AngioJet™ Ultra Peripheral Thrombectomy System – Factsheet

Boston Scientific offers different systems for **thrombectomy** depending on the location of the thrombus. These systems are designed to **remove thrombi (blood clots) from the body and provide rapid restoration of blood flow**.

Mechanical thrombectomy devices are special catheters designed to help break up and physically remove all or portions of the blood clot during a minimally invasive procedure.

A mechanical thrombectomy procedure can help **quickly restore blood flow**, **reduce the amount and duration of medications patients have to take**, and may help prevent damage to the valves in the veins, which can cause post-thrombotic syndrome (PTS).

Boston Scientific systems

- **The AngioJet™ Ultra Coronary Thrombectomy System**, a mechanical thrombectomy device for people with large thrombus burden undergoing a percutaneous coronary intervention (PCI). Such system removes thrombus in native coronary **arteries and saphenous vein bypass grafts**, and is designed to mechanically restore blood flow of patients with thrombosed arteries.

- **The AngioJet™ Ultra Peripheral Thrombectomy System** is the **only pharmaco-mechanical peripheral thrombectomy device** designed to treat the widest range of thrombosed vessels - including clots from vessels as small as 1.5mm to large clot burdens in iliofemoral veins.

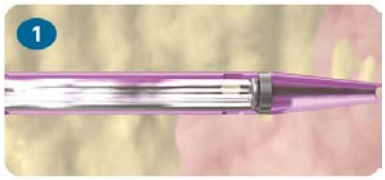
  This system can be used with the **AngioJet™ ZelanteDVT™ Thrombectomy Catheter**, specifically **designed to treat deep vein thrombosis (DVT) in large-diameter upper and lower peripheral veins**.

Left: ZelanteDVT™ Thrombectomy Catheter. Above: console of AngioJet™ Ultra Peripheral Thrombectomy System.

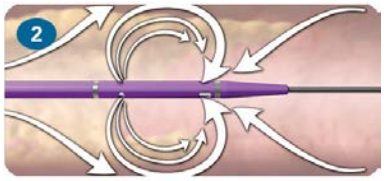
How does the AngioJet™ Ultra Peripheral Thrombectomy System work?

The AngioJet™ Thrombectomy System provides a way of removing venous thrombus and restoring flow in the affected veins.

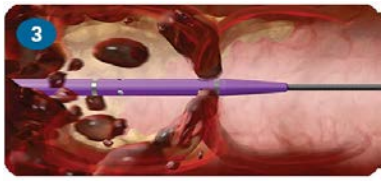
Mechanical thrombectomy for DVT with the Angiojet™ System can result in **shorter and less costly procedures than traditional catheter-directed thrombolysis (CDT), which may take a mean infusion time of 48 hours.**[1]



Pressurised saline jets travel backwards to create a low pressure zone causing a vacuum effect. This mechanism of action is based on the so-called Bernoulli Effect. (Read the note to learn more about this principle and an everyday example)[b]



Saline escapes from the outflow window of the catheter and acts to loosen thrombus and push it towards the inflow windows. AngioJet ™ is isovolumetric, i.e. fluid volumes do not change.



Thrombus is drawn into the catheter where it is fragmented by the jets and evacuated from the body through the catheter.

Power Pulse™ delivers medication directly into the clot, saturating and softening the thrombus, enabling pharmaco-mechanical therapy.

For an animation showing how Angiojet and thrombectomy work, click here: *https://www.youtube.com/watch?v=pXF2h2e5-co*

Clinical data[a]

Latest data from the PEARL Registry[2] which studied the AngioJet™ Thrombectomy System showed that 38% of DVT treatments were completed in less than 6 hours and 75% completed in less than 24 hours.

Other highlights included:

- no catheter-directed thrombolysis (CDT) was needed in 40% of venous cases
- 86% of cases utilized Power Pulse and/or Rapid Lysis approach (N=371 patients)
- 87% of AngioJet venous cases were completed in two or fewer sessions
- 96% of thrombus in lower extremity veins were removed, with 84% freedom from re-thrombosis at one year.

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References

[1] Vedantham S, Padginton C. Percutaneous Options for Acute Deep Vein Thrombosis. Seminars in Interventional Radiology. 2005;22(3):195-203.
[2] Presented by Dr. Mark Garcia at CIRSE 2013; Final PEARL Data Aug 2013.

[a] The study was a two-phase, prospective, non-randomized multi-centre registry:

- PEARL I (January 2007 - April 2010): Followed patients for 3 months with documentation of symptomatic improvement after rheolytic thrombectomy (with mid-length catheters).
- PEARL II (March 2010 - June 2013): Followed patient outcomes through 12 months after rheolytic thrombectomy with any AngioJet catheter.

All patients were treated with AngioJet catheters. Patient history, procedural information, adjunctive treatments, outcomes and adverse events were collected. Patients were analyzed in arterial, venous & dialysis access indications.

[b] Daniel Bernoulli, a Swiss scientist, formulated a principle that states as the speed in a moving fluid increases, the pressure decreases. An everyday example of how this principle works is the shower: fast water jets flow inside the shower area causing low local pressure and the curtains are sucked into the shower.