

A Review of the Effects of 8 Weeks of Moderate-Intensity Exercise Outdoors on Anthropometric and Cardiovascular Indicators and the Importance of the Environment in Changes

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Purpose: To assess changes in health indicators after an 8-week outdoor intervention programme and evaluate whether the environment (paved or green areas) influences these outcomes.

Methods: This study is part of the Health Benefits of Outdoor Physical Activity study, an ancillary study within the *GoGreen-Routes* project. The sample comprised 47 adults (38.3% men, 61.7% women) aged 30–58 years ($M = 41.94 \pm 6.911$) from Tallinn, Estonia. Participants were asked to walk or run on a self-selected route at least three times a week for at least 30 minutes. Participants were randomly allocated into two groups, based on the areas where the training should be performed – paved areas ($n = 22$) or green areas ($n = 25$).

Participants' body height and weight, waist circumference, hip circumference, body fat percentage, muscle mass, systolic and diastolic blood pressure, heart rate, and 6-minute walk distance were measured at two time points: at baseline and during the last week of the intervention. Using the Sports Tracker application, participants recorded the duration and distance of their workouts, which was then shared with the researchers. Between-group differences were tested through independent samples *t*-test. The SPSS programme was used for data analysis, with a significance level of $p < 0.05$.

Results: On average, 56.7% of participants showed improvements in their health outcomes, while a decrease was observed in 43.9% of them. About 87% of the participants enhanced their performance in the 6-minute walk test (average change: green areas, 44.1 ± 25.5 m; paved areas, 36.5 ± 30.6 m; $p = 0.363$), whereas an increase in BMI was seen in 59.6% of participants (average change: green areas, -0.115 ± 0.782 kg/m²; paved areas, 0.223 ± 0.444 kg/m²; $p = 0.080$).

For most indicators, the environment did not play a significant role. However, body fat percentage decreased on average ($-0.62 \pm 1.31\%$) among those who did the training in green areas, while it increased (0.3 ± 1.24) among those who trained in paved areas ($p = 0.0018$ between groups).

Conclusion: The 8-week outdoor intervention programme was not enough to improve all health-related outcomes. However, green areas seem to be favourable for enhancing health indicators. Future studies should also include the monitoring of nutrition, to understand its impact in association with physical activity.

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