THE EFFECT OF THERMAL LOAD ON THE BODY OF OUTDOOR WORKERS: ANALYSIS BASED ON MEDICAL AND HYGIENIC INDICATORS

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Industrial production activities along with service sectors see an annual rise in the number of employees who work outdoors. The workers in traffic police service alongside construction, utilities and agriculture and transportation units operate daily under variable climatic situations especially hot temperatures. Thermal load stands as the primary impacting physiological factor affecting human bodies in extreme temperature conditions because it affects both heat balance management and thermoregulatory systems.

Thermal load in hot climates negatively affects human health, posing risks such as cardiovascular strain, thermoregulation disorders, dehydration, electrolyte imbalance, nervous system dysfunction, and a general decline in work capacity. According to the World Health Organization (WHO), each 1°C increase in temperature can significantly elevate heart rate, blood pressure, and respiratory rate. In particular, among workers operating in temperatures above +30°C, cases of cardiovascular strain can increase by 1.5 to 2 times.

The negative impact of thermal load on the human body intensifies as global climate change and warming occur together with rapid urban development. According to a WHO report published in 2021 outdoor workers stand as the main occupation group that experiences heat stress. The evidence shows that workers exposed to hot environments can develop such heat-related symptoms as sunstroke alongside heat shock and dizziness and extreme fatigue and rapid heart rate and dehydration with resulting deaths.

Evaluating thermal load by medical and hygienic indicators represents an important practical aspect for assessment. The diagnostic method helps detect biological changes in worker bodies while enabling working environment optimization and hazard prevention which allows development of protective health strategies.

The thesis examines the vital nature of body heat stress for outdoor workers by conducting research through scientific medical and hygienic literature. Many scientific studies founded on medical as well as hygienic parameters have confirmed that thermal load strongly impairs workers' health performance along with their working capabilities. For example: The research by I.M. Bykov (2019) found that working at +35°C led to 15–20 mm Hg increases in blood pressure together with heart rate elevations reaching 10–15% and resulting in fatigue and

headaches as side effects. WHO (2020) reports that global heat stress costs the world economy 12 million work hours every year. The effect of thermal load on physical work sectors results in productivity decline between 10–25%.

The medical and hygienic indicators for measuring body temperature effects from thermal exposure include:

· Body temperature (up to 37.5°C in mild heat stress; 38–39°C or higher in moderate and severe cases);

A heart rate increase of 20% points beyond normal represents an alert condition.

· Sweating rate and fluid loss;

· Changes in electrocardiogram (ECG) readings;

The following symptoms appear when people experience thermal load stress: dizziness accompanies nausea together with fatigue while individuals show reduced concentration.

Outdoor workers in Uzbekistan experienced a significant decline in their health markers as evidenced by scientific research across Tashkent and Kashkadarya and Surkhandarya regions in the summer months. Studies documented persons whose body reached +38°C while they spent 2–3 hours in direct sunlight.

Conclusion

1. Outdoor workers experience severe physiological strain due to thermal load because it causes malfunctioning of their cardiovascular system and nervous system and thermoregulatory system.
2. Medical and hygienic indicators help determine thermal loads which represents an essential value for labor hygiene and occupational hazard protection and worker health maintenance.
3. The protection of outdoor workers in hot environments requires workers to wear special protective clothing while healthcare providers should establish optimal work schedules and monitor fluid levels.

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