



TOSHKENT TIBBIYOT AKADEMIYASI URGANCH FILIALI
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METHODS OF SANITARY PROTECTION OF ATMOSPHERIC AIR USING CONTROL POSTS



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ABSTRACT

The modern lifestyle with its rapid pace and polluted atmosphere is killing our physical and mental state. Clean air, good food, clean water, no noise and pollution – that's what you need to strive for. Research shows that the environment can be both a therapeutic factor and the cause of many diseases. Today we will talk about what factors worsen our health and how to protect ourselves from them.

Keywords. Biosphere, microorganism, ecological factor, biotic, abiotic, anthropogenic factors.

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Buxoro davlat tibbiyot instituti

“Atmosfera havosini nazorat postlari yordamida sanitar muhofaza qilish usullari”

ANNOTATSIYA

Zamonaviy turmush tarzi o‘zining tez sur‘ati va ifloslangan atmosferasi bilan jismoniy va ruhiy salomatligimizga salbiy ta‘sir ko‘rsatmoqda. Toza havo, sifatli ovqat, toza suv, shovqin va boshqa omillardan xoli bo‘lishga harakat qilish lozim. Tadqiqotlar shuni ko‘rsatadiki, atrof-muhitning ifloslanishi va boshqa omillar ko‘plab kasalliklarni keltirib chiqaruvchi sabablar bo‘lishi mumkin. Bugun biz qanday omillar sog‘lig‘imizga salbiy ta‘sir ko‘rsatishi va ulardan o‘zimizni qanday himoya qilishimiz haqida ma‘lumot berishga harakat qilamiz.

Kalit so‘zlar. Biosfera, mikroorganizm, ekologik omil, biotik, abiotik, antropogen omillar.

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АННОТАЦИЯ

Современный образ жизни с его стремительными темпами и загрязненной атмосферой убивает наше физическое и психическое состояние. Чистый воздух, нормальная еда, чистая



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вода, отсутствие шума и загрязнений – вот к чему нужно стремиться. Исследования показывают, что окружающая среда может быть как лечебным фактором, так и причиной многих заболеваний. Сегодня поговорим о том, какие факторы ухудшают наше здоровье и как от них защищаться.

Ключевые слова: Биосфера, микроорганизм, экологический фактор, биотические, абиотические, антропогенные факторы.

Relevance. In the modern world, environmental issues have become one of the greatest challenges facing humanity. Environmental pollution has a significant impact on human health, triggering both acute and chronic diseases. According to the World Health Organization (WHO), approximately a quarter of all diseases worldwide are directly or indirectly related to environmental factors. Increased air, water, and soil pollution, as well as climate change and the spread of industrial waste, are causing deteriorating health for millions of people[1,3].

"In many megacities around the world, air quality levels exceed WHO guidelines by more than five times, posing a serious risk to human health," says Dr. Maria Neira, Director of the Department of Public Health, Social and Environmental Determinants of Health at WHO. "We are seeing an acceleration of political interest in this global public health issue. The increase in the number of cities recording air pollution data reflects a commitment to assessing and monitoring air quality. Much of this increase has occurred in high-income countries, but we hope to see a similar expansion of monitoring efforts worldwide."

While recent data show that outdoor air pollution levels remain dangerously high in most parts of the world, they also indicate some positive progress. Countries are taking measures to combat and reduce particulate matter pollution. For example, in just two years, India's Pradhan Mantri Ujjwala Yojana provided free liquefied natural gas connections to nearly 37 million women living below the poverty line to help them transition to cleaner household energy use. Mexico City has committed to implementing clean transportation, including switching to soot-free buses and banning private diesel vehicles by 2025[2,8].

The aim of the study is to comprehensively examine the main environmental factors affecting human health, analyze the consequences, and propose preventive and adaptation measures to environmental challenges.

Methods. Comparative analysis, information synthesis, and statistical data interpretation were used. A systematic review of scientific literature, WHO reports, and Discussion and Results were used. Air pollution is one of the most dangerous factors, including elevated levels of nitrogen dioxide (NO₂), ozone (O₃), and carbon monoxide (CO). This demonstrates a direct link between high levels of air pollution and an increase in respiratory and cardiovascular diseases. In large cities, an increase in cases of bronchial asthma, chronic obstructive pulmonary disease (COPD), heart attacks, and strokes has been recorded. Water, soil, and food pollution also play a significant role. Chemical pollution of water with heavy metals, nitrates, pathogenic microorganisms and residues of pharmacological substances leads to disruption of the gastrointestinal tract, poisoning, and an increase in the number of oncological diseases[2].

The problem is particularly acute in rural areas and areas with underdeveloped water treatment systems. The use of pesticides and fertilizers, along with the discharge of industrial waste into the soil, leads to the accumulation of toxic substances in agricultural products. This is associated with an increase in allergic reactions, endocrine disruptions, and reproductive disorders, especially in children. One environmental factor is global warming. It is accompanied by an increase in extreme weather events—heat waves, floods, and droughts. This leads to an increase in heatstroke, dehydration, and the exacerbation of chronic diseases. There is also an expansion of the habitats of infection vectors (for example, mosquitoes that carry dengue fever and malaria) [3].



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Constant exposure to urban noise causes irritability, insomnia, high blood pressure, and a decline in cognitive function. Light pollution disrupts circadian rhythms, impairing sleep quality and psychoemotional well-being. The data obtained indicate that environmental factors significantly impact public health. Children, whose immune and respiratory systems are not yet fully developed, and the elderly with weakened immune systems are particularly vulnerable. The combined influence of several factors simultaneously increases the risk of developing multiple chronic diseases.

In the face of a deteriorating environmental situation, measures are needed at the national and international levels, including tightening environmental controls, implementing "green" technologies, developing public transportation, and switching to renewable energy sources. It is also important to develop public education, introduce environmental education in educational institutions, and encourage environmentally responsible behavior [1,3].

It is known that the environment contributes up to 25% to human health, influencing the incidence of disease. According to WHO experts, 23% of all deaths worldwide are related to environmental pollution (approximately 12.6 million cases). The leading causes of death related to environmental pollution are:

- Stroke (2.5 million)
- Coronary heart disease (2.3 million)
- Unintentional injuries (1.7 million)
- Cancer (1.7 million)
- Chronic respiratory diseases (1.4 million)
- Diarrheal diseases (846,000)
- Respiratory tract infections (567,000)
- Neonatal conditions (270,000)
- Malaria (259,000)

The main air pollutants are sulfur dioxide, nitrogen oxides, carbon monoxide, and particulate matter. They account for approximately 98% of total harmful emissions. In addition to the main pollutants, there are over 70 other harmful substances, including hydrogen fluoride, ammonia, phenol, benzene, carbon disulfide, lead, mercury, cadmium, and other heavy metals, as well as hydrocarbons, toxic volatile solvents (gasolines, alcohols, ethers), and others [5].

Results and discussion. The impact of air pollution on the development of respiratory diseases (pneumonia, bronchitis), cardiovascular diseases (coronary heart disease), blood diseases (anemia, hypoxia), cancer, and immune system disorders (allergies, asthma) has been scientifically proven. It also increases the risk of low birth weight and birth defects (cleft lip, cleft palate, heart valve defects).

Anthropogenic water pollutants primarily include pesticides, surfactants, petroleum hydrocarbons (benzene, phenol), biphenyl derivatives, organochlorines, and heavy metals (lead, copper, chromium, cadmium, mercury, zinc, etc.) [3, 5].

Most pollutants enter water through wastewater. Water pollution has a particularly negative impact on the digestive system and skin. Water is a carrier of pathogens that cause various infectious diseases (typhoid fever, dysentery, cholera, etc.).

The most common soil pollutants are metals (iron, copper, aluminum, lead, zinc), radioactive substances, pesticides, and carcinogens. Radioactive pollution, caused by long-lived radioactive isotopes, is the most dangerous [2].

According to the WHO, air pollution is the leading risk factor for mortality and morbidity among all the above-mentioned factors. Today, the problem of preventing the adverse impact of environmental factors on human health is one of the most pressing global issues.

The overall goal is to minimize harmful impacts and maintain environmental quality at a level that does not pose a threat to human health and safety, while at the same time allowing for the continuation of technological development.[3]



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Air pollution. Industrial emissions, car exhaust, and chemical waste all contribute to poor health and increase the risk of disease.

Drinking water quality. Inadequately purified or contaminated water can lead to intoxication and the development of gastrointestinal diseases. Chemical food. Food additives, colorings, genetically modified foods, trans fats, and other toxins poison our bodies daily.

Noise and electromagnetic radiation. Constant noise can cause stress and high blood pressure, while radiation from household appliances and mobile devices negatively impacts all cells in the human body[1].

Natural factors. Human civilization is not entirely to blame. Heat, cold, wind, high humidity, and ultraviolet radiation from the sun are also environmental factors. They are natural, but in some cases, unsafe. Poor environmental conditions have a direct impact on human health, contributing to the development of diseases[2].

This group of diseases has the most obvious evidence of environmental influence. The incidence of these diseases has increased significantly in the 21st century, and city dwellers are much more susceptible to illness than rural residents. Industrial emissions, air and water pollution, household and other chemicals can trigger allergic reactions and chronic diseases in people, causing allergic rhinitis, allergic and atopic dermatitis, bronchial asthma, and, less commonly, other pathologies[3].

Overall, outdoor air pollution levels are lowest in high-income countries, particularly in Europe, the Americas, and the Western Pacific. In cities in high-income European countries, air pollution has been shown to reduce life expectancy by between 2 and 24 months, depending on pollution levels.

"Political leaders at all levels of government, including city mayors, are now starting to pay attention and take action," adds Dr. Tedros. "The good news is that we are seeing more and more governments strengthening their commitment to monitoring and reducing air pollution, as well as broader global action from the health sector and other sectors such as transport, housing, and energy."

This year, WHO will host the first Global Conference on Air Pollution and Health (30 October – 1 November 2018) to bring together governments and partners in global efforts to improve air quality and combat climate change.

You can access infographics, databases, maps, and images on the WHO website. here, or by clicking on the links below.

WHO is the custodian of the Sustainable Development Goal indicator to substantially reduce the number of deaths and illnesses from air pollution by 2030 (SDG 3.9.1), as well as two other air pollution-related indicators – SDG 7.1.2 Proportion of population with predominantly clean fuels and technologies and SDG 11.6.2.

Updated modeled exposure to ambient PM_{2.5} and household air pollution, developed in collaboration with the University of Exeter.

To coincide with the launch of the data, the global communications campaign BreatheLife launched a challenge to encourage citizens to take action to reduce air pollution. The first in the series is "A Marathon a Month," which encourages people to pledge to ditch their car and use alternative modes of transport for at least a marathon distance (42 km/26 miles) for one month[2,4].

BreatheLife is a partnership between WHO, UN Environment and the Climate and Clean Air Coalition to reduce short-lived climate pollutants, aiming to raise awareness and take action on air pollution by governments and individuals.

Diseases of the bronchopulmonary system. Chronic obstructive pulmonary disease is most often a consequence of smoking, but poor environmental conditions increase and accelerate the development of this pathology, and severely polluted air can be the main cause of COPD. Incidentally, COPD is the fourth leading cause of death after cancer, cardiovascular disease, and infections[5].



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Diseases from poor food: it's not just the stomach that suffers. Initially, they cause problems in the digestive tract: stomach discomfort, functional bowel disorders, dysbiosis, and then intestinal inflammation, obesity, liver inflammation, and pancreatic problems. In the long term, intestinal problems increase cardiovascular risks, and some food toxins increase the risk of cancer [1,3].

We don't have many levers to influence the environment. For example, we can't shut down a factory that, when the wind blows a certain way, emits multicolored gases directly into the city, and we're unlikely to close a highway to prevent cars from driving on it and emitting exhaust fumes[2].

Maintain a healthy lifestyle to increase your resilience to environmental factors. You can also protect yourself from specific influences that currently bother you. For example, if you have fair skin, you should avoid prolonged exposure to ultraviolet radiation, as the first problem will be sunburn, photoaging, and, in the long term, an increased risk of skin cancer. Some people need protection from the cold: clothing and cosmetics are available for this[3].

And don't forget to periodically cleanse your body of toxins that have entered through air, food, and water. You can use home cleansing treatments or undergo professional cleansing. One option is Clean Clean IV drips. We offer "Cleansing Plus" and "Detox Express" IV drips, as well as other cleansing and healing options, depending on which organs are experiencing problems.

Conclusions. Ecology and human health are inextricably linked. The impact of the environment on the human body can be both direct and indirect, cumulative over time. Only a comprehensive approach, including prevention, information, adaptation, and international cooperation, will minimize the harm from adverse environmental factors and preserve the health of the nation's population.

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