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THE ROLE OF MINERAL WATERS IN MODERN MEDICINE

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Annotation:

Mineral waters are natural waters that possess healing properties. The first scientific studies in the early 19th century established that the healing properties of mineral waters are due to their chemical composition and temperature. At a conference of balneologists held in 1911 in Nauheim (Germany), it was decided to consider water mineral if its content of dissolved solids exceeds 1 g/L, or if it contains carbon dioxide and other valuable pharmacological ingredients, or if the water has a temperature above 20°C. It should be noted that the criterion for total mineralization (1 g/L) for mineral waters was established arbitrarily and lacks scientific justification; however, it is applied by many countries in practice. Soviet balneologist E.E. Karstens considered mineral water to be any water that contains a significant amount of solid or gaseous components or elements that are rarely found in fresh waters.

Keywords

trace elements, gases, low mineralization

V.V. Krasintseva, M.A. Khachvankyan, and V.I. Bachman pointed out the main components that determine the healing properties of mineral waters: 1) dissolved gases (CO2, H2S, Rn); 2) trace elements (Br, I, B, As, and others); 3) water temperature. Organic substances. Underground mineral waters contain various dissolved organic substances: carbohydrates, lipids, proteins. Their content is determined by geological and physical-geographical conditions. The study of water-soluble organic substances is gaining significant importance due to: 1) assessing their balneological role in mineral waters; 2) determining their maximum permissible concentrations as pollutants of mineral waters; 3) evaluating their participation in biochemical and geochemical processes, in the formation of organic

migratory forms of chemical elements that influence the chemical composition of mineral waters.

Gases: Mineral therapeutic underground waters contain various gases in dissolved form. V.I. Vernadsky identified six classes of natural waters based on the main composition of gases contained in them: 1) oxygen; 2) carbon dioxide; 3) nitrogen; 4) methane; 5) hydrogen sulfide; 6) hydrogen. Gases in underground waters have different origins. V.V. Belousov proposed a classification of gases based on their genesis: A - gases of biochemical origin (CH4, CO2, N2, H2S, H2, O2); B - gases of atmospheric origin (N2, O2, CO2, Ne, Ar); C - gases of chemical origin (CO2, H2S, H2, CH4, CO, N2, HCl, HF, SO2, Cl, NH3). The latter are subdivided into: a) gases of metamorphic origin; b) gases of natural chemical reactions; and c) gases of radioactive origin (He, Rn).

Types of Mineral Water

According to the degree of mineralization, mineral water is classified as:

- Low mineralization: salt content 1-2 g/L;
- Very low mineralization: salt content 2-5 g/L;
- Medium mineralization: 5-10 g/L;
- High mineralization: 10 g/L and above.

Mineral water is divided into three classes: table, therapeutic-table, and therapeutic. This classification depends on the chemical composition. If the total mineralization does not exceed 1 gram per liter, it is considered table water; 1–10 g/L is therapeutic-table; and more than 10 g/L is therapeutic. Table mineral water is valuable for the body only for quenching thirst. It does not provide real nourishment to the body, as low mineralization water does not retain in the body and does not nourish the cells. Table mineral water is good for making tea and coffee, but it should not be boiled, as mineral salts precipitate and form harmful compounds. This creates a special burden on the kidneys (formation of kidney stones). Since this is the most common type of water and includes many low-quality waters, maintaining quality with table mineral water is more challenging. Table water is the least tolerant of transportation, temperature fluctuations, and informational load.

Separately, we mention the class of artificially mineralized water. It belongs to the class of table waters, being mediocre in terms of taste qualities and poorly suited for wine. It is important to note that all artificially mineralized solutions have side effects caused by the addition of hydrogen sulfide, carbon dioxide, or radioactive radon gas. Artificially mineralized water may be specially saturated

with gas to improve taste and prevent bacteria and unnecessary information. The next section of the article is dedicated to the carbonation of water.

Therapeutic water should not be placed on the table for any respectable restaurant visitor. It should only be sold in pharmacies. Therapeutic-table water should also be consumed on medical advice. However, there are many varieties of waters in this category. Therapeutic-table mineral water contains 1 to 10 g of mineral substances per liter. This type of water is of particular interest in terms of both taste and health benefits. However, even in this case, the choice is vast, and one must know the water well.

To provide a more comprehensive assessment of various therapeutic mineral waters, a classification was developed based on the main evaluation criteria and data on the patterns of mineral water formation. Based on the types of water that actually exist in nature, they proposed a classification table in which each water is assigned a strictly defined place.

What Water is Best for Health?

Spring water is considered one of the most beneficial types of drinking water, as it has several advantages. It is naturally purified from underground sources, meaning it is free from harmful impurities such as lead and chlorine. Since it does not undergo additional filtration before bottling, it retains beneficial minerals in the water.

What is the Most Beneficial Water for Health?

Natural mineral water is considered the most beneficial and pleasant to drink. This liquid can quench thirst and energize the body.

People with hypertension, chronic heart failure, kidney disease, and cirrhosis of the liver should not consume mineral water without consulting a doctor.

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