

**Medtronic**

Relief from  
varicose veins  
is possible.

ClosureFast™  
procedure for  
vein disease



# Chronic venous insufficiency

## Venous reflux and chronic venous insufficiency

Venous reflux in the legs is one of the causes of varicose veins. If venous reflux is not treated, it may worsen and develop into a more serious form of vein disease called chronic venous insufficiency (CVI).<sup>1</sup>

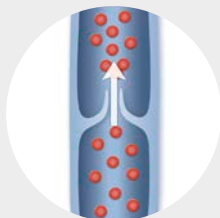
## CVI risk factors<sup>2</sup>

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

## Venous reflux

develops when valves stop working properly and allow blood to flow backward, or reflux, and pool in the lower leg veins.

Healthy leg veins have valves that keep blood flowing to the heart.



### Normal vein

Valves ensure blood flows in one direction



### Diseased vein

Valves that cannot close allow blood to drain and pool

# How to know if CVI is affecting your legs or ankles<sup>2,3</sup>



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

Using ultrasound to scan your leg(s), your physician will determine if you have venous reflux in your leg veins.

CVI and varicose veins are more common than you think. More than 30 million people in the United States are afflicted with venous reflux or the more serious disease, CVI.<sup>3</sup>

With proper treatment, your physician can help prevent the progressive symptoms of venous reflux. Without treatment, venous reflux may progress and significantly impact your quality of life, and lead to venous leg ulcers.<sup>1</sup>

# Leg vein anatomy

## Front of leg

Femoral vein  
(deep vein,  
located deep in  
the leg)

Perforator vein  
(communicating  
vein)

Saphenofemoral  
junction (SFJ)

Great saphenous  
vein (superficial vein,  
located close to the  
skin)

Varicose veins

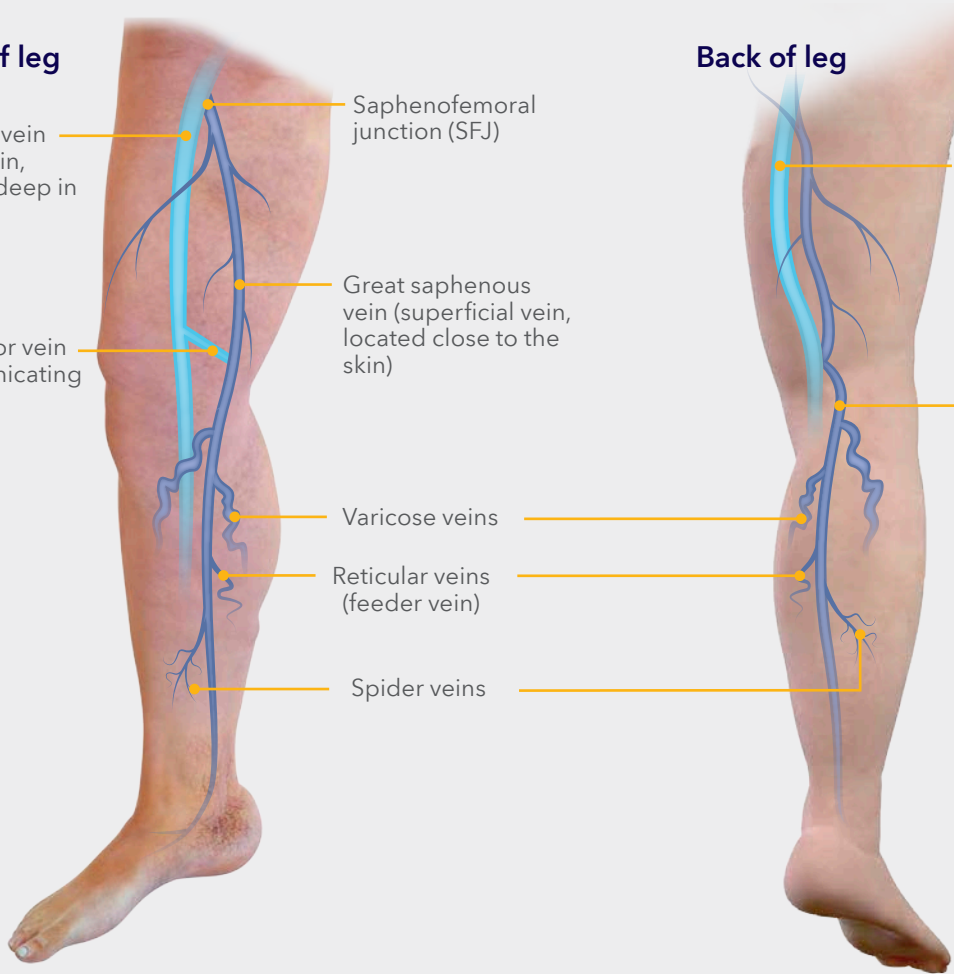
Reticular veins  
(feeder vein)

Spider veins

## Back of leg

Popliteal vein  
(deep vein)

Small saphenous vein  
(superficial vein, located  
close to the skin)



Representative of venous anatomy.

## How to tell if you have vein disease



Varicose veins



Swelling and  
skin discoloration

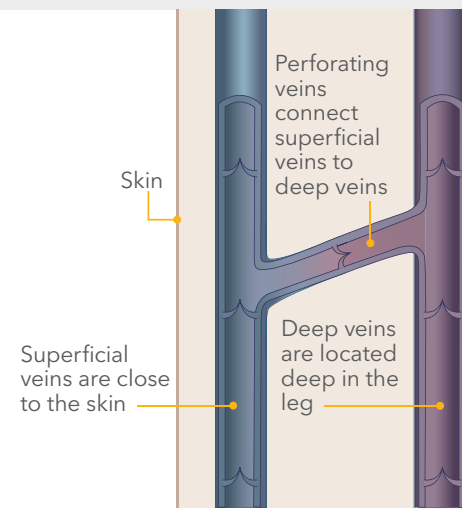


Skin color and  
texture changes



Venous ulcers

Photos courtesy of Rajabrata Sarkar, M.D., Ph.D.



# Discover lasting relief

## ClosureFast™ procedure

### Thermal vein closure

The ClosureFast procedure uses radiofrequency energy, or heat, to close the diseased vein, which redirects blood flow to healthy veins, and relieves symptoms.

- Relief of symptoms after two days, with a noticeable improvement in one to two weeks<sup>4</sup>
- Minimally invasive outpatient procedure
- Local anesthesia along the leg
- Less pain and bruising than laser treatment<sup>4</sup>
- Faster recovery than laser treatment<sup>4</sup>
- Compression stockings needed for at least one week after the ClosureFast procedure<sup>5</sup>
- Proven results with positive patient experience<sup>4-6</sup>
- Rapid recovery – on average, patients resume normal activities in a few days<sup>7</sup>
- The only radiofrequency energy procedure with published long-term clinical data demonstrating safety and efficacy, with a 91.9% closure rate at five years.<sup>5</sup>



**Before**

ClosureFast procedure




**Six weeks after**

ClosureFast procedure†

†Individual results may vary. Images courtesy of Jonathan Calure, M.D., of Maryland Vein Professionals.





Get back to  
doing what  
you love

Though uncommon, possible risks of the ClosureFast procedure can include nerve injury, hematoma, phlebitis, thrombosis, and/or pulmonary embolism.

Your physician will perform the ClosureFast procedure. Using ultrasound, your physician will position a catheter in the diseased vein through a small opening in the skin.

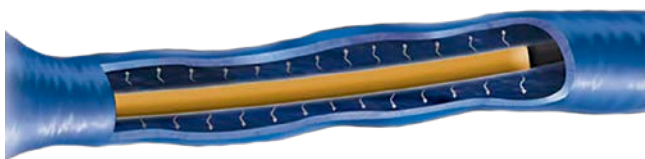
The small catheter delivers heat to the vein wall, causing it to shrink and seal the vein. Once the diseased vein is closed, blood will reroute itself to other healthy veins.

Following the procedure, your physician will apply a simple bandage over the insertion site, and may give you compression stockings to aid the healing process. Your physician may encourage you to walk, and to refrain from extended standing and strenuous activities for a period of time. The average patient typically resumes normal activities in a few days.<sup>7</sup>





Disposable catheter inserted into vein



Controlled heat collapses vein



Catheter withdrawn, closing vein



Close-up view of the ClosureFast catheter



# What can I expect from the ClosureFast procedure?

Answers to some common questions.

## Is the ClosureFast procedure painful?

Most patients report feeling little, if any, pain during the ClosureFast procedure.<sup>4</sup> Your physician should give you a local or regional anesthetic to numb the treatment area.

## How quickly can I get back to normal activity?

Patients treated with the ClosureFast procedure may resume normal activities quicker than patients who undergo surgical vein stripping or laser ablation.<sup>4</sup> With the ClosureFast procedure, the average patient typically gets back to normal activities in a few days.<sup>7</sup> For a few weeks after treatment, your physician may recommend walking regularly and may suggest avoiding very strenuous activities (heavy lifting, for example) or prolonged periods of standing.

## How soon after treatment will I start to feel better?

Most patients report relief of symptoms after two days, with a noticeable improvement in one to two weeks.<sup>4</sup>

## Is there any scarring, bruising, or swelling afterwards?

Most patients report little to no scarring, bruising, or swelling following the ClosureFast procedure.<sup>4</sup>

## Is the ClosureFast procedure covered by insurance?

The ClosureFast procedure is covered by major health insurers, and many pay for the procedure partially or fully. Please discuss your coverage with your insurance provider before seeking treatment.

If you're ready to see and feel a difference  
in your legs and you have more questions:

- Talk to a doctor to learn more about  
the ClosureFast procedure
- Find a doctor at:  
[Medtronic.com/FindVeinDoctor](https://www.Medtronic.com/FindVeinDoctor)
- Learn more at:  
[Medtronic.com/VaricoseVeins](https://www.Medtronic.com/VaricoseVeins)





# Relief is just the beginning.

Learn more at:

[Medtronic.com/VaricoseVeins](https://www.Medtronic.com/VaricoseVeins)

## References

- <sup>1</sup> Eberhardt RT, Raffetto JD. Chronic venous insufficiency. *Circulation*. July 22, 2014;130(4):333-346.
- <sup>2</sup> Chronic Venous Insufficiency. Johns Hopkins Medicine Health Conditions and Diseases. Available at: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/chronic-venous-insufficiency>. Accessed March 8, 2022.
- <sup>3</sup> 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.
- <sup>4</sup> 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.
- <sup>5</sup> 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.
- <sup>6</sup> Rasmussen LH, Lawaetz M, Bjoern L, Vennits B, Blemings A, 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.
- <sup>7</sup> 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.

ClosureFast™ RFA System Reference Statement  
Important: Please reference the Instructions For Use (IFU) for a complete listing of indications, contraindications, warnings and precautions, adverse effects, and suggested procedure.

Caution: Federal (USA) law restricts these devices to sale by or on the order of a physician.

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