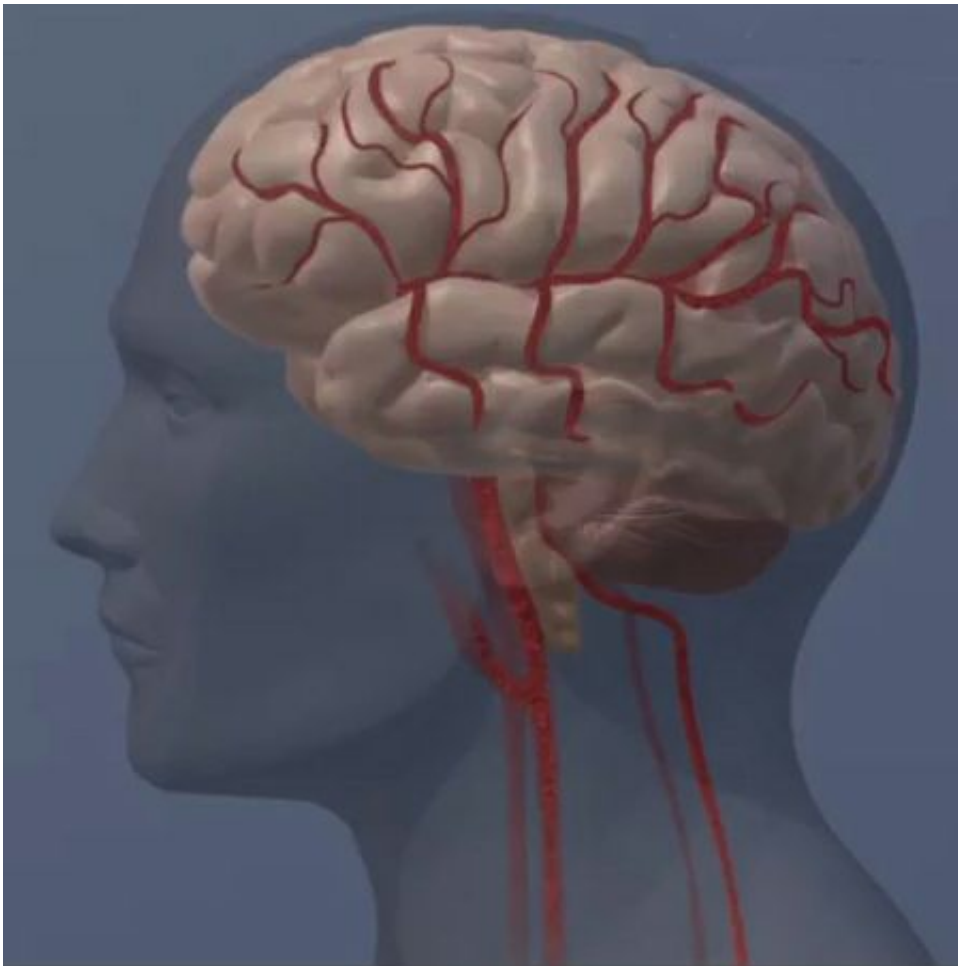


# Carotid bypass surgery doesn't help cognitive performance after stroke

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Brain image. Credit: American Heart Association

Surgery to bypass a blocked carotid artery in order to restore adequate blood flow to the brain does not improve cognitive performance in

patients who've had a stroke or mini-stroke (TIA), according to research presented at the American Stroke Association's International Stroke Conference 2013.

"When [patients](#) receive the best medical therapy – including statins for cholesterol and medications to control diabetes and [high blood pressure](#) – cognitive improvement is no different when bypass surgery is added to medical therapy," said Randolph S. Marshall, M.D., M.S., lead author of the study and Elizabeth K. Harris Professor of Neurology and chief of the stroke division at the Neurological Institute of New York at Columbia University Medical Center.

In extracranial-intracranial (EC-IC) bypass, the surgeon connects a scalp artery outside the skull to a brain artery inside the skull through a small hole, bypassing the blocked carotid artery so more blood can flow to the brain. An earlier part of the study, the Carotid [Occlusion](#) Surgery Study (COSS), evaluated EC-IC in patients with a completely blocked [carotid artery](#) but measured a different outcome. COSS was stopped in 2010 after an interim analysis revealed that patients who underwent bypass had no fewer strokes than those on medical therapy alone.

The current study, "Randomized Evaluation of Carotid Occlusion and Neurocognition (RECON)," was an ancillary trial of COSS designed to determine whether the bypass could preserve or improve cognition over two years. Patients' average age was 57.1 (range 41 - 75), and included 25 men and 10 women. The National Institutes of Health encouraged RECON to continue after the main trial was terminated.

Twenty-eight patients survived without a subsequent stroke to undertake the two-year cognitive evaluation, 15 on optimal medical treatment and 13 who had optimal medical treatment as well as EC-IC bypass.

All participants had experienced a clot-caused stroke or mini-stroke and

had cognition problems. Patients with cognition problems reported mild short-term memory loss, poor concentration or not feeling mentally sharp. The most common abnormalities on cognitive testing were taking longer on timed tasks or on tasks that required switching back and forth between types of information.

Tests at baseline indicated that patients with the worst blood flow had the worst cognitive difficulties. However, surgery was no better than [medical therapy](#) at preserving or improving mental functioning in the two years after treatment began.

"One problem that could partly explain the negative results was that only three out of 13 patients in the surgical group actually achieved normal blood flow after the operation," Marshall said.

The most cognitive improvement was found in patients who had better blood flow to the brain at baseline and those who had experienced a transient ischemic attack (mini-stroke) rather than a full stroke.

"It's still quite likely that cognitive impairment due to a low blood flow state represents one of the only reversible types of dementia," Marshall said. "Besides this bypass operation, there are other ways of achieving better blood flow – both mechanical and pharmacological – so the next direction for this work is to find a treatment that has a better chance of improving [blood flow](#) with fewer complications."

**More information:** Video: [newsroom.heart.org/news/caroti ...  
23e529371a4312000ee3](https://newsroom.heart.org/news/caroti...23e529371a4312000ee3)

Provided by American Heart Association

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