of development	The ascertaining stage		The control stage	
	People	%	People	%
High level	4	24	5	29
Average level	9	52	11	65
Low level	4	24	1	6

Table 9

Comparing the results of the study of the level of dexterity development in children of the experimental group at the beginning and at the end of the experiment

Levels of development	The ascertaining stage		The control stage	
	People	%	People	%
High level	4	24	9	52
Average level	7	41	6	35
Low level	6	35	2	13

After analyzing the obtained results, it can be concluded that the level of flexibility development in children at the beginning of the experiment was lower. At the control stage, a high level of flexibility development was observed in 5 people (29 %), an average level – in 11 people (65 %) and a low level in 1 child (6 %).

The level of dexterity development in children at the beginning of the experiment was significantly lower. At the control stage the high level of dexterity development was observed in 9 people (53 %), the average level in 6 people (35 %) and the low level in 2 people (12 %). The results are shown in Figures 2 and 3.

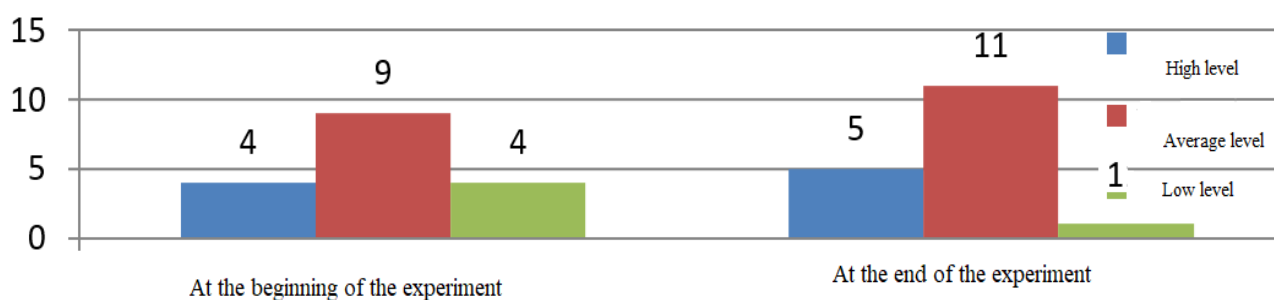


Figure 2 – The results of the study of the level of flexibility development in children of the experimental group at the beginning and end of the experiment

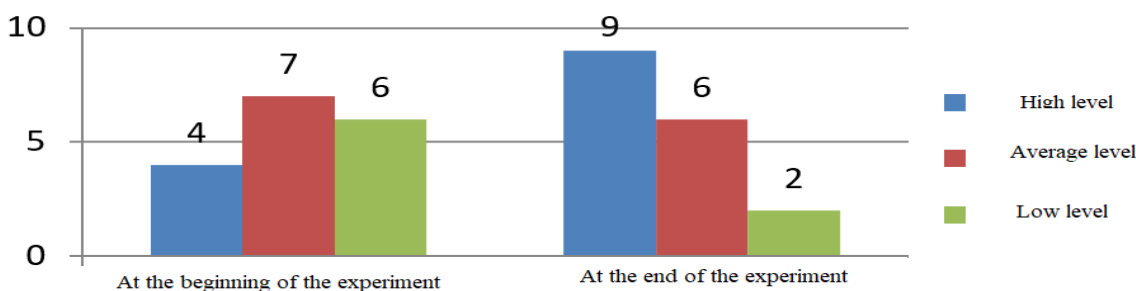


Figure 3 – The results of the study of the level of dexterity development in children of the experimental group at the beginning and end of the experiment

### Conclusion

In conclusion, the use of dance exercises for the development of flexibility and dexterity gives significant progress in the physical development of senior preschool children. At the beginning of the experimental work most of the pupils' dexterity and flexibility were at an average or low level, whereas the inclusion of dance exercises in the physical activity of children made it possible to significantly increase the level of flexibility and dexterity, activate cognitive activity, and cultivate a love for sports. The organization of dance activity and fitness aerobics allows children to develop physical qualities (dexterity and flexibility), which is certainly important for a modern child. The prospect of the study is the further use of dance activity and fitness aerobics technologies in the organization of project activities with preschool children. You can get acquainted with the directions of project activity and the specifics of its implementation and organization with pupils in the collective monograph "Project activity in preschool education" [16] and, taking into account the developed technologies, build successful and effective work with children.

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