Medtronic

Relief from varicose veins is possible.

# See and feel a difference in your legs.

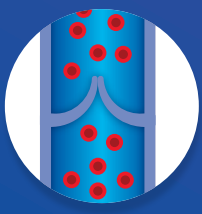
**Treatment choice guide**

---

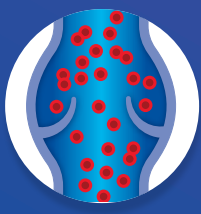
## Understanding vein problems

### About vein disease

Healthy leg veins have valves that keep blood flowing to the heart. Vein disease develops when the valves stop working properly and cause blood to flow backward and pool in the lower leg veins.



**Healthy vein**
Valves ensure blood flows in one direction.



**Diseased vein**
Valves that cannot close allow blood to drain and pool.

# Symptoms and risk factors

## Signs and symptoms in the legs or ankles[1,2]

- Varicose veins
- Aching or pain
- Swelling
- Cramping
- Heaviness or tiredness
- Itching
- Restlessness
- Skin changes and/or discoloration
- Open sores or ulcers

## Known risk factors[1]

- Family history
- Smoking
- Current or previous pregnancies
- Obesity or excess weight
- Prolonged sitting or standing
- Leg injury or trauma
- Lack of exercise
- A blood clot (deep vein thrombosis)

## How to tell if you may have vein disease

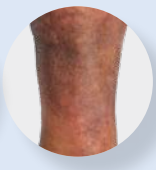
Common symptoms may include heaviness, aching, swelling, itching, cramping, or restless legs.



Varicose veins



Leg swelling



Skin color and texture changes



Venous ulcers

With proper treatment, the progressive symptoms of venous reflux are preventable. Your doctor can help determine which treatment is right for you.

# Treatment options for lasting relief

## Thermal vein closure

**The ClosureFast™ endovenous radiofrequency ablation (RFA) system uses radiofrequency energy or heat to close the diseased vein, which redirects blood flow to healthy veins, relieving symptoms.**

### Benefits of the ClosureFast procedure

- Relief of symptoms after two days, with a noticeable improvement in one to two weeks[3]
- Minimally invasive outpatient procedure
- Less pain and bruising, and faster recovery than laser treatment[3]
- Proven results with positive patient experience[3-5]
- Rapid recovery – on average, patients resume normal activities within a few days[6]
- Lasting results with a **91.9%** closure rate at five years[5]

Possible complications of the ClosureFast procedure may include nerve injury, hematoma, phlebitis, thrombosis, and/or pulmonary embolism. Talk to your doctor about the risks and benefits.




Individual results may vary.
Images courtesy of Dr. Gibson.

**Scan QR code** to learn more about the ClosureFast treatment.

Every patient is different. Talk to your doctor about whether the ClosureFast™ or VenaSeal™ procedure is the right option to help relieve your symptoms.

## Nonthermal vein closure

**The VenaSeal™ closure system delivers a small amount of a specially formulated medical adhesive to close the diseased vein, which redirects blood flow to healthy veins, relieving symptoms.**

### Benefits of the VenaSeal procedure

- No need for postprocedure compression stockings[7,8]
- Rapid return to normal activities[7,9]
- Only one needle stick of numbing medicine[7,9]
- Simple outpatient procedure that can be performed with minimal discomfort[7,9]
- Faster recovery with less pain and bruising compared to thermal ablation[7,9]
- Lasting results with a **94.6%** closure rate at five years[9]

Possible complications of the VenaSeal procedure may include allergic reaction, inflammation, phlebitis, deep vein thrombosis, and/or pulmonary embolism. Talk to your doctor about the risks and benefits.




Individual results may vary.
Images courtesy of Dr. Haney.

**Scan QR code** to learn more about the VenaSeal treatment.

1. Johns Hopkins Medicine. Chronic Venous Insufficiency. Available at: https://www.hopkinsmedicine.org/health/conditions-and-diseases/chronicvenous-insufficiency. Accessed July 29, 2026.
2. Gloviczki P, Comerota AJ, Dalsing MC, et al. The care of patients with varicose veins and associated chronic diseases: clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum. *J Vasc Surg*. May 2011;53(5 Suppl):2S–48S.
3. Almeida JI, Kaufman J, Göckeritz O, et al. Radiofrequency endovenous ClosureFAST versus laser ablation for the treatment of great saphenous reflux: a multicenter, single-blinded, randomized study (RECOVERY study). *J Vasc Interv Radiol*. June 2009;20(6):752–759.
4. Rasmussen LH, Lawaetz M, Bjoern L, Vennits B, Blemings S, Eklof B. Randomized clinical trial comparing endovenous laser ablation, radiofrequency ablation, foam sclerotherapy and surgical stripping for great saphenous varicose veins. *Br J Surg*. August 2011;98(8):1079–1087.
5. Proebstle TM, Alm BJ, Göckeritz O, et al. Five-year results from the prospective European multicentre cohort study on radiofrequency segmental thermal ablation for incompetent great saphenous veins. *Br J Surg*. February 2015;102(3):212–218.
6. Hinchliffe RJ, Ubhi J, Beech A, Ellison J, Braithwaite BD. A prospective randomised controlled trial of VNUS closure versus surgery for the treatment of recurrent long saphenous varicose veins. *Eur J Vasc Endovasc Surg*. February 2006;31(2):212–218.
7. Proebstle T, Alm J, Dimitri S, et al. Three-year follow-up results of the prospective European Multicenter Cohort Study on Cyanoacrylate Embolization for treatment of refluxing great saphenous veins. J Vasc Surg Venous Lymphat Disord. March 2021;9(2):329–334.
8. Almeida JI, Javier JJ, Mackay EG, Bautista C, Cher DJ, Proebstle TM. Thirty-sixth-month follow-up of first-in-human use of cyanoacrylate adhesive for treatment of saphenous vein incompetence. J Vasc Surg Venous Lymphat Disord. September 2017;5(5):658–666.
9. Morrison N, Gibson K, McEnroe S, et al. Randomized trial comparing cyanoacrylate embolization and radiofrequency ablation for incompetent great saphenous veins (VeClose). J Vasc Surg. April 2015;61(4):985–994.

VenaSeal™ Brief Statement

Indications for Use: The VenaSeal™ closure system (VenaSeal™ system) is indicated for use in the permanent closure of lower extremity superficial truncal veins, such as the great saphenous vein (GSV), through endovascular embolization with coaptation. The VenaSeal system is intended for use in adults with clinically symptomatic venous reflux as diagnosed by duplex ultrasound (DUS).

Contraindications: Separate use of the individual components of the VenaSeal closure system is contraindicated. These components must be used as a system. The use of the VenaSeal system is contraindicated when any of the following conditions exist: previous hypersensitivity reactions to the VenaSeal adhesive or cyanoacrylates, acute superficial thrombophlebitis, thrombophlebitis migrans, acute sepsis.

Warnings: • The VenaSeal system is not designed for use in the coronary and cerebral vasculature, pulmonary vasculature, or diseased and atherosclerotic arteries • Do not flush the catheter with saline or fluid as this will make it unusable with the VenaSeal adhesive. • Confirm position of the catheter tip in the desired location by ultrasound imaging before activation of the device. • Injection of the VenaSeal adhesive should be done by hand injection only and using the VenaSeal delivery system provided. Do not use a power injector. • Use the introducer in the VenaSeal delivery system for access to the peripheral vasculature. Failure to use the introducer for access may result in damage to the vessel, or failure of the VenaSeal system to perform as intended.

Precautions: • Verify that the VenaSeal adhesive is a clear and free-flowing liquid prior to use. Adhesive that is discolored should be discarded. • The VenaSeal adhesive is intended to be delivered via the VenaSeal delivery system components only.

Potential Adverse Events: The potential complications include, but are not limited to the following: adverse reactions to a foreign body (including, but not limited to, nonspecific mild inflammation of the cutaneous and subcutaneous tissue), arteriovenous fistula, bleeding from the access site, deep vein thrombosis (DVT), edema in the treated leg, embolization, including pulmonary embolism (PE), hematoma, hyperpigmentation, hypersensitivity or allergic reactions to cyanoacrylates, such as urticaria, shortness of breath, and anaphylactic shock, infection at the access site, pain, paresthesia, phlebitis, superficial thrombophlebitis, urticaria, erythema, or ulceration may occur at the injection site, vascular rupture and perforation, visible scarring.

CAUTION: Federal (USA) law restricts this device to sale by or on the order of a physician.

Important information: Indications, contraindications, warnings and instructions for use can be found in the product labeling supplied with each device, at www.medtronic.com/manuals or contact a Medtronic representative.

ClosureRFG™ Radiofrequency Generator Reference Statement: Indications for Use: The ClosureRFG generator is used with radiofrequency catheters intended for vessel and tissue coagulation.

Contraindications: Refer to the applicable radiofrequency catheter instructions for use for a list of contraindications related to a ClosureFast system procedure.

Potential Adverse Effects of the Device on Health: Refer to the applicable radiofrequency catheter instructions for use for a list of potential complications related to a ClosureFast system procedure.

Important: Please reference the Operation Manual for a complete listing of indications, warnings, precautions safety notices, and operational information.

CAUTION: Federal (USA) law restricts this device to sale by or on the order of a physician.

Scan for more information or visit our website at **medtronic.com/breakfree**

Medtronic

**medtronic.com/varicoseveins**

US-CV-2601081 v1.0 ©2026 Medtronic. Medtronic and the Medtronic logo are trademarks of Medtronic. All other brands are trademarks of a Medtronic company. For distribution in the USA only.