Top 5 Vein Conditions and Solutions

Dr. Bryan Ardis D.C.

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COMMON TYPES OF CHRONIC VEIN DISEASE: VARICOSE VEINS, SPIDER VEINS, AND MORE

Chronic vein disease affects millions of people worldwide, with symptoms ranging from cosmetic concerns to significant health risks. Here, we will explore the most common types of chronic vein disease, including varicose veins, spider veins, and other vein disorders.

By understanding these common types of chronic vein disease, their causes, symptoms, and available treatments, you can seek prevention or care when necessary. Early diagnosis and intervention are key to maintaining vascular health.

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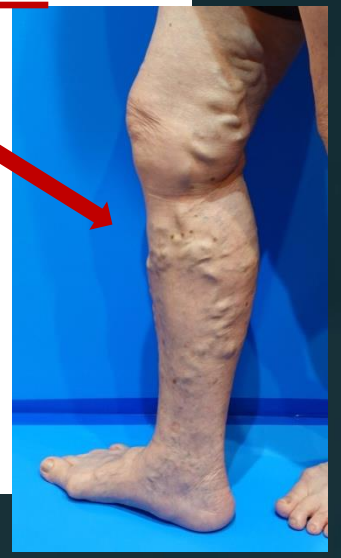
https://www.advancedhvi.com/2024/04/05/common-types-of-chronic-vein-disease-varicose-veins-spider-veins-and-more/

VARICOSE VEINS

Varicose veins are large, twisted, and swollen veins that typically appear on the legs and feet due to improper functioning of valves within the veins, which cause the blood to flow backwards and pool in the vein. Warmer weather and prolonged standing may make varicose vein symptoms worse.

- **Symptoms:** Aching pain, heaviness, itching, swelling, and night cramps.
- **Risk Factors:** Age, sex (predominantly in women), family history, obesity, pregnancy, and hormonal changes.
- **Treatment Options:** Lifestyle modifications, compression stockings, sclerotherapy, laser treatment, and, in advanced cases, radiofrequency ablation or surgery, like vein stripping.



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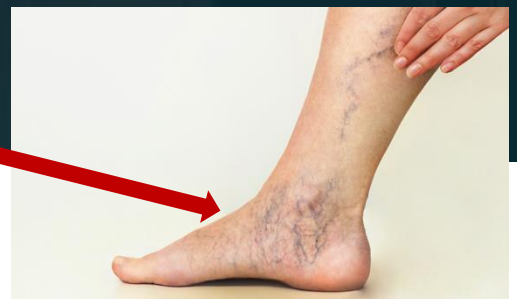

SPIDER VEINS

Spider veins are small, dilated blood vessels that appear visible on the skin's surface. They may cluster together and appear as web-like formations, predominantly on the legs or face. Spider veins are typically harmless and develop when blood vessels are damaged.

- **Main Causes:** Age, hormonal changes, genetics, trauma. Smoking, obesity, prolonged standing, and sun damage may also increase your risk of developing spider veins.
- **Symptoms:** Typically cosmetic, such as skin discoloration. Occasionally, they may cause itching and discomfort in some people.
- **Treatment Options:** Most often treated for aesthetic reasons through sclerotherapy or laser therapies.

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BLOOD CLOTS

A blood clot is a gel-like mass that is important for controlling bleeding, but it can present significant health risks when it develops inappropriately in an artery or vein. It can lead to serious health complications if not treated effectively, including deep vein thrombosis (DVT), pulmonary embolism, and heart attack.

- **Causes:** Bleeding and blood clotting disorders, age, obesity, smoking, inactivity, and pregnancy.
- **Symptoms:** Varies depending on location but can include swelling, throbbing or cramping pain, redness and warmth in a leg or arm, sudden breathlessness, chest pain which may be worse when breathing in, a persistent cough, and coughing up blood.
- **Treatment:** Blood-thinning medications, thrombolytic medications, and catheter-directed treatments.

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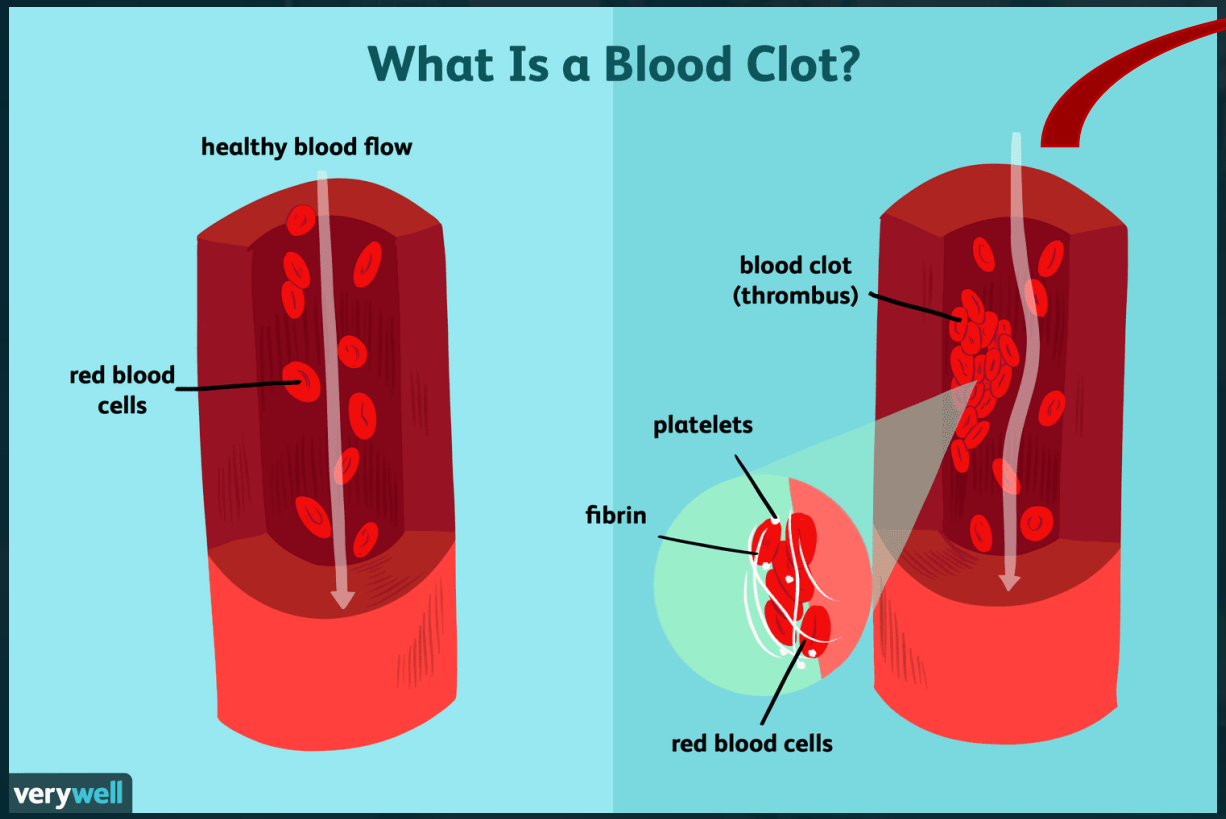
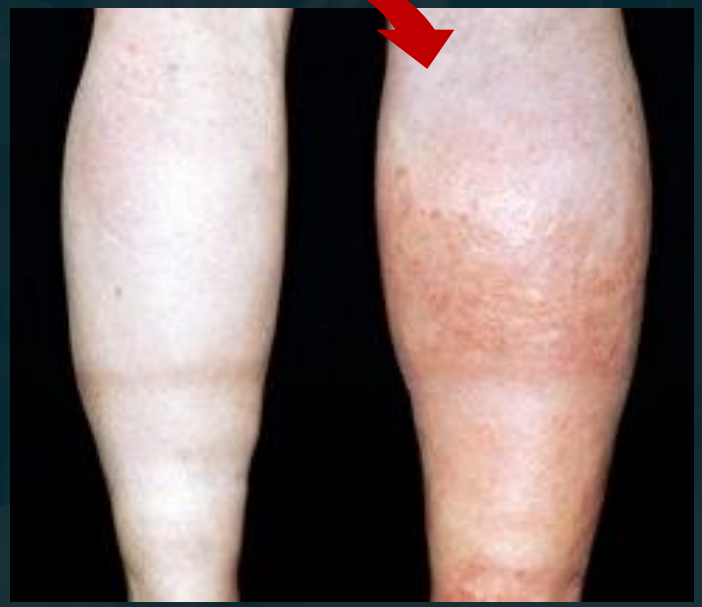
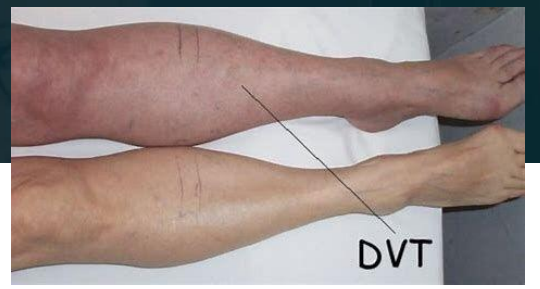




https://www.verywellhealth.com/overview-blood-clots-1745326

DEEP VEIN THROMBOSIS (DVT)



DVT occurs when a blood clot forms in a deep vein, most frequently in the legs. It can lead to serious complications if the clot travels to the lungs, causing a pulmonary embolism.

- **Causes and risk factors:** Damage to a vein through surgery, infection, or injury. Immobility, smoking, hormones, age, genetic disposition, obesity, some medications, and coagulation disorders can also increase your risk.
- **Symptoms:** Leg pain, swelling, tenderness, red or discolored skin, and warmth in the affected limb. Sometimes, DVT might not have noticeable symptoms.
- **Treatment Options**: Blood thinners and other medications, compression stockings, and surgery to remove a clot or prevent one from forming, such as vein stenting.

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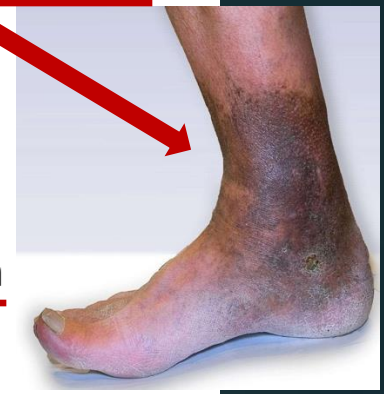
CHRONIC VENOUS INSUFFICIENCY (CVI)

CVI signifies damage to veins (usually in the legs), preventing them from pumping blood back to the heart efficiently. This leads to blood collecting in the leg veins, which overtime increases pressure in the veins, resulting in symptoms like swelling and ulcers.



- **Causes:** Damaged or weak vein valves, blood clots.
- **Symptoms:** Swelling in the legs or ankles, heaviness in the legs, pain when walking, skin changes, leg ulcers, and varicose veins.
- **Treatment Options:** Lifestyle changes, medications, compression therapy, and in severe cases, surgery.

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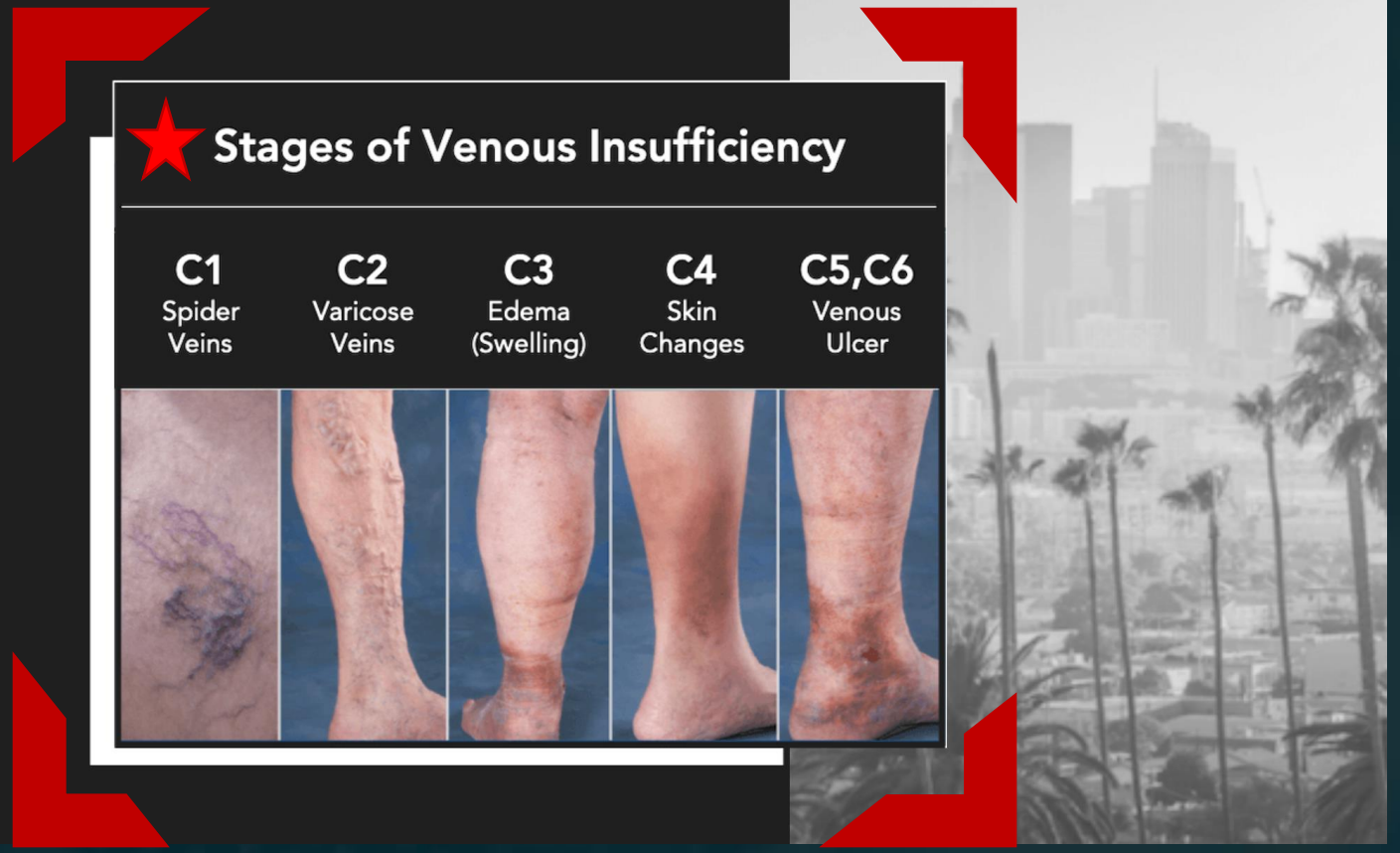
Chronic Venous Insufficiency Stages Explained



https://provascularmd.com/stages-of-venous-insufficiency/

POPULAR TREATMENTS FOR COMMON TYPES OF CHRONIC VEIN DISEASE

Treatment options for chronic vein diseases can range from conservative and minimally invasive treatments to surgery depending on the severity and specific condition. Some of the most popular treatments for vein disease include:

- **Sclerotherapy**: This is a minimally invasive procedure where a solution is injected directly into the vein, causing it to scar and blood to reroute through healthier veins.
- **Laser Treatments**: Laser therapy is a non-surgical option that involves sending strong bursts of energy onto the problematic vein, to heat and destroy it.
- **Radiofrequency Ablation**: Involves the use of heat (from radiofrequency waves) to create scarring and closure of a problematic vein, causing the blood to automatically reroute to other nearby healthy veins.

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POPULAR TREATMENTS FOR COMMON TYPES OF CHRONIC VEIN DISEASE

- **Medications**: Blood thinners or anticoagulants are often prescribed for blood clots and DVT to prevent clots from growing or new ones from forming.
- **Venous stenting**: A procedure that involves placing a stent (a tiny metal mesh tube) in the vein, which acts as a scaffold to help keep a vein open, reducing the risk of future blood clots developing.
- **Vein Stripping**: A more traditional treatment approach for advanced varicose veins that involves removing long segments of veins through small incisions in the skin. The procedure is typically performed under general anesthesia.

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Types of Treament and
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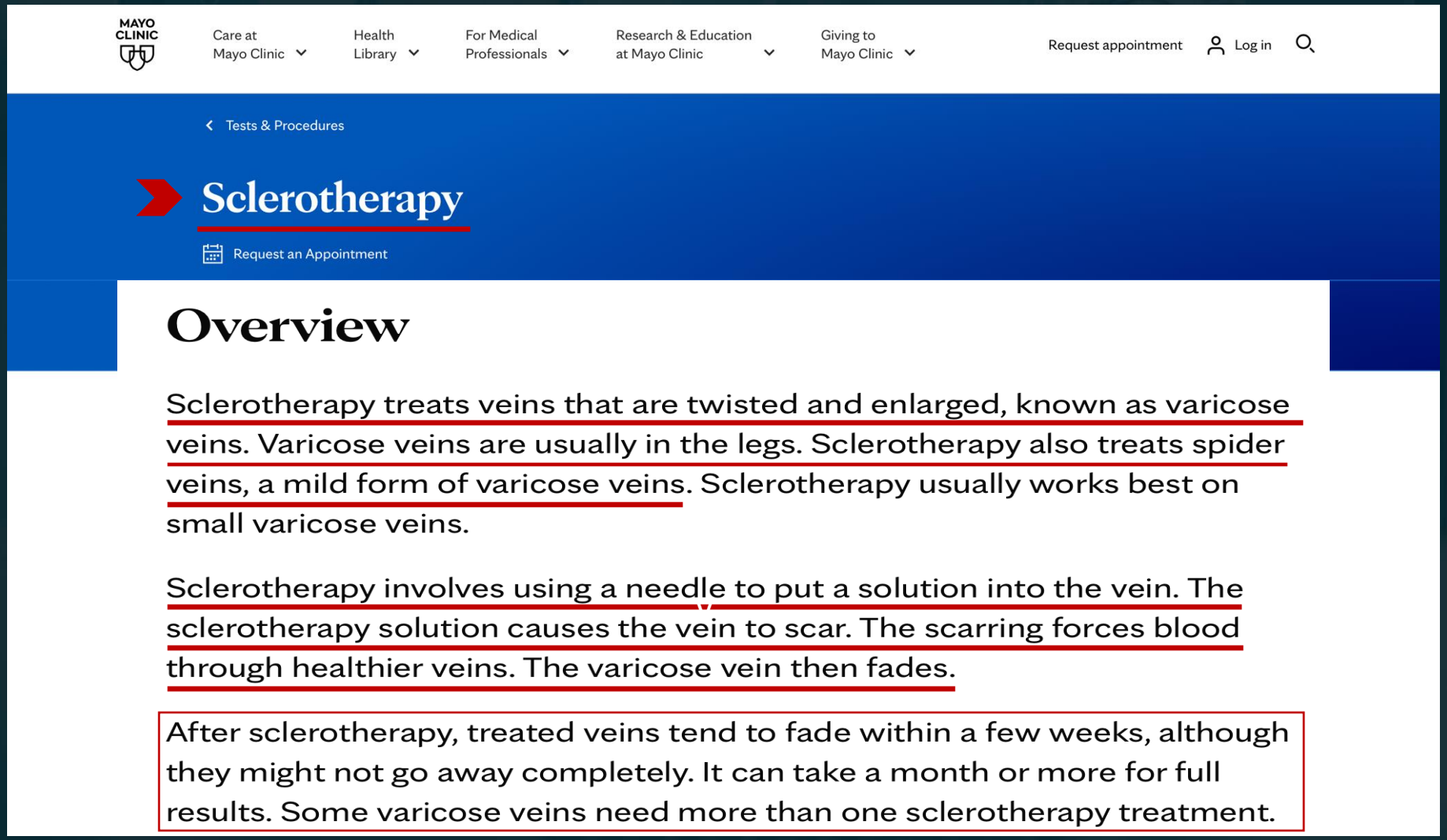

https://www.mayoclinic.org/tests-procedures/sclerotherapy/about/pac-20384592

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SCLEROTHERAPY SIDE EFFECTS YOU SHOULD KNOW

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RISKS AND SIDE EFFECTS OF SCLEROTHERAPY

Sclerotherapy is a really safe cosmetic procedure. It is approved by the Food and Drug Administration to treat patients suffering from varicose veins. That being said, it has side effects and risks to people who underwent the procedure.

After the procedure, patients can experience several symptoms such as swelling, aching, and burning around the injected area. Some people have also reported experiencing night cramps in the injected area. Some other people have also experienced stinging and bruising around the area. Other side effects after the procedure include skin discoloration, discomfort, and raised red areas appearing around the injection areas.

https://glowlaserbeauty.com/effects-of-sclerotherapy-you-should-know/

However, serious side effects also occur in some cases. Those serious side effects include ulceration of skin around the injected area, allergic reaction to the sclerotherapy solution, mild inflammation and discomfort around the injected area, and blood clot formation in the treated veins.

Other lesser-known side effects of sclerotherapy to the patients include hyperpigmentation, capillary dilation or telangiectatic matting, localized hives, tape compression folliculitis, tape compression blister, vasovagal reflex, skin death or also known as cutaneous necrosis, localized hair growth or hirsutism, superficial thrombophlebitis, arterial injection, deep vein thrombosis, nerve damage, pulmonary embolism, and bouts of migraine and other headaches.

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Side Effects of Sclerotherapy

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https://cfvein.com/blog/sclerotherapy-complications/

Serious Complications After Sclerotherapy

Severe complications after sclerotherapy are rare, but they can happen. If you experience any of the following symptoms, seek medical attention immediately:

- **Allergic reactions:** Anaphylactic reactions are rare, but they can occur. They are more likely to occur with continuous exposure to the sclerosant solution, so even if you've previously received sclerotherapy treatment, continue to monitor for reactions.
- **Ulceration:** Ulceration can occur when the sclerosant solution damages arteries near the skin. If you've developed an ulcer, seek medical attention right away, as even small ulcers can lead to more serious problems.
- **Blood clots:** Blood clots can form inside the treated varicose veins and must be drained immediately to mitigate the risk of deep vein thrombosis (DVT).
- **Deep vein thrombosis:** Deep vein thrombosis can happen when an untreated blood clot travels deeper into your veins. A DVT can cause a pulmonary embolism. Symptoms include dizziness, chest pain and coughing up blood.
- **Tissue necrosis:** In severe, extremely rare cases, you may experience tissue necrosis, which is the death of skin layers, causing ulcers. Monitor for ongoing pain, inflammation near the injection site or swelling several weeks after your initial treatment.

https://cfvein.com/blog/sclerotherapy-complications/

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SEARCH

Health

Home > Health > Treatments, Tests and Therapies

Endovenous Laser Varicose Vein Surgery

https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/endovenous-laser-varicose-vein-surgery

What is endovenous laser varicose vein surgery?

Endovenous laser varicose vein surgery is a procedure that uses heat from a laser to reduce varicose veins. Varicose veins are swollen, bulging veins that often happen on the thighs or calves. A laser is a device that sends a thin beam of radiation in the form of light.

Laser surgery closes and shrinks the varicose vein and causes scar tissue within the vessel. This seals off the vein. Blood then flows through other nearby veins instead.

https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/endovenous-laser-varicose-vein-surgery

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Board-Certified Vascular Surgeon & Vein Specialist
Diplomate of the American Board of Surgery

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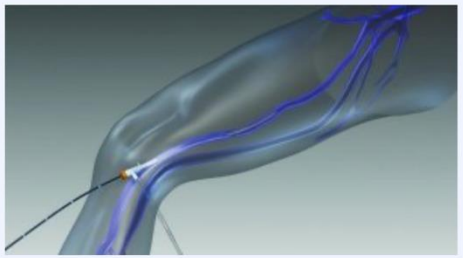
Side Effects of Vein Therapies

What Are Possible Side Effects with Vein Therapies?



Vein Therapies, whether for leg veins, foot & ankle veins, or facial vein, have become much safer over the years. This is due to advances in modern technologies that did not exist before or from improvement in more traditional therapies. Examples include the development of new laser devices, invention of safer catheter technologies such as radiofrequency catheters, smaller instrumentations due to fiber optics and laparoscopy, and the development of new medications and chemical substances that can replace the need for prior more-invasive procedures or surgeries. Improvements in imaging, such as higher definition ultrasound machines, CT scans, and MRIs has also aided vein specialists to treat vein diseases with less invasive options.

Still, even with these less invasive procedures there is still going to be risks involved. All interventional therapies are associated with risks of complication. The risks have just decreased. I will discuss some of the possible risks associated with commonly performed vein procedures that are discussed on the pages of our website.

Request a Consultation

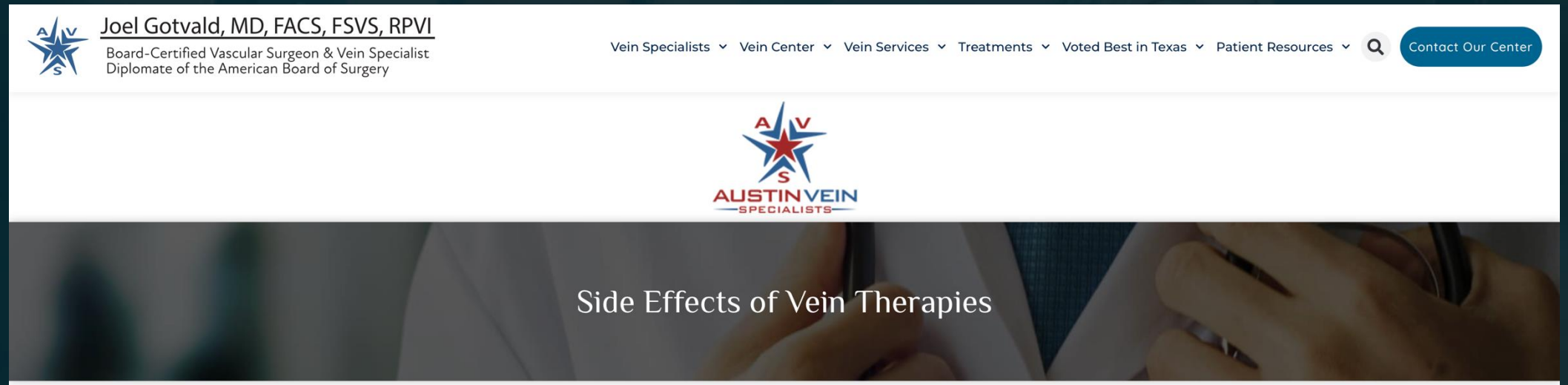
Requested Date
(M/Y/D)

Requested Time
3:00 PM

Next

View Our Specialties

https://austinvaricosevein.com/side-effects-of-vein-therapies/



Possible Side Effects of Lasers

Lasers include diode lasers used for Endovenous Laser Treatment (EVLT), but also other other laser devices such as YAG lasers. The risks of vein lasers include thermal injury to the skin, manifesting as skin burns. This is a rare occurrence due to lower levels of laser heat being delivered with these procedures. If you develop this complication you may develop scarring or change in the pigmentation of the skin at the treatment area involved. The pigmentation changes in the skin could be darker or lighter than the adjacent uninvolved skin. Contact your physician if you believe this complication has occurred. By seeing a board-certified vein specialist with experience in laser vein treatments you will minimize your chance of complications occurring. It is also advised that a physician perform the actual laser vein procedure.

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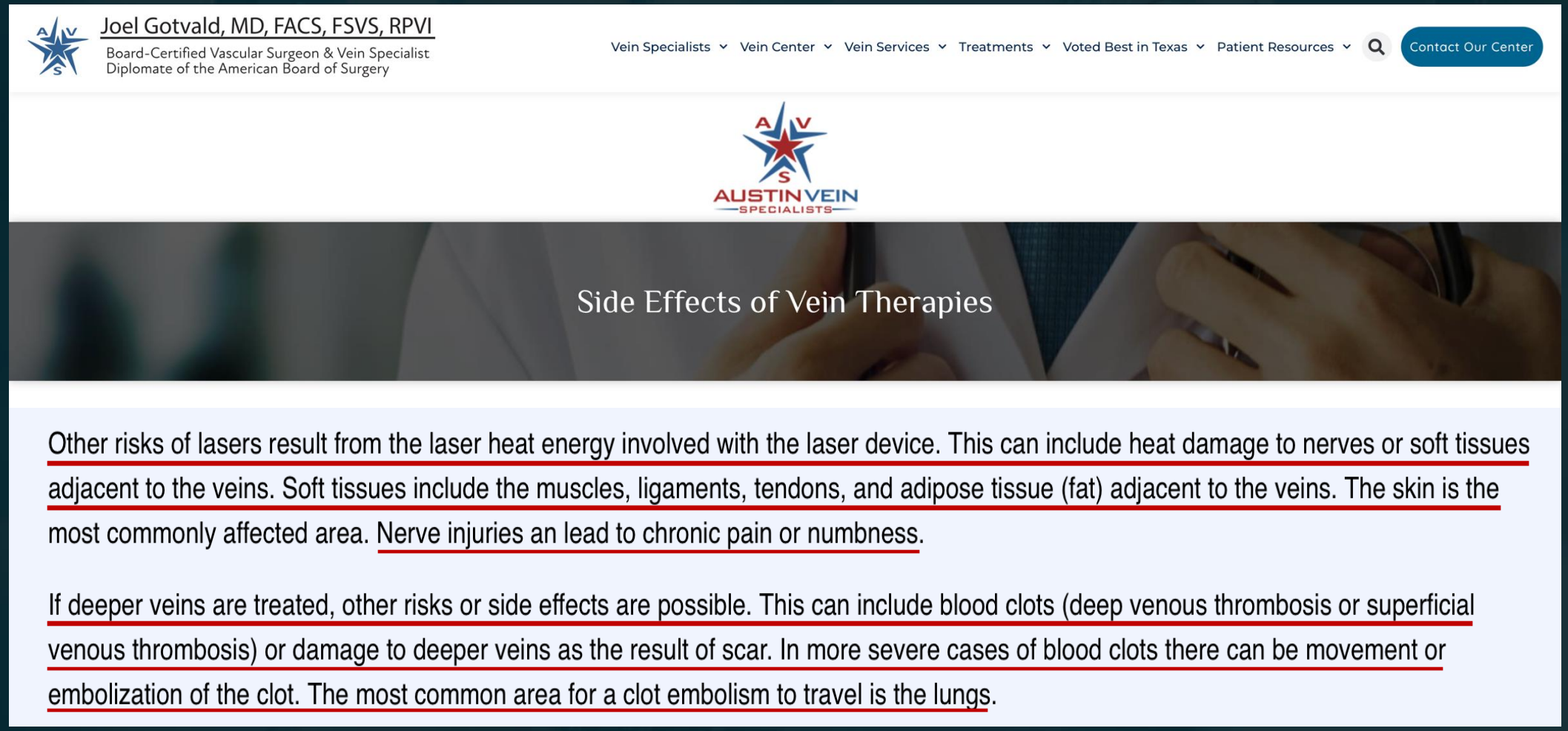

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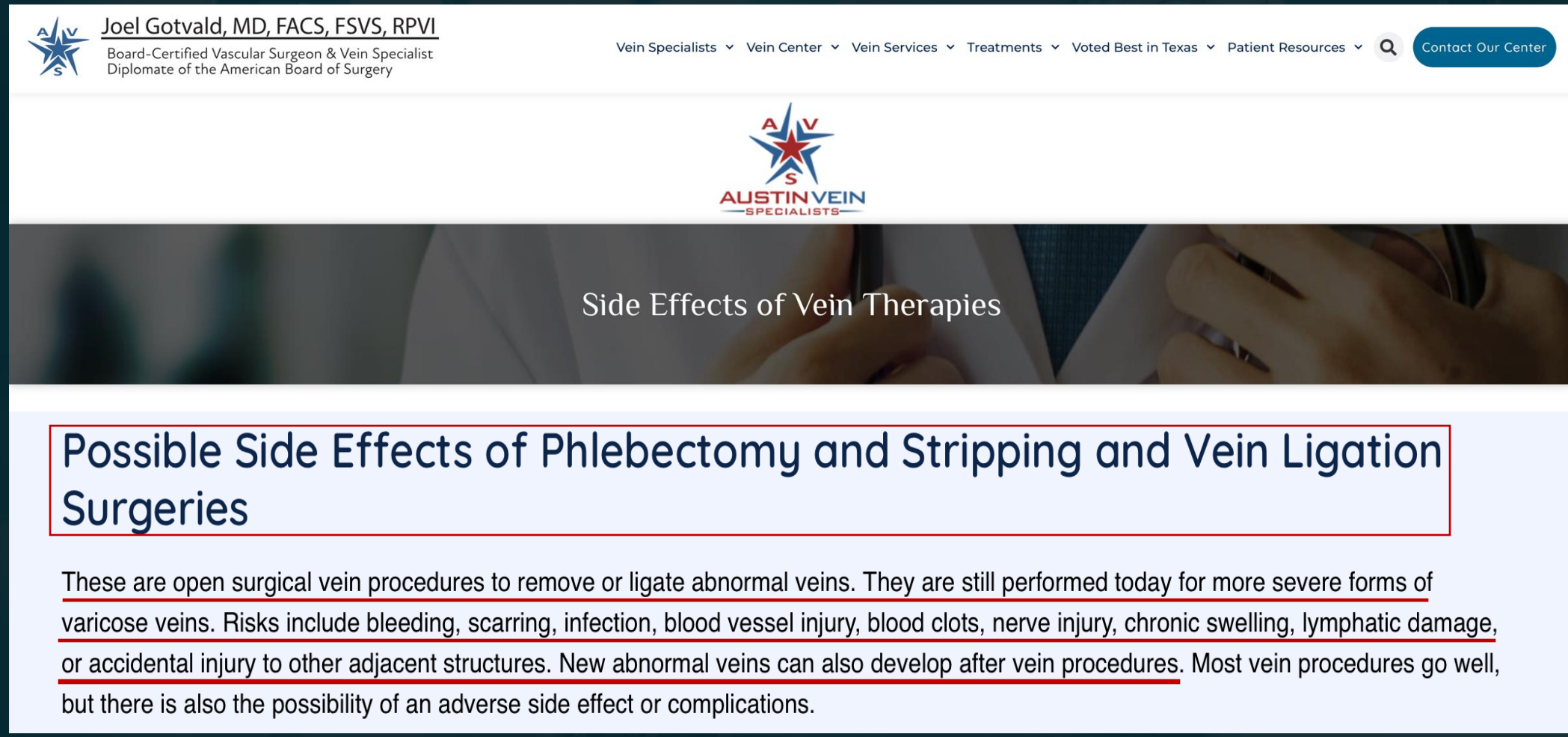

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HEART HEALTH

Choosing the most beneficial blood thinner

On call

June 1, 2024

By Howard E. LeWine, MD, Chief Medical Editor, Harvard Health Publishing; Editorial Advisory Board Member, Harvard Health Publishing

https://www.health.harvard.edu/heart-health/choosing-the-most-beneficial-blood-thinner

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HEART HEALTH

Choosing the most beneficial blood thinner

A. "Blood thinners" don't actually make the blood less viscous. The term refers to medications that help prevent unwanted blood clots. The two main categories are anticoagulants and antiplatelet drugs.

For decades, the only available oral anticoagulant was warfarin (Coumadin). Warfarin acts by partially inhibiting the liver from producing vitamin K–dependent clotting factors. The newer anticoagulants work directly on specific clotting proteins. That's why they are called direct-acting oral anticoagulants (DOACs). They include apixaban (Eliquis), dabigatran (Pradaxa), edoxaban (Savaysa), and rivaroxaban (Xarelto).

https://www.health.harvard.edu/heart-health/choosing-the-most-beneficial-blood-thinner


What These Blood Thinners Actually Do!

Home > Warfarin

Warfarin

Generic name: warfarin (oral) [*WAR-far-in*]
Brand names: Coumadin, Jantoven
Drug class: Coumarins and indandiones

Medically reviewed by Melisa Puckey, BPharm. Last updated on March 1, 2024.

Uses | Warnings | Before taking | Dosage | Side effects | Interactions | FAQ

What is warfarin?

Warfarin is an anticoagulant (blood thinner). Warfarin reduces the formation of blood clots.

Warfarin is used to treat or prevent blood clots in veins or arteries, which can reduce the risk of stroke, heart attack, or other serious conditions.

https://www.drugs.com/warfarin.html

Home > Warfarin

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Warfarin

Generic name: warfarin (oral) [*WAR-far-in*]

Brand names: Coumadin, Jantoven

Important warnings

This medicine can cause some serious health issues

Oral route (tablet)

Warfarin can cause major or fatal bleeding.

Regular monitoring of INR should be performed on all treated patients.

Drugs, dietary changes, and other factors affect INR levels achieved with warfarin sodium therapy.

Instruct patients about prevention measures to minimize risk of bleeding and to report signs and symptoms of bleeding.

https://www.drugs.com/warfarin.html

nature reviews cardiology

Milestones | Published: 14 December 2017

Milestone 2

Warfarin: from rat poison to clinical use

Gregory B. Lim

In 1945, Link considered using a coumarin derivative as a rodenticide. Dicoumarol acted too slowly to be a practical poison. Link and colleagues worked through a list of 150 variations of coumarin, and number 42 was found to be particularly potent. The compound was named 'warfarin' after the funding agency, and was successfully marketed in 1948 as a rodenticide.

https://www.nature.com/articles/nrcardio.2017.172

Precautions

It is very important that your doctor check your progress at regular visits to make sure this medicine is working properly. Blood tests, such as an INR, are needed to check for proper dosage and unwanted side effects. Be sure to keep all appointments.

Using this medicine while you are pregnant can harm your unborn baby. Use an effective form of birth control to keep from getting pregnant during treatment and for at least 1 month after the last dose. If you think you have become pregnant while using this medicine, tell your doctor right away.

Make sure any doctor or dentist who treats you knows that you are using this medicine. You may need to stop using this medicine several days before having surgery or medical tests.

https://www.drugs.com/warfarin.html

This medicine may cause skin necrosis or gangrene. Call your doctor right away if you have pain, a color change, or a temperature change to any area of your body. Call your doctor right away if you have pain in your toes and they look purple or dark in color. These could be signs of a serious medical problem.

Calciphylaxis or calcium uremic arteriolopathy may occur in patients with or without end-stage kidney disease. Tell your doctor right away if you have purplish red, net-like, blotchy spots on the skin.

Warfarin may increase your risk of having kidney problems, including acute kidney injury. Check with your doctor right away if you have blood in the urine, decreased urine output, muscle twitching, nausea, rapid weight gain, seizures, stupor, swelling of the face, ankles, or hands, or unusual tiredness or weakness.

This medicine may increase your chance of bleeding. Check with your doctor right away if you notice any unusual bleeding or bruising, black, tarry stools, blood in the urine or stools, or pinpoint red spots on your skin. Avoid picking your nose. If you need to blow your nose, blow it gently.

Be careful when using a regular toothbrush, dental floss, or toothpick. Your medical doctor, dentist, or nurse may recommend other ways to clean your teeth and gums. Check with your medical doctor before having any dental work done.

https://www.drugs.com/warfarin.html

This label may not be the latest approved by FDA.
For current labeling information, please visit https://www.fda.gov/drugsatfda

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use COUMADIN safely and effectively. See full prescribing information for COUMADIN.

COUMADIN (warfarin sodium) tablets, for oral use
COUMADIN (warfarin sodium) for injection, for intravenous use
Initial U.S. Approval: 1954

WARNING: BLEEDING RISK
See full prescribing information for complete boxed warning.

- **COUMADIN can cause major or fatal bleeding. (5.1)**
- **Perform regular monitoring of INR in all treated patients. (2.1)**
- **Drugs, dietary changes, and other factors affect INR levels achieved with COUMADIN therapy. (7)**
- **Instruct patients about prevention measures to minimize risk of bleeding and to report signs and symptoms of bleeding. (17)**

----------RECENT MAJOR CHANGES----------

Contraindications (4)	10/2011
Warnings and Precautions, Use in Pregnant Women with Mechanical Heart Valves (5.5)	10/2011

----------INDICATIONS AND USAGE----------

COUMADIN is a vitamin K antagonist indicated for:

- Prophylaxis and treatment of venous thrombosis and its extension, pulmonary embolism (1)
- Prophylaxis and treatment of thromboembolic complications associated with atrial fibrillation and/or cardiac valve replacement (1)
- Reduction in the risk of death, recurrent myocardial infarction, and thromboembolic events such as stroke or systemic embolization after myocardial infarction (1)

- Recent or contemplated surgery of the central nervous system (CNS) or eye, or traumatic surgery resulting in large open surfaces (4, 5.7)
- Bleeding tendencies associated with certain conditions (4)
- Threatened abortion, eclampsia, and preeclampsia (4)
- Unsupervised patients with potential high levels of non-compliance (4)
- Spinal puncture and other diagnostic or therapeutic procedures with potential for uncontrollable bleeding (4)
- Hypersensitivity to warfarin or any component of the product (4)
- Major regional or lumbar block anesthesia (4)
- Malignant hypertension (4)

----------WARNINGS AND PRECAUTIONS----------

- Tissue necrosis: Necrosis or gangrene of skin or other tissues can occur, with severe cases requiring debridement or amputation. Discontinue COUMADIN and consider alternative anticoagulants if necessary. (5.2)
- Systemic atheroemboli and cholesterol microemboli: Some cases have progressed to necrosis or death. Discontinue COUMADIN if such emboli occur. (5.3)
- Heparin-induced thrombocytopenia (HIT): Initial therapy with COUMADIN in HIT has resulted in cases of amputation and death. COUMADIN may be considered after platelet count has normalized. (5.4)
- Pregnant women with mechanical heart valves: COUMADIN may cause fetal harm; however, the benefits may outweigh the risks. (5.5)

----------ADVERSE REACTIONS----------

Most common adverse reactions to COUMADIN are fatal and nonfatal hemorrhage from any tissue or organ. (6)

To report SUSPECTED ADVERSE REACTIONS, contact Bristol-Myers Squibb at 1-800-721-5072 or FDA at 1-800-FDA-1088 or *www.fda.gov/medwatch*.

https://www.accessdata.fda.gov/drugsatfda_docs/label/2011/009218s107lbl.pdf

This label may not be the latest approved by FDA.
For current labeling information, please visit https://www.fda.gov/drugsatfda

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- **Drugs, dietary changes, and other factors affect INR levels achieved with COUMADIN therapy. (7)**
- **Instruct patients about prevention measures to minimize risk of bleeding and to report signs and symptoms of bleeding. (17)**

- Reduction in the risk of death, recurrent myocardial infarction, and thromboembolic events such as stroke or systemic embolization after myocardial infarction (1)

Squibb at 1-800-721-5072 or FDA at 1-800-FDA-1088 or *www.fda.gov/medwatch*.

https://www.accessdata.fda.gov/drugsatfda_docs/label/2011/009218s107lbl.pdf

----------CONTRAINDICATIONS----------

- Pregnancy, except in women with mechanical heart valves (4)
- Hemorrhagic tendencies or blood dyscrasias (4)
- Recent or contemplated surgery of the central nervous system (CNS) or eye, or traumatic surgery resulting in large open surfaces (4, 5.7)
- Bleeding tendencies associated with certain conditions (4)
- Threatened abortion, eclampsia, and preeclampsia (4)
- Unsupervised patients with potential high levels of non-compliance (4)
- Spinal puncture and other diagnostic or therapeutic procedures with potential for uncontrollable bleeding (4)
- Hypersensitivity to warfarin or any component of the product (4)
- Major regional or lumbar block anesthesia (4)
- Malignant hypertension (4)

https://www.accessdata.fda.gov/drugsatfda_docs/label/2011/009218s107lbl.pdf

----------WARNINGS AND PRECAUTIONS----------

- Tissue necrosis: Necrosis or gangrene of skin or other tissues can occur, with severe cases requiring debridement or amputation. Discontinue COUMADIN and consider alternative anticoagulants if necessary. (5.2)
- Systemic atheroemboli and cholesterol microemboli: Some cases have progressed to necrosis or death. Discontinue COUMADIN if such emboli occur. (5.3)
- Heparin-induced thrombocytopenia (HIT): Initial therapy with COUMADIN in HIT has resulted in cases of amputation and death. COUMADIN may be considered after platelet count has normalized. (5.4)
- Pregnant women with mechanical heart valves: COUMADIN may cause fetal harm; however, the benefits may outweigh the risks. (5.5)

https://www.accessdata.fda.gov/drugsatfda_docs/label/2011/009218s107lbl.pdf

6 ADVERSE REACTIONS

The following serious adverse reactions to COUMADIN are discussed in greater detail in other sections of the labeling:

- Hemorrhage [see *Boxed Warning*, *Warnings and Precautions (5.1)*, and *Overdosage (10)*]
- Necrosis of skin and other tissues [see *Warnings and Precautions (5.2)*]
- Systemic atheroemboli and cholesterol microemboli [see *Warnings and Precautions (5.3)*]

Other adverse reactions to COUMADIN include:

- Immune system disorders: hypersensitivity/allergic reactions (including urticaria and anaphylactic reactions)
- Vascular disorders: vasculitis
- Hepatobiliary disorders: hepatitis, elevated liver enzymes. Cholestatic hepatitis has been associated with concomitant administration of COUMADIN and ticlopidine.
- Gastrointestinal disorders: nausea, vomiting, diarrhea, taste perversion, abdominal pain, flatulence, bloating
- Skin disorders: rash, dermatitis (including bullous eruptions), pruritus, alopecia
- Respiratory disorders: tracheal or tracheobronchial calcification

https://www.accessdata.fda.gov/drugsatfda_docs/label/2011/009218s107lbl.pdf

Home > Rivaroxaban

Rivaroxaban

Generic name: rivaroxaban [*RIV-a-ROX-a-ban*]

Brand names: Xarelto, Xarelto Starter Pack

Dosage forms: oral granule for reconstitution (1 mg/mL), oral tablet (10 mg; 15 mg; 15 mg-20 mg; 2.5 mg; 20 mg)

Drug class: Factor Xa inhibitors

Medically reviewed by Drugs.com on Mar 28, 2025. Written by Cerner Multum.

Uses | Side effects | Warnings | Before taking | Dosage | Interactions | FAQ

What is rivaroxaban?

Rivaroxaban is used to treat or prevent blood clots (venous thromboembolism, or VTE). Blood clots can occur in the legs (deep vein thrombosis, DVT) or the lungs (pulmonary embolism, PE).

https://www.drugs.com/mtm/rivaroxaban.html

Home > Rivaroxaban

Rivaroxaban

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Uses | Side effects | Warnings | Before tak

What is rivaroxaban?

Rivaroxaban is used to treat or prevent blood clots (ve
occur in the legs (deep vein thrombosis, DVT) or the l

Important warnings
This medicine can cause some serious health issues

Oral route (tablet)

Premature discontinuation of any oral anticoagulant, including rivaroxaban, increases the risk of thrombotic events.

To reduce this risk, consider coverage with another anticoagulant if rivaroxaban is discontinued for a reason other than pathological bleeding or completion of a course of therapy.

Epidural or spinal hematomas, which may result in long-term or permanent paralysis, have occurred in patients treated with rivaroxaban who are receiving neuraxial anesthesia or undergoing spinal puncture.

Optimal timing between the administration of rivaroxaban and neuraxial procedures is not known.

Factors that can increase the risk of developing hematomas include: use of indwelling epidural catheters; concomitant use of drugs affecting hemostasis, such as NSAIDs, platelet inhibitors, or other anticoagulants; or a history of traumatic or repeated epidural or spinal punctures, spinal deformity, or spinal surgery.

Monitor patients frequently for neurological impairment.

If neurological compromise is noted, urgent treatment is necessary.

Consider risks/benefits before neuraxial intervention in patients anticoagulated or to be anticoagulated for thromboprophylaxis.

https://www.drugs.com/mtm/rivaroxaban.html

Cardiovascular

- **Common** (1% to 10%): Hypotension, hematoma, hypertension, tachycardia, procedural hypotension, deep vein thrombosis
- **Uncommon** (0.1% to 1%): Traumatic hematoma

Dermatologic

- **Common** (1% to 10%): Pruritus, rash, ecchymosis, cutaneous hemorrhage, subcutaneous hemorrhage, blister, unspecific blistering, subcutaneous hematoma
- **Uncommon** (0.1% to 1%): Generalized pruritus, angioedema, allergic dermatitis, urticaria, ecchymosis, skin hemorrhage, drug eruption, pruritic rash, erythematous rash, generalized rash

Genitourinary

- **Common** (1% to 10%): Urogenital tract hemorrhage, hematuria, menorrhagia, urinary tract infection, urinary retention, vaginal hemorrhage
- **Uncommon** (0.1% to 1%): Metrorrhagia, blood urine present

https://www.drugs.com/mtm/rivaroxaban.html

Gastrointestinal

- **Very common** (10% or more): Nausea (up to 11.1%)
- **Common** (1% to 10%): Gingival bleeding, gastrointestinal (GI) tract hemorrhage, rectal hemorrhage, GI pain, abdominal pain, dyspepsia, constipation, diarrhea, vomiting, upper abdominal pain, major GI bleeding, GI bleeding events (included upper GI bleeding, lower GI bleeding, rectal bleeding), GI hemorrhage
- **Uncommon** (0.1% to 1%): Dry mouth, increased lipase, increased amylase, anal hemorrhage, hematemesis, hematochezia, hemorrhoidal hemorrhage, lower GI hemorrhage, melena, lip hemorrhage, mouth hemorrhage, tongue hemorrhage, abdominal discomfort, lower abdominal pain, occult blood positive, upper GI hemorrhage, gastric ulcer hemorrhage, hemorrhagic gastritis, gastric hemorrhage

Hypersensitivity

- **Uncommon** (0.1% to 1%): Allergic reaction
- **Postmarketing reports**: Hypersensitivity, anaphylactic reaction, anaphylactic shock, allergic edema[Ref]

https://www.drugs.com/mtm/rivaroxaban.html

Hematologic

- **Very common** (10% or more): Any bleeding (up to 28.3%)
- **Common** (1% to 10%): Anemia (including respective laboratory parameters), postprocedural hemorrhage (including postoperative anemia, wound hemorrhage), hemorrhage, thrombocytosis, major bleeding, clinically relevant nonmajor bleeding, modified International Society on Thrombosis and Hemostasis (ISTH) major bleeding, bleeding leading to hospitalization (nonfatal, noncritical organ, not requiring reoperation), Thrombolysis in Myocardial Infarction Bleeding Criteria (TIMI) major bleeding (coronary artery bypass graft [CABG]/non-CABG), clinically overt signs of hemorrhage associated with a drop in hemoglobin (Hb) of at least 5 g/dL or drop in hematocrit of at least 15%
- **Uncommon** (0.1% to 1%): Increased platelet count, operative hemorrhage, traumatic hemorrhage, decreased Hb, decreased hematocrit, bleeding varicose vein, nonfatal symptomatic bleeding in critical organ, decrease in Hb of at least 2 g/dL, nonfatal noncritical organ bleeding, transfusion of at least 2 units of packed RBCs/whole blood, nonfatal critical organ bleeding, bleeding that required reoperation, extra-surgical site bleeding requiring transfusion of more than 2 units of whole blood/packed cells, critical site bleeding, bleeding into a critical organ, fatal bleeding event

Psychiatric

- **Common** (1% to 10%): Insomnia, anxiety, depression, sleep disorders [Ref]

https://www.drugs.com/mtm/rivaroxaban.html

Hepatic

- **Common** (1% to 10%): Increased transaminases (including increased ALT, increased AST), increased GGT, increased ALT
- **Uncommon** (0.1% to 1%): Hepatic impairment, increased bilirubin, increased AST, abnormal liver function test, increased hepatic enzyme, increased conjugated bilirubin (with or without concomitant increase of ALT), hyperbilirubinemia
- **Postmarketing reports**: Jaundice, cholestasis, hepatitis (including hepatocellular injury)[Ref]

Musculoskeletal

- **Common** (1% to 10%): Pain in extremity, contusion, back pain, muscle spasm, arthralgia, increased muscle cramping
- **Uncommon** (0.1% to 1%): Hemarthrosis

Ocular

- **Common** (1% to 10%): Eye hemorrhage, conjunctival hemorrhage
- **Uncommon** (0.1% to 1%): Vitreous hemorrhage, periorbital hematoma

https://www.drugs.com/mtm/rivaroxaban.html

Nervous system

- **Common** (1% to 10%): Dizziness, headache, syncope, increased muscle tone
- **Uncommon** (0.1% to 1%): Cerebral hemorrhage, loss of consciousness, intracranial hemorrhage/bleeding, nonfatal intracranial hemorrhage/bleeding, hemorrhagic stroke (fatal and nonfatal), other intracranial hemorrhage/bleeding (fatal and nonfatal), fatal intracranial hemorrhage/bleeding

Other

- **Common** (1% to 10%): Pyrexia/fever, peripheral edema, decreased general strength and energy, fatigue, asthenia, wound secretion, unspecific pain, wound healing complications, feeling unwell, wound hemorrhage
- **Uncommon** (0.1% to 1%): Increased blood alkaline phosphatase, malaise, increased lactate dehydrogenase, incision site hemorrhage

Renal

- **Common** (1% to 10%): Renal impairment (including increased blood creatinine, increased blood urea)
- **Uncommon** (0.1% to 1%): Decreased renal CrCl, increased blood creatinine, increased blood urea

https://www.drugs.com/mtm/rivaroxaban.html

This label may not be the latest approved by FDA.
For current labeling information, please visit https://www.fda.gov/drugsatfda

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use XARELTO® safely and effectively. See full prescribing information for XARELTO.

XARELTO (rivaroxaban) tablets, for oral use
XARELTO (rivaroxaban) for oral suspension
Initial U.S. Approval: 2011

WARNING: (A) PREMATURE DISCONTINUATION OF XARELTO INCREASES THE RISK OF THROMBOTIC EVENTS, (B) SPINAL/EPIDURAL HEMATOMA
See full prescribing information for complete boxed warning.

(A) Premature discontinuation of XARELTO increases the risk of thrombotic events

Premature discontinuation of any oral anticoagulant, including XARELTO, increases the risk of thrombotic events. To reduce this risk, consider coverage with another anticoagulant if XARELTO is discontinued for a reason other than pathological bleeding or completion of a course of therapy. (2.2, 2.3, 5.1, 14.1)

(B) Spinal/epidural hematoma

Epidural or spinal hematomas have occurred in patients treated with XARELTO who are receiving neuraxial anesthesia or undergoing spinal puncture. These hematomas may result in long-term or permanent paralysis. (5.2, 5.3, 6.2)

Monitor patients frequently for signs and symptoms of neurological impairment and if observed, treat urgently. Consider the benefits and risks before neuraxial intervention in patients who are or who need to be anticoagulated. (5.3)

----------DOSAGE AND ADMINISTRATION----------

- Nonvalvular Atrial Fibrillation: 15 or 20 mg, once daily with food (2.1)
- Treatment of DVT and/or PE: 15 mg orally twice daily with food for the first 21 days followed by 20 mg orally once daily with food for the remaining treatment (2.1)
- Reduction in the Risk of Recurrence of DVT and/or PE in patients at continued risk for DVT and/or PE: 10 mg once daily with or without food, after at least 6 months of standard anticoagulant treatment (2.1)
- Prophylaxis of DVT Following Hip or Knee Replacement Surgery: 10 mg orally once daily with or without food (2.1)
- Prophylaxis of VTE in Acutely Ill Medical Patients at Risk for Thromboembolic Complications Not at High Risk of Bleeding: 10 mg once daily, with or without food, in hospital and after hospital discharge for a total recommended duration of 31 to 39 days (2.1)
- CAD or PAD: 2.5 mg orally twice daily with or without food, in combination with aspirin (75-100 mg) once daily (2.1)
- Pediatric Patients: See dosing recommendations in the Full Prescribing Information (2.2)

----------DOSAGE FORMS AND STRENGTHS----------

- Tablets: 2.5 mg, 10 mg, 15 mg, and 20 mg (3)
- For oral suspension: 1 mg/mL once reconstituted (3)

----------CONTRAINDICATIONS----------

- Active pathological bleeding (4)
- Severe hypersensitivity reaction to XARELTO (4)

----------WARNINGS AND PRECAUTIONS----------

- Risk of bleeding: XARELTO can cause serious and fatal bleeding. An agent to reverse the activity of rivaroxaban is available. (5.2)
- Pregnancy-related hemorrhage: Use XARELTO with caution in pregnant women due to the potential for obstetric hemorrhage and/or

https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/215859s000lbl.pdf

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For current labeling information, please visit https://www.fda.gov/drugsatfda

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XARELTO (rivaroxaban)
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Initial U.S. Approval: 2011

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https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/215859s000lbl.pdf

----------CONTRAINDICATIONS----------

- Active pathological bleeding (4)
- Severe hypersensitivity reaction to XARELTO (4)

----------WARNINGS AND PRECAUTIONS----------

- Risk of bleeding: XARELTO can cause serious and fatal bleeding. An agent to reverse the activity of rivaroxaban is available. (5.2)
- Pregnancy-related hemorrhage: Use XARELTO with caution in pregnant women due to the potential for obstetric hemorrhage and/or emergent delivery. (5.7, 8.1)
- Prosthetic heart valves: XARELTO use not recommended. (5.8)
- Increased Risk of Thrombosis in Patients with Triple Positive Antiphospholipid Syndrome: XARELTO use not recommended. (5.10)

https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/215859s000lbl.pdf

----------ADVERSE REACTIONS----------

- The most common adverse reaction (>5%) in adult patients was bleeding. (6.1)
- The most common adverse reactions (>10%) in pediatric patients were bleeding, cough, vomiting, and gastroenteritis. (6.1)

6 ADVERSE REACTIONS

The following clinically significant adverse reactions are also discussed in other sections of the labeling:

- Increased Risk of Stroke After Discontinuation in Nonvalvular Atrial Fibrillation *[see Boxed Warning and Warnings and Precautions (5.1)]*
- Bleeding Risk *[see Warnings and Precautions (5.2, 5.4, 5.5, 5.6, 5.7)]*
- Spinal/Epidural Hematoma *[see Boxed Warning and Warnings and Precautions (5.3)]*

https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/215859s000lbl.pdf

A Natural Remedy to Vein Conditions!!

California College of Ayurveda

Guggul - A Deep Dive into Ancient Literature and Modern Research

Kirsten Ahern, March 2021

Guggul, *Commiphora mukul or Commiphora Wightii (syn.)* is a highly effective plant resin widely used in Ayurvedic medicine. In fact, the classical Ayurvedic text *Caraka Samhita* calls guggul a "panacea for all diseases."[1]

https://www.ayurvedacollege.com/wp-content/uploads/2021/05/GUGGUL-Research-Paper_Ahern.pdf

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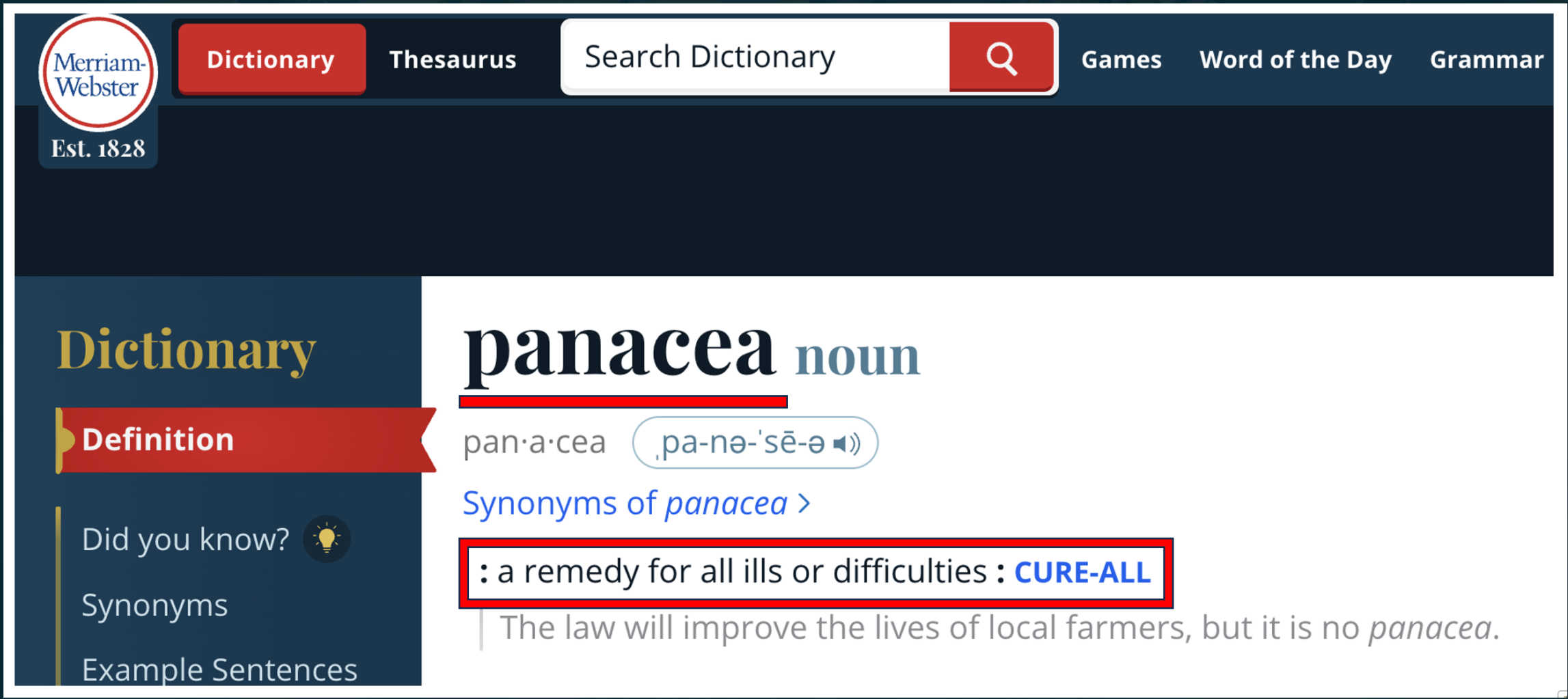

https://www.merriam-webster.com/dictionary/panacea

Cardiovascular Disease. In ischemic heart disease, angina, and congestive heart failure, guggul increases blood flow, reduces blood clots, and clears artherosclerosis (the build-up of cholesterol in the arteries, blocking blood flow to the heart) by regulating *vyana vayu,* moving *avalambaka kapha* and the *raktavaha srotas,* and scraping *ama*, or toxins, from the channels.[86] In fact, Tierra asserts that guggul is "the most potent remedy against *ama"*.[87] Guggul prevents abnormal blood clotting and, when used to lower cholesterol and reduce body fat, it also reduces retinopathy (eye damage), neuropathy (nerve degeneration), and gangrene, which are secondary to atherosclerosis.[88] Dr. Frawley suggests taking guggul as a tincture 10-30 drops twice a day as "an excellent remedy to treat heart disease."[89]

https://www.ayurvedacollege.com/wp-content/uploads/2021/05/GUGGUL-Research-Paper_Ahern.pdf

In a 1993 study of 200 patients with ischemic heart disease who experienced chest pain and abnormal electrocardiogram (ECG) results, gum guggul in combination with *Inula racemosa* — an expectorant and bronchodilator — reduced total cholesterol, triglyceride, and total blood lipids; it also produced normal ECG in 26 percent of patients and ECG improvement in another 59 percent. Chest pain also subsided in 25 percent of patients and decreased in the remainder.[90] A 2003 study similarly found that guggul "exhibited profound cardioprotective effects" during *in vivo* studies, including reversing cardiac damage induced by isoproterenol (a bronchodilator used to treat asthma, bronchitis, and emphysema).[91]

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Commiphora Mukul Dry Herb(Guggul Gum)

Commiphora Mukul Herb Extracts (**Guggul Gum**) has been used for a long time in **Ayurvedic medicine** to treat **obesity** and other weight related problems.Today, **Guggul** is frequently used to help **lower cholesterol levels** and decrease **high blood pressure**.

Gum Guggul is also known by the names Guggul, Indian Bedellium, and Guggulow. Guggul, the sticky gum resin from the mukul myrrh tree, plays a major role in the traditional herbal medicine of India. The primary chemical constituents of Guggul include phytosterols, gugulipids, and guggulsterones. It was traditionally combined with other herbs for the treatment of arthritis, skin diseases, pains in the nervous system, obesity, digestive problems, infections in the mouth, and menstrual problems. In the early 1960s, Indian researchers discovered an ancient Sanskrit medical text that appears to clearly describe the symptoms and treatment of high cholesterol. One of the main recommendations was the use of Guggul

https://www.indo-world.com/commiphora_mukul_extracts/commiphora_mukul_extracts.htm

Commiphora Mukul Dry Herb(Guggul Gum)

Several research trials followed the discovery, culminating in studies examining Guggul's effectiveness in humans.

- Guggul helps reduce high cholesterol, because it lowers harmful low-density lipoproteins while elevating the beneficial high-density lipoproteins. It helps prevent blood platelet aggregation and breaks up already formed blood clots. Thus, it helps prevent heart disease and stroke.
- Guggul is also widely promoted as a weight loss agent that supposedly enhances thyroid function.
- Guggul lipid stimulates the activity of white blood cells in the body, contributing to the build-up of the immune system. Guggul lipid also helps eliminate and expel dead tissues, wastes, and toxins from the body.
- Guggul lipid may also be used to treat arthritis and reduce inflammation of the joints.
- A small controlled trial compared oral gugulipid against tetracycline for the treatment of acne, and reported equivalent results.

https://www.indo-world.com/commiphora_mukul_extracts/commiphora_mukul_extracts.htm

Cardiovascular Drug Reviews
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Therapeutic Effects of Guggul and Its Constituent Guggulsterone: Cardiovascular Benefits

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Keywords: Guggul — Gugulipid — Guggulsterone — Hypolipidemics — Antiinflammatory drugs — Antioxidants — Cardioprotection.

https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1527-3466.2007.00023.x

Hypolipidemic Effect

A number of clinical trials have been conducted to evaluate the hypolipidemic effect of gugulipid. Most of these studies were carried out in India and one in the United States. Consistent with the preclinical data, most of these studies demonstrated hypolipidemic activity of guggul or gugulipid with an average of 10–30% and 10–20% decrease in total cholesterol and triglyceride, respectively. However, individual variations in responding to guggul treatment have been noted with approximately 70–80% responders and 20–30% nonresponders. In contrast to the findings from most of those studies, the US trial failed to detect the hypolipidemic effect of the therapy. Most of those clinical trials were reviewed in the past few years (Urizar and Moore 2003; Thompson Coon and Ernst 2003; Ulbricht et al. 2005). The studies with excellent or good quality based on Jadad score (Thompson Coon and Ernst 2003; Ulbricht et al. 2005) are highlighted in this communication.

https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1527-3466.2007.00023.x

Three clinical trials with a before-and-after comparison were conducted prior to the 1990s. The first study with 48 patients was conducted in 1979 by Kotiyal et al. Fraction "A" of guggul extracts at a dose of 500 mg three times a day for 4 weeks significantly reduced both total cholesterol and triglycerides levels. Another study enrolled 85 patients with hyperlipidemia. Fraction "A" at a dose of 500 mg three times daily for 12 weeks significantly decreased total cholesterol levels in comparison with baseline levels. In the third study with 40 patients, gum guggul at 4.5 g daily for 16 weeks significantly decreased total cholesterol and triglyceride levels when compared with the baseline levels (Verma and Bordia 1988). However, lesser reductions were noted in comparison between guggul-treated and placebo groups in the last two studies. It is conceivable that other factors, such as diet and lifestyle changes, may also contribute to the efficacy of the therapy.

https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1527-3466.2007.00023.x

hundred and twenty five patients were treated with gugulipid at 500 mg daily for 12 weeks, whereas 108 patients were treated with clofibrate at the same dose. At the end of the study, gugulipid significantly decreased total serum cholesterol by 11% and triglycerides by 17%. These effects were comparable to those of clofibrate (10% and 22% reduction in cholesterol and triglyceride levels, respectively). The beneficial effects of gugulipid became evident within the first 3–4 weeks of the study. In addition, HDL level was increased in 60% of the responders to gugulipid therapy, whereas clofibrate had no effect on HDL levels. More detailed analysis of the results indicated that hypercholesterolemic patients responded better to the gugulipid therapy than did hypertriglyceridemic patients, and vice versa for clofibrate. The study clearly demonstrated the benefits of guggul therapy in reducing cholesterol and lipid levels in hypercholesterolemic and hypertriglyceridemic patients.

https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1527-3466.2007.00023.x

Home > Clofibrate > Consumer Information

clofibrate

Generic name: clofibrate [*kloe-FIB-rate*]
Brand name: Atromid-S
Drug class: Fibric acid derivatives

Uses | Before taking | What to

What is clofibrate?

Clofibrate is used to lower high levels of cholesterol (a type of fat) in the blood. Clofibrate is especially good at lowering triglycerides and very-low-density lipoprotein (VLDL) (a form of cholesterol).

Important warnings
This medicine can cause some serious health issues

Follow any diet or exercise plan outlined by your doctor.

Diet and exercise are very important factors in controlling cholesterol.

Call your doctor immediately if you experience chest pain, shortness of breath, an irregular heartbeat, severe stomach pain with nausea and vomiting, fever and chills, a sore throat, a flulike feeling, blood in your urine, a decrease in urination, muscle cramps, muscle pain, muscle weakness, painful joints, swelling in your ankles or legs, or sudden weight gain.

These could be early signs of serious side effects.

https://www.drugs.com/mtm/clofibrate.html

Consistent with the results from previous studies is the finding from a clinical trial that was first published in Western literature in 1994 (Singh et al. 1994). In this study, sixty one patients with hypercholesterolemia were randomly divided into two groups (31 treatment vs. 30 placebo). All patients were instructed to eat a low-fat diet with fruit- and vegetable-enrichment for 12 weeks prior to the treatment. After the 12-week diet stabilization, patients received gugulipid 50 mg twice daily for 24 weeks, followed by a 12-week washout period. The diet stabilization for 12 weeks produced significant reduction in total cholesterol and triglycerides levels, indicating the importance of dietary restraining on improving lipid profile. Gugulipid further reduced total cholesterol levels by 11.7%, LDL by 12.5%, and triglycerides by 12%, whereas a 3.5% reduction in total cholesterol, 3% increase in LDL, and 3.7% increase in triglyceride were observed in the placebo group. HDL was also increased in both groups, but the increase was not statistically significant. After a 12-week washout period, subjects treated with gugulipid exhibited substantial increases in total cholesterol by 6.5%, LDL by 6.6%, and triglycerides by 7.7%, whereas such increase was not observed in the placebo group. The results indicate that long-term therapy (24 weeks) with gugulipid in conjunction with dietary modification significantly reduces cholesterol and lipid levels in patients with hypercholesterolemia.

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https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1527-3466.2007.00023.x

Antioxidant and Antiinflammatory Effects

Limited clinical trials have been conducted to evaluate the antioxidant and antiinflammatory effects of guggul. In one study, the cardioprotective activity of gum guggul in combination with *Inula racemosa*, another Ayurvedic botanical, was examined in 200 patients suffering from ischemic heart disease with abnormal electrocardiogram (ECG) and chest pain (Singh et al. 1993; Miller 1998). After treatment with guggul for 6 months, the levels of total cholesterol, triglyceride, and total blood lipids were decreased by 39%, 51%, and 32%, respectively, consistent with the hypolipidemic activity of guggul and *Inula*. More importantly, at the end of the study, in 26% of the patients the normal ECG was restored with another 59% of subjects showing improvement in the ECG. In addition, after treatment with guggul 25% of the patients experienced no more chest pain with the rest having less pain. The results suggest cardioprotective benefits of guggul in ischemic patients, presumably through its antioxidant activity.

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High-sensitivity C-reactive protein (hs-CRP), an acute-phase reactant mainly synthesized in the liver in response to the cytokine stimulation, is an index of inflammation that is now believed to directly promote all stages of atherosclerosis, including plaque rupture (Jialal et al. 2004). In the human clinical trial conducted in the United States, it was found that the median serum hs-CRP level was decreased by 29% in the group receiving gugulipid at a dose of 2000 mg daily, while the hs-CRP level was increased by 25% in the group receiving placebo during the trial period (Szapary et al. 2003), indicating the antiinflammatory activity of gugulipid.

In another study, the antiinflammatory activity of guggul was evaluated in 30 patients with arthritis in at least one knee (Singh et al. 2003). Gum guggul at 500 mg three times daily for one month significantly improved the WOMAC (Western Ontario and McMaster Osteoarthritis Index) total score and continued to improve it at the 2-month marker and follow-up. With the secondary measures of pain in the visual analog scales, patients exhibited significant improvement after 2 months of treatment. Thus, the results demonstrate the beneficial effect of the therapy in arthritic patients. Although the study was focused on arthritis, the finding suggests the antiinflammatory effect of guggul therapy.

https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1527-3466.2007.00023.x

Guggulsterone, an anti-inflammatory phytosterol, inhibits tissue factor and arterial thrombosis

ORIGINAL CONTRIBUTION | Published: 24 October 2008

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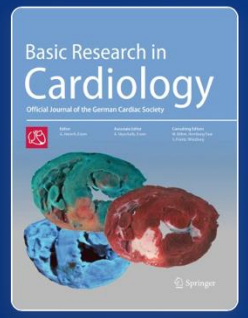

Catherine Gebhard MD, Simon F. Stämpfli MD, Caroline E. Gebhard, Alexander Akhmedov PhD, Alexander Breitenstein MD, Giovanni G. Camici PhD, Erik W. Holy MD, Thomas F. Lüscher MD & Felix C. Tanner MD

https://link.springer.com/article/10.1007/s00395-008-0757-5

Methods and results

Guggulsterone inhibited TNF-α-induced endothelial TF protein expression and surface activity in a concentration-dependent manner; in contrast, dexamethasone did not affect TNF-α-induced TF expression. Guggulsterone enhanced endothelial tissue factor pathway inhibitor and impaired plasminogen activator inhibi hesion molecule-1 protein. Real-time polymerase chain reac one inhibited TNF-α-induced TF mRNA expression; mor f the MAP kinases JNK and p38, while that of ERK remaine terone inhibited TF activity and photochemical injury induc ouse carotid artery. Guggulsterone also inhibited TF expression, proliferation, and migration of vascular smooth muscle cells in a concentration-dependent manner.

https://link.springer.com/article/10.1007/s00395-008-0757-5

Home > Dexamethasone

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Dexamethasone

Generic name: dexamethasone (oral) [*dex-a-METH-a-sone*]

Brand names: Decadron, DexPak 6 DayTaperpak, Hemady

Dosage forms: oral concentrate (1 mg/mL), or
mg; 20 mg; 4 mg; 6 mg)

Drug class: Glucocorticoids

Medically reviewed by Sophia Entringer

Uses | Warnings | Before taking

What is dexamethasone?

Dexamethasone is a corticosteroid that pr
inflammation.

- muscle tightness, weakness, or limp feeling;
- blurred vision, tunnel vision, eye pain, or seeing halos around lights;
- shortness of breath (even with mild exertion), swelling, rapid weight gain;
- severe depression, unusual thoughts or behavior;
- a seizure (convulsions);
- bloody or tarry stools, coughing up blood;
- fast or slow heart rate, weak pulse;
- **pancreatitis** - severe pain in your upper stomach spreading to your back, nausea and vomiting;
- **low potassium level** - leg cramps, constipation, irregular heartbeats, fluttering in your chest, increased thirst or urination, numbness or tingling; or
- **increased blood pressure** - severe headache, blurred vision, pounding in your neck or ears, anxiety, nosebleed.

https://www.drugs.com/dexamethasone.html

Methods and results

Guggulsterone inhibited TNF-α-induced endothelial TF protein expression and surface activity in a concentration-dependent manner; in contrast, dexamethasone did not affect TNF-α-induced TF expression. Guggulsterone enhanced endothelial tissue factor pathway inhibitor and impaired plasminogen activator inhibitor-1 as well as vascular cell adhesion molecule-1 protein. Real-time polymerase chain reaction revealed that guggulsterone inhibited TNF-α-induced TF mRNA expression; moreover, it impaired activation of the MAP kinases JNK and p38, while that of ERK remained unaffected. In vivo, guggulsterone inhibited TF activity and photochemical injury induced thrombotic occlusion of mouse carotid artery. Guggulsterone also inhibited TF expression, proliferation, and migration of vascular smooth muscle cells in a concentration-dependent manner.

https://link.springer.com/article/10.1007/s00395-008-0757-5

Conclusions

Guggulsterone inhibits TF expression in vascular cells as well as thrombus formation in vivo; moreover, it impairs vascular smooth muscle cell activation. Hence, this phytosterol offers novel therapeutic options, in particular in inflammatory diseases associated with an increased risk of thrombosis.

https://link.springer.com/article/10.1007/s00395-008-0757-5

ANTICANCER RESEARCH *28*: 3647-3664 (2008)

Review

The Guggul for Chronic Diseases: Ancient Medicine, Modern Targets

SHISHIR SHISHODIA[1], KUZHUVELIL B. HARIKUMAR[2], SUCHISMITA DASS[3], KRISHAN G. RAMAWAT[3] and BHARAT B. AGGARWAL[2]

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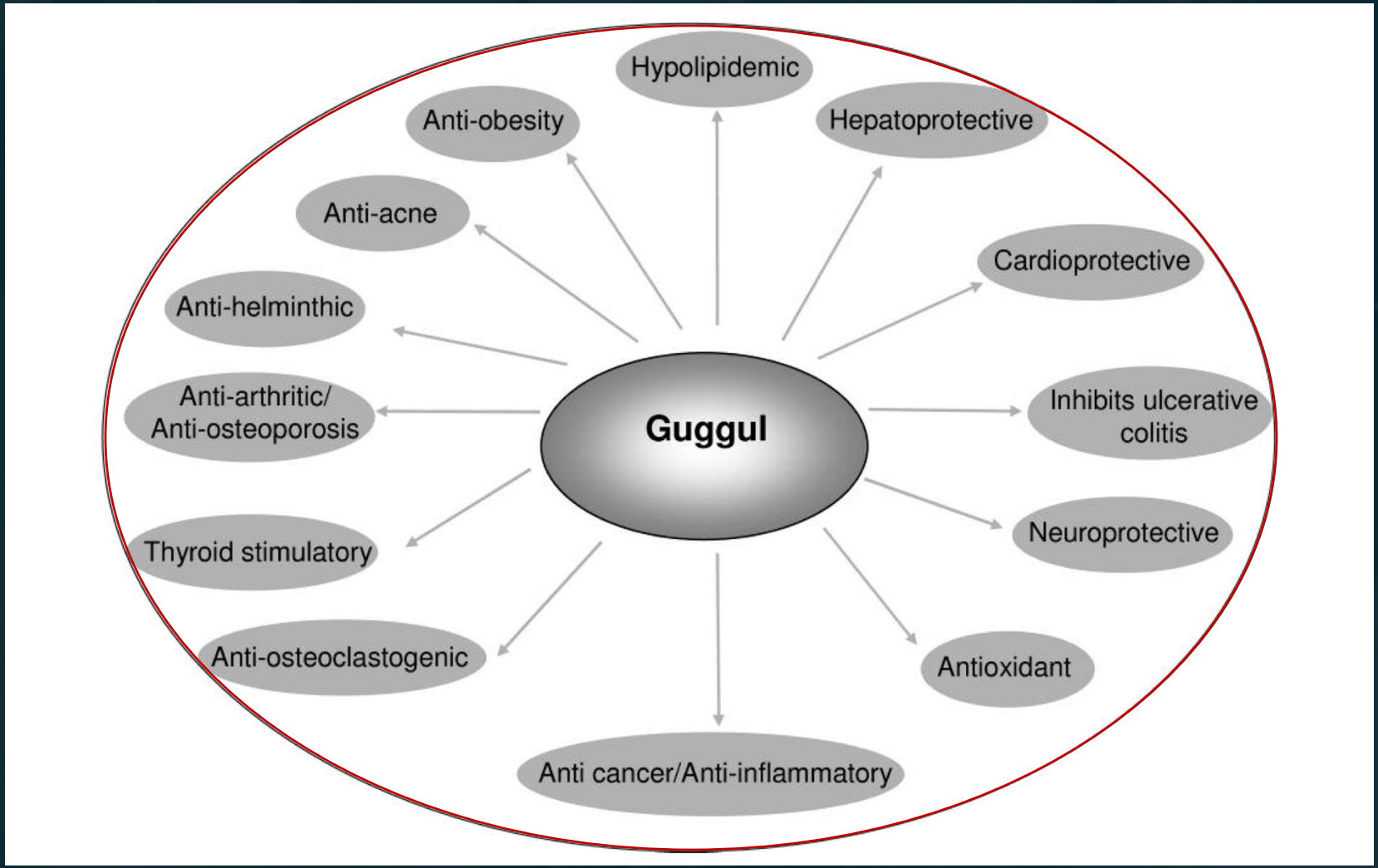

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Other Proinflammatory Chronic Diseases

Inflammation is caused by activation of inflammatory signal pathways such as the NF-κB signal pathway and release of inflammatory mediators such as the proinflammatory cytokines (*e.g.* TNF and IL-1β) and proinflammatory enzymes that mediate production of prostaglandins (*e.g.* COX-2) and leukotrienes (*e.g.* lipo-oxygenase), together with expression of adhesion molecules and MMPs (63). This combination of events leads to chronic inflammatory diseases such as atherosclerosis, arthritis, colitis, or even cancer. The first documented evidence of the anti-inflammatory activity of guggul was reported in 1960 by Gujral *et al.* (64); a confirmatory report was published in 1977 by Sharma and Sharma (65), but it was not until 2004 that guggulsterone was demonstrated for the first time to suppress activation of the proinflammatory transcription factor NF-κB and the genes regulated by NF-κB (37).

Oxidative stress plays an important part in many human diseases. Although it is unknown whether oxidative stress is the cause or a consequence of disease, antioxidants are widely used for maintaining health and preventing diseases. Guggulipid suppresses formation of lipid peroxides (66) and prevents oxidation of low-density lipoproteins (LDL) *in vitro* (67, 68). In more recent studies, guggulsterone at concentrations of 5 to 20 μM effectively inhibited LDL peroxidation and generation of free oxygen radicals (69, 70). This finding indicates that guggulsterone may be of therapeutic benefit in diseases associated with oxidative stress, such as myocardial ischemia and neurodegenerative diseases (Figure 5).

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Hypolipidemic activity. Herbal extracts from guggul have been widely used in Asia as cholesterol-lowering agents, and their popularity is increasing in the United States. Guggul extract was approved by the United States Food and Drug Administration in 1994 as a dietary supplement. Guggulsterones -E and -Z are responsible for the lipid-lowering properties of guggul in human blood and at least four mechanisms have been proposed to explain their activity (7). First, guggulsterones might interfere with formation of lipoproteins by inhibiting biosynthesis of cholesterol in the liver (71). Second, guggulsterones have been shown to enhance the uptake of LDLs by the liver through stimulation of LDL receptor–binding activity in the membranes of hepatic cells (72). Third, guggulsterones increase fecal excretion of bile acids and cholesterol, substantially decreasing the rate of absorption of fat and cholesterol in the intestine (71). Finally, guggulsterones directly stimulate the thyroid gland (73). Several animal studies and clinical trials have been performed to evaluate the hypolipidemic effects of guggul.

To evaluate the effects of guggul on disorders of lipid metabolism, with special reference to atherosclerosis and obesity, Satyavati *et al*. conducted the first animal study on rabbits, from 1964 through 1966 (74). In this study, rabbits were fed hydrogenated vegetable oil to raise their cholesterol levels. One group of rabbits was fed guggul, whereas the other group served as a control. Satyavati *et al*. demonstrated that administration of gum guggul significantly lowered the serum cholesterol levels of hyperlipidemic rabbits, prevented cholesterol-induced arteriosclerosis and decreased the body weight of the animals (74). These data provided the first experimental evidence to support claims in the Ayurvedic text that guggul may be effective in the treatment of hypercholesterolemia and atherosclerosis. In another study, hypercholesterolemia was induced in male albino rabbits by administration of cholesterol (500 mg/kg body weight). The experimental animals were then fed gum guggul at the dose of 2 g/kg body weight daily for 6 weeks. Both the control and experimental cholesterol-fed animals showed elevated levels of serum and tissue cholesterol, but guggul-fed animals had significant decreases in the level of cholesterol and body weight (2).

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The study by Satyavati *et al*. did not examine the effect of guggul on triglyceride levels; however, another study by Singh *et al*. examined the effect of guggulsterone on cholesterol and triglyceride levels in rats. Guggulsterone (25 mg/kg body weight for 10 days) lowered serum cholesterol and triglyceride levels by 27% and 30%, respectively (72). LDL binding to hepatic cell membranes was significantly increased in guggulsterone-treated rats (72). Chander *et al*. examined the effect of guggulsterone on serum lipid levels in triton- and cholesterol-fed rats. In triton-fed rats, guggulsterone (50 mg/kg body weight) significantly reduced serum lipid levels. In cholesterol-fed rats, guggulsterone (5 mg/kg body weight) decreased serum levels of LDL and very low-density lipoprotein (VLDL). Moreover, guggulsterone treatment was found to increase the activity of lipolytic enzymes as well as receptor-mediated catabolism of LDL (75). The effect of dietary guggulipid on serum lipid levels was also evaluated in Fisher rats, which were fed a diet containing 1% to 5.6% guggulipid for 10 days. Guggulipid-induced decreases in serum levels of triglycerides (22%-70%), LDL, and VLDL and increases in serum levels of high-density lipoprotein (HDL) were dose dependent (76).

In another study, the lipid-lowering action of guggulipid was compared with that of *S*-methyl cysteine sulfoxide isolated from *Allium cepa* in Sprague-Dawley rats fed a 1% cholesterol diet (77). Animals that received guggulipid at 50 mg/kg body weight for 45 days had significantly reduced serum cholesterol, triglyceride, and phospholipids levels and atherogenic index. Free fatty acid levels in serum, liver and heart were also significantly decreased, whereas lipolytic activity was increased in liver and heart. The study also found that fecal excretion of bile acids and sterols was significantly increased by 57% and 75%, respectively (77). Administration of Z-guggulsterone at a dose of 100 mg/kg body weight has been shown to decrease liver cholesterol levels in mice fed a high-cholesterol diet for 7 days (18).

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The hypolipidemic effect of guggul has been studied in several other animal models, including chickens (78), pigs (79), dogs and monkeys (80). Guggul has been shown to accelerate the decrease in lipid levels after a high fat diet. When leghorn chicks were fed a high-fat diet for 1 month to induce hyperlipidemia, followed by either a normal diet or a normal diet plus gum guggul at a dose of 3 g/kg body weight, serum cholesterol and triglyceride levels fell at a significantly faster rate in the group treated with gum guggul. Furthermore, administration of gum guggul partially reversed the atherosclerosis in the aorta that was induced by the high-fat diet (78).

High-sensitivity C-reactive protein is an indicator of inflammation. It is an acute-phase protein synthesized in response to cytokine stimulation in the liver and is believed to promote all stages of atherosclerosis (81). High-sensitivity C-reactive protein decreased in hyperlipidemic subjects receiving guggulipid at a dose of 2,000 mg daily (82), suggesting an anti-inflammatory role for guggul.

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Cardioprotective effects. Several studies have reported the cardioprotective activity of guggulsterone. Guggulsterone has been shown to reverse isoproterenol-induced cardiac damage and the associated metabolic changes in rats. Isoproterenol-treated rats were shown to have marked increases in creatine phosphokinase, phospholipase and xanthine oxidase activities, increased levels of lipid peroxides and lowered superoxide dismutase levels, all indicative of oxidative stress. Guggulsterone treatment reversed these metabolic changes (83). In more recent studies, the cardioprotective activity of guggulsterone was compared with that of a hypolipidemic drug, gemfibrozil. Both isomers of guggulsterone, at doses of 50 mg/kg body weight, exhibited significant cardioprotective effect against isoproterenol-induced cardiac damage (69, 70). In another study, the cardioprotective effect of guggulipid was evaluated in a rat model. Rats received guggulipid orally at a dose of 50 mg/kg for 30 days. Guggulipid significantly reversed the cardiac damage and biochemical changes induced by isoproterenol (84). Moreover, guggulipid significantly decreased total cholesterol and lipid peroxide levels in the serum.

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The cardioprotective activity of gum guggul in combination with *Inula racemosa* was examined in 200 patients suffering from ischemic heart disease who had abnormal electrocardiogram (ECG) and chest pain (85, 86). *Inula racemosa* is used in Ayurvedic medicine mainly as an expectorant and bronchodilator. It has been used in the treatment of tuberculosis and topically in the treatment of skin diseases. After treatment with guggul for 6 months, the levels of total cholesterol, triglyceride and total blood lipids were decreased. Moreover, normal ECG was restored in 26% of the patients and another 59% showed improvement in the ECG. Chest pain subsided in 25% of the patients and decreased in the rest of the patients. The results suggest that guggul has cardioprotective benefits in patients with ischemia (85, 86).

https://ar.iiarjournals.org/content/anticanres/28/6A/3647.full.pdf

Arthritis. Arthritis, an inflammation of the joints, is usually a chronic disease that results from dysregulation of proinflammatory cytokines and proinflammatory enzymes that mediate production of prostaglandins and leukotrienes, together with expression of adhesion molecules and MMPs and hyperproliferation of synovial fibroblasts. All of these factors are regulated by activation of the transcription factor NF-κB. Thus, agents that suppress activation of NF-κB have potential for the treatment of arthritis [for references see (88)].

Sharma *et al*. investigated the role of guggul in an experimental arthritis model resembling rheumatoid arthritis in man. Guggul reduced the thickness of the joint swelling during the course of drug treatment, indicating that gum guggul has a beneficial role in experimental arthritis (65).

The antiinflammatory activity of guggul was evaluated in 30 patients with arthritis in at least one knee (89). The study evaluated the effects of guggul on pain, stiffness and function, and determined the tolerability in older patients with a diagnosis of osteoarthritis of the knee. Gum guggul at 500 mg three times daily for 1 month significantly improved the WOMAC (Western Ontario and McMaster Osteoarthritis Index) total score and continued to improve it at the 2-month marker and follow-up. With secondary measures of pain in the visual analog scales, patients exhibited significant improvement after 2 months of treatment. These results demonstrate the beneficial effect of the therapy in arthritic patients. No side effects were reported during the trial. Thus, gum guggul appears to be a relatively safe and effective supplement to reduce symptoms of osteoarthritis.

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Pharmacognosy Magazine

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Clinical Evaluation of *Commiphora Mukul*, a Botanical resin, in the Management of Hemorrhoids: A randomized controlled trial

Mahdi Yousefi [1], Moha[illegible]mad Reza Vaez Mahdavi [1,✉], Seyed Mousalreza Hosseini [2], Abdollah Bahrami [3], Ali Davati [4], Mohammad Ka[illegible]alinejad [5], Sograt Faghihzadeh [6]

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https://pmc.ncbi.nlm.nih.gov/articles/PMC3793341/

Cleveland Clinic

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HOME / HEALTH LIBRARY / DISEASES & CONDITIONS / HEMORRHOIDS

Hemorrhoids

Hemorrhoids, or piles, are a common condition. These swollen veins inside of your rectum or outside of your anus can cause pain, anal itching and bleeding. Symptoms often improve with at-home treatments. Eating more fiber and avoiding straining can help prevent hemorrhoids.

https://my.clevelandclinic.org/health/diseases/15120-hemorrhoids

Aim:

This randomized study was undertaken to evaluate the efficacy and safety of crude *CM* resin compared to a combination of *lactolose* and *anti-hemorrhoid* (*LandA*) in patients with uncomplicated hemorrhoids grade 1 and 2.

Hemorrhoidal Ointment Side Effects

Generic name: *phenylephrine topical*

https://www.drugs.com/sfx/hemorrhoidal-ointment-side-effects.html

Medically reviewed by Drugs.com. Last updated on Apr 16, 2024.

Serious side effects | Other side effects

Note: This document provides detailed information about **Hemorrhoidal Ointment** Side Effects associated with *phenylephrine topical*. Some dosage forms listed on this page may not apply specifically to the brand name **Hemorrhoidal Ointment**.

Applies to phenylephrine topical: **external gel, rectal ointment, rectal suppository**.

https://pmc.ncbi.nlm.nih.gov/articles/PMC3793341/

Serious side effects

WARNING/CAUTION: Even though it may be rare, some people may have very bad and sometimes deadly side effects when taking a drug. Tell your doctor or get medical help right away if you have any of the following signs or symptoms that may be related to a very bad side effect:

- Signs of an allergic reaction, like rash; hives; itching; red, swollen, blistered, or peeling skin with or without fever; wheezing; tightness in the chest or throat; trouble breathing, swallowing, or talking; unusual hoarseness; or swelling of the mouth, face, lips, tongue, or throat.
- Bleeding from rectum or rectal pain.

https://www.drugs.com/sfx/hemorrhoidal-ointment-side-effects.html

Materials and Methods:

This trial was carried out on 99 patients with hemorrhoids, in Ghaem and Imam Reaza Hospitals of the Mashhad University of Medical Sciences, Iran. They randomly received *CM* 3 g/d for 4 weeks (as study group) or *LandA* (*Lactolose* syrup in laxative dose for 1 month and *anti-hemorrhoid* suppository daily for 10 days) as control group. Subjective and objectives variables including painful defecation, flatulence, constipation, gastro-esophageal reflux (GER), dyspepsia, proctorrhagia, anal protrusion, and colonoscopic grading were assessed before, immediately after, and 4 weeks after the treatment period. An intent-to-treat analysis was used. Safety was assessed with evaluation of clinical adverse effects by common toxicity criteria version 4.0. Forty-nine patients were assigned randomly to receive *LandA* and 50 to receive *CM*. After 4 weeks, flatulence, dyspepsia, GER, and colonoscopic grading scores significantly decreased in study group, whereas in control group constipation, painful defecation, and proctorrhagia showed better but not significant improvement. After 4-weak follow-up, the rate of constipation, and proctorrhagia also showed significantly improvement in study group. Constipation and proctorrhagia in control group recurred significantly in 4-week follow-up than after the treatment, whereas this recurrence in test group was not seen.

https://pmc.ncbi.nlm.nih.gov/articles/PMC3793341/

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Conclusion:

CM was more effective than *LandA* in 4-week treatment of patients with uncomplicated hemorrhoids grade 1 and 2.

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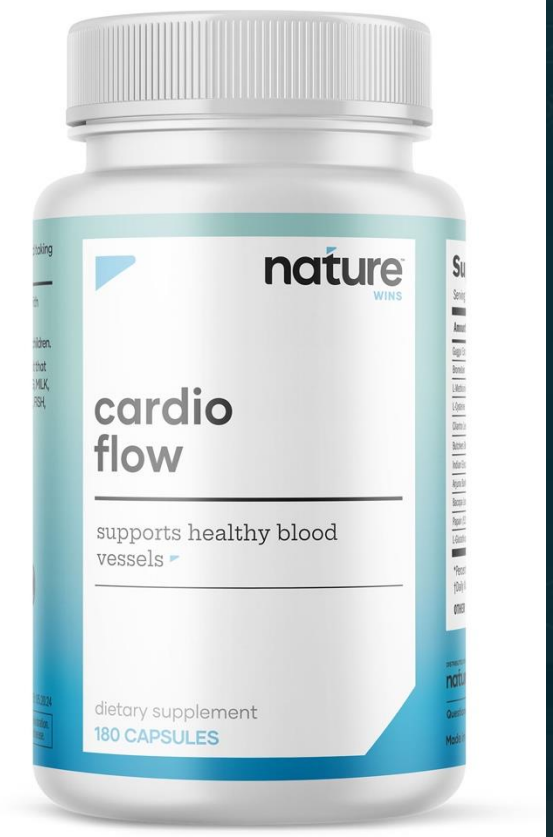

Supplement Facts

Serving Size: 2 Capsules Servings Per Container: 90

Amount Per Serving		% Daily Value
Guggul Extract (Std. to 2.5% Guggulsterones)	300mg	†
Bromelain	200mg	†
L-Methionine	200mg	†
L-Cysteine	200mg	†
Cilantro Leaf Powder	200mg	†
Butchers Broom Extract (Rhizome)	100mg	†
Indian Elecampane Extract 0.5% (Root)	76mg	†
Arjuna Bark Extract (Std. to 0.5% Arjunolic Acid)	50mg	†
Bacopa Leaf Extract (Std. to 20% Bacosides)	50mg	†
Papain (525 TU/mg)	20mg	†
L-Glutathione	14mg	†

*Percent Daily Value (DV) are based on a 2000 calorie diet.
†Daily Value (DV) not established.

OTHER INGREDIENTS: Vegetable Capsule (HPMC).

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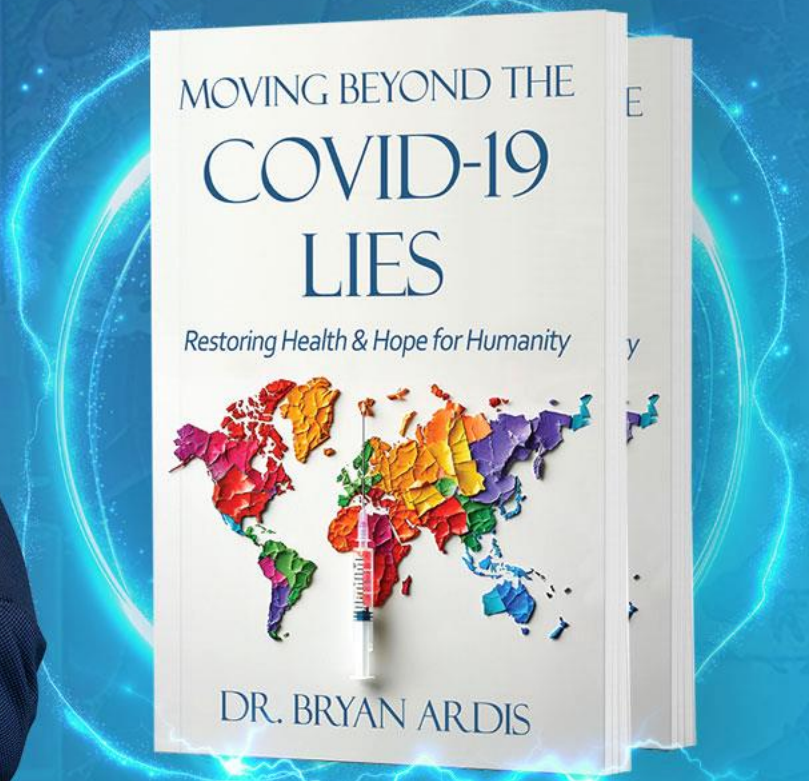

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