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EXTENDED ABSTRACT

The Effect of Swimming Exercise on Body Composition Among Sedentary Young Males

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I. Introduction

Obesity and sedentary lifestyles are rising among young males, increasing the risk of chronic health conditions [1]. While exercise is known to aid weight loss, swimming remains underexplored in this context. This study investigates the effects of regular swimming on weight, waist, and hip circumference among sedentary young males, and compares outcomes with a control group not engaged in physical activity.

II. Methods

Thirty-four sedentary males aged 18–30 were purposely assigned to a swimming (n = 17) or control group (n = 17). The intervention group completed six weeks of supervised freestyle swimming, three sessions weekly, each lasting 60 minutes. Body weight, waist, and hip circumference were measured pre- and post-intervention using standard instruments. Data were analyzed using paired and independent sample t-tests at $p < 0.05$ to assess within- and between-group differences.

III. Results and Discussion

A. Effect of Swimming on Body Weight, Waist, and Hip Circumference

After six weeks of swimming, participants lost an average of 0.6 kg. This reduction was statistically significant ($p <$ 0.001), supporting [2], that aquatic exercise promotes weight loss in sedentary groups. Although modest, the consistent pattern suggests swimming is a viable intervention for early-stage weight management in inactive populations.

Waist and hip circumferences significantly decreased following the swimming program. Waist size dropped from 33.0 to 32.2 inches ($p <$ 0.001), while hip circumference declined from 38.7 to 37.4 inches (p = 0.032). These results indicate improved body composition and support earlier findings that swimming reduces central adiposity [3].

B. Comparisons Between the Swim Group and Control Group on Body Composition

Weight changes between the swimming and control groups were not statistically significant (p = 0.141). While the swimming group experienced a larger average reduction (0.6 kg vs. 0.1 kg), the difference did not reach statistical significance, possibly due to sample size limitations, which aligns with Cox et al. [4] and the suggestion that aquatic interventions may require more time to reach between-group significance. Nonetheless, the trend favours swimming for better weight-related outcomes.

TABLE I
ANTHROPOMETRIC MEASUREMENTS BEFORE AND AFTER THE INTERVENTION (MEAN ± SD)

Variables	Swim Gp (pre)	Swim Gp (post)	Control Gp (pre)	Control Gp (post)	*p*-value (within group)	*p*-value (between-group)
Weight (kg)	75.1 ± 10.7	74.5 ± 10.5	68.9 ± 14.6	67.9 ± 14.4	<0.001	0.141
Waist (in)	33.0 ± 2.77	32.2 ± 2.93	31.4 ± 5.34	31.2 ± 5.19	<0.001	0.522
Hip (in)	38.7 ± 4.54	37.4 ± 3.60	37.0 ± 3.68	36.8 ± 3.79	0.032	0.646

**Note: Within-group p-values reflect paired sample t-tests. Between-group p-values reflect independent sample t-tests. N = 17 per group. Measurements are in kilograms (kg) and inches (in).*

IV. Conclusions

Regular swimming for over six weeks significantly improved body weight and composition in young sedentary males. Although between-group differences were not significant, changes within groups suggest that structured aquatic exercise is a promising short-term intervention. Longer periods and larger groups best serve future validation and generalizability.

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REFERENCES

[1] Chong, C. T., Lai, W. K., Sallehuddin, S. M., & Ganapathy, S. S. (2023). Prevalence of overweight and its associated factors among Malaysian adults: Findings from a nationally representative survey. *PLoS ONE*, 18(8), e0283270. https://doi.org/10.1371/journal.pone.0283270.

[2] Charmas, M. & Gromisz, W. (2019). Effect of 12-week swimming training on body composition in young women. *Int. J. Environ. Res. Public Health*, 16(3), 346. https://doi.org/10.3390/ijerph16030346.

[3] Suarez-Villadat, B., Luna-Oliva, L., Acebes, C., & Villagra, A. (2020). The effect of swimming program on body composition levels. *Res. Dev. Disabil.*, 102, 103643. https://doi.org/10.1016/j.ridd.2020.103643.

[4] Cox, K. L., Burke, V., Beilin, L. J., & Puddey, I. B. (2010). A comparison of the effects of swimming and walking on body weight and fat distribution. *Metabolism*, 59(11), 1562–1573. https://doi.org/10.1016/j.metabol.2010.02.001.