

Prestroke physical activity could influence acute stroke severity (part of PAPSIGOT)

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Study objective

To determine how prestroke physical activity (PA) affects acute stroke severities.

Summary results

Prestroke PA is associated with milder stroke severities.

What is known and what this paper adds

Animal studies have indicated that prestroke PA reduces stroke severities and promotes recovery, but human studies have been inconsistent. This study provides evidence for the benefits of prestroke PA in humans.

Participants and setting

This study reviewed data for 925 patients (45.2% female; mean age, 73.1 years; age range, 20–104 years) who were admitted to Sahlgrenska University Hospital (Gothenburg, Sweden) for first-ever intracerebral hemorrhage or ischemic stroke between November 1, 2014, and April 30, 2016.

Design, size, and duration

This study retrospectively accessed data from the Swedish Stroke Register and a local stroke register called Väststroke. NIH Stroke Scale (NIHSS) scores were used to classify stroke events as mild (NIHSS scores of 0–5) or moderate-to-severe (NIHSS scores ≥ 6). Physical therapists asked the patients about their prestroke PA levels and then assigned Saltin-Grimby PA Level Scale (SGPALS) scores, with scores of 1, 2, and 3–4 indicating prestroke physical inactivity, light prestroke PA, and moderate to high prestroke PA, respectively. Logistic regression was used to identify predictors of stroke severity, and negative binomial regression analyses were used to specifically examine associations between prestroke PA and stroke severity.

Primary outcome measures

The primary outcome was the association between prestroke PA and stroke severity.

Table Predictors of mild stroke severities in the logistic regression model

Predictor of mild stroke severities	B Coefficient (standard error)	OR (95% CI)
Prestroke PA	0.70 (0.18)	2.02 (1.43–2.86)
Age	–0.03 (0.01)	0.97 (0.96–0.99)

Main results and the role of chance

Negative binomial regression showed that prestroke physical inactivity was associated with greater stroke severities relative to light prestroke PA ($p < 0.001$) and moderate prestroke PA ($p < 0.001$). The predictors of mild stroke severities in the logistic regression model were prestroke PA and younger ages ($p < 0.001$ for both), but the model's explanatory value was only 6.8%.

Bias, confounding, and other reasons for caution

Some data were missing for some participants. SGPALS scores were assigned based on self-reported prestroke PA, which might have introduced recall bias.

Generalizability to other populations

The large patient sample from a country with freely accessible healthcare favors the generalizability of this study's results.

Study funding/potential competing interests

This study was funded by various foundations and Swedish national and local government agencies. The authors report no competing interests. Go to Neurology.org/N for full disclosures.

A draft of the short-form article was written by M. Dalefield, a writer with Editage, a division of Cactus Communications. The authors of the full-length article and the journal editors edited and approved the final version.

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