Basic Introduction to Compression Hosiery

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3.5 ABC Credits
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Upon Completion of this presentation:
* You will be required to complete a quiz
  - passing score of 80% or better
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I Can Help You

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Dr. Comfort’s compression specialist.
Establishing the Need

Compression is an often overlooked and misunderstood component to lower extremity care. This course offers the training necessary to identify, evaluate and properly don compression wear. With the millions of sufferers of circulatory conditions and the millions more which could benefit due to long periods of inactivity, the need for compression therapy is tremendous.
Upon completion of this session, you will be able to:

* Identify components of circulatory system

* Define treatments and procedures for venous disease

* Define indications and contraindications for compression

* Define Compression Therapy and its application in venous disease and treatment

* Properly measure and fit compression hosiery

* Demonstrate proper donning and doffing

* Develop tactics to grow your compression business

* Recall technical requirements of Diabetic Socks
Covered information

ANATOMY & PHYSIOLOGY
PATHOLOGIES
COMPRESSION HOSIERY
SHAPE TO FIT MARKETING
GROWING YOUR BUSINESS
DIABETIC SOCKS
Anatomy

A brief review
Anatomy

- To discuss compression, we need to discuss the anatomical relationships and conditions. This will be kept to the fundamentals and not the in-depth understanding of disorders.

- Blood vessels include the arteries, veins and capillaries. The main responsibility is to pump blood throughout the body.

- Most of the following conditions relate to the return of blood back to the heart.
The Circulatory System:

Moves blood to and from the heart

1. Heart

2. Blood Vessels
   - Arteries, Veins, and Capillaries
     - Arteries are large blood vessels that carry blood away from the heart
     - Veins carry blood back to the heart; contain valves
     - Capillaries are where substances are exchanged between blood and cells

3. Blood
3 Systems of Veins:

• 1. Deep System handles 90%
  – Femoral and Popliteal vein
  – Anterior and Posterior tibial veins
  – Peroneal veins

• 2. Superficial System handles 10%
  – Great and smaller saphenous veins and tributaries

• 3. Communicating (Perforator)
  – Connect deep veins to superficial veins
3 Systems of Veins:

You can think of the venous system like a “road map”

- **1. Deep**
  - Deep veins are the interstates

- **2. Superficial**
  - Superficial are the county highways

- **3. Communicating (Perforator)**
  - Perforators are the on ramps
Venous Return - your bodies natural pump

The “skeletal muscle pump” includes the muscles in the feet, ankles, and calves.

- Collapses the deep veins and forces blood upward when flexed
- Properly working one way valves within veins keep the blood from pooling
Venous Return - your bodies natural pump

- We have 16 miles of veins in our bodies
- There are valves every 2-7 cm throughout the veins in the leg.
- The venous system contains most of the blood as it moves through the circulatory system.
  - 40% of that is in our legs!
Venous pressure at the ankles is about 6-10 mmHg when laying down. After standing for 3 minutes, pressure rises to about 90 mmHg. Walking reduces pressure to about 25 mmHg after only 7 steps! If pressure doesn’t reduce when walking, probably has incompetent valves/CVI.
Pathologies

Disease states that may benefit from Compression Therapy
More than 80 million Americans suffer from some form of venous disease

Venous ulcers present in an estimated 1-2 million patients in the US

Over 2 Million people develop DVT/year

  Recurrence of DVT ~30%
  50% of DVT pts have NO SYMPTOMS

Compression stockings worn after DVT lessen recurrence by 50%
Blood flow malfunction

**Incompetent venous valve**

blood flows backward away from the heart and into the superficial system causing venous congestion and high pressures

**Competent venous valve**

ensures the forward flow of blood by preventing reflux of blood during the relaxation phase of the calf muscle
Pathologies

**Varicose Veins**

*Bulging veins due to faulty valves in veins allowing blood to pool and distend the vein*

**Causes**

- hereditary, pregnancy, occupation, age

**Symptoms**

- bulging veins, aching and discomfort in thigh, leg heaviness and fatigue, inflammation

**Treatment**

- Compression hosiery, laser surgery, microphelbectomy, sclerotherapy, endovenous thermal ablation, endoscopic perforator vein surgery, etc.
Pathologies

Varicose Veins and Pregnancy

40-50% increase in blood volume

Varicose veins develop

• 30% first time pregnancy
• 55% two or more

* Compression stockings beneficial during pregnancy and post partum
Pathologies

Preventing Varicose & Spider Veins

• Exercise regularly – improves leg and vein strength, circulation
• Control weight – helps control pressure on legs
• Don’t cross your legs for long periods of time
• Elevate your legs when resting as much as possible
• Avoid wearing high heeled shoes for long periods of time.
• Don’t stand or sit for long periods of time
  • If you must stand for long periods – shift weight from leg to leg every few minutes
• If you must sit for long periods – stand up and move around every 30 minutes
• Eat a low-salt diet rich in high fiber foods.
  • Fiber reduces chances of constipation – contributes to varicose veins
  • Less salt can help with swelling
• Wear elastic support stockings and avoid tight clothing the constricts any of the following
  • Waist
  • Groin
  • Legs
Pathologies

Varicose Vein Treatment

In the past, treatment of varicose vein disease was primarily limited to vein ligation and stripping.

This is an invasive, debilitating, painful procedure that often causes patients to lose up to 6 weeks or more of work or downtime from other activities.

*Note - this is still being performed today
Pathologies

**Varicose Vein Laser Treatment**

Non-surgical alternative to traditional surgery.

The procedure offers the following benefits:

- Minimally invasive
- No significant recovery time
- Low risk of infection
- Minimal discomfort

Most patients are able to return to work and normal activities in a day or two at most.
Pathologies

**Varicose Vein Laser Treatment**

Dr. Bruce Cardonne, MD, Medical Director at the Vena Varicose Vein Institute in Waukesha, WI.
Pathologies

Varicose Vein Microphlebectomy Treatment

In conjunction with the laser vein treatment procedure, there are often bulging, enlarged varicosities which need immediate treatment. A technique known as microphlebectomy is utilized.

The skin is numbed with a local anesthetic. Several small 1-2 millimeter incisions are made in the skin over the bulging veins which are marked prior to beginning the procedure.
Pathologies

**Varicose Vein Microphlebectomy Treatment**

Using a special instrument the varicosities are pulled to the skin surface and removed. This procedure is safe and generally painless.
Pathologies

Varicose Vein Sclerotherapy Treatment

- Procedure costs $400-500 per area; considered aesthetic, not covered by ins.
- Treats small superficial veins and spider veins.

*Should wear 20-30mmHg compression for 2-3 weeks after procedure

FOAM SCLEROTHERAPY RETICULAR & SPIDER VEINS & VENUECTASIAS

KHALIL FATTAH, MD
Diplomat, American Board of Phlebology
Pathologies

**Edema**

*accumulation of fluid trapped beneath the skin*

**Causes**

- medications, liver or kidney disease,
- heart failure, venous insufficiencies,
- pregnancy/hormones, paralysis, surgery,
- lymphatic problems

**Symptoms**

- swelling found in the lower extremities

**Treatment**

- Compression hosiery, treat the underlying cause, lifestyle modifications,
- medications, properly fit shoes, leg elevation
Pathologies

Pitting Edema

Can be demonstrated by applying pressure to the swollen area by depressing the skin with a finger. If the pressing causes an indentation that persists for some time after the release of the pressure, the edema is referred to as pitting edema. Any form of pressure, such as from the elastic in socks, can induce pitting with this type of edema.

* Pregnant Kim Kardashian
Pathologies

Non-Pitting Edema

Usually affects the legs or arms, pressure that is applied to the skin does not result in a persistent indentation.

Non-pitting edema can occur in certain disorders of the lymphatic system such as lymphedema, which is a disturbance of the lymphatic circulation that may occur after a mastectomy, lymph node surgery, or congenitally.
Pathologies

**Stasis Dermatitis – affects 1 million/year**

*inflammatory skin disease* which usually precedes *venous ulcers* – fluid accumulation in tissues beneath skin and capillaries unable to remove waste

**Causes**

- age, diabetes, weight, PVD, smoking, sedentary, varicose veins, CVI

**Symptoms**

- darkening of the skin at ankles/legs, itching and flaking, and thin in appearance or can be hard and scar-like

**Treatment**

- Compression hosiery, topical steroids, antibiotics, lifestyle modifications, surgery
Pathologies

**Venous Leg Ulcers**

open wound due to blood leakage out of vein and surrounding tissue breaking down the tissue

**Causes**

CVI, varicose veins, sedentary or non-ambulatory, edema, history of DVT, history of ulcer

**Symptoms**

found on inside of ankle, irregular borders, may have partial skin loss, may have a yellow or greenish discharge, painful

**Treatment**

Compression hosiery, lifestyle modifications, nutrition evaluation, antibiotics, topical wound care, surgery
Pathologies

Venous Leg Ulcers

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Treatment

Compression hosiery, lifestyle modifications, nutrition evaluation, antibiotics, topical wound care, surgery
Pathologies

Venous Leg Ulcers, cont.

- 500,000 sufferers
- 20,000 newly diagnosed/year
- 30% will suffer recurrence without treatment
- Est. 2 million workdays lost every year


- Average per episode cost of care can exceed $40,000
Pathologies

Venous vs. Arterial Leg Ulcer

Venous Leg Ulcer

- Venous ulcers can be small or large but one thing is for sure. The edges are **NOT A PERFECT CIRCLE**.
- These ulcers are wet all the time, and depending on how long the patient's legs are kept dangling will determine how much drainage there will be.
- Almost always there will be edema (swelling of the leg) and in fact, edema is usually the FIRST thing you will find.
- There usually is no pain with walking, per se, but the patient will say it hurts to stand up. Once they are up and start walking, the pain subsides.
Pathologies

Venous vs. Arterial Leg Ulcer

Arterial Leg Ulcer

- Skin is often cool or cold to touch
- Ulcers are most likely perfectly round, smooth edges, minimal drainage, no odor
- May or may not have swelling (edema) of the lower extremities
- May be found on tips of toes, between the toes or on the outside of ankles.
- Skin on lower extremities often tight, hard, shiny
- There may not be any hair on the toes or on the legs
- There may be pain with walking (claudication)
- Faint to absent pedal pulse
Pathologies

**Chronic Venous Insufficiency (CVI) – collective term**

Long standing condition due to damage of the deep veins where veins can’t pump enough oxygen poor blood back to the heart – PROGRESSES IF NOT TREATED

**Causes**

- hereditary, pregnancy, diet, weight, inactivity, trauma/surgery, occupation, age

**Symptoms**

- skin becomes shiny, itchy, brown, weepy, recurrent ulcers common, pain when standing

**Treatment**

- Compression hosiery, anticoagulants, bed rest (acute cases), elevate leg, excercise
Pathologies

Chronic Venous Insufficiency (CVI) – cont.

• 50% of Americans are affected by CVI (Society of Interventional Radiology)

• 4.6 Million workdays are missed in the US due to CVI (Society for Vascular Surgery)
Pathologies

Deep Vein Thrombosis (DVT)

Blood clot in a deep vein

Causes

- inactivity, prolonged immobility, recent surgery, pregnancy, age, obesity, history of venous disease, malignancy, being tall

Treatment

- Compression hosiery (both for prevention and treatment) lifestyle modifications, blood thinners

ACCP guidelines call for compression therapy for minimum of 2 years after DVT

(American College of Clinical Pharmacy)
Virchow’s Triad - (1800’s Dr. Rudolph Virchow)

3 main factors thought to contribute to Thrombosis

Any 2 of the 3 factors put you at a medium/high risk. When all 3 are met the risk is very high.

- Abnormal blood flow
  Possible situations include venous stasis, turbulence, mitral stenosis, and varicose veins.

- Endothelial injury
  Refers to injuries and/or trauma to endothelium arising from shear stress or hypertension.

- Hypercoagulability
  This includes hyperviscosity, disseminated cancer, late pregnancy and delivery, race, age, obesity, and smokers.
Pathologies

Deep Vein Thrombosis (DVT), cont.

- 1 in 100 will die
- 30% of DVT sufferers at risk for another episode
- 600,000 newly diagnosed DVT’s/year
- Most serious complication of DVT is PE
  - 10% of all hospital deaths
- Most preventable cause of hospital deaths
  - 2008 Surgeon General “CALL TO ACTION”
Pathologies

**Pulmonary Embolism (PE)**

Blood clot that migrates into the lungs blocking the flow of blood to the lung and preventing blood from being reoxygenated.

**Causes**

Deep vein thrombosis DVT

**Symptoms**

shortness of breath, sharp chest pain, feeling of apprehension, fainting, rapid pulse, coughing, sweating, bloody phlegm

**Treatment**

Compression hosiery, anticoagulants, aspirin, exercise/ambulation
Pathologies

Pulmonary Embolism (PE), cont.

- Death is first symptom in 25% cases
- 30% of patients suffer mortality after 30 days
- Leading cause of maternal death
- More people die each year from PE than breast cancer and AIDS combined
- 2/3rd of all events associated with recent hospitalization
Pathologies

*PE can happen to anyone!*

Serena Williams  Heavy D  David Bloom
Pathologies

Post Thrombotic Syndrome (PTS)

Long term chronic complications of DVT with Varying degrees of severity

Symptoms

- reduced quality of life, impaired physical function, impaired ability to work, unsightly leg changes

Treatment

Compression hosiery (recommended 20-30mmHg for at least 2 yrs after DVT), lifestyle modifications, medications, surgical treatments

* 40% of DVT patients will develop PTS within 2 years
Other symptoms that benefit from compression use:

- Tired, achy, heavy legs
- Swollen ankles in the evening
- Leg pain that goes away when legs are elevated
- Slow healing wounds on lower legs
- Spider and reticular veins
- Temperature variances
- Discoloration of skin on legs
Contraindications

- Severe arterial insufficiency (lack of blood flow in the arteries - atherosclerosis)
- Intermittent Claudication (muscle pain during activity)
- Ischemia (restriction of blood supply to tissues)
- Uncontrolled Congestive Heart Failure (heart isn’t able to pump enough blood for the needs of the body)
- Untreated Septic Phlebitis (inflammation of a vein due to bacterial infection)
- PAD (Peripheral artery disease - narrowing and hardening of the arteries that supply the lower legs and feet)
Contraindications!

Use caution when compression is used on people with:

- Skin infections
- Weeping dermatoses
- Allergies to fabrics used
- Impaired sensitivity of the limb
- Immobility (confined to bed)
- Open wounds
Compression Therapy

...is the application of controlled graduated external pressure to the limb to reduce venous pressure within the limb and to reduce lymph process (edema)
What are Compression garments?

Compression stockings are specially designed knit legwear.

Designed with the following goals in mind:

• To aid the venous system in getting blood back to the heart
• To reduce or prevent edema
• Reduce progression of venous or lymphatic disease
Compression Hosiery

- Socks are an important aspect to overall foot health as it begins inside the foot and works its way from the socks to the orthotics and shoes.
- A complete foot health system should include hosiery or socks.
- While Compression Therapy can be used for a number of circulatory issues to further benefit patients overall health, don’t assume it only addresses those suffering a condition.
How does compression work?

Compression stockings help your body pump blood back to your heart as it moves through your circulatory system.

Can be likened to a tube of toothpaste...

When you squeeze the bottom of the tube, the toothpaste migrates up and out. You are applying the most pressure to the very bottom and the pressure is decreasing as it moves up the tube moving the toothpaste up.
Compression Hosiery

\[ \text{mmHg} = \text{Millimeters of Mercury} \]

The basic unit of measurement used to determine how “strong” the compression is
Categories of Compression

Anti-Embolism vs. Medical Compression

Anti-embolism

(VenaFlow AES, T.E.D.S.):
- Near 18 mmHg at ankle
- Designed for DVT prevention for those on bed rest
- Not designed for long term wear

Medical Compression

(Dr. Comfort Shape to Fit, Sigvaris, Jobst, Medi, Juzo):
- Compression ranges from 20-60mmHg
- Designed for Ambulatory Use
- For the Treatment and Prevention of Venous Disorders
Anti-Embolism Stockings

T.E.D. (Thrombo Embolic Deterrent)

• usually 18 mmHg at ankle
• intended for **bed-ridden** and some post-surgical patients
• prevent blood clots associated with post surgical inactivity
• **short-term use**
  • Usually during hospitalization

**NOT THE SAME as graduated compression**
Categories of Compression Hosiery

Sheer

- High transparency
- Lighter
- May seem cooler
- All styles (knee, thigh, OT, CT)
Categories of Compression Hosiery

Surgical Weight

- Less transparency/opaque
- Heavier/stiffer
- May seem warmer
- All styles (knee, thigh, OT, CT)
Categories of Compression Hosiery

Microfiber Surgical Weight

- Less transparency/opaque
- Softer
- All styles (knee, thigh, OT, CT)
- *knit on machines with more needles per inch
Medical Grade Compression Hosiery should include:

Pressure point elimination

Graduated compression

**Seamless** - aids in reducing hot spots

- Construction should be hand-linked, machine-linked, Linto closure or open tooth closure to create “seamless” function

Anatomically correct fit

- noticeable heel and toe area

High quality materials, specifically the yarn

Appropriately measured and sized

- is critical to overall support and ensures proper fit with less pressure
Graduated Compression

The garments are knit so that the pressure is greatest at the ankle and least at the knee or thigh

- Available in variety of ranges
  - 10-15 mmHg
  - 15-20 mmHg
  - 20-30 mmHg
  - 30-40 mmHg
  - 40-50+ mmHg

Designed for ambulatory use
Why the range of compression?

- 10-15 mmHg
- 15-20 mmHg
- 20-30 mmHg
- 30-40 mmHg
- 40-50 mmHg
- 50+ mmHg

For individuals with thinner ankles (on the lower end of the measurements), compression levels will be less. For individuals with thicker ankles (on the higher end of the measurements), compression levels will be greater.
Medical Grade Compression Hosiery should include:

Pressure point elimination – anatomically correct fit

Anatomically correct fit

NOT Anatomically correct fit
Knitting Machines

Can be set up with different circular inserts that determine the hand, compression, and style of stocking
Knitting Machines
Circular Knitting Machines
Hand-sewing - video

Done on many garments – can be very labor intensive
Folding and packing finished product - video
Quality Control

• Compression Hosiery is regulated, registered monitored by the U.S. Food and Drug Administration (FDA).

• Regulations and quality standards must be met in order to sell compression with designated measurements.

• ISO 13485 is a standard that represents the requirements for a comprehensive management system for the design and manufacture of medical devices.
Quality Control
How to determine the best product for the customer?

**Step 1: Appropriate compression amount**

The best way to determine is to work from the prescription. If that is not an option, determine the appropriate compression the patient will tolerate and benefit from.

10-15, 15-20, 20-30 compression levels considered (OTC)

30-40+ levels are Rx Products

doesn’t guarantee insurance will cover the cost

*Consider layering 2 garments of light compression to get the appropriate compression level*
How to determine the best product for the customer?

Step 1: Appropriate compression amount

10-15 mmHg:
- Gentle compression
- Relaxed, comforting fit
- Considered over-the-counter
- Safe for people with Diabetes
- Prevents minor leg and ankle swelling

These will help just about everyone’s legs feel better.
How to determine the best product for the customer?

Step 1: Appropriate compression amount

15-20 mmHg:
- Moderate compression
- Great for mild edema
- Minor varicose veins
- Good for during and after pregnancy
- Great for traveling
- Preventative

These would be good for “occupational” or “evening edema”-leg discomfort due to long hours sitting or standing.
How to determine the best product for the customer?

Step 1: Appropriate compression amount

20-30 mmHg:
- Firm compression
- Moderate Edema
- Moderate varicosities
- Great for traveling
- Prevent recurrent DVT’s and Venous Ulcers

These would be good for use during pregnancy and post partum and after vein procedures.
How to determine the best product for the customer?

Step 1: Appropriate compression amount

30-40 mmHg:
- Significant compression
- Active venous ulcers
- Severe edema
- Moderate to Severe varicosities
- Management or treatment of DVT or PTS
- Mild Lymphedema

These would be good for post procedure of larger veins to maintain treatment success.
Wound Care for Venous Ulcers

Available in Left or Right zipper designs
• Apply zipper opposite of wound
• $19.99 each for kit
  (2 liners 10mmHg and 1 stocking 20-30mmHg)
• $9.99 for 2 liners only

The Ulcer Care Kit is billable to Medicare (HCPC A6531) with the following criteria:
• Patient has an active venous stasis ulcer and
• Debridement was performed by a healthcare professional and
• A gradient compression stocking of at least 30-40 mmHg was supplied
• **REIMBURSEMENT IS $45.43**
How to determine the best product for the customer?

Step 1: Appropriate compression amount

40-50+ mmHg:
- Significant compression
- Severe edema
- Severe varicosities
- Severe PTS
- Lymphedema

*These are used for very severe issues.*

*Usually a custom product (flat knit).*
How to determine the best product for the customer?

Step 2: Size of the patient (2-3 measurements are needed depending on the style of the garment)

- Knee Hi stockings need ankle and calf measurement
- Thigh Hi need ankle, calf, and thigh
- Panty hose need ankle, calf and hip measurement

Always measure the NARROWEST part of the ankle and the WIDEST part of the calf and thigh
How to determine the best product for the customer?

Step 2: Size of the patient

* Measuring for compression should be done early in the PATIENT’S day, prior to swelling.
  
  (think of 3rd shift workers)

• Dispensing should also be done around the same time they were originally measured.
How to determine the best product for the customer?

**Step 3: Appropriate style**

With the various style choices (knee high, open toed, sleeve, etc.), you must determine the most appropriate for the patient’s condition and lifestyle.

Fitters will need to pay attention to:

- Dexterity
- Mental competency
- Care giver
- Characteristic of limb(s)
- Pathology
- Price

Once the problematic area is covered, then the styles choice can be left to the patient.

Varicosities are only in calf - knee hi is fine

Varicosities go beyond knee - then a thigh hi or panty hose is appropriate
How to determine the best product for the customer?

Step 3: Appropriate style

Knee High
Most widely used

Can be made to look like fine hosiery, lace, patterns, trouser socks, dress socks etc.
How to determine the best product for the customer?

Step 3: Appropriate style

**Extra Roomy**

For larger patients, extra room is key
Can accommodate calves up to 24”

*Putting the wrong size compression on a patient may increase the level of compression and be potentially harmful. Many patients (obese) are outside their circumference of their measurements*
How to determine the best product for the customer?

Step 3: Appropriate style

Open Toe

Good for individuals with forefoot Conditions

• Bunions
• Hammer toes
• Sandal wearers
• Very large feet
How to determine the best product for the customer?

Step 3: Appropriate style

Tencel
Developed for people with sensitive skin

What is Tencel?
100% natural fiber created by the bark of the Eucalyptus tree
How to determine the best product for the customer?

Step 3: Appropriate style

Wool
Great insulation for cooler climates yet still breathable, a natural product
How to determine the best product for the customer?

Step 3: Appropriate style

Diabetic Socks
Moisture wicking
Bacteria control fabrics

New materials such as Coolmax, Bamboo Charcoal, silver, copper, acrylic and other products have moisture wicking qualities. The thought of 100% cotton materials providing good moisture control is in the past.
How to determine the best product for the customer?

Step 3: Appropriate style

Calf sleeves

Excellent starter compression
Great for exercise
  reduces trauma to muscles (less vibration)
  helps aid in muscle fatigue recovery

Not for patients with swelling in the foot. This would create a tourniquet effect.
How to determine the best product for the customer?

Step 3: Appropriate style

Thigh High
Best after vein surgery or cosmetic treatments, or when the area needs to be treated is above the knee
How to determine the best product for the customer?

Step 3: Appropriate style

Panty Hose
Preferrence or varicosities treatment area is in the groin
Diabetic Socks

- Eliminate pressure points (seamless)
- High quality yarns
- Must be reciprocated
- Above average stretch
- Anti-microbial treatment
- Fit no more than 3 shoe sizes
How to determine the best product for the customer?

Step 4: Donning the hosiery

*Be sure to remove any jewelry prior to donning*

Grab the heel cup of the stocking from the inside and turn inside out until just before the foot portion comes through. Place over the individual’s toes and over their heel. Then pull the rest of the stocking up the leg, being careful not to over stretch.
How to determine the best product for the customer?

Step 4: Donning the hosiery
*Be sure to remove any jewelry prior to donning*

**Donning Stand**
Stretch the hosiery over the donning stand until you see the heel cup at the top. Have individual place their foot inside and grasp the side handles to pull the stocking up their leg. Stocking may need minor adjustment afterward.
Devices that can help with donning and doffing

- Stocking donner
- Donning Gloves
- Toe Sleeve
Step 5: Break In and Wearing Instructions

Wear the hosiery for a limited amount of time for the first few days. **TAKE THEM OFF AT NIGHT!**
Step 6: Removing/doffing the hosiery

Use the “banana peel method”

*pull off from the top band of the garment so that it is inside-out when it is removed.*
Care Instructions:

Wash in warm water either by hand or in machine
No bleach or fabric softener
Dry in a low to medium heat dryer
Dr. Comfort Shape to Fit Compression Line

Color coded packaging makes sense!

Shape to Fit— Packaging

- Easy to Use Color Coded Packaging System
  - Women = Pink
  - Men = Blue
  - Unisex = Green
  - Gentle Compression = lightest color
  - Moderate Compression = middle color
  - Firm Compression = darkest color
Easy to open and easy to re-pack

Our boxes just slide open with a convenient finger hole on the side. They close just as easily with no damage to the appearance of the package.
Growing your business
Growing your business

• Ensure people know you are their go-to for Compression Stockings!
  ✓ Market to local physicians, vein centers, Wound clinics, OT’s
  ✓ Send introduction letters to possible
    • “users” (mfg. plants, teachers, nurses, firefighters, police, beauticians)
      – anyone on their feet a lot
  ✓ Highlight “Certified Fitter” achievement
  ✓ Partner with you good referral sources
Growing your business

- Highlight Health awareness months (March-DVT, Nov-Diabetes, September-PAD)
- Send out reminder cards
- Look at new Demographics
  - Sports (fitness centers, schools, running clubs)
- Open Houses / Vascular Health Days
- Utilize social media
  - Facebook, twitter, etc.
Diabetic Socks

Technical Requirements
Review includes Seams, Yarn Quality, Design and Shape, Stretch, Treatments and Sizing

Published guidelines excerpted from 2004 (revised 2009)

Seams:
Socks must be seamed in a manner as to eliminate pressure points on or around toes. Acceptable methods include hand-linked, Linto closure knitting, knit machine linking, special “low gauge stitching slow speed set up” on Rosso type linking machine, or “open tooth” flat manual seaming. Hand-linked, Shima, or knit machine-linked are preferred due to consistency and true pressure-less closures.

Yarn Quality:
The yarns in the sock should be made of high quality fibers and spun in a consistent manner to avoid thick and thin areas or areas easy to break. Only high quality spandex, Lycra, and stretch nylon should be used to create dynamic fit without binding or restriction.

Design/Shape:
Socks must have reciprocated (knit-to-shape) heels and toes for proper fit and shape to the foot contours. Thicker socks should have Y-Gore heels to turn the “heel-to-leg” shape and avoid bunching at the in-step. Padded socks should be half cushion sole or have enough stretch and shape to avoid any bunching.

Stretch:
The stretch and recovery should be well above average. Cross-stretch in the leg area should allow for swelling without binding or creating a tourniquet effect on circulation. Length stretch must accommodate without pulling back on the toe. All stretch measurements should be approximately 1” more than accepted NAHM (Hosiery Association) standards. Cross-stretch should gradually increase up the leg or be made with special “Mor-pul” stitch. Caution should be taken to ensure there is enough compression to adhere to shape of leg and stay up to avoid bunching.
Diabetic Socks

Technical Requirements

Treatments:
Socks will have anti-bacterial treatments that have been tested and approved effective by an independent certification lab. This can be a yarn applied treatment, a garment applied treatment, or an inherent feature within the fibers themselves. The treatments should be considered permanent, up to 30 washings, according to NAHM standards.

Sizing:
Socks should be in multiple sizes, be tested against NHA standard size boards and be labeled to fit at least ½ shoe size less than indicated by size boards. This will avoid variations due to unusual widths of feet and prevent tightness on the outer range of shoe sizes. Each sock should be sized to fit a range of no more than 3 shoe sizes. Unisex sizing is acceptable, but socks should be sized and marked clearly as to shoe size fit for men and for women. Socks designed for extra width fitting should not be labeled or designated as “Extra Roomy” or “Extra Wide”, unless they have at least 20% more width and stretch capacity than their style counter parts.

Bamboo Charcoal:
Nano Bamboo Charcoal is made of modified polyester with honeycombed paths. This fiber brings excellent functions to textiles:
- **Anion Generator**-improves skin health
- **Air Cleaner**-eliminates odors
- **Breathable Fiber**-absorbs moisture and skin remains dryer
- **Bacteria/Mildew Resistant**
- **Abrasion Resistant**
Frequently Asked Questions

• **What size do I use if the patient’s ankle measures a “L” and their calf measures a “M”?**
  Follow the ankle measurement, as this is where the compression starts; when another pair is purchased, it is wise to re-measure because the swelling/edema might have decreased and therefore, the size might have changed.

• **What size do I use if the patient’s ankle measures a “S” but the calf measures a “M”?**
  Because we do not want anything to decrease circulation in the leg, it is best to choose the size that corresponds to the calf

• **If a patient wears custom hose and cannot afford them, is there an alternative?**
  Many manufacturers have expanded their ready-to-wear sizes so there may now be an alternative to a patient’s custom hose. Sometimes, because of a patient’s special needs to contain edema or lymphedema, custom hose may be the only solution.
Frequently Asked Questions (continued)

• **How long should compression stockings last?**
  Generally, a pair of *Shape-to-Fit* socks or stockings is designed to last roughly 6 months.

• **Do patients need a prescription to purchase support stockings?**
  All *Shape-to-Fit compression* wear is approved by the FDA for over-the-counter sales, which do not require a doctor’s prescription.
  Some facilities require a prescription on these as a matter of safety for those customers that do not know anything about compression wear and want the “strongest”
  Also, if a patient intends to request reimbursement from their insurance company, they will require a prescription.

• **Will compression stockings get runs?**
  They are more substantial than regular hosiery, however they still can get runs.
  Use donning gloves
  Use the balls of the fingers, as opposed to the finger tips
  Trim finger nails
Frequently Asked Questions (continued)

• **Why won’t my patient’s stockings stay up?**
  - Improper size - stockings are just too big
  - Stockings may be too old - Compression wear will last approximately 4-6 months, after which they lose their compression and stretch out
  - Improperly washing the stockings. *Shape-to-Fit* compression hose must be washed in warm water
  - Males may need to shave thigh area to remove hair (thigh high only)
  - Silicone bands (on thigh highs) may need to be cleaned of body oils periodically; apply some rubbing alcohol to the silicone with a cotton ball to rejuvenate the stickiness

• **What can patients do to avoid getting wrinkles in their hosiery?**
  - They should be pulled up and massaged upwards until they are smooth on the legs
  - Another reason for wrinkles may be that the socks are too big or too small
1. Show which items go together:
   - Veins ___ Connect arteries to veins
   - Capillaries ___ Transfer blood back to heart
   - Arteries ___ Carry Nutrients, Proteins, gases, hormones to cells

2. What body part is responsible for the pump-like action to allow the blood to be pumped back to the heart from the lower extremity?
   a. Calf muscle
   b. Posterior Tibial Artery
   c. Dorsalis Pedis Artery
   d. Gluteus Maximus

3. The 3 types of blood vessels include:
   a. Heart, Veins, and Arteries
   b. Veins, Nerves and Arteries
   c. Arteries, Veins and Capillaries
   d. Heart, Nerves and Veins

4. What is the purpose of valves within Veins?
   a. Keep blood moving toward the ankles
   b. Prevent the backflow of blood
   c. Keep out white blood cells
   d. Remove nutrients from the blood

5. A pathology affecting millions of Americans due to inactivity, recent surgery, or pregnancy:
   a. Deep Vein Thrombosis
   b. Superficial Vein Thrombosis
   c. Diabetic Neuropathy
   d. None of the above
6. What is the treatment for DVT?
   - Compression
   - Blood thinners
   - Hot Compresses
   - All of the above

7. A venous stasis leg ulcer can be treated with which of the following?
   - Inactivity
   - Compression
   - Blood thinners
   - Antibiotics

8. Venous stasis ulcers are quick to heal
   - True
   - False

9. What are some causes of Edema? Circle all that apply
   - Pregnancy
   - Venous Insufficiency
   - Medications
   - Liver/Kidney disease

10. What is edema?
    - Losing weight
    - Swelling
    - Memory loss
    - Fainting
11. The purpose of compression therapy is to:
   a. blood flow  
   b. Reduce edema  
   c. Prevent the progression of lymphatic diseases.  
   d. All of the above.

12. mmHg stands for:
   a. millimeters of mercury  
   b. Micro mesh - Heavy gauge  
   c. millimeters of pressure  
   d. meters of pressure per square millimeter

13. What is graduated compression?
   a. Compression is highest at the knee and decreases down the leg  
   b. Compression is highest at the ankle and decreases as you move toward the knee  
   c. Compression is even on all points on the leg  
   d. None of the above

14. Graduated compression stockings main goal is to
   a. Hide spider veins  
   b. Help pump blood back to the heart  
   c. Make legs feel good  
   d. Ensure proper foot health

15. mmHg measures what?
   a. The amount of force needed to don the stockings  
   b. How sheer the stocking is  
   c. The level of compression in the stocking  
   d. How far the stocking goes up the leg
16. What compression level is considered OTC? Circle all that apply
   a. 10-15
   b. 15-20
   c. 20-30
   d. 30-40

17. When would you use a 15-20 mmHg stocking?
   a. Mild Edema
   b. DVT
   c. Mild varicose veins
   d. A & C

18. What compression level is best for preventing recurrent ulcers?
   a. 10-15
   b. 15-20
   c. 20-30
   d. 30-40

19. Compression stockings are always covered by insurances because they have a HCPC code
   ___ True
   ___ False

20. Compression can be layered to get the appropriate level
   ___ True
   ___ False
21. An Ulcer compression system can never be billed to Medicare
   True
   False

22. The best time of day when measuring for compression hosiery is late in the day.
   True
   False

23. A prescription is required on all compression dispensed.
   True
   False

24. TED’s are the same as compression hosiery.
   True
   False

25. Compression stockings are very durable and will last forever.
   __True
   __False
26. A patient comes in to be measured for 15-20 mmHg compression hosiery for an unspecified condition. The measurement at the ankle is: 7 ½” and the calf measurement is: 13 ¾”. What size should be selected?
   - Small
   - Medium
   - Large
   - Extra Large

27. A patient comes in to be measured for compression hosiery for DVT. The measurement at the ankle is: 10” and the calf measurement is: 12”. What size should be selected?
   - Small
   - Medium
   - Large
   - Extra Large

28. What is the minimum ankle circumference for an extra-large?
   - 7”
   - 13¼”
   - 11 ½”
   - 12 ¼ plus
Diabetic Sock Quiz

29. Diabetic Socks look like the shape of a foot/ankle right out of the box
   __True
   __False

30. Diabetic Socks can be sized as “one-size-fits-all”
   __True
   __False

31. Diabetic Socks should not have very much stretch
   __True
   __False

32. True Diabetic Socks are only available in white
   __True
   __False
PAYMENT OPTIONS

Bill Dr. Comfort Account (Provide Account # and Account Name)

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