Executive Summary

Title: From urban to alpine: environmental microbial transfer in urban adults – the ALM Study.

Audience: Public health policymakers, health promotion officers, regional government officials, and health professionals

Reference: Based on Freidl et al. (2026), Frontiers in Public Health

A strong executive summary would be your bridge from scientific evidence to strategic decision-making. To produce this executive summary, I transformed a peer-reviewed pilot health study into a document with a scientific base but a tailored tone, an actionable structure, and direct language. It was designed to help decision-makers rapidly grasp the development, direction, and relevance of the study without scientific jargon.

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From urban to alpine: environmental microbial transfer in urban adults – the ALM Study

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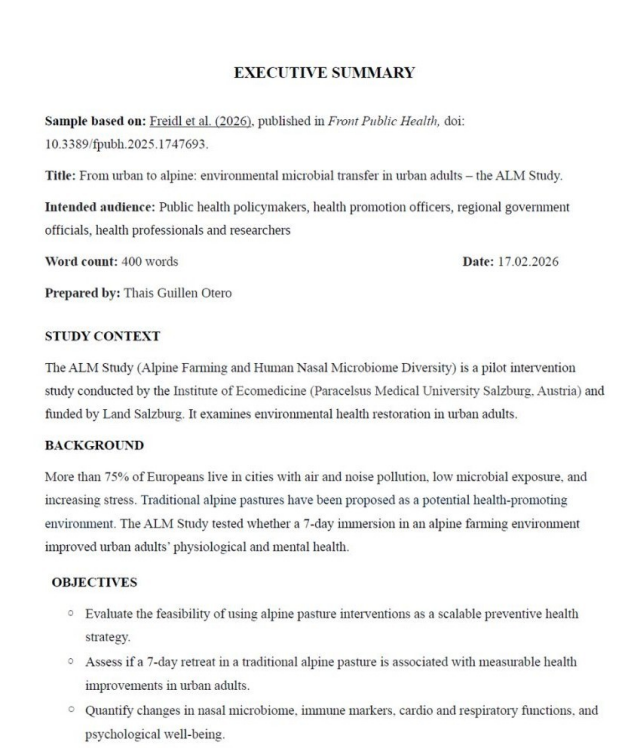
Background: Urbanization is linked to reduced microbial exposure, increased prevalence of lifestyle-related diseases, and diminished psychological resilience. In contrast, traditional alpine farming environments offer high biodiversity and low pollution, potentially promoting restorative health effects. The ALM Study (ALpine Farming and Human Nasal Microbiome Diversity) explored the feasibility and physiological impact of a 7-day immersion in such an environment among previously unexposed ("Alm-naive") individuals.

Methods: This prospective, single-arm feasibility study was conducted in the Riedingtal Valley, Austria. Twenty-two healthy adults (median age: 30.5 years), with no prior agricultural exposure, participated in a 7-day immersive intervention involving daily alpine farming activities. Biological (nasal swabs, venous blood), physiological (VO_2max), and psychological (WHO-5 psychological wellbeing index, EQ-5D VAS, NR-6) data were collected immediately before and after the intervention. The primary outcome was the change in nasal microbiome diversity (16S rRNA gene amplicon sequencing); secondary outcomes included hematological markers, lipid metabolism, inflammatory parameters, and wellbeing scores. Pre-post changes were analyzed using Wilcoxon signed-rank tests.

Results: Nasal microbiome analysis revealed significant increases in species richness and evenness ($p < 0.001$). In addition, descriptive analyses indicated changes in relative phylum-level composition, with reduced Proteobacteria dominance and variable increases in Firmicutes and Actinobacteriota. Hematocrit (+3.1%, $p = 0.01$), reticulocyte count (+0.39%, $p < 0.001$), and platelet count (+27 G/L, $p = 0.02$) increased significantly, suggesting erythropoietic and immunological activation. Additionally, activation of the immune system became evident, as reflected by a slight but significant rise in CRP (+0.04 mg/dL, $p = 0.01$), in the absence of concurrent changes in IL-6 or leukocyte counts. Total cholesterol (−8.08 mg/dL, $p = 0.02$) and non-HDL cholesterol (−2.00 mg/dL, $p = 0.01$) decreased. VO_2max showed a positive trend (+3.43 mL·kg^{-1}·min^{-1},



EXECUTIVE SUMMARY

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Title: From urban to alpine: environmental microbial transfer in urban adults – the ALM Study.

Intended audience: Public health policymakers, health promotion officers, regional government officials, health professionals and researchers

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Prepared by: Thais Guillen Otero

STUDY CONTEXT

The ALM Study (Alpine Farming and Human Nasal Microbiome Diversity) is a pilot intervention study conducted by the Institute of Ecomedicine (Paracelsus Medical University Salzburg, Austria) and funded by Land Salzburg. It examines environmental health restoration in urban adults.

BACKGROUND

More than 75% of Europeans live in cities with air and noise pollution, low microbial exposure, and increasing stress. Traditional alpine pastures have been proposed as a potential health-promoting environment. The ALM Study tested whether a 7-day immersion in an alpine farming environment improved urban adults' physiological and mental health.

OBJECTIVES

- Evaluate the feasibility of using alpine pasture interventions as a scalable preventive health strategy.
- Assess if a 7-day retreat in a traditional alpine pasture is associated with measurable health improvements in urban adults.
- Quantify changes in nasal microbiome, immune markers, cardio and respiratory functions, and psychological well-being.

To read the full summary, click **here**.