

# The synergistic effect of aerobic exercise and enalapril combined treatment on blood pressure control and recovery outcomes in stroke patients: A clinical retrospective study

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**Abstract:** Aerobic exercise and enalapril are both known to have benefits in controlling blood pressure and enhancing recovery in stroke patients. **Methods:** We conducted an 8-week trial involving 200 stroke patients, divided into two groups. Primary outcomes were changes in systolic and diastolic blood pressure, while secondary outcomes included aerobic fitness, health-related quality of life, body fat percentage, heart rate, LDL and HDL cholesterol levels, and functional status. The intervention group showed significant reductions in systolic blood pressure (from  $135\pm 10$  mmHg to  $130\pm 10$  mmHg,  $P=0.001$ ) and diastolic blood pressure (from  $85\pm 10$  mmHg to  $80\pm 10$  mmHg,  $P=0.002$ ) compared to the control group. Heart rate was reduced more in the intervention group (from 80 bpm to 72 bpm,  $P=0.05$ ), and body fat percentage showed a greater reduction (from 25% to 22%,  $P=0.04$ ). LDL levels were slightly lower (from 140mg/dL to 132mg/dL,  $P=0.10$ ) and HDL levels slightly higher (from 40mg/dL to 47mg/dL,  $P=0.28$ ) in the intervention group, although not statistically significant. Functional status, as measured by the Barthel Index, improved significantly more in the intervention group (from a Barthel Index of 60 to 75,  $P=0.01$ ). Our results suggest that a combined program of aerobic exercise and enalapril may provide additional benefits in blood pressure control, reduction of heart rate and body fat percentage and functional recovery for stroke patients compared to medication alone. The intervention also showed a trend toward improved lipid profile. However, larger and more diverse studies are needed to confirm these findings.

**Keywords:** Aerobic Exercise Training, Enalapril, Stroke, Hypertension

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