

DOI: <https://doi.org/10.56936/18290825-3.v18.2024-42>**COMPARATIVE CHARACTERISTICS OF THE CONDITION OF TISSUE UPPER RESPIRATORY TRACT IN CHILDREN WITH RESPIRATORY DISEASES LIVING IN KYRGYZSTAN, LOCATED AT DIFFERENT ALTITUDES ABOVE SEA LEVEL****ISMAILOV I.D.^{1*}, KALMATOV R.K.¹, RAHIM F.², MOMUNOVA A.A.¹, KILINÇ N.³**

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*Received 28.02.2024; Accepted for printing 04.08.2024***ABSTRACT**

The respiratory tract acts as a crucial barrier influenced by environmental factors, particularly affecting the homeostasis of its mucous membranes. Environmental conditions, including climate and atmospheric composition, play a significant role in the development and progression of respiratory diseases such as bronchial asthma and allergic rhinitis. Various risk factors, including genetic predisposition, viral infections, allergen exposure, and pollutants, along with changes in the microbiome, are key determinants in the manifestation and progression of these diseases. Certain pollutants like ozone (O₃), nitrogen dioxide (NO₂), and particulate matter (PM_{2.5}) contribute to airway inflammation and hyperresponsiveness, potentially leading to increased oxidative stress and respiratory distress.

This study aims to comparatively analyze the clinical characteristics and processes of free radical oxidation in the tissues of the respiratory tract of children with respiratory diseases living at different altitudes in Kyrgyzstan.

A total of 209 children, including 104 with chronic respiratory diseases and 105 healthy controls, were examined. The study included clinical examinations, endoscopic evaluations, and biopsies when necessary. Biological samples such as exhaled air condensate and nasal lavages were collected to measure various biochemical indicators including total lipids, hydroperoxides, diene conjugates, and oxidative index. Preliminary results indicate that children residing at higher altitudes exhibit more pronounced changes in respiratory tissues, likely due to climatic and environmental factors specific to high-altitude regions. These children showed significantly higher levels of free radical oxidation products and altered surface tension in biological samples compared to those living at lower altitudes. Complaints such as shortness of breath, difficulty breathing, cough, and nasal congestion were also more frequent among children at higher altitudes.

The study highlights the need for further research to better understand the impact of altitude on respiratory health and to develop effective strategies for the treatment and prevention of respiratory diseases in children.

Future research should focus on the longitudinal tracking of respiratory health, detailed environmental assessments, and the development of targeted public health strategies to address the unique challenges faced by high-altitude populations.

Ultimately, this research aims to improve respiratory health outcomes for children living in diverse geographic settings.

KEYWORDS: *surfactant, bronchial asthma, pathogenesis, immunomodulation, endonasal swabs, pathophysiology.***CITE THIS ARTICLE AS:**

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