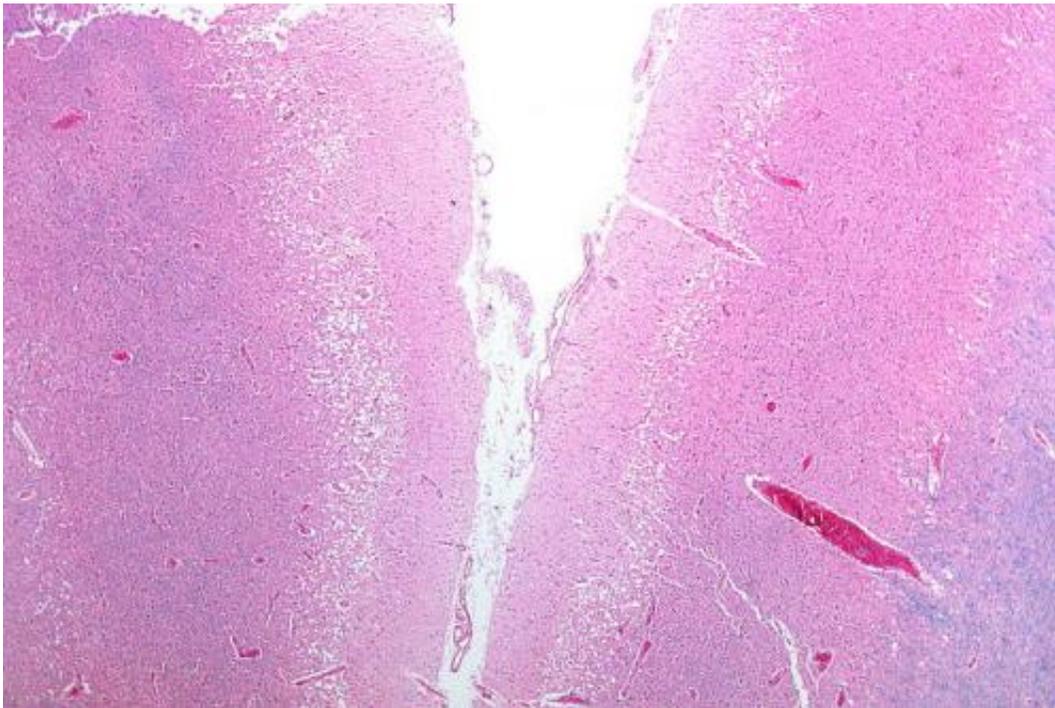


# Aerobic exercise programs may improve endurance, walking after stroke

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Micrograph showing cortical pseudolaminar necrosis, a finding seen in strokes on medical imaging and at autopsy. H&E-LFB stain. Credit: Nephron/Wikipedia

Stroke survivors who completed group-based aerobic exercise programs similar in design and duration to cardiac rehabilitation programs significantly improved their aerobic endurance and walking ability, according to new research in *Journal of the American Heart Association*.

Stroke remains the leading cause of disability in the U.S. and [physical therapy](#) is often prescribed to improve physical impairments after stroke. Most current rehabilitation care following stroke has little to no focus on aerobic fitness, and when continued rehabilitation activity is suggested patients often fail to keep active without any support or guidance, according to an analysis of 19 published studies to assess the impact of aerobic [exercise](#) programs on [endurance](#) and walking ability after stroke.

"The physical therapy we currently provide to patients after a stroke focuses more on improving the ability to move and move well rather than on increasing how far and long you can move," said Elizabeth Regan, DPT, study lead author, and Ph.D. candidate in Exercise Science at the University of South Carolina. "It doesn't matter how well you can walk if your endurance level keeps you at home."

Nearly 500 adults average ages between 54-71 completed aerobic exercise programs similar in structure to cardiac rehabilitation. Participants attended two to three sessions per week for about three months. Of nearly two dozen different exercise groups, walking was the most common type of activity, followed by stationary cycling and then mixed mode aerobic exercise. Physical abilities were tested before and after the intervention.

Looking at results by activity type, researchers found:

- Mixed aerobic activity provides the best result (4 treatment groups) followed by walking (12 treatment groups).
- Cycling or recumbent stepping (machine that allows stepping while in seated position) while still significant was the least effective (7 treatment groups).
- Overall, participants significantly improved their endurance level and walking speed.
- On average, participants walked almost half the size of a football

field farther during a six-minute walking test. Participants with mild movement impairments benefited the most.

"These benefits were realized regardless of how long it had been since their stroke," Regan said. "Our analysis included stroke survivors across a wide range, from less than six months to greater than a year since their stroke, and the benefits were seen whether they started an aerobic exercise program one month or one year after having a stroke."

"Cardiac rehab programs may be a viable option for patients after a stroke who have [health risks](#) and endurance losses similar to traditional cardiac rehab participants," said Stacy Fritz, Ph.D., PT, the study's co-author and associate professor of [exercise science](#) in the Physical Therapy Program at the University of South Carolina. "Almost every hospital has a cardiac rehab program, so it's an existing platform that could be used for stroke survivors. Funneling patients with [stroke](#) into these existing programs may be an easy, cost-effective solution with long-term benefits."

While this study suggests group-based aerobic exercise programs improve health and endurance in [stroke survivors](#), no control group analysis was performed for results comparison. Limited follow-up data were available to determine whether the health benefits persisted.

**More information:** *Journal of the American Heart Association* (2019). [DOI: 10.1161/JAHA.119.012761](https://doi.org/10.1161/JAHA.119.012761)

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