 ISSN: 2795-7624

Changes in Age-Dependent Lung Ventilation, Volume and Capacity of Children and Adolescents

Yakubova Guyokhan	Senior teacher of the Department of Theory and Methodology of Physical Culture
Khaydaraliyev Khurshid	Head of the Department of Theory and Methodology of Physical Culture
Alijonova Mahliyokhan	2nd year master Ferghana State University

ABSTRACT

The human respiratory system is also involved in the creation of speech sounds. The larynx plays the main role in sound production. When speaking and singing, the vocal folds tighten, the air coming out of the breath vibrates them, and part of the kinetic energy of the air flow of the sound is converted into acoustic energy that spreads around.

Keywords: Human respiratory system, speech sounds, acoustic energy, lung ventilation, volume of breath per minute, frequency of breathing, relative volume of breath per minute

And the amount of air passing through the lungs in q t unit depends on the depth and speed of lung ventilation -breathing . This 2k index of exhalation varies in a wide range . At rest, an adult inhales and exhales about 500 ml of air . This volume of air is called respiratory air. After a normal inhalation, a considerable amount of additional air may be taken in. This volume is called the additional volume of breathing and is 2000-2500 ml.

After taking a calm breath, 1500 ml of air can be exhaled again . This volume is called expiratory volume. The presence of additional volumes allows you to deepen the breath when necessary. The sum of inspired air, additional volume of inspiration and additional volume of exhalation constitutes the vital capacity of the lungs (O'S). Its volume is approximately 4000-4500 ml. This quantity can be measured at once . For this, a person needs to take a deep breath from the atmosphere as much as possible and expel the air from the lungs to the end of the spirometer . The vital capacity of the lungs is an indicator of the ability of the lungs and chest to expand. The amount of the indicator is variable and depends on age, gender, body size and position in space, and adaptation to physical work. The living capacity of the lungs is greater than when lying down. Exercisers have a greater lung capacity than non-exercisers. After exhaling to the end, 1000-1500 ml of air remains in the lungs, it is called residual air. An adult breathes 16-20 times a minute in a calm state. Assuming that the volume of breath is 500 ml, 8-10 l of air pass through the lungs during this time, or pulmonary ventilation is 8-10 *l* will be and depth of breathing . Breath volume per minute increases almost 10 times with age at rest .

Age-related changes in respiratory rate, body mass, relative respiratory rate, respiratory rate, and respiratory volume .

Age	Breath volume per minute L-min	Body mass in kg	Breath volume per minute is l-min	Breath frequency cycles min	A breath per minute ml
New born	720	3.5	206	44	16
1 year old	2000	10.5	200	35	57
5 years old	3900	19.6	199	25	156
8 years old	5350	29.2	183	22	243
12 years old	6000	39.7	151	18	333
16 years old	7700	55.4	139	17	453
Adults	7000	66.7	105	16	438

Occurs in the first year after birth . later , as it grows, this process is slow, especially in the period from 7 to 8 years and 10 to 11 years, and it accelerates during puberty.

The child grows , the living capacity of the lungs increases. The living capacity of the lungs in newborn children is 20 cm^3, 80 cm^3 in 1 year, 215 cm^3 in 5 years, 375 cm^3 in 12 years, and 300-460 cm^3 in an adult.

Gas exchange depends on the management of acid-base balance. For example, when a 5-year-old child exhales, the amount of CO_2 in the air is 3 times less than that of an adult . because the oxygen utilization percentage of the lungs of young children is 2 times lower than that of an adult. Due to the neurohumoral effect of the respiratory centers on the low content of CO_2 in the exhaled air , this excitation decreases with age.

Regular physical exercises allow expansion of lung volume, development of respiratory muscles, improve lung ventilation, and respiratory activity, in turn, has a positive effect on the function of the cardiovascular system and the function of other organs.

living in developing cities spends about 150,000 hours in his conscious life. When a person is sitting, oxygen consumption is only 2500 cm^3 per minute . It is enough to meet the most essential needs of the body. If a person constantly lives in such a state of scarcity, the disorder develops, causing hypodynamia or low mobility .

Walking in fresh air increases O_2 consumption by 1000 cm^3 per minute, running by 4000 cm^3. The alternation of inhalation and exhalation with the rhythm is provided by the nerve centers located in the cervical and thoracic sections of the spinal cord, medulla oblongata, and vertebral bridge. From them , nerve impulses go to the intercostal muscles and the diaphragm. The cells of the respiratory centers are functionally differentiated , and the excitation of the respiratory (inspiration) centers inhibits the exhalation (expiratory) centers. As the musculature contracts, the ribs rise and become somewhat horizontal, the diaphragm becomes dome-shaped and enters the thorax, which shrinks in size. Due to the elasticity of the lungs, they easily inflate and deflate and passively follow the movements of the chest. Nerve cells of the medulla are extremely sensitive to the concentration of oxygen and CO_2 gas in the blood. As a result of the increase in the concentration of CO_2 gas, an excitation occurs in its centers , this excitation spreads along the nerve fibers to the intercostal muscles and the diaphragm. As a result, breathing speeds up and deepens, the body receives the necessary amount of O_2. The first breath of a newborn child is explained by the accumulation of CO_2 gas and the lack of O_2.

The amount of oxygen consumed by muscles increases dramatically during physical activity. In order to meet this demand, the external breath is accelerated and the oxygen transport of the blood increases. At rest, a person absorbs 300 ml of oxygen every minute, while doing physical work, this amount reaches 400-500 ml. At the same time, the formation of carbon dioxide and substances of an acidic nature accelerates. In order to remove these and meet the tissue's need for oxygen, the respiratory and circulatory systems will have to increase their activity. As long as the physical work continues, lung ventilation will accelerate according to the amount of absorbed oxygen. The mechanisms of adaptation of the external breath to the severity of the work being performed are quite complex. With the start of work, before the gas composition of the blood has time to change, pulmonary ventilation accelerates. The effect of the nervous system on the respiratory center changes. Afferent impulses coming from the motor areas of the cerebral cortex, aimed at controlling the work of the muscles, affect the respiratory center and increase breathing. The effect of the bark on the breath can be carried out by changing the activity of the hypothalamic centers. The increase in pulmonary ventilation during work also depends on the afferent impulse from the proprioceptors of the contracting muscles. Hyperventilation, which is observed when the leg muscles are passively moving, can be a proof of this. As work progresses, the mechanism for maintaining high pulmonary ventilation changes. In this case, the excitation of peripheral and central chemoreceptors begins to significantly affect the respiratory center, if the work performed is not heavy, the increase in lung ventilation ensures that the gas content in the blood is almost the same, and the acid-alkaline balance ensures its preservation. In this condition, the blood circulation is also sufficiently accelerated. Heart rate increases from 70 to 150-200 beats per minute, systolic volume increases from 70 ml to 200 ml. As a result, the minute volume of blood, equal to 4-5 l at rest, increases to 25-30 l. The blood vessels of the working muscles expand and the blood supply is greatly improved. At the same time, the oxygen capacity of the blood also increases, because blood rich in erythrocytes begins to move from the reserves to the veins.

Acceleration of oxyhemoglobin decomposition in tissues is also important in improving oxygen supply to working muscles. The amount of oxygen in the active muscle tissue decreases sharply, due to the increase in the amount of carbon dioxide and lactic acid, the environment is pushed to the acidic side, and the temperature of the tissue rises. All these changes accelerate the breakdown of oxyhemoglobin. Because of this, the oxygen absorption coefficient during physical work increases from 30-40 % to 50-60%. If the work performed is very heavy , no matter how fast the external breathing and blood circulation is, it cannot fully satisfy the body's demand for oxygen, resulting in oxygen deficiency. For this reason, after the end of the work, for a certain period of time, pulmonary ventilation and blood circulation are maintained at a high level. During this period, the body absorbs more oxygen than it needs and eliminates its deficiency. Excess oxygen is used to oxidize lactic acid accumulated in the blood during work. Glucose is resynthesized from part of the lactic acid during rest.

are several factors that affect lung ventilation, but are not directly related to breath control , such as cold and hot temperatures. If the skin is strongly affected by heat and cold, the respiratory center is stimulated and lung ventilation increases. Overheating of the air temperature leads to hyperventilation. Hyperventilation is part of the body's reaction to maintain body temperature stability. Panting in hot temperatures is more pronounced in animals without sweat glands (for example, a dog). By breathing frequently, he achieves a lot of evaporation of the water in the tongue and saliva in the oral cavity, and in this way, heat loss. Even under the influence of cold air, the body temperature drops a little , and lung ventilation accelerates. This acceleration, on the one hand, is caused by a reflex from the skin receptors, and on the other hand, it depends on the increase in metabolism. However, if the body temperature drops significantly and hypothermia develops, breathing slows down due to inhibition of the respiratory center.

and animals living in high mountains (alpinists, skydivers, etc.) breathe air with low pressure. Most Soo' people can easily climb 2-2.5 km above sea level and have no difficulty breathing. As people rise to a height of 3-3.5 km , external breathing increases and symptoms of asthma begin to appear. When the altitude reaches 4-4.5 km, most people develop tooth disease. In this case, a person relaxes , turns pale, breathing slows down, arterial blood pressure decreases, dizziness, nausea and vomiting. When the height reaches 7 km, a person loses consciousness, life-threatening changes in breathing and blood circulation are observed. All these changes are due to the acceleration of the gradual decrease of Ro2 in the inspired air and in the alveolar air during the ascent. For example, at an altitude of 4 km, Ro2 is equal to 98 mm of water in atmospheric air, 60 mm of water in alveolar air, at sea level, Ro2 is equal to 159 mm of water in atmospheric air, Ro2 is equal to 100 mm of water in alveolar air. A decrease in Ro2 in the alveolar air makes it difficult to saturate the blood with oxygen, the amount of oxyhemoglobin in the blood decreases, and the tissues experience a lack of oxygen, that is, hypoxia. In indigenous peoples living in too' conditions, the mechanisms of adaptation to hypoxia are activated, erythropoiesis accelerates, the number of erythrocytes in the blood increases and the oxygen capacity increases, lung ventilation increases, the breakdown of oxyhemoglobin in the tissues accelerates, the tissue mass per unit the number of capillaries increases, the resistance of cells to hypoxia increases. This makes it possible to live and work actively even in conditions of low atmospheric pressure.

Divers, caisson workers and others are forced to breathe high-pressure air or a mixture of artificial gases during work. when an owl goes under water, the pressure of the gas mixture given for breathing should be equal to the hydrostatic pressure of the surrounding water. If the gas pressure is low, the owl cannot breathe. the pressure increases by 1 atmosphere every 10 m underwater, the pressure of the gas mixture necessary for the breathing of an owl at a depth of 100 m should be 10 atmospheres. Breathing air at this pressure greatly increases the amount of blood and tissue fluids and gases dissolved in the tissues. Due to the presence of some danger underwater, when the fish rises rapidly to the surface, the solubility of gases in the blood decreases and bubbles are formed as a result of the release of many previously dissolved gases at high pressure. Among the gases that make up atmospheric air, nitrogen is especially dangerous because it does not change into chemical compounds like oxygen and carbon dioxide. Clogging of the blood vessels of nitrogen bubbles, which have appeared in large quantities in the blood, leads to gas embolism. If an embolism develops in the vessels that supply blood to important centers of the brain, life is threatened. For the reasons mentioned above and several others, in the mixture of gases that divers breathe, nitrogen is replaced by helium gas. As a result, breathing becomes easier, because the density of helium is 7 times less than the density of nitrogen, due to this, the resistance of the respiratory tract is reduced. Since the solubility of helium in the blood is very low, the risk of embolism disappears. In addition, nitrogen has a narcotic effect on a person when it has high pressure. Helium does not have this feature.

Breathing oxygen with high pressure is also harmful to the body. Breathing pure oxygen for 10-15 hours, even at normal atmospheric pressure , affects the mucous membrane of the respiratory tract, disrupts the activity of surfactant in the alveoli, and causes lung inflammation. And oxygen at high pressure after 1-2 hours severely disrupts the activity of the central nervous system (CNS), causing a person to become comatose. Therefore, when going under water, with increasing depth, it is necessary to reduce the partial pressure of oxygen in the breathing mixture to the level of the ground level (up to 159 mm of water) .

there is no significant difference from their populations living in the low plains , they have certain peculiarities in the composition of erythrocytes and addition of hemoglobin with oxygen. However, the main reason for the resistance of these animals to hypoxia should be sought in the ability of cells to assimilate oxygen in the blood when it is low, to reduce the level of the dangerous indicator Ro2.

In the rodents' underground houses, the amount of oxygen decreases by 1-3% or more, and the concentration of SO2 can reach 2-3% , that is, a slight hypoxia passes along with hypercapnia. Among the physiological changes that ensure adaptation to such an environment, the ability to absorb oxygen, the increase in the buffer volume of body fluids, and the slow respiratory reaction to SO2 have been identified in animals living underground, when the tension of oxygen entering with breath decreases.

Representatives of a number of species of mammals (mainly cetaceans, and some rodents - muskrats, beavers) can walk under water for a long time - from 15 minutes to 1 hour, depending on their ecological characteristics. During diving, respiratory movements stop reflexively. Stopping breathing for such a long time is due to the increase in the size of the lungs and the increase in the number of alveoli in it, the expansion of the volume of the oxygen tank, the increase in the amount of myoglobin in the muscles, the weak reaction of the chemoreceptors to the accumulation of SO2 in the blood. In addition, during swimming, specific hemodynamic reactions take place aimed at improving the supply of blood (and therefore oxygen) to the brain and myocardium . Some degree of similar reactions have been found in diving birds. Various particles (dust) and foreign substances can enter the respiratory tract with inhaled air . When inflammation develops in the upper and lower respiratory tract, a lot of mucous substances appear in the trachea and bronchi, in the nasal cavity. All these are expelled due to defensive respiratory reflexes, namely coughing and wheezing. When pollution and foreign substances affect the receptors in the lower respiratory tract, first a deep breath is taken, and then exhalation begins with a sound barrier. Abdominal muscles are also involved in this work. The air pressure in the larynx and bronchi increases, when the sound hole opens immediately, the air is pushed out through the oral cavity and the lower airways are cleared . Exposure to receptors in the nasal cavity and airways leads to reflexes. At the beginning of this reflex, a deep breath is taken and the breath is exhaled when the sound is silent. When the air pressure in the lower respiratory tract reaches a certain level, the sound hole opens immediately and the air is blown out through the nasal cavity . Air with a high movement speed pushes the active substances out of the nasal cavity.

The human respiratory system is also involved in the creation of speech sounds. The larynx plays the main role in sound production. When speaking and singing, the vocal folds tighten, the air coming out of the breath vibrates them, and part of the kinetic energy of the air flow of the sound is converted into acoustic energy that spreads around. By compacting and opening the vocal cords , stopping and restoring air flow is the main method of generating acoustic waves. The high-low or thin-thickness of the sound depends on the size of the laryngeal cavity , the tension of the vocal cords, the contraction of the muscles of the larynx, tongue and larynx. Breathing during speech changes depending on what and how to say. Before speaking a few sentences, it is known that a person takes a deep breath. Then, the air begins to be expelled mainly through the oral cavity . The curve of speech breath is saw-shaped . Air is released at a steady, steady rate for a certain amount of time, and then rapidly continues to release air. Human vocal folds can vibrate 80 to 10,000 times per second. The respiratory tract acts as a resonator and forms the voice that is unique to each person . Voluntary breath control is important for speech.

Literature

1. Robilova, S. M., & Patidinov, K. D. (2022). Physical training of handball and its comparative analysis practitioners. Asian Journal of Research in Social Sciences and Humanities, 12(4), 173-177.
2. Rahimjan, U. (2022). TERRITORIAL PECULIARITIES OF DIFFIRENTIAL ASSESSMENT OF PHYSICAL FITNESS OF RURAL SCHOOLCHILDREN. *American Journal of Interdisciplinary Research and Development*, *9*, 58-66.
3. Усманов, З. Н., & Убайдуллаев, Р. М. ПРОБЛЕМЫ ФИЗКУЛЬТУРНО-ОЗДОРОВИТЕЛЬНОЙ РАБОТЫ В СИСТЕМЕ ШКОЛЬНОГО ОБРАЗОВАНИЯ. 11. Usmanov, ZN, & Ubaidullaev, R.(2020, December). PROBLEMS OF PHYSICAL AND HEALTHY WORK IN SCHOOL EDUCATION SYSTEM. In *Конференции* (Vol. 12, pp. 114-119).
4. Абдурахмонов, Х. (2022). УМУМТАЪЛИМ МАКТАБЛАРИДА ЕНГИЛ АТЛЕТИКАНИ ЎҚИТИШ МЕТОДИКАСИНИ

ТАКОМИЛЛАШТИРИШ. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, *2*(9), 32-37.
5. Khairullo, A., & Mohinur, R. (2022). Analysis of Physical Development Indicators. *Eurasian Research Bulletin*, *13*, 8-14.
6. Abdurakhmonov, X., & Rakhmonova, M. (2022, May). PHYSICAL INDICATORS OF SCHOOLCHILDREN. In *E Conference Zone* (pp. 39-43).
7. Robilova, S. M., & Patidinov, K. D. (2022). Physical training of handball and its comparative analysis practitioners. Asian Journal of Research in Social Sciences and Humanities, 12(4), 173-177.
8. Tuychieva, I. I. (2018). Mechanisms Ensuring Children's Thought Activity Development at Preschool Education Process. *Eastern European Scientific Journal*, (6).
9. Makhmutovna, T. K., & Ibragimovna, T. I. (2020). Specific features of the pedagogical process focused on increasing the social activity of youth. *Asian Journal of Multidimensional Research (AJMR)*, *9*(6), 165-171.
10. Туйчиева, И. И. (2019). Вопросы обеспечения активизации мыслительной деятельности детей в процессе дошкольного образования. In *PSYCHO-PEDAGOGICAL PROBLEMS OF A PERSONALITY AND SOCIAL INTERACTION* (pp. 22-25).
11. Tuychieva, I., Aripov, S., Madaminova, D., & Mustaev, R. (2021). THE PEDAGOGICAL SYSTEM OF PREPARING BOYS FOR FAMILY RELATIONSHIPS IN GENERAL SECONDARY SCHOOLS. *湖南大学学报 (自然科学版)*, *48*(8).
12. Tuychieva, I. (2015). The concept of pedagogical innovation in modern education. *The Advanced Science Journal*, 87-90.
13. Ibragimovna, T. I. (2021). LEGAL AND REGULATORY FUNDAMENTALS OF REFORM OF PRESCHOOL EDUCATIONAL INSTITUTIONS IN UZBEKISTAN.
14. Tuychiyeva, I. I. (2017). Question of Using Linguo-cultural Material for Learning Native Tongue in Professional Colleges. *Eastern European Scientific Journal*, (4), 84-88.
15. Tuychiyeva, I. I. (2017). Question of Using Linguo-cultural Material for Learning Native Tongue in Professional Colleges. *Eastern European Scientific Journal*, (4), 84-88.
16. Туйчиева, И. И., & Ганиева, Г. В. (2016). ХАРАКТЕРИСТИКА ПРИНЦИПОВ ПЛАНИРОВАНИЯ РАБОТЫ ПО РАЗВИТИЮ РЕЧИ. *Учёный XXI века*, (11 (24)), 48-53.
17. Хайдаралиев, Х. Х. (2022). ТЕХНОЛОГИЯ КОМПЕТЕНТНОСТНОГО ПОДХОДА ДЛЯ СОВЕРШЕНСТВОВАНИЯ АНТИКОРРУПЦИОННОГО МЫШЛЕНИЯ СТУДЕНТОВ. *World scientific research journal*, *2*(2), 202-210.
18. Хайдаралиев, Х., & Аълохонов, А. (2022). МАКТАБГАЧА ЁШДАГИЛАРНИНГ ЖИСМОНИЙ РИВОЖЛАНИШИ ВА ТАЙЁРГАРЛИГИНИНГ ЁШ ХУСУСИЯТЛАРИ.
19. Haidaraliev, H., & Nizamova, S. (2022). Age-related features of motor qualities in younger schoolchildren. *Academicia Globe: Inderscience Research*, *3*(5), 1-7.
20. Haydaraliev, X., & Malikov, I. (2022, June). LOADING AND ITS NORM IN PHYSICAL EDUCATION LESSONS. In *E Conference Zone* (pp. 60-63).
21. Haydaraliev, X., & Isakov, D. (2022). Methods of Controlling the Physical Loads of Players. *Texas Journal of Multidisciplinary Studies*, *8*, 133-135.
22. Хайдаралиев, Х. Х. (2022). РОЛЬ РИТМИЧЕСКОЙ ГИМНАСТИКИ В ДОШКОЛЬНОМ ОБРОЗОВАТЕЛЬНОМ УЧРЕЖДЕНИИ ДЛЯ ДОШКОЛЬНИКОВ. *Academic research in educational sciences*, *3*(3), 591-599.
23. Хайдаралиев, Х. Х. (2019). МОТИВАЦИЯ ВЫБОРА ПРОФЕССИИ КАК ПРОЯВЛЕНИЕ ПАТРИОТИЗМА СОВРЕМЕННЫХ СТУДЕНТОВ.

In *EUROPEAN RESEARCH: INNOVATION IN SCIENCE, EDUCATION AND TECHNOLOGY* (pp. 50-52).

24. Xaydaraliev, K. (2019). THE EXPERIENCE OF CHARGES AND FACULTIES USING THE NEW MODERN INFORMATION DISTRIBUTION SYSTEM IN TRAINING. *European Journal of Research and Reflection in Educational Sciences Vol*, *7*(6), 28.
25. Akmal, K., & Azizbek, M. (2023). Formation of Children's Sports Development System in Rural Areas. *Eurasian Journal of Learning and Academic Teaching*, *16*, 79-83.
26. Косимов, А. (2022). Level of physical development of 13-15 year old students who are involved in swimming and school physical education. *Общество и инновации*, *3*(4/S), 190-194.
27. Bobojonov, N., Qosimov, A., & Abdubannopov, M. (2022, June). AGE-SPECIFIC CHARACTERISTICS OF PHYSICAL TRAINING OF COLLEGE STUDENTS. In *E Conference Zone* (pp. 64-67).
28. Akmal, K. (2022). Health Promotion of Children of School Age with the Help of Physical Education on the Basis of State of Health. *Eurasian Scientific Herald*, *9*, 126-130.
29. Nozim, B., Kasimov, A., & Sabirov, T. (2022, June). AGE FEATURES OF THE DEVELOPMENT OF ADOLESCENTS 10-12 YEARS OLD ENGAGED IN VOLLEYBALL. In *E Conference Zone* (pp. 61-68).
30. Қосимов, А. Н. (2021). ФОРМИРОВАНИЕ И ФИЗИЧЕСКОЕ РАЗВИТИЕ СОМАТОТИПОВ МЫШЦ У СТУДЕНТОВ 13-15 ЛЕТ, ЗАНИМАЮЩИХСЯ ШКОЛЬНОЙ ПРОГРАММОЙ. *Scientific progress*, *2*(8), 849-853.
31. Ogli, Z. U. M., & Ogli, P. K. D. (2020). УМУМИЙ ЎРТА ТАЪЛИМ МАКТАБИ 7–8 СИНФ ЎҚУВЧИЛАРИНИНГ ЖИСМОНИЙ ТАЙЁРГАРЛИГИНИ ЖИСМОНИЙ РИВОЖЛАНИШИГА БОҒЛИҚЛИГИ. *Academic research in educational sciences*, (4), 693-697.
32. Патиддинов, К. Д. (2022). Сравнительная динамика показателей физической подготовленности детей младшего школьного возраста с нормативами тестов здоровья “Алпомиш”. In *Актуальные проблемы науки: взгляд студентов* (pp. 297-299).
33. Robilova, S. M., & Patidinov, K. D. (2022). Physical training of handball and its comparative analysis practitioners. *Asian Journal of Research in Social Sciences and Humanities*, *12*(4), 173-177.
34. Kamolidin, P. (2021). Physical Fitness and Development of School Students. *Journal of Pedagogical Inventions and Practices*, *2*(2), 89-91.
35. Kamolidin, P. (2021). Physical Preparation and Development of School Students. *Journal of Pedagogical Inventions and Practices*, *3*, 161-163.
36. Ashurali, T., & Javlonbek, M. (2022). METHODS OF CONDUCTING CHILDREN'S SPORTS GAMES. Conferencea, 30-34.
37. Oripjonova, R., & Tuychiyev, A. (2022). THEORETICAL FOUNDATIONS OF PHYSICAL EDUCATION AND SPORTS TRAINING IN WOMEN'S HEALTH PROMOTION. THE ROLE OF SCIENCE AND INNOVATION IN THE MODERN WORLD, 1(1), 106-110.
38. Ashurali, T., & Aziz, U. (2022). GENERAL LAWS AND CHARACTERISTICS OF GROWTH AND DEVELOPMENT OF CHILDREN AND ADOLESCENTS. Academicia Globe: Inderscience Research, 3(11), 84-91.
39. Tuychiyev Ashurali, & Khairullayev Farrukh. (2023). THE BASICS OF BUILDING A TRAINING SESSION FOR YOUNG ATHLETES. Conferencea, 55–65. Retrieved from
40. Tuychiev Ashurali Ibragimovich. (2023). EXPERIMENTAL AND SEARCH WORK ON THE IMPLEMENTATION OF GAME TECHNOLOGY IN THE SYSTEM OF SUMMER RECREATION.

41. Tuychiyeva I., Hokimjonova M., Muqimova D. KOUCHING TEXNOLOGIYASI PEDAGOGIK KOMPETENTSIYANI OSHIRISH SHAKLI SIFATIDA //Oriental renaissance: Innovative, educational, natural and social sciences. – 2022. – Т. 2. – №. 12. – С. 1160-1165.
42. Tuychiyeva I., JoʻRayeva S. OLIY TA’LIM SIFATINI OSHIRISHDA KREDIT-MODUL TIZIMINING AHAMIYATI //Science and innovation. – 2022. – Т. 1. – №. B7. – С. 1349-1354.
43. Akmal, K., & Azizbek, M. (2023). Formation of Children's Sports Development System in Rural Areas. *Eurasian Journal of Learning and Academic Teaching*, *16*, 79-83.
44. Косимов, А. (2022). Level of physical development of 13-15 year old students who are involved in swimming and school physical education. *Общество и инновации*, *3*(4/S), 190-194.
45. Tuychieva I. ЎҚУВЧИЛАРДА ҲАЁТИЙ КЎНИКМАЛАРНИ ШАКЛЛАНТИРИШНИНГ ИЖТИМОИЙ-ПЕДАГОГИК ЗАРУРИЯТИ //Science and innovation. – 2022. – Т. 1. – №. B7. – С. 278-287.
46. Bobojonov, N., Qosimov, A., & Abdubannopov, M. (2022, June). AGE-SPECIFIC CHARACTERISTICS OF PHYSICAL TRAINING OF COLLEGE STUDENTS. In *E Conference Zone* (pp. 64-67).
47. Akmal, K. (2022). Health Promotion of Children of School Age with the Help of Physical Education on the Basis of State of Health. *Eurasian Scientific Herald*, *9*, 126-130.
48. Yakubova, G. (2021). Pedagogical valeology in the educational process of students of secondary educational institutions. *Asian Journal of Multidimensional Research*, *10*(8), 199-204.
49. Yakubova, G. K. (2022). Pedagogical Factors Of Forming Youth's Healthy Lifestyle Through Physical Education. *Journal of Positive School Psychology*, *6*(10), 2016-2020.
50. Якубова, Г. (2022, November). ЖИСМОНИЙ МАДАНИЯТ ВА СПОРТ МАШҒУЛОТЛАРИ ВАҚТИДА ОВҚАТЛАНИШ. In *E Conference Zone* (pp. 53-66).
51. Yakubova, G. (2021). Sports Medicine and Therapeutic Physical Education. *Texas Journal of Multidisciplinary Studies*, *2*, 135-141.
52. Yakubova, G., & Alijonova, M. (2022). NAFAS OLISH ORGANI KASALLIKLARI HAQIDA TUSHUNCHALAR VA UNDA DJT.
53. Qochqorovna, Y. G. (2022). YURAK QON-TOMIR KASALLIKLARINI DAVOLASH JISMONIY TARBIYASI. *Galaxy International Interdisciplinary Research Journal*, *10*(9), 80-81.
54. Guyokhan, Y. (2022). Analysis of Movements During the Day. *Eurasian Medical Research Periodical*, *12*, 49-52.
55. Guyokhon, Y., & Mahliyo, A. (2022). O’SMIR YOSHDAGI BOLALAR NAFAS OLISH ORGANI KASALLIKLARINI JISMONIY TARBIYA VOSITALARI BILAN DAVOLASH. *Spectrum Journal of Innovation, Reforms and Development*, *8*, 63-72.
56. Yuldashev, M., & Yakubova, G. (2022, October). ADAPTIV JISMONIY TARBIYADA QAYTA TIKLANISH (REABILITATSIYA). In *E Conference Zone* (pp. 14-17).
57. Guyokhon, Y. (2022, November). INFLUENCE OF METABOLIC THERAPY ON THE FUNCTIONAL STATE OF ATHLETES. In *E Conference Zone* (pp. 24-33).
58. Kuchkarovna, Y. G. Y. (2022). Bolalarda Bronxid Kasalligini Davolash Jismoniy Tarbiyasi. *Periodica Journal of Modern Philosophy, Social Sciences and Humanities*, *4*, 1-4.
59. Yakubova, G. K. (2021). MONITORING OF PHYSICAL EDUCATION CLASSES IN CONDITIONS OF HYPERTHERMIA. *Herald pedagogiki. Nauka i Praktyka*, *1*(2).