地域在住高齢者を対象とした運動強度の個別処方による速歩トレーニングの血管内皮機能に対する効果検証

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Effect of Interval Walking Training at Individually Tailored Intensity on Improving Endothelial Function among Community-Dwelling Elderly

by

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ABSTRACT

Purpose: To investigate whether exercise training improves endothelial function.
Methods: The present study included community-dwelling elderly individuals who were 65 years of age or older. The study participants were divided into the intervention group and the control group. The intervention group underwent the exercise program "interval walking training" during 5 months. Those who completed the assessments before and after the intervention period and did not have missing data were included in the analysis. The reactive hyperemia index (RHI) was used to evaluate endothelial function.

Results: Forty-four males (19 from the intervention group) and 44 females (17 from the intervention group) were analyzed. At the baseline assessment, the RHI was

1.88 ± 0.58 for males and 1.96 ± 0.73 for females. Among males, the RHI significantly increased in the intervention group, while the RHI did not significantly change in the control group. Among females, the RHI did not significantly change during the period either in the intervention or control group. Among males, the percent change of RHI was 25.4 ± 40.0% in the intervention group and 7.1 ± 37.7% in the control group (p = 0.127). Among females, the percent change of RHI was 22.6 ± 54.6% in the intervention group and 19.0 ± 47.0% in the control group (p = 0.971). After adjusting for age and hypertension, the percent change of RHI tended to be higher in the male intervention groups than in the control groups (p = 0.096 for males and p = 0.567 for females).

Conclusion: Interval walking training during 5 months would improve endothelial function among community-dwelling elderly males.

要　旨

【目的】運動介入による血管内皮機能の改善効果を検証すること.

【方法】地域在住 65 歳以上の男女を，介入群と対照群に割付け，介入群に 5 ヶ月間のインターバル速歩トレーニングを実施．介入前後の検査についてデータ欠損の無い者を解析対象とした．血管内皮機能として反応性充血指数（RHI）を計測した.

【結果】解析対象は，男性 44 名（介入群 19 名，対照群 25 名），女性 44 名（介入群 17 名，対照群 27 名）．男女各々の介入前 RHI 値は 1.88 ± 0.58，1.96 ± 0.73．男性の介入群において，介入前に比べ介入後の RHI 値の有意な増加を認めたが，対照群では有意差を認めなかった．女性では両群とも有意差を認めなかった．RHI の変化率は，男性の介入群で 25.4 ± 40.0%，対照群で 7.1 ± 37.7％（p=0.127），女性では介入群 22.6 ± 54.6％，対照群 19.0 ± 47.0％（p=0.971）であり，年齢および高血圧の有無で調整すると，RHI 変化率は男性の介入群で高い傾向を認めた（男性 p=0.096，女性 p=0.567）.

【総括】男性ではインターバル速歩により，血管内皮機能が改善する可能性が示唆された．今後はさらに対象者数を増やし検討する必要がある.