

Graduated Compression in the Management of Venous Disease

CONTINUING EDUCATION

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Upon successful completion of this article, the pharmacist should be able to:

1. Summarize the critical elements of chronic venous disease.
2. Describe common risk factors and symptoms of chronic venous disease.
3. Describe the leading causes that contribute to the formation of a DVT (blood clot).
4. Explain the mechanical principle of circular-knit compression stockings/garments and how they are used to manage chronic venous disease.
5. Discuss the importance of properly measured and fit compression stockings/garments.

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Chronic venous disease is one of the most common worldwide vascular disorders with a prevalence of 63.9 percent, underlining the importance of adequate screening, treatment, and care. Managing chronic venous disease requires various components. Early detection and treatment are crucial in slowing this progressive disease. Using compression therapy to manage and treat chronic venous disease has become the gold standard of care and is practiced worldwide.

Chronic venous disease ranges from asymptomatic valve incompetence to varicose veins, edema, skin changes, and even venous ulcerations. To systematically categorize the various stages of chronic venous disease, the American Venous Forum developed the CEAP Classifications in 1994. The classification system is built on the principle that chronic venous disease is progressive, and therefore builds on mild symptoms that gradually worsen. The CEAP classifications were revised in 2004, and since then, the classification system has solidified its position in relevant literature and scientific publications.

Each letter in the CEAP classification system represents a component of venous orders:

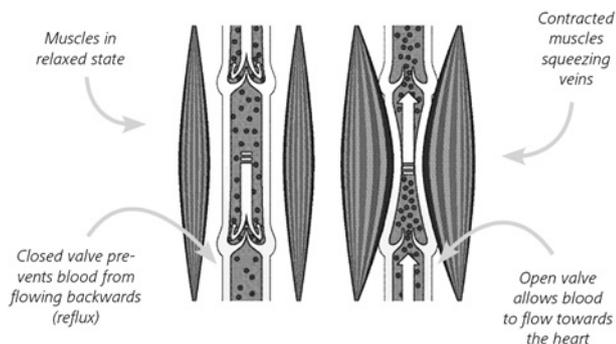
- C** **Clinical signs:** (score of 0–6), a = asymptomatic, s = symptomatic
- E** **Etiology:** etiological classification according to congenital, primary and secondary
- A** **Anatomy:** affected segments of veins, superficial, deep, perforating veins
- P** **Pathophysiology:** pathophysiological dysfunction, reflux, obstruction, reflux and obstruction

UNDERSTANDING VENOUS DISEASE

The circulatory system is comprised of arteries and veins. Arteries carry oxygen-rich blood, pumped by the heart, throughout the body. Veins carry deoxygenated blood (and waste) back to the lungs and heart for recirculation. Unlike arteries, veins have one-way valves which aid in the flow of blood upward against the pull of gravity, especially in the lower extremities. Venous valves function in unison with the contraction and relaxation of the calf muscle. When calf muscles contract, the valves open to allow blood to flow upwards, and when the calf muscles are relaxed, valves close to prevent blood from refluxing (pooling backward). Just as high blood pressure is known as hypertension, pressure buildup in the veins (due to pooling) is known as venous hypertension.

Clinical Classification	<p>C0 No visible or palpable signs of venous disease</p> <p>C1 Telangiectasies or reticular veins</p> <p>C2 Varicose veins; distinguished from reticular veins by a diameter of 3 mm or more</p> <p>C3 Edema</p> <p>C4a Pigmentation or eczema</p> <p>C4b Lipodermatosclerosis or atrophie blanche</p> <p>C5 Healed venous ulcer</p> <p>C6 Active venous ulcer</p> <p>S Symptomatic, including ache, pain, tightness, skin irritation, heaviness and muscle cramps, and other complaints attributable to venous dysfunction</p> <p>A Asymptomatic</p>
Etiologic Classification	<p>Ec Congenital</p> <p>Ep Primary</p> <p>Es Secondary (postthrombotic)</p> <p>En No venous cause identified</p>
Anatomic Classification	<p>As Superficial veins</p> <p>Ap Perforator veins</p> <p>Ad Deep veins</p> <p>An No venous location identified</p>
Pathophysiologic Classification	<p>Pr Reflux</p> <p>Po Obstruction</p> <p>Pr, o Reflux and obstruction</p> <p>Pn No venous pathophysiology identifiable</p>

Calf Muscles Contracting and Relaxing



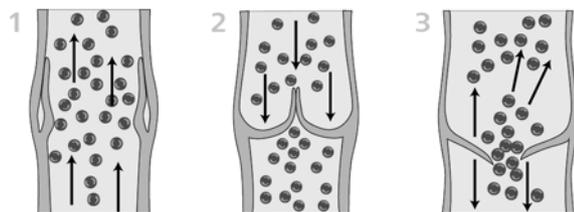
- Evening or occupational edema
- Feeling of heaviness in the legs
- Tired, achy legs
- Spider veins (blue/purple clusters of small broken blood vessels close to skin surface)

It is important to address symptoms early on to prevent further damage and/or slow the progression. More advanced signs and symptoms include:

- Varicose veins
- A feeling of tension, cramps, or excessive fatigue in legs
- Skin discoloration
- Venous leg ulcers (VLU)

When venous valves become incompetent, the normal flow of blood is affected, leading to reflux and resulting in early symptoms of chronic venous disease.

Competent vs. incompetent valves



- 1. Valve Open:** Blood flows toward the heart.
- 2. Valve Closed:** Prevents blood from reverse flow.
- 3. When Valves Don't Close:** They become incompetent. Reverse blood flow causes "pooling" and weakening of the vein wall.

Risk factors for chronic venous disease:

- Heredity
- Age over 40
- Pregnancy
- Obesity
- Prolonged sitting or standing
- Long-distance travel
- Sedentary lifestyle
- Surgery or trauma
- Use of hormone medication

Diagnosis

A physician must diagnose chronic venous disease. Leg pain can be indicative of venous disorders, even without outward or visible signs of the condition. Some of the early signs and symptoms of chronic venous disease include:

Varicose Veins

Varicose veins are the most common form or manifestation of chronic venous disease. Generally located in the legs and feet, they usually appear:

- Blue/dark purple in color
- Tortuous
- Twisting and bulging

Many people diagnosed with spider veins and varicose veins simply see this as a cosmetic concern. However, if left untreated, varicose veins can lead to more serious problems. It is important that patients are educated early to understand common risk factors and intervention options, including the use of compression stockings/garments.

Edema

Edema, or localized swelling, can be a naturally occurring process, which is often present when damaged tissue is healing and rebuilding. However, in a compromised venous system, chronic edema can be a symptom of leaking vein walls from chronic venous disease. Chronic edema is often progressive, so early detection is important. Unresolved venous edema can lead to more serious conditions such as phlebolympheidema, which is a combination of venous hypertension, and a failing of the lymphatic system. Adding a lymphatic component may lead to a condition known as lymphedema, which is a lifelong, incurable disease that requires additional compressive care.

Skin Changes

Skin changes mainly develop due to damage caused by chronic venous hypertension, such as lack of pressure relief in the veins on walking. Skin changes often present as skin discoloration, such as hemosiderin staining. This type of staining stems from oxidized iron leaked from blood due to excessive venous hypertension. Some-

times, hypertension can also lead to skin breakdown, chronic inflammation, and infections. Skin changes left untreated can result in venous leg ulcers.

Venous Ulcers

A chronic VLU is a wound that has not moved through the phases of healing in a timely and proper manner, which normally would result in skin closure. Most VLUs occur on the lower portions of the leg near the medial or lateral malleolus, otherwise known as the inner or outer ankle bones. There are multiple theories of what conditions lead to a VLU, and although many studies with small sample sizes have shown promise in finding correlations, none have been determined to be directly causal. Some theorized causes are related to the over-production of fibrin, some being found in cuffed layers around dermal capillaries. Thoughts are that the formation leads to hypoxia of the area affected, which leads to an ulcer formation. Other studies posit that shear stress of the skin, traumatic injury, infection, obesity, immune diseases, advancing age, diabetes, genetic predisposition, environmental factors, smoking, gender, estrogen levels, and atherosclerosis all have an effect on the chronic venous disease that is a precursor to VLU formation. However, there is still no agreement in one singular factor or even a specific group of causal factors.

Compression therapy is recommended for both patients with venous ulcers (1A) and as an adjunct to superficial venous ablation to reduce the risk of ulcer recurrence (1A). Compression can either be provided by multi-layer cohesive bandage kits or by properly fitted elastic compression stockings or garments. In a systemic review of compression use, it has been shown that with proper compression, ulcer healing rate ranges from 60-80 percent. While compression is the key factor leading to closure of the wound, additional local wound treatment has been shown to decrease the total healing time. Local wound dressing is also associated with an improved quality of life as well as a decrease in the socioeconomic impact of the VLU. According to Nelzen et al, it has been estimated that chronic VLUs cause the loss of approximately 2 million working days and incur treatment costs of approximately \$3 billion per year in the United States. The direct costs of treating VLUs average \$2,500 per month, per patient, including costs associated with personnel, wound care treatments, medications, specialized wound dressing, and compression garments.

Deep Vein Thrombosis

Deep vein thrombosis, simply put, is a blood clot. Blood clots occur most commonly in the deep veins of the legs, behind the knee or in the thigh, but can also form in the pelvis or the arms. When a clot forms in a deep vein,

it causes re-routing of the blood flow and a buildup of pressure, leading to swelling and pain.

What Causes DVT?

Clots may form in deep veins for three basic reasons: damage to the vein wall; lack of blood movement (also called stasis); and an increased tendency to form a clot, known as hypercoagulability.

- Vein damage may happen due to recent surgeries, accidents, trauma, or injury.
- Stasis occurs when a person is immobile for reasons such as hospitalization, confinement to bed in a nursing home or rehabilitation center, sitting in an airplane or car for long periods of time without movement, or wearing a leg cast.
- Some people have a predisposition to form blood clots, known as hypercoagulability. Sometimes this is due to a genetic defect in which the body does not have the right balance of coagulation factors that either create or, more likely, break down a clot once it occurs, such as factor V Leiden. Hormones such as oral contraceptives and hormone replacement therapy are also known to affect coagulation, therefore putting patients at a greater risk for developing a DVT.

Due to a combination of these factors, DVTs and pulmonary embolisms (PEs) commonly develop after certain types of surgery and/or hospitalization. Because of this, orthopedic surgeries have an especially high incidence rate and research suggests that up to 60 percent of DVT and PE cases occur during or after hospitalization, making it a leading preventable cause of hospital death.

There are several efforts undertaken to try to prevent DVT after surgery. These efforts, include using low-dose injectable blood thinners, novel oral anti-coagulants, intermittent pneumatic compression devices, compression stockings, and early ambulation. These preventative measures reduce the chance of a DVT at the time of surgery.

How Common is DVT?

In the United States, approximately 900,000 people are affected by DVTs and PEs every year. Not all patients with DVTs are diagnosed; therefore, many people may have a DVT and not even know it. Unfortunately, 60,000 to 100,000 people die every year due to complications from a DVT.

DVT Risk Factors

- Age over 50
- Smoking
- Sedentary lifestyle

- Prolonged bed rest
- Prolonged sitting or being in a cramped position
- Surgery or major injury (especially orthopedic)
- High estrogen states, hormone replacement therapy, oral contraceptive usage, pregnancy
- History of DVT
- Excessive weight (BMI greater than 30)
- Inherited blood-clotting disorder (factor V Leiden)
- Dehydration
- Heart failure, pacemaker, some cancers

Common DVT Signs and Symptoms

Many patients may not experience any symptoms, or they may occur suddenly or over a short time period, adding to the complexity of the situation. Patients with symptoms often experience:

- Leg pain and tenderness
- Swelling in calf muscle, ankle, foot, or thigh
- Increased leg warmth
- Redness
- Newly developed varicose veins

DVT and PE

One of the most dangerous complications of a DVT is that the clot (embolus) can break free in the vein and travel to the lungs, known as a PE. Although not all PEs are fatal, many can cause fatalities. The pulmonary artery blocked by the clot determines the seriousness of a PE. Blocking blood flow in the lungs can lead to heart failure. Occasionally, a pulmonary embolus is found when no DVT is noted in the legs. This can occur when the entire clot has broken off and traveled to the lung, or if the clot is coming from a source other than the legs, such as pelvic or arm veins. Treatment for a PE often requires blood thinners and possibly hospitalization. Sometimes, a surgical procedure may be required to remove the clot.

Common signs and symptoms of a PE include:

- Chest pain
- Shortness of breath
- Rapid pulse
- Cough
- Feeling of apprehension
- Sweating
- Fainting

DVT Long-Term Complications

While most patients are aware of and fear the potential short-term complications of a DVT, few understand that blood clots can cause long-term problems. This condition is known as post-thrombotic syndrome. The most common post-thrombotic syndrome symptoms are:

- Swelling
- Chronic leg pain
- Heaviness in the limb
- VLU's

POST DVT DIAGNOSIS

Evidence suggests that the risk of post-thrombotic syndrome may be reduced by the routine use of graduated medical compression stockings/garments after a DVT. Graduated compression stockings are paramount in the treatment of DVT. Ideally, people newly diagnosed with DVT should wear graduated compression stockings immediately after the diagnosis. Wearing compression stockings, when prescribed by a physician, helps minimize swelling and can improve the long-term leg health.

Ambulatory patients at risk should wear graduated compression stockings, as prescribed by a physician, with a minimum compression level of 20-30 mmHg, instead of anti-embolic stockings (known as TED hose), which typically contain about 18 mmHg. When a patient is up and walking, the pressure generated in the veins after a DVT can be significantly higher compared to when they are lying down. Anti-embolic stockings are designed for bedridden patients. Graduated compression stockings are for mobile patients who require a higher compression level to aid the venous blood flow against the pull of gravity. The proper compression applied to the leg allows for better control of symptoms, especially swelling, aching, and tiredness. Patients should put on the prescribed stockings in the morning and remove them in the evening. It is important to remember that the elasticity in compression stockings decreases over time, and therefore patients should purchase new stockings every four to six months.

DVT AND TRAVEL

When travelling more than four hours at a time, veins are at risk with an increased chance of developing a blood clot. This risk decreases by getting up and walking or doing foot pumps every 30 minutes. People without severe venous insufficiency may see a decreased rate of blood clots in the legs if they wear a low level (15-20 mmHg) of graduated compression stockings while traveling. People with a history of blood clots have an increased risk of developing another blood clot. When prescribed by a physician, wearing 20-30 mmHg or higher graduated medical compression stockings can decrease the risk.

Although DVT diagnosis is serious, it is treatable and manageable when recognizing the symptoms and seeking immediate medical attention. Following a DVT

diagnosis, patients may significantly improve their leg health by living an active lifestyle, eating a healthy diet, and wearing graduated medical compression stockings, when prescribed by a physician.

PREGNANCY AND VENOUS DISORDERS

Women often experience venous disorders and leg health problems, some of whom may experience these conditions for the first time during pregnancy. Swollen feet, tired aching legs, and a feeling of heaviness in the legs are everyday symptoms that women often experience during pregnancy. These symptoms are especially frequent for pregnant women who:

- Have a family history of varicose veins and venous disease
- Have a pre-existing venous condition
- Sit and stand for prolonged periods of time
- Do not exercise regularly
- Have more than one pregnancy

Pregnancy plays a major role in developing varicose veins. Thirty percent of women pregnant for the first time and 55 percent of women who have had two or more full-term pregnancies develop varicose veins.

During pregnancy, a woman's feet and legs may begin to swell after sitting or standing for a short time, which is common. It is recommended that women consult a physician if their feet or legs are swollen upon waking in the morning.

Pregnancy triggers many body changes that profoundly affect the veins. During pregnancy, blood volume increases between 40 percent and 50 percent. The body produces increased amounts of progesterone, which causes the vein walls to dilate and become less elastic. The pressure of the fetal head in the pelvis can compress the iliac veins and obstruct venous outflow from the legs. This pressure can cause a slowing of blood flow and valve damage, resulting in swelling, leg discomfort, and varicose veins.

DVT Risk During Pregnancy

PE is a leading cause of death among pregnant women in the developed world. Pregnant women are at a high risk of developing a DVT. One reason is due to the increased blood volume at full term. Pregnancy also triggers hormonal changes that increase blood coagulability, a main factor that leads to the development of blood clots. Additionally, the expanding uterus puts pressure on blood vessels, restricting blood flow from the legs and pelvis back to the heart. Slower blood flow increases the risk of DVT. The risk continues during the post-par-

tum period until the woman's hormonal levels return to their pre-pregnancy state.

KEEPING LEGS HEALTHY LONGER

- Avoid sitting or standing for long periods of time. Circulation improves with physical activity, so GET UP! Take a short walk, climb stairs, or move around the office and at home. If movement is limited, moving the legs while seated will help venous outflow.
- After a long tiring day, especially during the summer, revitalize legs with a cool shower or bath. Avoid sunbathing, hot baths, and the sauna as excessive heat causes veins to dilate and may induce swelling by bringing more blood to the area.
- Elevate legs. To boost the body's natural circulation, elevate the legs while sitting on the sofa or lying in bed at home. At the office, keep a leg rest under the desk.
- Work out. Regular exercise helps keep the body healthy. Swimming, walking, biking, and yoga improve circulation. Seated exercises may help seniors.
- Control weight. Managing weight through a healthy diet and regular exercise lessens the chance of leg symptoms and/or swelling.
- Wear graduated compression socks and stockings. Quality compression socks and stockings improve venous circulation to prevent and treat venous problems.

COMPRESSION STOCKINGS AND GARMENTS

It is crucial that a certified fitter properly measure a patient for a specific graduated compression stocking/garment. If the stocking/garment does not fit correctly, it may be uncomfortable and difficult to don, leading patients to discontinue their compression treatment. In the marketplace, there is a wide variety of sizes, including length and extended calf options. Those dispensing compression should take a compression course to become a certified fitter. Classes assure the fitter receives training on:

- Properly measuring
- Properly sizing
- Choosing which fabric may best suit a patient, such as one with skin sensitivities
- Asking the patient about lifestyle and matching the best product
- Providing guidance on obtaining compliance/adherence
- Educating the patient on how to put on/take off the product
- Offering accessories, when necessary
- Instructing on how to take care of the product

- Informing on how to partner with the health care provider to provide optimal patient care

Compression — How It Works

The concept of elastic compression therapy relies on a simple and efficient mechanical principle: the application of an elastic garment around the leg. Exerting inward pressure to counter increased outward pressure in the veins (hypertension).

Graduated compression garments work by acting as an external layer of muscle, by supporting the stretched vein walls together and allowing valves to function, thus restoring blood flow closer to a normal state. Having pressure greatest at the ankle, decreasing as it goes up the leg, helps fight the force of gravity and circulates blood back to the heart more effectively, improving overall circulation.

To be most effective, the compression garment should be put on at the beginning of the day and removed before going to bed.

Circular-knit

Circular-knit compression garments are knit on a cylinder, allowing them to be seamless, and are primarily used as chronic venous disease therapy. These garments tend to have more stretch and are available in a variety of choices to fit all lifestyles including calf (knee-high), thigh-high, pantyhose, and leggings as well as fun colors and patterns. These products are available in well-being (15-20 mmHg) as well as medical (20-30 mmHg and up) ranges.

Double covered yarns

Patients should wear graduated compression garments daily to maximize their benefits. To help comply with daily usage, the garment should be comfortable. Some compression products are manufactured using bare inlay elastic, some have a single covered yarn, and others have double covered yarns. Products with bare inlay elastic can be uncomfortable and irritating as they rub against the skin. It is best to use a compression product with double covered inlay yarns as it prevents the bare elastic from touching the skin and allows the product to glide on and off. Double covered inlay yarns also provide comfort and durability which leads to increased compliance.

Materials Impact Compliance

To increase compliance, it is best to use garments that start with premium raw materials such as lycra, sea island and supima cotton, and merino wool. Using these

best-in-class materials increases the longevity of the product, improves the fit range, makes the product more comfortable to wear, and allows for easier donning and doffing.

Additionally, natural fibers such as premium cottons and wools work well for people with skin sensitivities due to their natural moisture wicking, leading to less skin irritation.

Even the type of elastic can be important. Using an inexpensive elastic will cause the product to wear out in a short time span. Use a product with a better-quality elastic such as lycra, which is known for its high elongation, increased fit range and great recovery, or the ability to return to its relaxed state.

Compression Wraps

Compression wraps are a simple alternative for patients who struggle with donning circular-knit garments. Easy-to-apply, adjustable Velcro® wraps are helpful for those with:

- Edema of various etiologies
- Obesity, fragile skin, and limited mobility or grip strength
- Donning challenges and compliance issues
- A limb shape that is not conducive to traditional stockings

MANAGING A SUCCESSFUL COMPRESSION BUSINESS: EDUCATION, MERCHANDISING AND MARKETING

As reimbursement for prescriptions and durable medical equipment changes, front of store merchandise such as compression stockings and garments can help increase sales and drive a pharmacy's bottom line. Education, merchandising, and marketing are three important factors in creating and maintaining a successful compression business. Education is critical as staff must be knowledgeable about the product to answer customer questions. Merchandising allows for a good visual representation of products to create a better buying experience for the customer, which ultimately drives sales. With a trained staff and set inventory, marketing allows the community to know about this great option for chronic venous disease compression needs.

Education — What's Important

- Work with a manufacturer that provides training and certification. The more knowledgeable a staff, the better the customer's experience.
- A trained and certified staff will be able to sell product more efficiently and successfully.

Table 2: Compression Garment Indications and Recommended Compression Levels

Symptoms / Indications	Compression Level at the Ankle
Tired, achy legs Occupational or evening edema Leg discomfort from long hours of standing or sitting Prophylaxis of varicosities & swelling during pregnancy Prophylaxis for legs predisposed to risk Reduce swelling during travel Prophylaxis of DVT during travel	15–20mmHg
Diabetics who experience edema (see Cautions below)	18–25mmHg
Heavy, fatigued, aching legs Mild edema in lower extremities Mild varicosities with minimal edema Mild varicosities during pregnancy Minimal edema upper extremities Post-procedure of small veins Prevention or management of DVT	20–30mmHg
Moderate varicosities with mild to moderate edema (also during pregnancy) Post-procedure of larger veins to maintain treatment success CEAP C3 (edema), C4 (skin changes without ulceration), C5 (skin changes with healed ulceration), C6 (skin changes with active ulcerations) Management and treatment of DVT or Post-Thrombotic Syndrome Superficial phlebitis Lymphedema after decongestant therapy to maintain reduction Orthostatic / postural hypotension Post-fracture, post-traumatic edema <i>Note: A prescription is recommended for stockings with the indications of 30mmHg or higher</i>	30–40mmHg
Irreversible lymphedema (lifelong compression) Severe Post-Thrombotic Syndrome Severe varicosities and/or edema	40mmHg or higher
Arterial insufficiency, intermittent claudication, ischemia Uncontrolled congestive heart failure	Contraindications
Skin sensitivities or allergies Advanced neuropathy indicating sensory loss in leg or foot Diabetes with advanced arterial compromise Confinement to bed or non-ambulatory use unless otherwise prescribed by the physician Eczema, hypodermatitis, dermasclerosis, dermatitis (following treatment)	Cautions
The therapeutic effect of graduated compression stockings is based on the compression level. With the proper CEAP classification, the correct compression level at the ankle can be chosen. For more severe symptoms, consult with a vascular specialist.	

No liability accepted for non-observance of contraindications and cautions.

Fronek HS, Bergan JJ, et al. The Fundamentals of Phlebology: Venous Disease for Clinicians. 2004. pg 151. Blaettner, et al. Leg Symptoms of Healthy People and Their Treatment with Compression Hosiery. Phlebology 2008. Compression therapy of the extremities, Partsch, Rabe, Stemmer. ISBN: 2.85480.770.7.

HOW TO MEASURE

Please follow these instructions carefully to determine the correct size for different product styles.

Measurements should always be taken in the following order, and as soon after waking as possible when swelling is minimal.

Calf Style — Open/Closed Toe

1. Measure the ankle circumference at the narrowest part of the ankle, above the ankle bone. Use the appropriate series sizing chart to determine if ankle is small, medium, large or x-large. note: This should be your first measurement.
2. Measure the calf circumference at the fullest part of the calf.
3. Determine the calf length by measuring from the floor up to the bend of the knee. This measurement is taken on the outside of the leg.

Pantyhose and Thigh-High Style — Open/Closed Toe

1. Measure the ankle circumference at the narrowest part of the ankle, above the ankle bone. Use the appropriate series sizing chart to determine if ankle is small, medium, or large. note: This should be your first measurement.
2. Measure the calf circumference at the fullest part of the calf.
3. Skip Step 3 (but refer to General Guidelines #6 below).
4. Measure the thigh at its widest circumference.
5. Determine the leg length by measuring from the floor up to the gluteal fold.
6. Determine the hip circumference by measuring the widest part of the hips.

GENERAL GUIDELINES

1. Measurements should always be taken as soon after waking as possible, when swelling is minimal.
2. Measure against bare skin, not over clothing.
3. The measuring system is based on having the foot flat against the floor and the calf or leg at a right angle to the foot (see above images for examples).
4. Measurements should be taken by pulling the tape around the leg so that it is snug but not constricting.
5. Length measurements should be taken from the ground up.
6. Take all measurements, even if the patient only requires calf-length products, as the patient might decide at a later date to purchase additional styles.



1. Ankle circumference at narrowest part of the ankle.



2. Calf circumference at the fullest part of the calf.



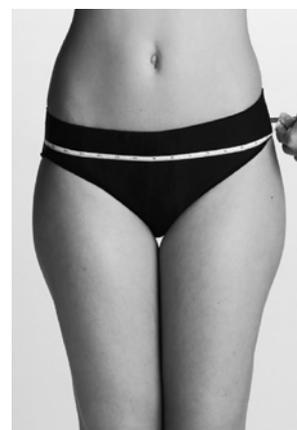
3. Calf length from the floor to the right angle bend of the knee.



4. Widest circumference of the thigh.



5. Leg length from the floor up to the gluteal fold.



6. Circumference at the hip.

- Education courses provide knowledge on disease states, how compression works, how to properly measure, and how to get customers in the proper product for the best outcomes.

Pharmacy Retail Merchandising

A visually appealing display offers a better customer experience. A well-merchandised product set should include:

- An assortment of product to meet customer needs
- Patient education brochures and literature
- Products
- Product swatches

Most compression manufacturers offer pre-designed planograms and sales representative assistance to help select the best presentation to appeal to each pharmacy's unique demographic and customer needs.

Marketing — The Opportunity

For a successful marketing plan, it is important to have a strategy for in the store and in the community.

Marketing Within the Pharmacy

Visuals such as brochures, posters, and bag stuffers are a good way to market within a pharmacy. Another marketing opportunity within the pharmacy is cross-selling when a customer comes in with a prescription. For example, a patient picking up a prescription for a blood thinner could also benefit from compression as they may have a DVT or be at risk for a DVT. See chart below of medications that often indicate a need for compression.

Marketing Within the Community

For pharmacies that do not employ their own marketing representative, it is important to partner with a compression manufacturer with an outside sales force. Sales representatives can help build a compression product business and drive prescriptions by visiting targeted physician specialties such as:

- Vascular specialists
- Podiatrists
- Wound care
- Obstetrics and gynecology

Table 3: Medications That Often Indicate Need for Compression

Medication Class & Examples	Conditions	Suggested Compression Products
Anticoagulants: Arixtra (fondaparinux) Coumadin (warfarin) Fragmin (dalteparin) Lovenox (enoxaparin) Xarelto (rivaroxaban)	DVT (Deep Vein Thrombosis) PTS (Post Thrombotic Syndrome)	Socks & stockings Access socks & stockings
Antiemetics: Bonine or Antivert (meclizine) Dramamine (dimenhydrinate) Phenergan (promethazine) Transderm Scop (scopolamine) Zofran (ondansetron)	Travel-related discomfort	Sheer fashion hosiery Casual cotton socks Business casual socks Socks & stockings
Prenatal Vitamins: Prenate Advance Prenatal DHA NataChew Prenate Elite Nestabs FA Any Prenatal Vitamin	Pregnancy-related leg swelling Pregnancy-related varicose veins	Sheer fashion hosiery Casual cotton socks Hosiery
Diabetes Medications: Actos (pioglitazone) DiaBeta (glyburide) Glucophage (metformin) Januvia (sitagliptin) Insulins	Diabetes	Diabetic compression socks

- Senior medicine
- Family practitioners

It can also be beneficial to promote compression therapy at:

- Community health fairs
- Senior centers
- Health & wellness centers

Marketing Promotions

Promotions are a good tool to drive compression product purchases. For example, during DVT awareness month or nurses' week, a simple discount can increase customer traffic. Patient reminder cards are another great promotional tool that prompt past customers to purchase new stockings at the end of the products life span.

With a prevalence of 63.9 percent, chronic venous disease affects much of the population. Therefore, almost two-thirds of customers walking through the pharmacy door can benefit from wearing compression stockings and garments. Having a trained and certified fitter onsite is crucial to a successful compression business. Certified staff can educate customers, who may not otherwise understand the benefits of compression and the importance of compliance. The staff drives customer relationships, which often turns simple purchases into customers who will return to your business for all future needs. ■

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CE QUIZ

Continuing Education Quiz

Select the correct answer.

1. Venous blood flow return is mainly driven by:
 - a. The calf muscle pump
 - b. The heart
 - c. The ankle pump
 - d. The respiratory process
2. Factors that may lead to venous disorders are:
 - a. Pregnancy, obesity, sedentary lifestyle
 - b. Age, heredity, surgery and/or trauma, blood clots
 - c. Prolonged sitting or standing
 - d. All of the above
3. A blood clot that detaches itself from the vein and travels through the venous system to the lungs and that may be fatal is referred to as a:
 - a. Deep vein thrombosis
 - b. Pulmonary embolism
 - c. Superficial phlebitis
 - d. Venous ulcer
4. Which three factors contribute to the development of a clot:
 - a. Venous stasis, vascular injury, hypercoagulable state
 - b. Muscle strain, broken bone, severe bruising
 - c. Exertion, alcohol, warfarin
5. The aim (goal) of compression therapy is:
 - a. To reduce or prevent edema
 - b. To restore venous pressures back to normal
 - c. To prevent an increase in arterial pressure
 - d. Both A and B
6. Graduated compression means:
 - a. Strongest at the ankle, decreasing gradually toward the thigh
 - b. Constant compression from the ankle to the thigh
 - c. It depends on the strength of compression
 - d. Compression becomes gradually tighter during the day
7. It is important that patients are measured early in the morning or upon waking:
 - a. True
 - b. False
8. What is a simple alternative for patients who struggle with donning circular-knit garments:
 - a. Velcro-wraps
 - b. Bandages
 - c. Wrappings
9. What is the recommended adherence time for compression garments:
 - a. Daily or as physician prescribed
 - b. Three to four days per week
 - c. Only during work hours
 - d. When symptoms worsen
10. What tools can be used for in-store compression marketing:
 - a. Brochures, bag stuffers, and posters
 - b. Just simply placing product on the wall
 - c. Talking mainly to elderly patients
11. Your role as a fitter includes:
 - a. Explaining the medical benefit of compression therapy
 - b. Explaining the need for compliance
 - c. Instructing how to don/doff, and how to care for the garment
 - d. All of the above
12. What type of materials are best suited for a patient with sensitive skin?
 - a. Sheer compression stockings
 - b. Natural fibers such as cotton or wool
 - c. Opaque compression stockings