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## **CHECKING MICROCLIMATE INDICATORS**

**Abstract:** This article discusses the indicators, importance and role of the microclimate of the room. The article also provides theoretical information about microclimate. This article can be used by specialists working in the field of healthcare, students and masters studying in this field, and independent researchers.

**Keywords:** Microorganism, pathogen, viral infection, atmosphere, saprophyte, aspiration psychrometer, concentration, anthropogenic.

### **INTRODUCTION**

Microorganisms of one or another type are constantly found in closed rooms and atmospheric air. Most often, the source of their spread is sick people or infected animals. In addition, there may be saprophytic microbes in the air environment, which can be caused by airborne saprophytes in the soil structure due to wind blowing under normal conditions. Among the microorganisms in the air, it is natural to meet pathogenic microorganisms, and therefore, the air environment becomes an environment that transmits microbes that cause certain types of infectious diseases. Airborne viral infections, including influenza, whooping cough, smallpox, whooping cough, infectious parotitis, plague, tuberculosis, anthrax, etc. The air environment is one of the important factors that determine the health and functional conditions of the human body.

### **METHODS**

The influence of the air environment on the human body starts from the period of pregnancy and continues throughout life. Therefore, in order to ensure the most suitable effect of the air environment on the human body in any situation, it is necessary to achieve the most optimal or indifferent parameters of this environment that do not cause negative consequences for the human body even if it is exposed for a long time. From the point of view of physiological and sanitary importance, the main physical indicators of air are: temperature, humidity, speed and direction of air movement, atmospheric pressure, air electrification. Air temperature, humidity and movement speed are the factors that can be controlled in closed rooms, the sum of these factors in closed rooms defines the microclimate of this room. Some authors include atmospheric pressure among microclimatic factors. However, in non-hermetically sealed rooms, the atmospheric pressure of the air is the same as outside, and it cannot be controlled under such conditions. Therefore, it is necessary to take into account the value of atmospheric pressure from the point of view of its effect on the weather-sensitive human body, and the value of atmospheric pressure when calculating the absolute humidity of the air.

### **RESULTS**

Microclimatic factors are among the factors that have a regular effect on the body. They are of great importance for the thermoregulation of the body, because they have the property of increasing

the speed of heat transfer in the body and affect the production of heat to a certain extent. In addition, inconsistent parameters of the microclimate have the characteristic of changing the functional state of many organs and systems: cardiovascular system, MNS, gastrointestinal tract, endocrine system. Microclimatic factors have a significant effect on the patient's body, because the functional state of organs and systems in the body changes in various diseases. In addition, an important factor of the microclimate is the speed of air movement, which is of great sanitary importance. The speed of air movement in the rooms affects the exchange of air, which means that it determines the chemical and bacteriological cleanliness of the air in the hospital rooms. Hygienic norms of the microclimate of hospital rooms are provided in Sanitary Rules and Regulations 0292-11 "Sanitary norms and rules for the design, construction and use of preventive treatment facilities". According to this document, the required temperature parameters can be changed according to the tasks of the rooms, the optimal value of the relative humidity of the air should be 40-60%, and the speed of movement should be -0.12-0.3 m/second. In addition, it should be considered that taking into account the air temperature in the room does not fully describe the temperature regime of the room. To give such a definition, it is necessary to determine the indicators determining the temperature order of the room - average temperature, temperature parameters in vertical and horizontal direction.

## **DISCUSSION**

The average air temperature in the room for an adult human organism is determined at a height of 1.5 m above the floor, in children's rooms at a height of 0.8-1 m; measurements are taken at three points diagonally across the room, and then the average temperature is calculated. The temperature gradient in the vertical direction is measured at a height of 10 and 110 cm from the floor and describes the vertical gradient, and its value should not exceed 2.5 °C. If the temperature difference exceeds this indicator, it can cause cold feet and colds. To determine the temperature gradient in the horizontal direction, the temperature is measured 1.5 m above the floor at two points - 1 m from the outer and inner walls. The horizontal gradient should not exceed 1.5°C, otherwise discomfort will be observed, and heat loss from the body through radiation will increase. Air temperature (Fig. 1) is measured with mercury and alcohol thermometers, in some cases, a thermograph can be used to determine the dynamic change of air temperature. Air humidity depends on the amount of water vapor in the air. There are several types of humidity: absolute, relative, maximum humidity. Hygienic standard of humidity is given in percentages, that is, it is expressed in the unit of measurement of relative humidity. Psychrometers and hygrometers are used to measure air humidity. When using an aspiration psychrometer, it is necessary to moisten a gauze cloth wrapped in a resistor of a "wet" thermometer with distilled water, then turn on the fan of the device, and the psychrometer is hung on a tripod in the middle of the room. After 7-8 minutes, the readings of the instrument are recorded and the absolute humidity can be calculated by calculation; it should be said that when determining moisture using an aspiration psychrometer, based on the obtained results, it is possible to calculate the absolute humidity according to the psychrometric table and using the formula. Due to the small concentrations of chemicals in the air of hospital wards, they do not cause acute poisoning, but they affect the general condition of patients, manifesting in the form of headaches, fatigue, low energy, sleep disorders. Anthropogenic air pollution of hospital rooms affects the work ability of medical staff, besides, air pollution with medicinal substances can be one of the main factors in the development of allergic diseases in medical staff. As a rule, the level of anthropogenic air pollution in hospital rooms defines the quality of their ventilation. Microbes of the air environment of hospital rooms consist of both saprophytic microbes and pathogenic microbes, and the main source of them can be both patients and medical personnel, and in some cases visitors to the patient. Microbial contamination of the air of sick

rooms is of great hygienic importance, because in the conditions of air contamination with pathogenic microbes, the risk of hospital infections in patients increases. The main reason for this is that the patient's body is weakened, and he is very susceptible to any infection. Microbial air pollution is of the greatest importance for surgery, maternity hospitals, and children's departments. In this regard, it is very important to regularly control the level of microbial contamination of the air in hospital rooms. Air in operating rooms can be said to be clean, when 1 m<sup>3</sup> of air does not exceed 1,500, and in postpartum wards, it must not exceed 2,000. Indicators of air cleanliness in hospital rooms are often used to measure the amount of carbon dioxide gas and the number of microbes in 1m<sup>3</sup> of air. Carbon dioxide gas CO<sub>2</sub> is evaluated as an indicator of anthropogenic pollution of the air of living and public buildings, because the increase in the concentration of this gas is related to the high concentration of CO<sub>2</sub> gas in the exhaled air. At the same time as the concentration of carbon dioxide gas increases, air humidity, other forms of anthropogenic chemical pollution and the number of microorganisms increase. Therefore, the concentration of carbon dioxide for the air of public houses and hospitals is up to 0.1%. It is allowed to detect CO<sub>2</sub> by the syringe method, and an increase in this value is a sign of poor ventilation of the room air.

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