

*Yu. Rudenko, Master student
J. Berezyuk, PhD in Ed.
Zhytomyr Medical Institute*

THE CRUCIAL ROLE OF WATER-SALT BALANCE FOR HUMAN HEALTH

Admission: Water and salt are two essential components that play an essential role in maintaining the human body's balance and overall health. Our bodies are made up of about 60% water, and salt, or sodium chloride, is a critical electrolyte that helps regulate bodily functions such as blood pressure and nerve function. However, many people are unaware of the importance of maintaining a proper water-salt balance, which can lead to various health problems such as dehydration, high blood pressure, and even heart disease. In this article, we will delve into the importance of water and salt balance in the human body and discuss ways to maintain this balance for optimal health and well-being.

Aim of the study: to investigate the mechanisms and factors that contribute to maintaining proper water-salt balance in the human body.

The research methods and material: The scientific literature and other sources relevant to a particular *issue were included in the research*. On the basis of this research, the data from different materials were received and analyzed.

Water is a fundamental element of life and constitutes the most essential component of the human body's metabolism. Water serves as a medium for transporting nutrients through the blood and plays an integral role in the digestive process.

Additionally, it facilitates the elimination of waste products from the body and helps regulate body temperature through the process of sweating. The quantity of water in the body has a direct impact on blood density, which, if elevated, can hinder the supply of oxygen and energy to the tissues. This can lead to an increase in body temperature, acceleration of pulse and breathing, and cause additional strain on the heart and vascular system.

Furthermore, minerals that are dissolved in water play an essential role in the transmission of nerve impulses.

Consequently, a deficiency of these minerals can result in impaired concentration, drowsiness, dizziness, distracted attention, and reduced reaction speed. To prevent the aforementioned consequences, it is crucial to maintain an adequate water intake, particularly in situations where the ambient temperature is elevated, there is increased physical activity or prolonged exposure to direct sunlight. It is advisable to establish a consistent regimen for drinking water that aligns with one's circumstances and level of activity. The table presented below provides an approximate guide for water consumption. To prevent the aforementioned consequences, it is crucial to maintain an adequate water intake, particularly in situations where the ambient temperature is elevated, there is increased physical activity or prolonged exposure to direct sunlight. It is advisable to establish a consistent regimen for drinking water that aligns with one's circumstances and level of activity. The table presented below provides an approximate guide for water consumption:

Your weight (kg.)	low activity (l.)	moderate activity (l.)	High activity (l.)
50	1.55	2.00	2.30
60	1.85	2.30	2.65
70	2.20	2.55	3.00
80	2.50	2.95	3.30
90	2.80	3.30	3.60
100	3.10	3.60	3.90

It is important to note that energy is expended during the digestion process to release water from food, and this process requires time.

However, it is typically not possible to fulfill the body's daily water requirement solely through food consumption, despite the sufficient amount of salts released during digestion.

Additional noteworthy facts concerning the water-salt balance include the following: The human body is comprised of approximately 80% water, and even a modest loss of 2% of the body's water content can cause noticeable changes in well-being, while a loss of 6-7% can have a significant impact on one's health (up to loss of consciousness), and dehydration of 15-20% can lead to fatal consequences. The primary mechanisms of water loss from the body are urination (6-67%), sweating (18-20%), and breathing (13-15%).

Conclusions: To sum up, the water-salt balance is of paramount importance to human health and plays a crucial role in the body's metabolic processes. Maintaining adequate hydration levels is essential for optimal bodily function, as even minor changes in the body's water content can lead to significant impacts on an individual's well-being. The loss of water through urination, sweating, and respiration requires proper replenishment through regular water consumption. The essential minerals that are dissolved in water contribute to the proper transmission of nerve impulses, which is critical for proper cognitive function. The recommended water intake should be based on individual factors such as body weight, cardiovascular health, and level of physical activity. A balanced water-salt intake is key to maintaining optimal health and preventing the adverse effects of both dehydration and overhydration. Thus, individuals must prioritize maintaining an adequate water-salt balance to promote good health and well-being.

REFERENCES

1. Stachenfeld, N. S. (2014). Acute effects of sodium on thirst and cardiovascular function. *Current Opinion in Clinical Nutrition & Metabolic Care*, 17(5), 465-470.
2. Institute of Medicine (US) Panel on Dietary Reference Intakes for Electrolytes and Water. (2005). *Dietary reference intakes for water, potassium, sodium, chloride, and sulfate*. National Academies Press (US).
3. Shirreffs, S. M., & Sawka, M. N. (2011). Fluid and electrolyte needs for training, competition, and recovery. *Journal of sports sciences*, 29(sup1), S39-S46.
4. Arnaud, M. J. (2003). Mild dehydration: a risk factor of constipation?. *European journal of clinical nutrition*, 57 (Suppl 2), S88-S95.

5. Popkin, B. M., D'Anci, K. E., & Rosenberg, I. H. (2010). Water, hydration, and health. *Nutrition reviews*, 68(8), 439-458.