



American  
Heart  
Association.

## Aerobic exercise programs may improve endurance, walking after stroke

*Journal of the American Heart Association Report*

### Study Highlights:

- Stroke survivors who completed a group-based aerobic exercise program, like cardiac rehabilitation, significantly improved their endurance and walking capacity regardless of time since stroke.
- Mixed forms of aerobic activity and walking had the most benefit for stroke survivors.

### Embargoed until 4 a.m. CT / 5 a.m. ET Wednesday, Aug. 14, 2019

DALLAS, Aug. 14, 2019 — 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](#), the Open Access Journal of the American Heart Association/American Stroke Association.

[Stroke](#) remains the leading cause of disability in the U.S. and physical therapy is often prescribed to improve physical impairments after stroke.<sup>1</sup> 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.<sup>2 3</sup>

“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.”

In total, nearly 500 adults average ages between 54-71 completed aerobic exercise programs similar in structure to cardiac rehabilitation programs. Participants attended two to three sessions per week for about three months.<sup>4</sup> Of nearly two dozen different exercise groups, walking was the most common type of activity, followed by cycling and then mixed mode aerobic exercise. Physical abilities were tested before and after the intervention.<sup>5</sup>

Looking at results by activity type, researchers found:

---

<sup>1</sup> American Heart Association: [https://professional.heart.org/idc/groups/ahamah-public/@wcm/@sop/@smd/documents/downloadable/ucm\\_503396.pdf](https://professional.heart.org/idc/groups/ahamah-public/@wcm/@sop/@smd/documents/downloadable/ucm_503396.pdf)

<sup>2</sup> Abstract – methods and results

<sup>3</sup> Page 4 (line 15)

<sup>4</sup> Study Page 9 results near top

<sup>5</sup> Study page nine – bottom of page

- Mixed aerobic activity provides the best result (4 treatment groups) followed by walking<sup>6</sup> (12 treatment groups).<sup>7</sup>
- Cycling or recumbent stepping (machine that allows stepping while in seated position) while still significant was the least effective (7 treatment groups).<sup>8</sup>
- Overall, participants significantly improved their endurance level and walking speed.

On average, participants walked almost half the size of a football field<sup>9</sup> farther during a six-minute walking test. Participants with mild movement impairments benefited the most.<sup>10</sup>

“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 similar health risks and endurance losses,” 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 would 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.

Other co-authors are Reed Handlery, D.P.T. and Michael Beets, Ph.D. Author disclosures are on the manuscript.

Funding from the American Heart Association, the University of South Carolina and the Foundation for Physical Therapy Research supported the study.

#### **Additional Resources:**

- [Many stroke survivors don’t receive timely rehab](#)
- [New recommendations for stroke systems of care to improve patient outcomes](#)
- Follow AHA/ASA news on Twitter [@HeartNews](#)

###

Statements and conclusions of study authors published in American Heart Association scientific journals are solely those of the study authors and do not necessarily reflect the association’s policy or position. The association makes no representation or guarantee as to their accuracy or reliability. The association receives funding primarily from individuals; foundations and corporations (including pharmaceutical, device manufacturers and other companies) also make donations and fund specific association programs and events. The association has strict policies to prevent these relationships from influencing the science content. Revenues from pharmaceutical and device corporations and health insurance providers are available at <https://www.heart.org/en/about-us/aha-financial-information>.

<sup>6</sup> Manuscript – page 12 1<sup>st</sup> paragraph

<sup>7</sup> Manuscript – page 12 1<sup>st</sup> paragraph

<sup>8</sup> Manuscript – page 12 1<sup>st</sup> paragraph

<sup>9</sup> 173 feet

<sup>10</sup> Study abstract – methods and results – converted meters to feet

**About the American Heart Association**

The American Heart Association is a relentless force for a world of longer, healthier lives. We are dedicated to ensuring equitable health in all communities. Through collaboration with numerous organizations, and powered by millions of volunteers, we fund innovative research, advocate for the public's health and share lifesaving resources. The Dallas-based organization has been a leading source of health information for nearly a century. Connect with us on [heart.org](http://heart.org), [Facebook](#), [Twitter](#) or by calling 1-800-AHA-USA1.

**Contact Information:** Elizabeth Regan may be reached at 704-609-2409; [eregan@email.sc.edu](mailto:eregan@email.sc.edu). Dr. Fritz may be reached at 803-777-6887; [sfritz@mailbox.sc.edu](mailto:sfritz@mailbox.sc.edu). *(Please do not publish contact information.)*

**For Media Inquiries and AHA/ASA Expert Perspective: 214-706-1173**

Karen Astle: 214-706-1392; [karen.astle@heart.org](mailto:karen.astle@heart.org)

For Public Inquiries: 1-800-AHA-USA1 (242-8721)

[heart.org](http://heart.org) and [strokeassociation.org](http://strokeassociation.org)