

Ready-made Compression Stockings. Do they fit?

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Ready-made Stockings

**This Presentation is based
on the following Article:**

**Nørregaard S, Bermark B, Gottrup F.
Do ready-made compression stockings fit the
anatomy of the **venous leg ulcer patients?**
J. Wound Care 2014; 23:128-135.**

Ready-made Stockings

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Ready-made Stockings

Background

Use of Stockings in Venous Leg Ulcer Patients



Stockings are normally used:

- **Treat Oedema and Wounds** to improve the Quality of Life and physical Activity of the Patient. In DK the Municipal administrates the distribution of Stockings.
- **Prophylactic** to prevent new Formation of Oedema and Wounds.

Background



Compression Stockings are produced in **standard Sizes**, so called '**Ready-made**' Compression Stockings



It has been suggested that **80% of all Patients** should, in Theory, **fit** into a ready-made below-knee Compression Stocking.

(Arpaia, G. et al. Int Angiol 2008; 27: 6,507–511)



However, a range of different **Problems** have been experienced (**Slippages, Pressure Marks, Wounds, Oedema** etc.).

Background



The **Evidence** to support Compression Stockings as **prophylaxis**, is **not robust**, and the Extent of the prophylactic Effect is still uncertain.

This may be based on Problems in **choosing the optimal Type** of Compression Stockings.

(Prescott, R.J., et al. J Vasc Surg 2006; 44: 4, 803–808)

Background

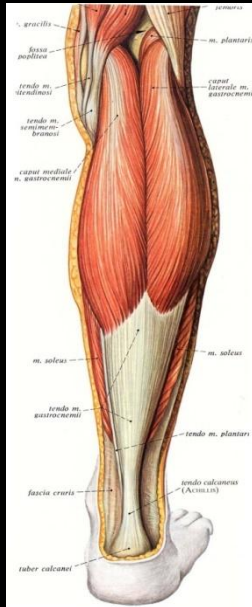
Several Problems for choosing the optimal Type of Stockings in DK (other places?)

- The **Municipal** pay and administrates the Selection, Distribution, Size, Type and Brand
- **No** National Guidelines or Danish Standard for Measurement System
- When a Stocking is delivered it is **not know how chosen or** which **Measurement Systems have been used.**
- **No** specific Healthcare related **Education** for measuring or delivering
- **Municipal: As cheap as possible** and following the **80/20 Rule** (80% of delivered Stockings should be Ready-Made and 20% Costume made)
- **Probably very few Patients** get the correct Stockings

Background

- The used **Measurement System** is vital for choosing the correct Type of “Ready-Made” Stockings
- The most used and present available Systems are the **3/7 Points Measuring Systems**
- What is the these **Systems based on** and **how usable** are they as **Evaluation Tool** in **daily clinical Life**?

Background



Ready –Made Stockings Measurements (3/7 Points) (Germany)
Measurements are based on an evaluation from healthy **Volunteers**
with Normal Anatomy Legs, not Legs found in the Clinical daily Life

(Compression therapy of the extremities. H Partsch, E Rabe, R Stemmer (eds). EPF. Paris. 2008)

Aim

- The Study is designed to investigate how **Two measuring Methods are suited to make a Choice** in selected Ready-Made Compression Stockings below knee in **Venous Leg Ulcers Patients**, treated at the Copenhagen Wound Healing Center.
- Investigate if **80%** of the Patients **fit into** a Ready-Made compression Stocking in a limited Selection of Brands.

Material and Methods

A **prospective, consecutive, comparative Study** of Two standardized measuring Methods (**3/7 Points**) to select the right Size of a Ready-Made Compression Stockings below Knee.

The **three Brands** selected in this study were the most commonly used Compression Stockings in the Municipals in the Copenhagen area

Material and Methods

Inclusion Criteria

- Patients with **Venous Insufficiency**
- Patients treated with **Compression Bandages in the Center**
- Patients **assessed to be treated with Compression Stockings**
- Patients with Ankle Brachial Pressure Index (**ABPI**) **> 0.8 and <1.3 mmHg**
- Patients Age **>18 years**
- Patients who can understand Danish
- Patients who gave oral informed Consent

Exclusion Criteria

- Patients not diagnosed with **Venous Insufficiency**
- Patients with **ABPI <0.8 and >1.3 mmHg**
- Patients who do not understand Danish
- Patients with **Dementia**
- Patients clinical **evaluated to have Oedema**

Material and Methods

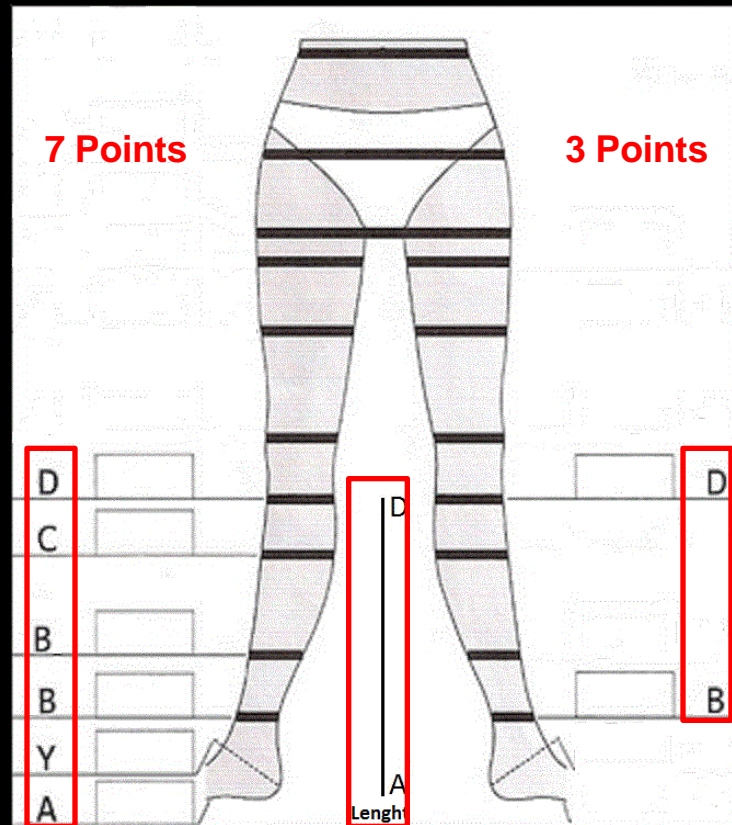
Measuring Method 1:

A **tree Point** Measurement: Circumference Measurements at point **B** and **D** of the Leg and the Length of the Leg from Heel to hollow of the Knee **AD**

Measuring Method 2:

A **seven Point** Measurement: Circumference Measurements at Point **A, Y, B, B1, C, D** of the Leg and the Length of the Leg from Heel to hollow of the Knee **AD**

Material and Methods



Ready-made Stockings

Material and Methods

Example of the Brands Size Charts

C = Circumference in cm

l = Length in cm

Figures = Company Sizes
of Stockings

To be the **correct
Stocking Size** all figures
should **fit into this table**
for this Company Product.

	II	III	IV	V	VI
cD	32-36	34-38	36-40	37-41	39-43
cC	33-37	35-39	37-41	38-42	40-45
cB ₁	26-29	28-31	30-34	32-36	34-38
cB	20-23	22-25	24-27	26-29	28-31
cY	29-32	31-35	33-37	35-39	36-40
cA	20-23	22-25	24-27	26-29	28-31

ℓ A-D short 34-37 cm and ℓ A-D normal. 37-40 cm and ℓ A-D long 40-43 cm

Results

<i>Patients characteristics</i>	
Male / Female	25 / 18 (Total 43 Pts.)
Age	Between 38 and 93 years, median 63,5 years (mean 63,26)
BMI	Between 18 and 59, median 28 (mean 29,95)
Hight	Mean 175,29 (stand dev. 11.37)
Diabetes	5 of 43 patienter had Type 2 diabetes
ABPI	Mean 1,08 (stand dev. 0,144)
Wound	30 of 43 patients had wounds
Legs – position	Right leg 22, left leg 21
Ulcer duration (n=28)	Mean 6,7 years (stand dev.10,49)
Duplex scan performed	29 out of the 43 patients

Results

Compared with the **Size Charts** from the three Brands the **Number of Patients** who could **fit** into one of the **Standard Sizes** using:

Measuring Method 1 (3 Points) was respectively:

Brand A 53,5%. Brand B 34,9%. Brand C 0%

Measuring Method 2 (7 Points) was respectively:

Brand A 4,7%. Brand B 7.0%. Brand C 0%

Conclusion

The **different Measuring Methods** have a great influence on the Choice of a Ready-Made Compression Stocking below Knee, in Patients with Venous Leg Ulcers.

Measuring Methods/standard Sizes are based on Legs with a Normal Anatomy and not specifically developed to the Anatomy of Legs with chronic Wounds. This should be **adjusted in the Future**.

For this reason **further Data and Studies** are needed also to establish if the **80/20 Rule** are to be changed.

Thank You for Your Attention

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