

Abstract

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Title: Effective lifestyle strategies and their impact on longevity

Objective: The aim of this thesis is to identify and analyze effective lifestyle strategies that positively influence longevity and to assess their impact on selected physiological and health-related parameters. The thesis focuses on key interventions in the areas of nutrition, physical activity, sleep patterns, and stress management. The analysis is based on qualitative data collected from respondents who have implemented long-term lifestyle changes. The findings of this study may contribute to a deeper understanding of the factors influencing longevity and offer recommendations for optimizing healthy aging.

Methods: A qualitative case study method was used for this thesis. A cohort of five respondents who had consistently applied changes in nutrition, physical activity, sleep, and stress management was monitored. Data were collected through structured questionnaires and objective measurements, including resting heart rate (RHR), blood pressure (BP), central systolic blood pressure (cSBP), and body composition analysis (InBody). Results were evaluated in terms of parameter development and compared with current knowledge in the field of healthy aging.

Results: The results show that a combination of targeted lifestyle interventions led to improvements in key health parameters. All respondents experienced a reduction in central systolic pressure, an increase in muscle mass, and a decrease in visceral fat. Subjective improvements were also reported in sleep quality, psychological well-being, and stress management. The most significant improvements were observed among respondents who optimized multiple lifestyle domains simultaneously, suggesting a synergistic effect of the individual strategies.

Conclusion: This thesis confirmed that simultaneous optimization of key lifestyle pillars—nutrition, physical activity, sleep, and mental well-being—can significantly impact physiological indicators associated with longevity. The findings suggest that even relatively

short-term changes can positively influence aging-related risk factors and promote healthy aging.

The study supports the notion that a comprehensive approach to lifestyle, involving coordinated and systematic improvements across multiple domains, is an effective tool in the prevention of chronic diseases and in the support of metabolic health. In practice, emphasis should be placed on personalized strategies that are sustainable and tailored to the individual's life context. It is recommended that such a comprehensive approach be actively promoted within preventive medicine and public health, alongside the long-term monitoring of achieved changes. Further research on larger and more diverse populations could contribute to a deeper understanding of the effectiveness of individual interventions and their interactions in everyday life.

Keywords: healthy lifestyle, aging prevention, biological mechanisms, epigenetics, physical activity, nutrition, sleep, stress