T.E.D.™ Anti-Embolism Stockings Nursing Procedure Guide

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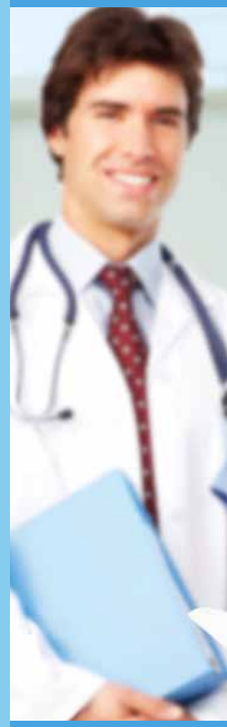
Sizing and application for optimal benefit

Contents

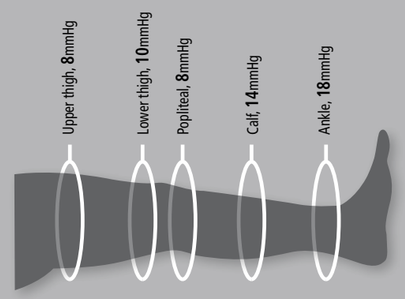


- T.E.D. anti-embolism stockings apply the clinically proven graduated pressure pattern of 18mmHg at the ankle, 14mmHg at the calf, 8mmHg at the popliteal, 10mmHg at the lower thigh and 8mmHg at the upper thigh.[1] It is important to measure patient's leg sizes to assure that the appropriate pressure pattern is applied.

- T.E.D. anti-embolism stockings are clinically proven to reduce DVT by 50%[2], and to promote increased blood flow velocity in the legs 138%[1] of baseline by compression of deep venous system.

- T.E.D. anti-embolism stockings have been clinically proven to prevent the damaging effects of venous distension that occurs during surgery and hospitalization.[3]

Clinically proven pressure pattern



Getting started

You will need:

- Wall chart
- Tape measure
- T.E.D. stocking order pad/sizing chart

Nursing is responsible for sizing, application, and maintenance of T.E.D. anti-embolism stockings.

Sizing

Proper sizing and application must be assured for optimal benefit of stockings. Refer to instructions for use in packaging for specific sizing information.

A. Thigh length and lhigh length with belt (Figure I)

1. Measure upper thigh circumference at gluteal furrow. (Measurement #1)
2. Measure calf circumference at greatest dimension. (Measurement #2)
3. Measure leg length from gluteal furrow to base of heel. (Measurement #3)
4. Consult the wall chart or back of this guide to determine the appropriate size.
   a. If right and left legs measure differently, order two different stocking sizes.
   b. If thigh circumference is greater than 91.4cm, select a knee length stocking.
   c. If calf circumference is outside the specified range of the recommended thigh length stocking based on Measurement #1, select a knee length stocking.

B. Knee length (Figure II)

1. Measure calf circumference at greatest dimension. (Measurement #1)
2. Measure length from bend of knee to base of heel. (Measurement #2)
3. Consult the wall chart or back of this guide to determine the appropriate size.
   a. If right and left legs measure differently, order two different stocking sizes.

C. Order two pairs of stockings to ensure that prophylaxis is uninterrupted during laundering care or to send a pair home with the patient.

Did you know?

According to a study by Dr. Sigel, the effect of graduated compression stockings on venous velocity lasts up to 30 minutes after removal of the stockings.[4]

Fig. I

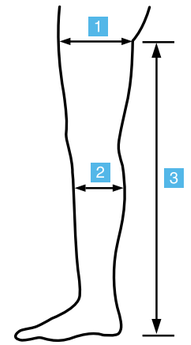


Fig. II

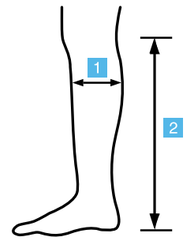


Fig. III

Applying

A. Insert hand into stocking as far as the heel pocket **(Figure III)**

Fig. IV

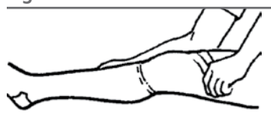
B. Grasp center of heel pocket and turn stocking inside out to heel area. **(Figure IV)**

Fig. V

C. Position stocking over foot and heel. Be sure patient's heel is centered in heel pocket. **(Figure V)**

D. Pull a few centimeters of the stocking up around the ankle and calf.

Fig. VI



E. Continue pulling the stocking up the leg. The stitch change (change in fabric sheerness) should fall between 2.5 to 5cm below the bend of the knee. **(Figure VI)**

F. As thigh portion of the stocking is applied, start rotating stocking inward so panel is centered over femoral artery. Panel is placed slightly towards the inside of the leg.

Fig. VII

When using thigh length with belt **(Figure VII)**, be sure side panels are at hip bone and upper hem rests at the gluteal furrow.

Fig. VIII

When using thigh length, the top band rests in the gluteal furrow. **(Figure VIII)**

G. Smooth out wrinkles

H. Align inspection toe to fall under the toes. (Toes should not stick out.)

I. Instruct patient as to the proper positioning of stocking to insure that the patient will not reposition the stockings incorrectly.

J. For improved efficacy in moderate/high risk patients, use T.E.D. anti-embolism stockings plus Kendall SCD™ compression system, A-V Impulse System™ foot pump or anticoagulant.
As dictated by the physician or hospital guidelines.

Maintenance

A. Properly sized stockings need to be removed daily during bathing to inspect condition of skin if possible.

B. Wash every 2 to 3 days to remove bodily secretions.

C. Machine wash, temperature not to exceed 70°C; Machine dry for 15 to 20 minutes, temperature not to exceed 80°C.

D. Keep stockings free from ointments,oil,lanolin and substances which deteriorate elastic.

E. With correct care, stockings last 2 to 3 months (approximately 30 washings).

Contraindications

Stockings are not recommended for patients with the following:

1. Any local leg condition in which stockings would interfere, such as: dermatitis, vein ligation (immedicate postoperative), gangrene, or recent skin graft.
2. Severe arteriosclerosis or other ischemic vascular disease.
3. Massive edema of legs or pulmonary edema from congestive heart failure.
4. Extreme deformity of leg.

Charting

A. Record style and size of stocking applied, and date applied.

B. Record removal of stockings.

C. Note appearance of skin.

D. Report absence or presence of tenderness in calves, thighs or toes.

E. Record inspection of stockings during each shift.

F. Be aware of patient's size changing and weight loss.

Maintaining skin integrity with T.E.D. anti-embolism stockings while preventing DVT and/or improving vascular circulation

A. Assess potential risk for altered skin integrity

- Altered mobility (hyperactivity or decreased mobility)
- Altered nutritional state (emaciation; albumin 3.0 g/dl)
- Altered metabolic state
- Altered skin turgor
- Altered sensation
- Altered circulation (venous or arterial)

B. Measure patient

DO use a measuring tape.

DO remeasure with decrease or increase of weight. (i.e., edema).

C. Apply stockings

DO "walk" the stockings up the legs and use powder sparingly, if necessary, to assist with easy application.

D. Maintain stockings properly

DO check for proper heel and gusset placement.

DO remove stockings at least daily, inspect skin, provide skin care and reapply stockings.

E. Inspect skin

DO inspect skin* (especially ankle/heels) at least every 8 hours and document your assessment.

DO assess patient's subjective report of comfort/discomfort.

F. Prevent all sources of pressure, shear, and friction

DO loosen linens and use bed cradles to increase patient comfort.

DO position patient using a lift sheet, overhead trapeze, etc.

DO keep HOB lower than 30° whenever possible.

DO use devices or measures which suspend heels to relieve pressure.

DON'T guess size of stockings. Tight or loose fitting stockings can impact compression efficacy.

DON'T pull or tug into place. This increases friction and shear.

DON'T position the heel of the stocking above or below the heel. This could impact the pressure gradient.

DON'T take stocking off for long periods of time to let the skin "breathe". This could impact efficacy.

DON'T massage reddened areas. This can increase tissue damage.

DON'T rely solely on visual signs of pressure or friction. Visual signs of tissue damage may be late or absent.

DON'T tuck linens tightly. This increases pressure over heels and tops of toes.

DON'T pull patient up in bed dragging heels. This increases friction to heels.

DON'T keep HOB > 30° for long periods of time. This may increase friction and shear to heels.

DON'T use donut-type devices or rely solely on pressure reduction devices.

* More frequent inspection or aggressive care may be required for patients at high risk or in patients with signs and symptoms of tissue change.

Thrombosis risk assessment for surgical & medical patients

Step 1: Risk factors associated with clinical setting

Choose no more than one of the below listed disease states or associated hospital services to determine the baseline risk factor score.

Score 1 factor	Score 2 factors	Score 3 factors	Score 5 factors
☐ Minor surgery	☐ Major surgery (>45 min.) ☐ Laparoscopic surgery (>45 min.) ☐ Patients confined to bed (>72 hrs.) ☐ Immobilizing plaster cast ☐ Central venous access	☐ Major surgery with: - Myocardial infarction - Congestive heart failure or - Severe sepsis/infection ☐ Medical patient with additional risk factors	☐ Elective major lower extremity arthroplasty ☐ Hip, pelvis, or leg fracture ☐ Stroke ☐ Multiple trauma ☐ Acute spinal cord injury (paralysis)

Baseline risk factor score (If Score ≥ 5, go to Step 4) ☐

Step 2: Risk factors associated with patient

Clinical	Hypercoagulable states (Thrombophilia)	
(1 factor unless noted)	INHERITED (score 3 factors for each)	ACQUIRED (score 3 factors for each)
☐ Age 41 to 60 years ☐ Age over 60 years (2 factors) ☐ History of DVT/PE (3 factors) ☐ History of Prior Major Surgery ☐ Pregnancy, or postpartum (<1 month) ☐ Malignancy (2 factors) ☐ Varicose veins ☐ Inflammatory bowel disease ☐ Obesity (>20% of ideal body weight) ☐ Oral contraceptives or hormone replacement therapy	☐ Factor V Leiden/ Activated protein C resistance ☐ Antithrombin III deficiency ☐ Protein C or S deficiency ☐ Dysfibrinogenemia ☐ Prothrombin 20210A ☐ Homocysteinemia	☐ Lupus anticoagulant ☐ Antiphospholipid antibodies ☐ Myeloproliferative disorders ☐ Disorders of plasminogen & plasmin activation ☐ Heparin-induced thrombocytopenia ☐ Hyperviscosity syndrome ☐ Homocysteinemia

Additional risk factor score ☐

Step 3: Total risk factor score

Baseline + additional ☐

Step 4: Recommended prophylactic regimens for each risk group

Low risk (1 factor)	Moderate risk (2 factors)	High risk (3-4 factors)	Highest risk (5 or more factors)
No specific measures Early ambulation	IPC or LDUH (q12h) or LMWH or GCS	GCS* and IPC or LDUH (q8h) or LMWH	GCS* and IPC† + (LDUH or LMWH) or ADH or LMWH or Oral anticoagulants

* Combining GCS with other prophylactic methods (LDUH, LMWH or IPC) may give better protection than any modality alone.

† Data demonstrates benefit of Plantar Pneumatic Compression in total joint arthroplasty. Plantar Pneumatic Compression can also be used when IPC is not feasible, including leg trauma.

Selection guide

Thigh length style

Thigh circumferance 1	Calf girth 2	Leg length 3	Code	Size	Colour Toe	Colour Top
Less than 63.5 cm	Less than 30.5 cm SMALL	Less than 74 cm SHORT	3071LF	A		
		74 cm to 84 cm REGULAR	3130LF	B		
		84 cm or more LONG	3222LF	C		
	30.5 to 38 cm MEDIUM	Less than 74 cm SHORT	3310LF	D		
		74 cm to 84 cm REGULAR	3416LF	E		
		84 cm or more LONG	3549LF	F		
	38 to 44.5 cm LARGE	Less than 74 cm SHORT	3634LF	G		
		74 cm to 84 cm REGULAR	3728LF	H		
		84 cm or more LONG	3856LF	J		
63.5 to 81.3 cm	38 to 44.5 cm EXTRA LARGE	Less than 74 cm SHORT	4010LF	K		
		74 cm to 84 cm REGULAR	4114LF	L		
		84 cm or more LONG	4216LF	M		
63.5 to 81.3 cm	44.5 to 54.6 cm EXTRA LARGE PLUS	Less than 74 cm SHORT	3180LF	N		
		74 cm to 84 cm REGULAR	3181LF	P		
		84 cm or more LONG	3182LF	Q		
81.3 to 91.4 cm	54.6 to 66 cm EXTRA EXTRA LARGE	Less than 74 cm SHORT	3183LF	R		
		74 cm to 84 cm REGULAR	3184LF	S		
		84 cm or more LONG	3185LF	T		

Thigh length with belt style

Thigh circumferance 1	Calf girth 2	Leg length 3	Code	Size	Colour Toe	Colour Top
Less than 63.5 cm	Less than 25 cm EXTRA SMALL	Less than 71 cm REGULAR	3306	-		
		71 cm & more LONG	3320	-		
	25 to 30.5 cm SMALL	Less than 72 cm REGULAR	3039	A+		
		72 cm & more LONG	3364	B+		
	30.5 to 38 cm MEDIUM	Less than 72 cm REGULAR	3144	C+		
		72 cm & more LONG	3449	D+		
	38 to 44.5 cm LARGE	Less than 74 cm REGULAR	3221	E+		
		74 cm & more LONG	3523	F+		
63.5 to 81.3 cm	38 to 44.5 cm EXTRA LARGE	Less than 72 cm REGULAR	3922	G+		
		72 cm & more LONG	3995	H+		

Knee length style

Calf girth 2	Leg length 3	Code	Size	Colour Toe	Colour Top
Less than 30.5 cm SMALL	Less than 41 cm REGULAR	7071	A-		
	41 cm & more EXTRA LONG	7339	B-		
30.5 to 38 cm MEDIUM	Less than 43 cm REGULAR	7115	C-		
	43 cm & more EXTRA LONG	7480	D-		
38 to 44.5 cm LARGE	Less than 46 cm REGULAR	7203	E-		
	46 cm & more EXTRA LONG	7594	F-		
44.5 to 51 cm EXTRA LARGE	Less than 46 cm REGULAR	7604	G-		
	46 cm & more EXTRA LONG	7802	H-		
51 to 58.4 cm EXTRA EXTRA LARGE	Less than 46 cm REGULAR	7470LF	J-		
	46 cm & more EXTRA LONG	7471LF	K-		
58.4 to 66 cm EXTRA EXTRA EXTRA LARGE	Less than 46 cm REGULAR	7472LF	L-		
	46 cm & more EXTRA LONG	7473LF	M-		

For additional information, log on to
www.covidien.com/dvtcompression

References:
1. Sigel B., et al. Type of Compression for Reducing Venous Stasis. Archives of Surgery. 1975; 110: 171-175.
2. Ishak, M.A. and Morley, K.D. Deep venous thrombosis after total hip arthroplasty: a prospective controlled study to determine the prophylactic effect of graded pressure stockings Br. J. Surg 1981; 68: 429-432.
3. Coleridge-Smith PD, et al. Deep Vein Thrombosis: Effect of Graduated Compression Stockings on Distension of the Deep Veins of the Calf. British Journal of Surgery. June 1991. Vol 78, No. (6): 724-726.

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