

Venous & Lymphatic Conditions **Lower Extremity** 





# **VENOUS OVERVIEW**

**BLOOD, VEINS & VALVES** 

#### How it circulates

The circulation of blood is possible based on three major components: the heart, arteries, and veins.

The pumping action of the heart forces blood through the arteries and veins of the body. Arteries are the vessels that carry blood from the heart to the body tissues. Veins return the blood back to the heart.



Valves, located inside the veins, keep the blood flowing in one direction - toward the heart. Valves open to allow blood to return to the heart. They then close to prevent the blood from flowing backwards.

#### How vein problems occur

When a valve no longer closes properly or fully, problems can develop. Weak or damaged valves cannot support the blood when the muscle relaxes. This allows blood to flow backwards in the vein, creating pressure on the valves below. These valves can also weaken. Blood return to the heart is reduced and other complications can develop.

#### **Pooling**

A damaged or poorly closing valve in a vein allows blood to flow backwards. This can cause blood to back up and collect in the veins of the lower leg. Pooling of blood in the veins of the lower leg causes swelling, especially near the ankles and calves.



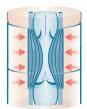
Valves open when muscles contract, allowing blood to return to the heart.



Valves close when muscles relax. Blood cannot flow backwards.

Deficient valve: Allows venous blood to reflux With compression: Allows muscle to assist valve to function correctly

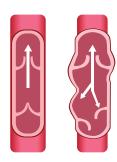




- Insufficient veins

### **Enlarged Veins**

When a valve is damaged or missing, the backup of blood results in higher pressure in the veins below. This higher pressure, which directly affects the superficial veins (those closest to the skin), may strain the walls of the vein, causing them to enlarge and even twist. As the veins enlarge, the valves within them can no longer close fully. Enlarged superficial veins are visible bulges under the skin of the leg. These "ropy" veins are called varicose veins.



#### **Blood Clots**

When blood cells stick together near a valve, a clot can form which may partially or completely block the flow of blood through the vein. Slow moving or poorly flowing blood in the veins is more likely to clot. Clots may be caused by sluggish blood flow, injury to a vein, or abnormal blood clotting factors.

A clot in the deep veins, which is the most serious, is called a deep vein thrombosis (DVT).

Part of a DVT may break loose and lodge in the lungs or may also cause long-term problems in the leg.

#### Chronic Venous Disease (CVD)

CVI results from damaged valves in the veins, causing blood to pool in the legs. This can lead to swelling, discomfort, skin damage, and leg ulcers. Although there is no cure for this chronic condition, CVI can be effectively managed.

#### Symptoms of CVI include:

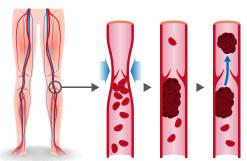
- inflammation and/or swelling of the leg
- · leg pain
- varicose veins
- discoloration of the skin
- hardening of the skin or leg ulcers

#### Venous Leg Ulcer (VLU)

The chronic backup of blood due to damaged valves allows blood to pool in the lower leg, causing swelling. Chronic swelling interferes with the nutrition and oxygen supply to the skin. The skin becomes dry, flaky and darker in color. The skin is fragile and easily breaks with minor trauma, forming an open wound, which is slow to heal.

#### Symptoms of venous ulcers include:

- swelling of the lower leg
- dermatitis (or changes in the skin)
- purple or brown discoloration of the skin around and above the ankles
- open wound which may have drainage/discharge





To learn more about venous and lymphatic conditions, visit JOBST® Compression Institute at jobstcompressioninstitute.com



# LYMPHEDEMA OVERVIEW

#### Introduction

The complex circulatory system is comprised of two systems:

- The closed-blood circulation system consisting of veins and arteries
- The half-open lymphatic system which, in addition to its known immunological functions, also has important circulatory functions





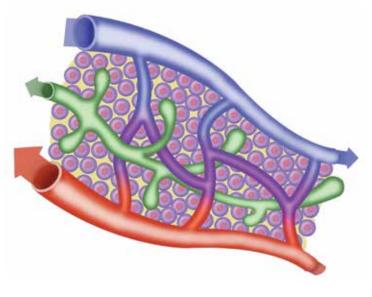
Circulatory System

Lymphatic System

### **Functional anatomy**

The lymphatic system can be divided into three functional parts:

- 1. lymph production in the initial lymph vessels
- 2. lymph transport through the lymph collectors
- 3. lymph concentration and filtration in the lymph nodes

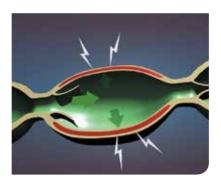


#### Lymph production

Lymph production takes place in the terminal vessels which are comprised of the blood capillaries and initial lymph vessels.

### Lymph transport

The initial lymph vessels make up a superficial, valveless network extending throughout the entire body. The lymph is transported from these vessels to the larger, deeper lymph vessels, the lymph collectors.



The lymph collectors run to the regional lymph nodes. This gives rise to different lymph territories separated from each other by lymphatic watersheds.

The lymph vessels are equipped with valves which determine the direction of flow. The lymph vessel segment bounded by two valves is known as a "lymphangion." Each lymphangion has an innervated powerful smooth muscle that

makes it pulsate like a small heart which transports the lymph from one lymphangion to the next.

Lymph transport is influenced by several auxiliary mechanisms. The most important of these in the limbs are the muscle pumps that come into effect during movement.

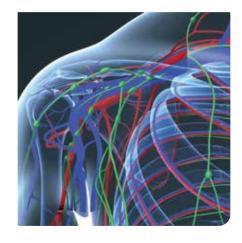
On its way into the closed blood circulation, the lymph passes through several lymph nodes frequently arranged in groups.

The lymph nodes have important immunologic functions. Bacteria and cell debris are filtered out of the lymph by immune defense cells. The lymph nodes also contain specific cellular defense substances which can destroy cancer cells.

### Lymphedema

In this complex system of lymphatics, disorders can develop, which can have serious consequences. The most prevalent of these disorders is lymphedema.

Lymphedema is a chronic disease with a tendency to progression. It can affect all parts of the body, most often the limbs.





Mayo Foundation For Medical Education And Research. All

#### Causes

The causes of lymphedema may be found in lymph production, lymph transport, or lymph nodes.

Primary lymphedema is usually due to a birth defect, such as hyperplasia or hypoplasia of the lymph capillaries or lymph vessels.

Secondary causes can be due to disease or damage to the originally intact lymphatic system.

# **ABOUT JOBST®**

### GRADIENT COMPRESSION THERAPY - THE ESSENTIAL ELEMENT

Gradient compression legwear, pioneered by Conrad Jobst over 60 years ago, remains the basis for the management of venous disease and lymphedema.

Gradient compression reduces swelling and helps prevent the pooling of fluid in the venous or lymph systems and in the interstitial spaces. This results in clinically proven improvement to the venous and lymph fluid return, thus providing beneficial effects for persons with edema or venous disease.

JOBST® gradient compression garments work by increasing the tissue pressure to help balance the flow of fluid across the capillaries of the limb. This helps to reduce swelling.



#### Fabric...

JOBST® compression therapy comes in a wide assortment of fabric types. From UltraSheer compression therapy to custom flat-knit for maximum containment, there is a fabric choice to every patient's needs. If color is a concern, JOBST® compression therapy comes in a wide array of fashionable colors.

### Compression Levels...

JOBST® Ready-to-Wear medical compression products are available in four compression levels: 8-15, 15-20, 20-30 and 30-40 mmHg. JOBST® Custom garments can be ordered in a variety of compression levels. The right compression level helps ensure that venous and lymphatic disease is managed effectively.

### Styles...

JOBST® Compression Therapy is available in many styles. Any style is suitable provided the affected area is covered.

V	OMEN'S		MEN'S	UNISEX					
Soft in fit is a second of the		pow carother							
Knee High	Knee High Dot Band	Thigh High	Men's Thigh High	Chaps	Capri				
Thigh High Dot Band	Waist High	Maternity	Soft fit fit when's Knee High	Bermuda	Foot Cap				

# PRODUCT SELECTION GUIDE

JOBST® offers a wide range of fashionable compression wear to meet all of your patients' therapeutic and lifestyle needs.

# **COMPRESSION GUIDE**

Support Wear		Custom (Lymphology)		
8-15 mmHg* (Mild)	15-20 mmHg* (Moderate)	20-30 mmHg* (Firm)	30-40 mmHg* (Extra Firm)	15 -90 mmHg <sup>†</sup>
Tired, aching legs     Minor ankle, leg and foot swelling	Minor varicosities     Minor ankle, leg and foot swelling     Minor varicosities during pregnancy     Post-sclerotherapy     Tired, aching legs	Moderate to severe varicosities     Moderate edema     Moderate to severe varicosities during pregnancy     Post-sclerotherapy     Helps prevent recurrence of venous ulcerations     Superficial thrombophlebitis     Post-surgical	Severe varicosities Severe edema, lymphatic edema Chronic venous insufficiency Post-sclerotherapy Helps prevent recurrence of venous ulcerations, manages active venous ulcerations Helps prevent postthrombotic syndrome Manages manifestations of PTS Post-surgical Orthostatic hypotension	Severe edema, Lymphatic edema     Chronic venous insufficiency     Manages active venous ulcerations     Postphlebitic syndrome     Orthostatic hypotension
JOBST® UltraSheer JOBST® soSoft JOBST® forMen JOBST® Men's Dress JOBST® SensiFoot® JOBST® Athletic	JOBST® UltraSheer JOBST® Opaque JOBST® soSoft JOBST® forMen JOBST® forMen Casual JOBST® forMen Ambition JOBST® Relief® JOBST® ActiveWear JOBST® Sport JOBST® Travel Socks	JOBST® UltraSheer JOBST® Opaque JOBST® soSoft JOBST® forMen JOBST® forMen Casual JOBST® forMen Ambition JOBST® Relief® JOBST® ActiveWear JOBST® Sport JOBST® FarrowWrap®	JOBST® UltraSheer  JOBST® Opaque  JOBST® soSoft  JOBST® forMen  JOBST® forMen Casual  JOBST® forMen Ambition  JOBST® Relief®  JOBST® ActiveWear  JOBST® UlcerCARE™ (40+ mmHg*)  JOBST® FarrowWrap®	Elvarex® Elvarex® Plus Elvarex® Soft Elvarex® Soft Seamless Custom Seamed Custom Seamless Soft Bellavar® JOBST® FarrowWrap®

<sup>\*</sup>The mean compression of an average ankle size. †Design Pressure.

# **UNISEX**



# **Opaque**

- · Smooth, lightweight design for increased comfort
- Available in beautiful trendy colors

15-20 mmHg\*

20-30 mmHg\*

30-40 mmHg\*



Knee High Knee High



Thigh High



Thigh High Waist High Petite





# **Sport**

- The perfect combination of athletic styling and medically effective compression therapy
- · Ideal for any sporting activity

15-20 mmHg\*

20-30 mmHg\*





## **ActiveWear**

- 360° cushioned foot part makes this sock incredibly comfortable
- The perfect sock for people with a standing occupation

15-20 mmHg\*

20-30 mmHg\*

30-40 mmHg\*





## **Relief®**

- Quality and efficacy at a moderate price
- · Available in a variety of styles and compression levels

15-20 mmHg\*

20-30 mmHg\*

30-40 mmHg\*



Knee High



Dot Band



Knee High Thigh High



Thigh High Silicone Dot



Waist High



Chaps

# **UNISEX**



### **Casual Pattern**

- Brings comfort without compromising your patients' day-to-day style
- Available in 2 fashionable colors

15-20 mmHg\*

20-30 mmHg\*





## **Travel Socks**

 Promote leg health during long hours of inactivity 15-20 mmHg\*



# WOMEN'S



### **UltraSheer**

- Unparalleled sheerness in a lightweight design
- Available in maternity pantyhose





8-15 mmHg\*

15-20 mmHg\*

20-30 mmHg\*

30-40 mmHg\*



Knee High



iee High Th



Thigh High Waist High



Thigh High



Maternity



# UltraSheer Diamond Pattern

 The patterned design and trendy colors combine therapeutic efficacy and fashionable appearance 15-20 mmHg\*

20-30 mmHg\*



Petite

Knee High



Thigh High



# WOMEN'S



### soSoft

- Stylish patterns give an edge to its laid back, contemporary design
- Softness of the yarns ensures easy donning and high patient compliance

8-15 mmHg\*

15-20 mmHg\*

20-30 mmHg\*

30-40 mmHg\*



# MEN'S



### forMen

 Therapeutic effectiveness in a classic, comfortable, dress sock design 8-15 mmHg\*

15-20 mmHg\*

20-30 mmHg\*

30-40 mmHg\*



Knee High Th





## forMen Casual

 Superior wicking technology in a casual versatile sock 15-20 mmHg\*

20-30 mmHg\*

30-40 mmHg\*







# forMen Ambition

- Fashionable ribbed men's sock
- Unique combination of cotton and carbon supports odor control





### 15-20 mmHg\*

20-30 mmHg\*

30-40 mmHg\*



# **DIABETIC LEG ULCER**



### **SensiFoot**<sup>™</sup>

- Provides comfort and protection for sensitive feet
- Especially for people with diabetes

8-15 mmHg\*







**VENOUS LEG ULCER** 



### **UlcerCARE™**

- Effective management of a venous leg ulcer while offering ease of use
- The perfect combination for providing high quality of life

40 mmHg\*







Without Zipper

With Zipper

Line

# **CUSTOM-MADE GARMENTS**



## **Custom Seamed**

- The solution for both venous and lymphatic indications
- Available in over 70 styles and options for upper and lower extremities

20-90 mmHg\*







Thigh Pantyhose







Capri

Bermuda

Pelvic Garment



## Custom Seamless Soft

- Soft and fashionable custom garment for mild to moderate edema
- Ideal for venous indications of the lower extremities

Class 1

Class 2

Class 3







Knee

Thigh Waist High







One-Leg Waist High

Maternity

Chaps

# **CUSTOM-MADE GARMENTS**



# **Elvarex**® Elvarex® Plus

- Unique flat knitted custom garment
- For moderate to severe edema and lymphedema



Class 1

Class 2

Class 2 Forte

Class 3

Class 3 Forte

Class 4

Class 4 Super







Pantyhose



One-Lea Panty







Bermuda



Foot Cap\*



Caution: These products contains natural rubber latex which may cause allergic reactions.



# Elvarex® Soft Elvarex® Soft **Seamless**

- Custom latex-free flat knit garment uniquely designed with softer
- For management of mild to moderate edema

Class 1

Class 2

Class 3







Pantyhose



Chaps



Capri



Bermuda



Foot Cap







Waist High



**Bellavar**®

- Custom garment with controlled stretch
- For moderate to severe vascular indications

Class 2

Class 3



One-Lea

Waist High





Maternity

Chaps

Most popluar styles shown. Many more styles and options available. Colors and compression classes vary by textile and style. Please check with your local BSN representative for a complete listing. \* The Foot Cap is the only style available in Elvarex Plus Lower Extremity (Class 1 and Class 2)

# JOBST® WRAPS



# FarrowWrap® CLASSIC

- The original FarrowWrap® material, clinically proven on thousands of patients†
- Available in thighpiece, footpiece and legpiece

30-40 mmHg\*



# FarrowWrap® BASIC

- Value fabric with quality compression
- Durable and comfortable fabric
- Available in legpiece and footpiece

30-40 mmHg\*

Medicare reimbursable under A6545 with an open venous leg ulceration



# FarrowWrap® STRONG

- Premium fabric with robust compression and soft inner layer
- Conforms to limb geometry
- Available in thighpiece, kneepiece, legpiece and footpiece

30-40 mmHg\*



# FarrowWrap® 4000

- 4-band design with inner-sleeve to assist with donning and doffing
- Anatomical contoured to prevent gapping
- Available in legpiece

30-40 mmHg\*

Medicare reimbursable under A6545 with an open venous leg ulceration



# FarrowWrap® LITE

- Low profile fabric suited for patients with neuropathy as well as pediatric patients
- Available in thighpiece, kneepiece, legpiece, footpiece and armpiece

20-30 mmHg\*

### JOBST® FarrowWrap® also comes in:

- Custom options
- Trim-to-Fit options
- Trimmable toe caps & gloves
- Hybrid socks compression in the foot, liner above the ankle

# **JOBST® DONNING AIDS & ACCESSORIES**

JOBST® offers a full portfolio of products to help you easily put on and extend the wearing life of your compression legwear.





Easy-to-use device to help apply JOBST® LegWear. Ideal for people who have limited dexterity or have difficulty reaching their feet. Use with closed and open-toe styles. Available in 2 sizes: Regular and Large Calf.



### JOBST® Donning Gloves\*

Putting on JOBST® LegWear is always easier with JOBST® Donning Gloves! JOBST® gloves help create friction, provide grip and help evenly distribute the fabric on the leg.

\*Caution: This product contains natural rubber which may cause allergic reactions.



### JOBST® Stocking Slips

For use with open-toe styles only. Helps the stocking slide smoothly onto the foot by reducing friction between the patient's skin and the compression stocking.



### JOBST® Easy Wash & Wear Kit

Everything needed to help apply and extend the life of JOBST® LegWear. Kit includes JOBST® Donning Gloves, Wash Bag, Jolastic® Washing Solution, and brochure with helpful hints for putting on JOBST® LegWear.



### **Dycem® Non-Slip Material**

Improves grip and provides stability to help with easier donning of a JOBST® garment.



### Upper & Lower Easy-Slide®

Easy-Slide® donning aids are for upper and lower extremity garments that do not have stitched fingers or closed toes. This donning aid can be very helpful for patients with tenderness or weakness in their donning limb and are not strong enough to don the garment by themselves.

# **2 EASY METHODS** FOR PUTTING ON YOUR JOBST® LEGWEAR

### Method 1

### "Heel Pocket Out" Method

1. Reach inside the stocking to pinch the heel.



2. While holding onto the heel, turn the fabric of the stocking inside out.



3. Open the stocking and slide your foot in until your toe and heel are in the foot.



4. Once the heel is in place, grasp the fabric below the band and pull it up over your heel and ankle.



5. Work the stocking up the length of your leg, smoothing out the wrinkles as you go.

doffing your compression legwear.



stocking, put it aside.



Please visit www.jobst-usa.com for more tips on donning and



### JOBST® Stocking Donner

1. Place your JOBST® LegWear inside the semi-circle frame and pull the top on the stocking down over the semi-circle. The heel of the stocking must face the back of donner.



2. Continue to slide the stocking down over the semi-circle until the heel is centered and even with the top of the semi-circle.



3. While sitting or standing (which ever is more comfortable), insert your foot into the stocking until your foot is on the floor.



4. Grasp the padded handles and gently pull the JOBST® Stocking Donner - with the stocking - up toward you. Continue this upward movement until the stocking is above the calf.



5. Once the donner is free of the



6. Be sure the heel of the stocking is positioned correctly on the foot. Then adjust the length and smooth out any wrinkles by stroking with the palms of your hands.

# **READY-TO-WEAR SIZING CHARTS/COLORS**

UltraSheer, UltraSheer Diamond Pattern, Opaque, soSoft, forMen, forMen Casual, Sport, ActiveWear, Relief® and Casual Pattern

	ANKLE	CALF	THIGH THIGH	HIP T	HIP (Maternity)		
S	7-8¼" (18-21 cm)	11"-15" (28-38 cm)	15 <sup>3</sup> / <sub>4</sub> "-24 <sup>3</sup> / <sub>8</sub> " (40-62 cm)	28"-46" (71-117 cm)	32"-52" (81-132 cm)		
M	8 <sup>3</sup> / <sub>8</sub> "-9 <sup>7</sup> / <sub>8</sub> " (21-25 cm)	11 <sup>7</sup> / <sub>8</sub> "-16 <sup>1</sup> / <sub>2</sub> " (30-42 cm)	18 <sup>1</sup> / <sub>8</sub> "-27 <sup>1</sup> / <sub>2</sub> " (46-70 cm)	30"-50" (76-127 cm)	34"-56" (86-142 cm)		
L	10"-11 <sup>3</sup> / <sub>8</sub> " (25-29 cm)	12½"-18½" (32-46 cm)	21 <sup>1</sup> / <sub>4</sub> "-30 <sup>3</sup> / <sub>4</sub> " (54-78 cm)	32"-54" (81-137 cm)	36"-60" (91-152 cm)		
XL	11½"-13" (29-33 cm)	13 <sup>3</sup> / <sub>8</sub> "-19" (34-50 cm)	23 <sup>5</sup> / <sub>8</sub> "-32" (60-81 cm)	40"-65" (102-166 cm)	44"-71" (112-180 cm)		
MT	$8\frac{3}{8}$ " - $9\frac{7}{8}$ " (21-25 cm) for shoe size > 12	$11\frac{7}{8}$ "- $16\frac{1}{2}$ " (30-42 cm) for leg length >19 $\frac{3}{4}$ " (50 cm)					
LT	10"-11 <sup>3</sup> / <sub>8</sub> " (25-29 cm) for shoe size >12	$12\frac{1}{2}$ "-18 $\frac{1}{8}$ " (32-46 cm) for leg length >19 $\frac{3}{4}$ " (50 cm)					
LFC	10"-11 <sup>7</sup> / <sub>8</sub> " (25-30 cm)	18"-24" (46-61 cm)					
XLFC	12"-14" (30-36 cm)	18"-24" (46-61 cm)					
	Regular: Greater than Petite: 15" (38 cm) or I			Greater than 27" (68.5 o " (68.5 cm) or less	cm)		

For Knee High, Measure Ankle and Calf. For Thigh High, Measure Ankle, Calf and Thigh. For Waist High, Maternity and Chap, Measure Ankle, Thigh and Hip.

#### forMen Ambition

Meas point		1	2	3	4	5	6		
ference s (cm)	Ankle	7½-8 (18-20)	8 - 8 <sup>3</sup> / <sub>4</sub> (20-22)	8 <sup>3</sup> / <sub>4</sub> - 9 <sup>3</sup> / <sub>8</sub> (22-24)	9 <sup>3</sup> / <sub>8</sub> - 10 <sup>5</sup> / <sub>8</sub> (24-27)	10 <sup>5</sup> / <sub>8</sub> -11 <sup>3</sup> / <sub>4</sub> (27-30)	11 <sup>3</sup> / <sub>4</sub> - 13 <sup>3</sup> / <sub>8</sub> (30-34)		
circumfe inches	Calf	11 - 14½ (28-36)	11 <sup>3</sup> / <sub>4</sub> - 1 5 <sup>3</sup> / <sub>4</sub> (30-40)	13 <sup>3</sup> / <sub>8</sub> - 17 <sup>3</sup> / <sub>8</sub> (34-44)	15 - 19 <sup>3</sup> / <sub>4</sub> (38-50)	17³/ <sub>8</sub> - 22¹/ <sub>8</sub> (44-56)	19 <sup>3</sup> / <sub>4</sub> -24 <sup>3</sup> / <sub>8</sub> (50-62)		

For Knee High, measure Ankle and Calf. Lengths: Regular:  $15-17^3/_8$ " (38-44 cm); Long:  $17^3/_4-20$ " (45-51 cm)

Colors	White	Khaki	Sand	Natural	Sun Bronze	Beige	Honey	Amber	Suntan	Brown	Cocoa	Espresso	Anthracite	Midnight Navy	Black	Blue	Cranberry	Cherry	Sienna	Gray	Pink	Graphite	Henna	Demim
UltraSheer	>	<b>x</b>	S S	_	S	ш		٩	S	ш	O	Ш	4	22	Ш	ш	O	O	S	0	ш	O		
UltraSheer Diamond																								
soSoft	0																							
forMen	Ō																							
forMen Casual															•									
forMen Ambition														•	•									
Opaque																				_				
Sport*	0																							
ActiveWear	0																							
Relief																								
Travel Socks																								
SensiFoot	0																							
UlcerCARE	0																							
Casual Pattern																								
Custom Seamed																								
Custom Seamed Soft¹														•										
Elvarex <sup>1</sup>																								
Elvarex¹ Plus																								
Elvarex¹Soft																								
Elvarex¹Soft Seamless																								
Custom Bellavar																								

All colors may not be available in all styles. \* Available in White/Grey, Black/Grey, Royal/Grey, Cool Black/Black. 'Custom Seamless Soft, Elvarex and Elvarex Plus available in Navv.





an Essity brand



