

## ORIGINAL ARTICLES. PHYSICAL EDUCATION

### Technology of combination of physical exercises and poems about nature for integral development physical fitness and cognitive possibilities children of preschool age

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#### Abstract

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <b>Purpose</b>              | of this work is to highlight the features of the author's systems of integral development of preschool children.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Material and Methods</b> | The formative experiment was conducted on the basis of a kindergarten in Kharkov, Ukraine. Children from one of the older groups (n=20) were the experimental group; children of the other older group (n=21) were the control group. Before and after the formative experiment, testing was carried out, which was a control experiment. Before the formative experiment, the groups were identical in terms of physical fitness. Physical culture classes were combined with watching specially prepared drawings (Fig. 2) on the theme of poems accompanying the exercises. A system of lessons with newborns and infants with the help of dynamic exercises has been developed, as well as an author's system of lessons with children from 1 to 7 years old. The exercises are performed with verses about nature. |
| <b>Results</b>              | The use of dynamic gymnastics for newborns and infants "Nature Miracle" helps to strengthen the musculoskeletal system and all body systems; development of strength, flexibility, agility, endurance, and later - speed; prevention or reduction of child injuries during the subsequent development of walking, running, jumping, etc.; increasing resistance to adverse environmental influences; formation of a base for the tolerance of intellectual workloads associated with studies; creating a solid foundation for subsequent practice of any sport.                                                                                                                                                                                                                                                         |
| <b>Conclusions</b>          | It is shown that performing exercises not counting, but under poetic images, which is most acceptable for children from 1 year old, promotes integral development, reduces the feeling of fatigue, saturates emotionally classes, making gymnastics very attractive for children and adults.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Keywords</b>             | children, preschoolers, gymnastics, exercises, poetry, nature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## Анотація

**Жаннета Козіна, Олексій Козін, Софія Григор'єва, Валерія Хворост, Поліна Капарчук.**  
**Технології поєднання фізичних вправ та віршів про природу для інтегрального розвитку**  
**фізичної підготовленості і когнітивних можливостей дітей дошкільного віку**

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <b>Мета</b>              | освітити особливості авторських систем інтегрального розвитку дітей дошкільного віку.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Матеріал і методи</b> | Формуючий експеримент проводився на базі дитячого садка м. Харкова, Україна. Експериментальною групою були діти однієї зі старших груп (n=20); контрольною групою були діти іншої старшої групи (n=21). До і після формуального експерименту проводилося тестування, яке було контрольним. До формуального експерименту групи були ідентичними за рівнем фізичної підготовленості. Заняття з фізичної культури поєднувалися з переглядом спеціально підготовлених малюнків (рис. 2) на тему віршів, що супроводжують вправи. Розроблено систему занять з новонародженими та грудними дітьми за допомогою динамічних вправ, а також авторську систему занять з дітьми від 1 до 7 років. Вправи виконуються з віршами про природу. |
| <b>Результати</b>        | Застосування динамічної гімнастики для новонароджених і грудних дітей «Чудо природи» сприяє зміцненню опорно-рухового апарату і усіх систем організму; розвиток сили. Гнучкості, спритності, витривалості, а пізніше – швидкості; відвертанню або зменшенню дитячого травматизму при подальшому освоєнні ходьби, бігу, стрибків і так далі; підвищення стійкості до несприятливих дій довкілля; формуванню бази для переносимості інтелектуальних навантажень, пов'язаних з навчанням; створенню надійної основи для подальшого зайняття будь-якими видами спорту.                                                                                                                                                               |
| <b>Висновки</b>          | Показано, що виконання вправ не під рахунок, а під віршовані образи, що найприйнятніше для дітей від 1 року, сприяє інтегральному розвитку, знижує почуття втоми, насичує емоційно заняття, роблячи гімнастику дуже привабливою для дітей і дорослих.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Ключові слова</b>     | діти, дошкільнята, гімнастика, вправи, вірші, природа                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Introduction

Having a baby is the greatest joy and happiness in the life of most mums and dads. Everyone wants him to be happy, enjoy life, grow up healthy, beautiful, smart, kind ... What is needed for this? First of all, excellent physical development. The importance of early physical education can hardly be overestimated. In the early stages of life, physical development is closely related to the intellectual, emotional and even moral spheres. After all, only a healthy and strong child can truly fully show their talents, enjoy life, be kind and strong. At the same time, the mother gets rid of most of the problems associated with the baby's improper posture, frequent colds, injuries due to falls and poor

coordination, and even with the child's lack of independence (after all, a strong and dexterous person will quickly master the wisdom of eating, dressing, etc.) [1, 2, 3].

We offer gymnastics in verse for the smallest children: from birth to 1 year, from 1 to 7 years. The modern world requires not only high physical fitness, but also the development of the psyche and intellect. People with high indicators of both physical condition and intelligence and mental abilities reach the heights of world importance in almost all areas. Therefore, it is necessary to develop intellectual and mental abilities on a par with physical ones from childhood. This requires the development of simple, accessible, harmoniously developing

both physically and intellectually, and psychologically, methods [4, 5, 6].

Of particular relevance are the techniques that made it possible to work with children from birth to 1 year [7] and from 1 to 7 years [8–12]. Children of this age are practically not covered by the physical education system, being provided mainly exclusively to the field of pediatrics. But it is this age that is most important for both physical development and mental and intellectual [13–17].

Figurative thinking prevails in children. Therefore, the introduction of techniques that are based on poetry and fairy tales into the practice of physical education with kids will help to reveal hidden, still unknown talents in children and give a powerful impetus to their development [18–22]. Physical activity is the basis and “foundation” of a person who is developing. In combination with poems and fairy tales, it is an excellent means of harmonious development [23–26]. In addition, exercises that are displayed in vivid natural images are the most accessible for children due to the prevailing development of imaginative thinking. That is why we propose in the practice of physical education with children 1-5 years old the use of exercises performed to the verses [1, 3, 27, 28].

**The purpose** of this work is to highlight the features of the author's systems of integral development of preschool children.

## Material and Methods

### Procedure

Gymnastics in verse was held at physical culture lessons. Gymnastics was carried out after combat exercises. After gymnastics, relay races or outdoor games were held. The formative experiment lasted 10 weeks in 2021. The formative experiment was conducted on the basis of a kindergarten in Kharkov, Ukraine. Children from one of the older groups ( $n=20$ ) were the experimental group; children of the other older group ( $n=21$ ) were the control group. Before and after the formative experiment, testing was carried out,

which was a control experiment. Before the formative experiment, the groups were identical in terms of physical fitness. Physical culture classes were combined with watching specially prepared drawings (Fig. 2) on the theme of poems accompanying the exercises.

### Testing

Pedagogical testing was used to identify the influence of the gymnastics methodology in verse on the level of physical fitness of students. For this, the following tests were carried out:

1. Run 10 m (s);
2. Shuttle run 4x9 (c);
3. Standing long jump (cm);
4. Long jump with a running start (cm);
5. Raising the body from a prone position (number of times).

Testing was carried out before and after the formative pedagogical experiment with the use of gymnastics in subsided at physical education lessons in elementary grades.

### Methods of mathematical statistics

When processing the data obtained during the study, methods of mathematical statistics were used. Standard statistical indicators were calculated - arithmetic mean, standard deviation, error of the mean.

First, the correspondence of the samples to the normal distribution was determined according to standard methods. Since both samples corresponded to a normal distribution ( $p>0.05$ ), Student's method was applied. Prior to the start of the experiment, the groups did not significantly differ from each other ( $p>0.05$ ). The mean group values were compared using Student's t-test.

The data were processed using the EXEL computer program.

### The author's system of classes with preschools children

A system of lessons with newborns and infants with the help of dynamic exercises has been developed, as well as an author's system of

lessons with children from 1 to 7 years old. The exercises are performed with verses about nature.

The author's system of classes with children from 1 to 7 years old has been developed, which contains exercises performed with the whole body under verses about nature ("Little Wizards") [1, 2, 5, 6]. The pedagogical features of gymnastics in the poems "Little Wizards" are as follows: 1 - All-round development of the child, starting from 1 year old, through the implementation of exercises in the given poetic images; 2 - Fostering a sustainable need for physical education, starting from an early age; 3 - Improvement of the natural movements of the child through the implementation of exercises of the type of imitation of animals, according to the principle of wave-like movements; 4 - Possibility of doing gymnastics by parents and non-specialists in the field of physical education, i.e. the availability of the technique, the ease of its development and implementation.

Methodological features of gymnastics in the poems "Little Wizards": 1 - The presence of a sufficient number of exercises (48) for the age group from 1 to 3 years; 2 - Construction of exercises on the principle of alternating heavy and light, purely imitative, which allows you to alternate load and rest at fairly short intervals and is the most acceptable form of training with children 1-7 years old; 3 - Learning and performing exercises in a holistic way, with the whole body at once, without breaking into separate segments, which is most natural for the specified age group; 4 - The construction of movements on the principle of imitating animals, which facilitates the perception of exercises by young children, activates both ancient and relatively new brain structures, develops artistry, plasticity, expands the boundaries of the perception of the world [1, 2, 5, 6].

Poems of a set of exercises [1, 2, 3, 4]

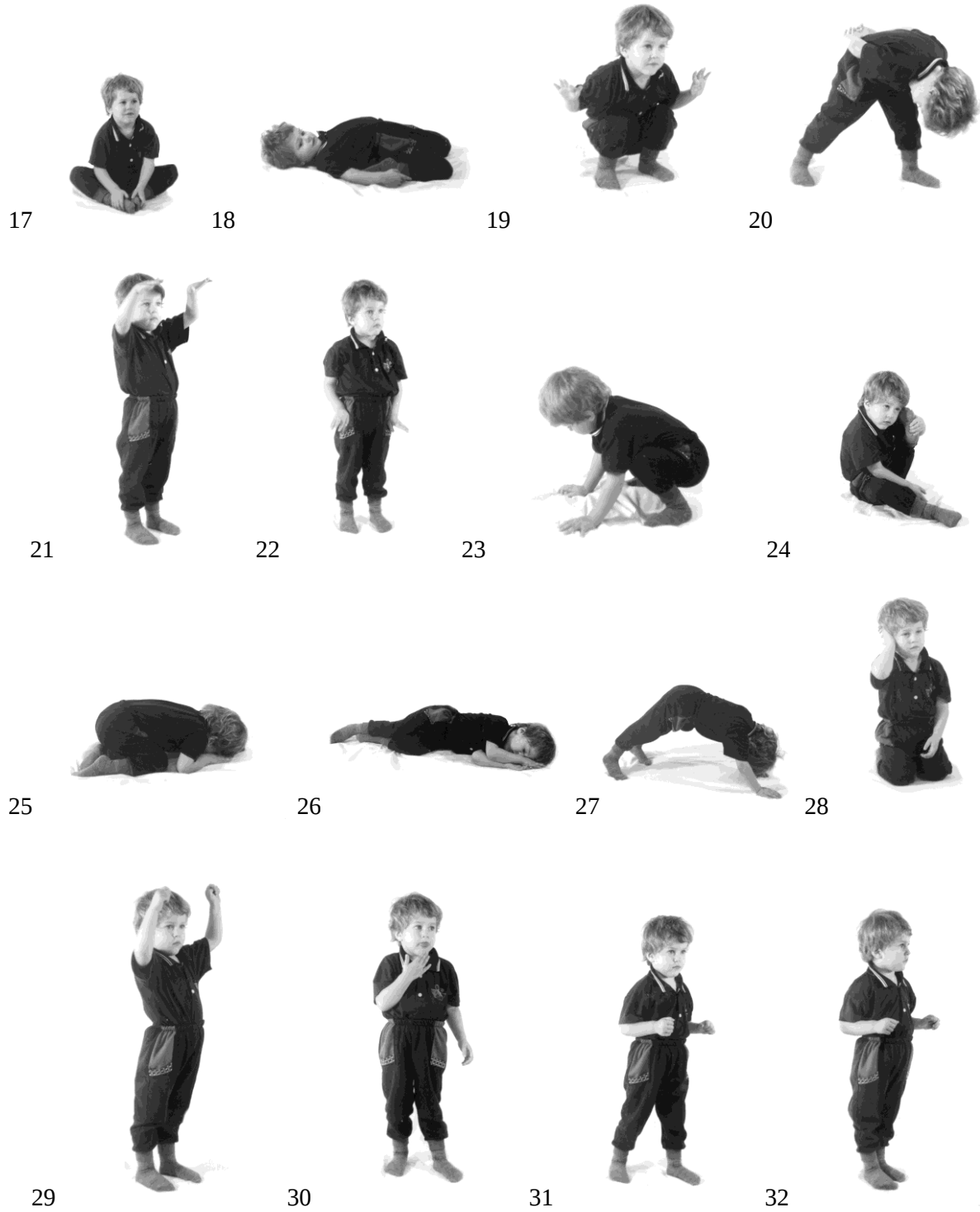
Little wizards

(Poems: Kozina Zh.L., Kozin V.Yu., English translation: Hruts I.D., Khyzhnyak O.)

1. The sun floats in the sky.

2. The high wind makes the grass reply.
3. When water bubbles in the brook,
4. The fox is wiggling her tail, look!
5. And as along a grass blade crawls snail,
6. A lizard climbs behind the leaf veil.
7. Once an elephant nods his head
8. A squirrel catches her tail end.
9. A brown bear digs for roots.
10. A mother hen rakes leaves with foot.
11. A wild cat tricks the fish into being caught:
12. An instant later there is no one else to spot.
13. The duck is swimming in the river.
14. And in the grass there is a viper.
15. The frog is jumping pretty fast.
16. The bunny's ears are pricked up.
17. The butterfly is sitting softly.
18. The fish is sleeping in the water.
19. The sparrow cavorts, twitting gaily.
20. The crow is finding something daily.
21. There is a dolphin in the sea.
22. A little penguin is on a trip.
23. A little bunny is jumping now
24. This dog is itching overnight
25. A mouse is sitting in a hole.
26. A bear in winter likes to snore.
27. The kitty is arching on her rear.
28. A little kitten washes her ear
29. The lazy bear climbs up a tree.
30. He binges on honey and starts to weep.
31. But he and our dog are like chalk and cheese:
32. The last one runs and hops, bites, licks.
33. A huge eagle swoops in the sky.
34. A flower has bloomed overnight.
35. Trees wave a heartfelt goodbye
36. And shamans dance around the fire.
37. A snow-white kid butts heads.
38. A ginger foal kicks with all four legs.
39. A clumsy panda rolls around
40. A furry gerbil digs in the sand.
41. An earthworm in the puddle crawls.
42. A hamster puffs his cheeks out like balls.
43. Among the stones a serpent creeps.
44. A hawk fast and agile sweeps.
45. A hedgehog curls up into a ball.
46. Then he uncurls and runs like wind blows.
47. The sun floats in the sky
48. And now everyone feels fine!





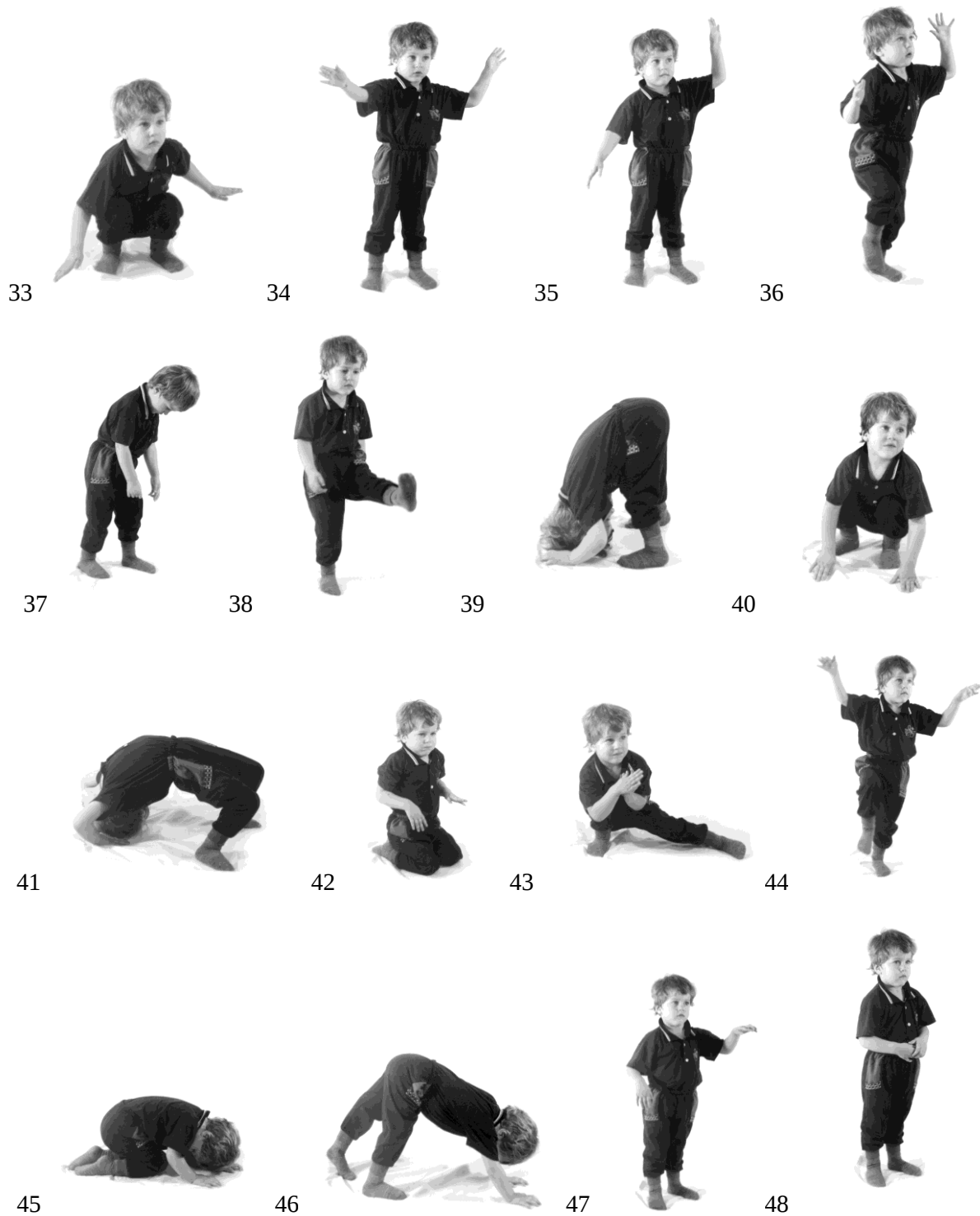


Fig 1. Illustration of exercises of the complex of gymnastics "Little Wizards" (source: photographs of the author – Kozina Z.)

## Description of exercises

### 1. The sun floats in the sky.

Standing straight, raise your arms up and slightly separate them to the sides, as if embracing a sun (Fig. 1). Walk in a circle for 1-2 minutes. This exercise helps balance the nervous system and builds a joyful perception of the world.

### 2. The high wind makes the grass reply.

Put one leg forward, raise the hands up. Bend forward, slightly bent in front of the standing leg at the knee. Make movements with the arms and body back 5-10 times, imitating how the wind blows a blade of grass (Fig. 2). This exercise builds on the manifestation of strength and awareness of the invisible, for example, the wind.

### 3. When water bubbles in the brook,

Put the legs apart, bend the arms at the elbows (Fig. 3). Move back with the handles with turns of the pelvis for 0.5-2 minutes. This exercise promotes relaxation and loosening of muscles and joints. It is desirable that when performing this exercise, the muscles vibrated like water in a stream.

### 4. The fox is wiggling her tail, look!

Stand on all fours, rotate the pelvis in all directions for 0.5-2 minutes (Fig. 4). It is necessary to emphasize the lifting of the coccyx, like a fox's tail. This exercise contributes to the normalization of many life processes. The image of a fox develops intelligence and the ability to quickly get out of difficult situations.

### 5. And as along a grass blade crawls snail,

Get up on one knee. Step with the other leg, pulling up the bent knee 5-10 times (Fig. 5). Then change the legs and repeat. This exercise strengthens ankle and knee joints, develops diligence and patience.

### 6. A lizard climbs behind the leaf veil

Get on all fours and move quickly-quickly for 0.5-2 minutes (Fig. 6). This exercise strengthens the knees and relieves and loosens the spine. This image teaches you to quickly respond to changing life conditions.

### 7. Once an elephant nods his head

Standing on all fours, slowly and importantly nod your head in different directions 5-10 times (Fig. 7a, 7b). This exercise helps to strengthen the cervical and thoracic parts of the spine, prevents posture disorders, and helps to normalize intracranial pressure. The image of an elephant develops strength, stability and balanced character.

### 8. A squirrel catches her tail end.

Crouch. Lean on the floor with your hands. Jump to move the legs around the handles. Rearrange the handles. Move the legs with a jump again, etc. 5-15 times (Fig. 8). The exercise evenly strengthens all muscles and joints, develops dexterity and jumping. The image of a squirrel develops speed and dexterity in decision-making.

### 9. A brown bear digs for roots.

Crouch. Make raking movements with the handles on the floor, simulating a bear digging roots for 0.5-2 min (Fig. 9). The exercise develops concentration and stable calmness.

### 10. A mother hen rakes leaves with foot.

While standing, make raking movements with your legs for 0.5-2 minutes (Fig. 10). One should strive to make as wide movements as possible with the leg, while maintaining balance. The exercise develops the ability to stay on one's feet, which is most relevant for the smallest.

### 11. A wild cat tricks the fish into being caught:

### 12. An instant later there is no one else to spot.

Sit down sharply, make a grasping movement with the handle, stand up, imitate eating food (Fig. 11-12). Repeat 5-10 times. Sharp exercise switches the work of large muscles to small ones, which is very important for the development of speech.

### 13. The duck is swimming in the river.

Lie on your stomach, bend your legs at the knees, grab your legs at the ankle joints with your hands, raise your head, bend over and rock back 5-10 times (Fig. 13). The exercise develops strength and flexibility of the back,

prevents and corrects posture disorders. The image of a duck in a river develops the perception of beauty and harmony.

14. And in the grass there is a viper.

a) Lie on your stomach, put your hands palms down at your shoulders in front of you. Unbend your arms, bend over, look right and left (Fig. 14). Stay in this position for 1-2 minutes.

b) The same, but the handles are connected behind the back. Hold this position as long as possible. Repeat 2-3 times. The exercise develops back strength and flexibility, improves blood circulation in the spine, and harmonizes all body functions. Prevents and corrects posture disorders, develops flexibility of character, determination and swiftness characteristic of the image of a snake.

15. The frog is jumping pretty fast.

Sit down (Fig. 15a). Jump forward, bending your legs at the knees (Fig. 15b) and land again in a squat position. Jump again, etc. 5-10 times or as desired. The exercise has a powerful strengthening effect on the leg muscles and stimulates the effect on the whole body. Develops jumpiness, trains the cardiovascular system. As the child's readiness increases, the number of jumps can be increased to 20-30 times or, at the child's request, performed in series of 5-10 times. The exercise concentrates the energy of positive emotions aimed at achieving the goal, like a frog jump.

16. The bunny's ears are pricked up.

Sit on your knees, imitate ears on your head with your palms for 1-2 minutes (Fig. 16). This exercise is a rest after unloading the previous exercise. It quickly switches attention and contributes to the saturation of the blood with oxygen, as a result of the expansion of the chest when the arms are raised. The gentle and soft image of the bunny helps to relax.

17. The butterfly is sitting softly

Sit down, connect the feet in the crotch. Separate the knees, trying to touch the floor with them (Fig. 17). Perform within 0.5-2 minutes. The exercise develops the flexibility of the hip joints and the elasticity of the leg muscles, improves blood circulation in the pelvic organs, prevents the occurrence and helps to treat diseases of the genitourinary sphere, large and small intestines. Reveals the perception of sophisticated beauty characteristic of the image of a butterfly.

18. The fish is sleeping in the water.

a) Sit on your knees, then slowly lie on your back.

b) Sit on your hips, bending your legs at the knees, bring your feet closer to your buttocks. Slowly lie on your back (Fig. 18). Perform 0.5-2 min. The exercise develops the elasticity of the quadriceps muscle of the thigh, which contributes to the formation of a beautiful shape of the legs, improves blood circulation in all organs of the abdominal cavity, especially in the pelvic region. The image of a fish sleeping under water activates and reveals the subconscious, unconscious mechanisms of movement regulation and management of life situations.

19. The sparrow cavorts, twitting gaily.

Squat, jump in a squat position, imitating the flapping of a sparrow's wings with the handles, 5-10 times (Fig. 19). The exercise has a powerful strengthening effect on all leg muscles, ankle, knee and hip joints, stimulates all body functions, especially the cardiovascular and nervous systems. Reveals the ability for quick, impulsive reactions to rapidly changing life circumstances.

20. The crow is finding something daily.

Stand up, hands behind your back. Step forward with straight legs with inclines for each step (Fig. 20). When bending over, only the pelvic area bends, the lumbar and thoracic sections of the spine remain straight. Take 10-15 steps with inclines. The exercise helps to consolidate the skills of correct posture and creates the foundations of thoughtful, measured behavior.

21. There is a dolphin in the sea.

Walk, making wave-like movements with the arms and body for 0.5-2 minutes (Fig. 21a, 21b).

The exercise improves the mobility of the spine, blood circulation in the intervertebral joints. Prevents the development of spinal pathologies and impaired cerebral circulation. The image of a swimming dolphin teaches you to achieve your goals smoothly and flexibly.

22. A little penguin is on a trip.

Take small steps, placing your feet apart and not bending your legs at the knees. Keep the handles straight along the body, move the hands to the sides (Fig. 22). The exercise affects the organs of the abdominal cavity due to the static tension of the muscles of the pelvis and hips, teaches diligence in work.

23. A little bunny is jumping now

Crouch. Lean on the floor with your hands in front of you. Pull the legs up to the handles with a jump. Move the handles forward. Jump up your legs again. Repeat 5-10 times

(Fig. 23). Exercise comprehensively and evenly strengthens all muscles and body functions. Develops coordination abilities, caution and sensitivity.

24. This dog is itching overnight

Sit down. Take the handle of the foot and scratch with it behind the ear or any other place on the head (Fig. 24a, 24b). Repeat with the other leg. Perform 0.5-1 min with each leg. The exercise develops the flexibility of the spine and hip joints simultaneously with head and ear massage, which has a stimulating and harmonizing effect on the entire body. Develops friendliness and sense of humor.

25. A mouse is sitting in a hole.

Sit on your knees, then lie with your stomach on your hips, head on the floor. Handles along the body (Fig. 25). It is in this position for 0.5-2 minutes. This is the pose of the embryo, the pose of rest, balancing emotions and bringing all the functions of the body to the primordial economic state of peace and unity with nature. It is no accident that animals and children like to sleep in this position.

26. A bear in winter likes to snore.

Lie on your side (Fig. 26). Simulate snoring for 0.5-2 minutes. Exercise — relaxation for large muscles and training of respiratory muscles. Develops artistry and the ability to deeply relax.

27. The kitty is arching on her rear.

Get on your knees, rest straight hands on the floor. Bend the back, lower the head. Then bend the back, raise the head. Repeat 5-10 times. The exercise strengthens the blood circulation of the spine, prevents the development of thoracic kyphosis and lumbar lordosis. Can be used for any posture disorders. Develops softness and flexibility of character.

28. A little kitten washes her ear

Sit on your knees, massage your ears for 0.5-2 minutes. A simple method of ear self-massage. Stimulates and harmonizes all body functions. Accustoms the child to cleanliness.

29. The lazy bear climbs up a tree.

While standing, raise your hands up. Squat, bending the arms at the elbows. Repeat 5-10 times.

30. He binges on honey and starts to weep.

Imitate eating honey, sticking out the tongue, and the roar of a bear for 0.5-1 min.

Exercises 29-30 strengthen the muscles of the legs and arms. They develop the muscles of the tongue and larynx, which contributes to the improvement of their speech functions. They develop coordination and artistry.

31. But he and our dog are like chalk and cheese:

32. The last one runs and hops, bites, licks.

Run and jump for 0.5-2 minutes, imitate biting and licking.

In these exercises, the child should be given enough time to run up and run up. This is the best tool for strengthening the cardiovascular, respiratory and nervous systems. After running and jumping, the imitative movements of biting and licking stimulate the speech and motor centers. Develop facial expressions and facial plasticity.

33. A huge eagle swoops in the sky.

Stand straight, hands to the sides. Slowly squat down, lowering your arms down.

34. A flower has bloomed overnight.

In a squat, join the palms in front of you. Slowly stand up, raising the arms up, and then separate them to the sides.

Exercises 33 and 34 are performed directly one after the other. If desired, they can be repeated up to 5-10 times. Exercises develop leg muscles, coordination of movements and contribute to the development of a sense of harmony and beauty.

35. Trees wave a heartfelt goodbye

Swing the handles up and to the sides for 0.5-1 min.

36. And shamans dance around the fire

Swing the handles, jumping from leg to leg for 0.5-1 min.

Exercises 35 and 36 have a comprehensive effect on the entire body and strengthen all muscles. They develop artistry, a sense of rhythm, and emotionally release. Contribute to deep merging with nature and develop understanding of nature and people.

37. A snow-white kid butts heads.

While standing, perform sharp tilts of the head, imitating the stabbing of the zapenyat 5-10 times. The exercise strengthens the neck muscles and develops determination.

38. A ginger foal kicks with all four legs.

Perform leg swings, imitating the kicking of a foal. Exercise strengthens leg and back muscles, improves balance and coordination. It is the simplest method of self-defense.

39. A clumsy panda rolls around

Perform forward and backward flips. Repeat 2-5 times. Exercise has a complex effect on the whole body, when mastered it causes a lot of positive emotions. At the very beginning of training, the child must be supported under

the head and slightly pushed under the buttocks, later - make sure that he takes his head away from the legs, bending the neck. The exercise develops the vestibular apparatus and helps to develop courage.

40. A furry gerbil digs in the sand.

Crouch. Perform small raking movements with the handles for 0.5-1 min. This exercise is a rest after overturning. Stimulates blood circulation in the hands and coordination of the hands, which is important for mastering various manual skills.

41. An earthworm in the puddle crawls.

Lie on your back. Legs should be bent at the knees, hands should be at the shoulders, palms down, fingers back. Raise the pelvis, back, shoulders, head, bend ("Bridge"). Hold for 20-30 seconds. The exercise has a strong stimulating and strengthening effect on the spine, back muscles, abdominal press, arms and legs, all body systems and functions. Learns to achieve one's goals.

42. A hamster puffs his cheeks out like balls.

Sit on your knees, arms bent at the elbows, hands in the chest with fingers down. Inflate and deflate the cheeks. Exercise is rest after the "bridge". When the cheeks are inflated, facial massage and strengthening of the facial muscles occur automatically. Prevents the appearance of early wrinkles in adults, promotes the stimulation of speech centers in children.

43. Among the stones a serpent creeps

Perform rollovers from leg to leg, connecting the palms to the chest, palms together and turning the fingers to the side of the movement. Repeat 5-10 times. The exercise strengthens leg muscles and develops coordination. The image of a crawling snake teaches to quietly, imperceptibly, but steadily move towards the intended goal.

44. A hawk fast and agile sweeps.

From a squat, perform a jump up, bending one leg at the knee and pulling it to the stomach. At the same time, quickly raise the handles to the sides. Repeat 2-5 times. The

exercise develops coordination and creates an image that calls for freedom and flight.

45. A hedgehog curls up into a ball.

Sit on your knees, bend forward, touch the floor with your head.

46. Then he uncurls and runs like wind blows.

Stand up, bend over and rest your hands on the floor. Move in this position for 0.5-2 minutes. Exercise has a comprehensive effect on the entire body, harmonizing all functions. Promotes the development of a sense of "groundedness" and security.

47. The sun floats in the sky

Make smooth movements with slightly bent handles up and down.

The exercise calms the nervous system and develops the ability to contemplate and observe.

48. And now everyone feels fine!

Massage the stomach



Fig. 2. An example of a specially prepared illustration for verses accompanying gymnastics (source: archive of the authors. Kaparchuk P.)

## Results

Results of the control experiment showed that the use of gymnastics in verse is a

very effective means of developing the physical qualities of younger students, as evidenced by the results of control tests.

Table 1. The results of testing students in the control and experimental groups before and after the experiment

| No | Name of the test                                          |                    | Statistical indicators ( $\bar{X} \pm \sigma$ ) |                      | t    | P     |
|----|-----------------------------------------------------------|--------------------|-------------------------------------------------|----------------------|------|-------|
|    |                                                           |                    | before the experiment                           | after the experiment |      |       |
| 1  | Running, 10 m (s)                                         | Control group      | 3,15±0,31                                       | 3,09±0,44            | 1,0  | >0,05 |
|    |                                                           | Experimental group | 3,17±0,59                                       | 2,95±0,34            | 2,05 | <0,05 |
| 2  | Shuttle run 4x9 m (s)                                     | Control group      | 14,7±0,87                                       | 14,54±0,88           | 0,14 | >0,05 |
|    |                                                           | Experimental group | 14,87±0,85                                      | 13,18±0,31           | 2,56 | <0,05 |
| 3  | Brain jump (cm)                                           | Control group      | 90,5±3,33                                       | 95,83±3,43           | 0,6  | >0,05 |
|    |                                                           | Experimental group | 87,5±2,38                                       | 103,75±2,87          | 2,2  | <0,05 |
| 4  | Running jump (cm)                                         | Control group      | 135,17±5,15                                     | 145,83±4,91          | 0,3  | >0,05 |
|    |                                                           | Experimental group | 136,5±9,14                                      | 159,25±7,23          | 2,67 | <0,05 |
| 6  | Raising the trunk from a lying position (number of times) | Control group      | 24,52±0,89                                      | 26,98±0,5            | 1,31 | >0,05 |
|    |                                                           | Experimental group | 23,87±0,48                                      | 32,84±0,51           | 2,6  | <0,05 |

So, after the experiment, the increase in results in the 10-meter run in the control group turned out to be unreliable, while in the experimental group it turned out to be 7.4%, which is significant at  $p < 0.05$ . The increase in results in the 4x9 shuttle run in the control group also turned out to be unreliable, while in the experimental group it turned out to be 9.1%, which is significant at  $p < 0.05$ . The results in standing and running long jumps did not change significantly in the control group, but in the experimental group they increased by 19.1 and 16.7%, which is significant at  $p < 0.05$ . The results of the test "lifting the body from the prone position" in the control group did not change significantly, and in the experimental group the increase was 37.58%, which is

significant at  $p < 0.05$ .

The results of pedagogical observations to identify the possibilities of using gymnastics in verse in physical education lessons at school showed the following.

The use of gymnastics in poetry has a significant impact on the nature of physical education lessons in elementary grades. Lessons become more emotionally saturated, their motor density increases. Performing exercises under poetic images, children come to rapture. This, on the one hand, creates a favorable environment for ensuring sufficient activity of students, their desire to independently complete all the exercises, including complex ones. An atmosphere of creativity, psychological comfort, joy is

created, which turns physical education lessons into a real holiday. The illusion of ease of exercise, which is provided by the figurative form of their presentation and poetic accompaniment, makes it possible to perform a sufficiently large load in terms of volume and intensity. Nevertheless, doing gymnastics in verse causes certain difficulties, especially for elementary school teachers. The stormy enthusiasm of children about gymnastics in verse causes certain disciplinary difficulties, and pedagogical talent is needed here in order to skillfully combine the joy of creativity and discipline in the lesson. Some exercises are organizationally complex (for example, somersaults), although these organizational features are difficult only for elementary school teachers, for a physical education specialist, the organization of such exercises does not seem difficult. When conducting gymnastics in verse, the frontal method of organizing students turned out to be the best.

In addition, the use of this technique opens up wide opportunities for independent physical exercises for children. As pedagogical observations have shown, already after the first two or three lessons, which included gymnastics in verse, almost all students began to perform the exercises they liked at home, in the classroom during breaks and at any time in suitable and inappropriate places for this. This indicates a high interest in a variety of physical exercises caused by this technique.

Conversations with educators, parents and children after applying this technique also showed a very high interest in gymnastics in verse, and, consequently, the effectiveness of its use. So, to the question about independent physical exercises at home in 90.8% of cases, the answers were positive. In addition, teachers noted that students perform these exercises even in the classroom during breaks on their own.

Here is an example of one of the conversations with a teacher of elementary grades.

#### **An excerpt from a conversation with a teacher of preschools children**

**Question.** What is the importance of

physical education for elementary school students?

**Answer.** Children of all ages, especially preschoolers, need movement. This is the guarantee of their health. Nowadays, online learning is becoming more and more popular. This leads to children spending most of their time sitting. In order for this not to cause health problems, physical culture should be given more attention. Usually children of this age are very fond of physical education lessons. Physical education lessons are also important because, in addition to promoting health, they develop attention, promote organization, cohesion of the class, give emotional relaxation, which is also of great importance for young schoolchildren. But for the harmonious development of physical education lessons 2-3 times a week, according to the school curriculum, is not enough. Therefore, it is very good when children are engaged in sports sections. Unfortunately, this is a very small percentage of students. Therefore, it would be very good if the children mastered the sets of exercises and practiced at home.

**Question.** What difficulties do educators experience in conducting physical education lessons?

**Answer.** First of all, these are difficulties of a disciplinary nature, organizational difficulties .. Therefore, many educators do not conduct them at all. Conducted only or very experienced, or aware of the need for physical education for children. In addition, for almost all educators, it is a certain difficulty to demonstrate and organize complex exercises. Maybe it would be better if physical education lessons were taught by specialists. Many educators simply do not want to "waste time" on physical education, they want to pay more attention to more "intellectual" subjects. In this regard, the use of gymnastics in verse, which activates the intellect, can help solve some of the problems and contradictions associated with physical education lessons in kindergartens.

**Question.** What methods and forms of conducting exercises do you consider the most appropriate for this contingent of students (combat exercises, general developmental exercises for counting, exercises for poetic

lines, a circular method of conducting a lesson, outdoor games, elements of sports movements, any other forms)?

**Answer.** For preschoolers, exercises for poetic lines are most suitable. We have been using such exercises for a long time as physical exercises. Most often, these are exercises for the fingers, but they do not constitute an exception. ia and other exercises (tilts, squats, etc.). As my many years of personal practice shows, usually it is these exercises, that is, under poetic lines, that children usually show their parents at home, perform them with great pleasure and enthusiasm. Therefore, for independent physical education at home, exercises for poetic lines are the most suitable. And the "Little Wizards" technique that we encountered is well suited for these purposes. A wide selection of a wide variety of exercises that comprehensively develop and contain elements of humor are very popular with children. Performing exercises to funny poems about nature develops memory, attention, gives emotional richness to classes, develops imaginative thinking, i.e. along with the development of physical qualities and skills, it activates the development of the intellect, which is especially important for younger students.

As for the most appropriate methods and forms of conducting physical education lessons, it can be said that any method and any form of conducting classes does its job if it is presented at a sufficiently high level in the right place and at the right time. Combat teams are of great importance for strengthening discipline, but they cannot be engaged in the entire lesson: after all, children also need physical activity. The usual general exercises for counting give a lot, but they are less emotionally saturated than exercises for poetry. Be sure to use outdoor games in the classroom, because. this most strongly activates the development of both physical qualities and quickness of thinking.

As our experience of conducting gymnastics in verse has shown, it is best not to give the entire complex in one lesson, because. it is large enough, and five to six exercises. In this case, the teacher has enough time to conduct both this technique and other planned material. It would be nice to organize special

seminars to study this technique.

## Discussion

Thus, in the process of conducting a formative experiment, it was revealed that gymnastics in verse in preschool children causes great delight and a desire to constantly repeat the exercises they like. The result of the gymnastics in verse was also a sharp increase in the number of children doing physical exercises at home on their own. Many educators noted the expediency of using this technique in kindergarten due to the fact that it contributes to the development of intellectual abilities, which is very relevant for the entire learning process [1, 2, 3].

The use of gymnastics in poetry, arousing great interest in physical exercises, contributes to the development of physical qualities, as evidenced by the test indicators. The data obtained testify to the expediency of using this technique in the practice of conducting physical education classes in kindergartens [1, 2, 3, 4].

Thus, the application of a fundamentally new method in kindergartens, built on integral movements of the "wave" type, as well as on the principle of imitating animals and performed under bright poetic images, has a complex positive effect on the physical, intellectual and mental development of children.

This effect is achieved due to the inclusion and synchronization of many nerve centers when performing exercises [23]. In addition, the language of images given by poetic lines is accessible and understandable both to children of the earliest age, and to later - fifth graders. This language is also attractive, which contributes to increasing interest in physical education and opens up new opportunities in the harmonious influence of physical education on personality formation. The proposed method evokes a lot of positive emotions in students, which also stimulates their desire for independent physical education [5, 6, 7].

The peculiarity of this technique, related to the complex, all-round influence of the child, that is, on intellectual and mental

development, is dictated primarily by the leading role of movements and touches in the intrauterine period of life, which remains for a long time after birth. The following division of holistic development into components is somewhat artificial, and the use of this technique returns the possibility of holistic harmonious development of the child by the means closest to the body - the means of physical culture. A person develops as a single system, and for a long time physical, mental and mental development are closely connected [18, 19, 27]. It is much more harmonious for a child not to divide his development into separate components, but to develop all of them at once. The proposed method has an immediate and complex effect on the child's physical, emotional, intellectual, artistic, language, and moral development. Physical development is achieved by performing a large number of exercises that provide a good physical load even for adults.

## Conclusions

The use of the author's techniques of exercises performed under poetic lines helps to strengthen the musculoskeletal system and all body systems; development of strength, flexibility, agility, endurance, and later - speed; prevention or reduction of child injuries during the subsequent development of walking, running, jumping, etc.; increasing resistance to adverse environmental influences; formation of a base for the tolerance of intellectual workloads associated with studies; creating a solid foundation for subsequent practice of any sport.

It is shown that performing exercises not counting, but under poetic images, promotes integral development, reduces the feeling of fatigue, saturates emotionally classes, making gymnastics very attractive for children.

## References

1. Kozina Z, Kozin V. Little wizards. Cheerful children's gymnastics in verses, Kharkov, 2009. 72 p.
2. Kozina Zh., Kozin VYu, Hruts ID Combination of physical exercises and poems about nature as an integral method of development of preschool children Health technologies, rehabilitation and physical therapy. Proceedings of the XIV International Scientific Conference, Kharkiv, 2021. 113-118
3. Kozina Z., Prokopenko I., Lahno O., Kozin S., Razumenko T., Osipov A. Integral method for the development of motor abilities and psycho-physiological functions in children from 2 to 4 years old. *Journal of Physical Education and Sport*. 2018;18(1):3-16. <https://doi.org/10.7752/jpes.2018.01001>
4. Kozina ZL, Kozin VY. Chudo prirody Dinamicheskaya gimnastika i plavanie dlya samyih malenkih [Nature miracle. Dynamic gymnastics and swimming for the youngest]. Kharkiv, 2009
5. Acosta PEG, Uribe RM, Ibarra IG, Murua JAH. Intervention in teachers for the development of psychomotor skills in preschool children. *Telos-Revista De Estudios Interdisciplinarios En Ciencias Sociales*. 2022;24(1):79-99.
6. Akinina MD, Sukhostayskaya KV, Kolpashnikova VS. Karate Classes as a Means of Motor and Psychomotor Training for Preschool Children. *Tomsk State University Journal*. 2019(448):187-92.
7. Artemenko B, Bystray E, Evtushenko I, Ivanova I, Kolosova I, Permyakova N. Method of physical education and health work in municipal preschool educational organizations: development of physical qualities in senior preschool children. *International Journal of Ecosystems and Ecology Science-Ijees*. 2022;12(4):297-304.
8. Cavadini T, Richard S, Dalla-Libera N, Gentaz E. Emotion knowledge, social behaviour and locomotor activity predict the mathematic performance in 706 preschool children. *Scientific Reports*. 2021;11(1).
9. Chau NTH. Some Measures to Improve the Effectiveness of Independence Education for Preschool Children from 4 to 5 Years

- Old. International Journal of Early Childhood Special Education. 2022;14(5):3132-6.
10. Duff C, Issartel J, O'Brien W, Belton S. Physical Activity and Fundamental Movement Skills of 3- to 5-Year-Old Children in Irish Preschool Services. *Journal of Motor Learning and Development*. 2019;7(3):354-73. 20.
  11. Fraijo-Sing BS, Sierra NIB, Tapia-Fonllem C, Penunuri RV. Pictographic Representations of the Word "Nature" in Preschool Education Children. *Frontiers in Psychology*. 2020;11.
  12. Kordi R, Nourian R, Ghayour M, Kordi M, Younesian A. Development and Evaluation of a Basic Physical and Sports Activity Program for Preschool Children in Nursery Schools in Iran: an Interventional Study. *Iranian Journal of Pediatrics*. 2012;22(3):357-63.
  13. Kornilaki EN, Skouteris H, Morris H. Developing connections between healthy living and environmental sustainability concepts in Cretan preschool children: a randomized trial. *Early Child Development and Care*. 2022;192(11):1685-98.
  14. Lam W, Fowler C, Dawson A. The approaches Hong Kong Chinese mothers adopt to teach their preschool children to prevent influenza: a multiple case study at household level. *Bmc Nursing*. 2016;15.
  15. Latorre-Roman PA, Guzman-Guzman IP, Parraga-Montilla JA, Caamano-Navarrete F, Salas-Sanchez J, Palomino-Devia C, et al. Healthy lifestyles and physical fitness are associated with abdominal obesity among Latin-American and Spanish preschool children: A cross-cultural study. *Pediatric Obesity*. 2022;17(7).
  16. Lindsay AC, Caires T, Le Q, Nogueira DL, Machado MMT, Greaney ML. Where Do Brazilian Immigrant Parents Obtain Information to Support the Healthful Energy Balance-related Behaviors of Their Preschool-age Children?: A Cross-sectional Study. *American Journal of Health Education*. 2022;53(1):23-34.
  17. Linh LT. Building Educational Environment in the Child-Centered Perspective: A Survey in Preschools in Thai Nguyen City, Thai Nguyen Province, Vietnam. *International Journal of Early Childhood Special Education*. 2021;13(2):940-7.
  18. Linh LT. Building Educational Environment in the Child-Centered Perspective: A Survey in Preschools in Thai Nguyen City, Thai Nguyen Province, Vietnam. *International Journal of Early Childhood Special Education*. 2021;13(2):940-7.
  19. Maatta S, Konttinen H, Figueiredo RAD, Haukkala A, Sajaniemi N, Erkkola M, et al. Individual-, home- and preschool-level correlates of preschool children's sedentary time. *Bmc Pediatrics*. 2020;20(1).
  20. Martzog P, Suggate SP. Screen media are associated with fine motor skill development in preschool children. *Early Childhood Research Quarterly*. 2022;60:363-73.
  21. 7th International Conference on Education and New Learning Technologies (EDULEARN); 2015 Jul 06-08; Barcelona, SPAIN2015.
  22. Mishchenko N, Romanova E, Kolokoltsev M, Kraynik V, Kubiyeveva S. Fitball as an effective means of strengthening the physical health of preschool children. *Educacion Fisica Y Ciencia*. 2021;23(1).
  23. Pate RR, Frongillo EA, Cordan K, Dowda M, McLain AC, Torres ME, et al. Linking Activity, Nutrition, and Child Health (LAUNCH): protocol for a longitudinal cohort study of children as they develop from infancy to preschool age. *Bmc Public Health*. 2020;20(1).
  24. Piziak V. Developing Educational Games for Preschool Children to Improve Dietary Choices and Exercise Capacity. *Sustainability*. 2021;13(6).
  25. Sobko T, Tse M, Kaplan M. A randomized controlled trial for families with preschool children - promoting healthy eating and active playtime by connecting to nature. *Bmc Public Health*. 2016;16.
  26. Tandon PS, Downing KL, Saelens BE, Christakis DA. Two Approaches to Increase Physical Activity for Preschool Children in Child Care Centers: A Matched-Pair Cluster-Randomized Trial. *International*

- Journal of Environmental Research and Public Health. 2019;16(20).
27. Violant-Holz V, Rodriguez-Silva C, Carol M, Rodriguez MJ. Impact of cocreation training capsules for preschool teachers on children's healthy habits: a pilot study conducted in Barcelona, Spain. BMC Public Health. 2021;21(1)
28. Voronova N, Pershikov S, Garina E, Pronkin N. Psychosomatic symptoms in preschool children and how to treat them. Rivista Di Psichiatria. 2022;57(2):88-93.

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