

### What is clot removal?

Clot removal is a procedure in which doctors use miniature tools (attached to the end of a long, thin tube called a catheter) to break up or remove a blood clot that is blocking a blood vessel in the brain and causing a blocked-vessel (ischemic) stroke. The catheter is inserted through an incision in your groin or arm and guided through your arteries to the site of the clot using moving x-ray images. Then the tool at the tip of the catheter takes hold of the blood clot, pulls it back into the catheter, and removes it from the body.

There are two kinds of devices approved for the removal of blood clots in people having a blocked-vessel stroke. One is a tiny corkscrew-shaped device that snares the clot and pulls it out of the body.<sup>1, 2</sup> The other is a vacuum-like device that uses suction to pull the blood clot back into the catheter.<sup>3</sup> Researchers are also experimenting with other kinds of devices to remove or break up clots, including tiny baskets, lasers, and sound waves.

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In patients who have certain types of aneurysms or who have large clots in the brain, surgery to direct the blood around the problem may be another treatment option. See our article on [Brain Bypass Surgery](#) for more.

### How are clot removers used to treat stroke?

Clot removers can be used up to 8 hours after a stroke begins.<sup>1, 3</sup> This is an important advantage because the first-choice treatment for blocked-vessel stroke, the drug

[tPA](#)

, can only be used within a few hours of when stroke symptoms first appeared. Most people do not arrive at the emergency room until 3 to 6 hours after they have suffered a stroke.

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In patients with blocked-vessel stroke who are not eligible for tPA for medical reasons or because they arrived more than 3 hours after the stroke occurred, clot removers may be used to

restore blood flow to the brain if the blockage is in a large blood vessel.<sup>1, 5</sup> Clot removers can also be used in patients who received tPA but in whom the drug was unable to clear the blocked artery.<sup>5-7</sup>

In one study of 151 stroke patients (46% were women) who were not eligible for tPA, the corkscrew-shaped device was able to remove the clot and restore blood flow quickly in 48% of patients.<sup>1</sup> Another study of a newer version of this device in 164 stroke patients (57% were women) found that the device was successful in opening the blocked artery in 57% of patients in whom tPA had failed to break up the clot.<sup>7</sup>

The vacuum device was approved early in 2008 based on the results of one study of 125 patients with blocked-vessel stroke who were ineligible for treatment with tPA.<sup>3</sup> The device was able to remove the clot in more than 80% of patients.<sup>3</sup>

Studies of these devices have so far been too small to determine if they work differently in women than in men, and none of the studies have followed patients for a long period of time. It is too soon to tell if opening a blocked vessel with the clot removal procedure lowers your chance of dying or having another stroke.<sup>2</sup> For now, clot removers are only available in a few large hospitals that specialize in treating stroke.

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