

**VEITH SYMPOSIUM**  
Connecting The Vascular Community

**Risks And Contraindications Of Medical Compression Treatment  
- A Critical Reappraisal: An International Consensus Statement.**

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**Disclosure**

- Member of the International Consensus Statement Group  
Co-author of the Consensus Document
- Educative lectures - MEDI

**65 year old patient**

- lower limb foam sclerotherapy two weeks before hospital admission
- class II compression stocking prescribed after sclerotherapy
- initially no claudication /but no data about peripheral pulse reported/




**But we should be careful with proper compression application also in the patients without previous arterial diseases...**



...after medical compression  
Courtesy A. Szuba, Poland

**Night phone call from the patient after endovenous laser ablation  
- severe pain and irritation in the thigh after compression implementation**



**Whole body itching, redness, skin irritation (including upper limbs) after class II medical compression stocking**

**Medical compression related adverse events**

| Reported adverse events         | Incidence |
|---------------------------------|-----------|
| <b>Non-severe</b>               |           |
| Skin irritation                 | Common    |
| Allergic skin reaction          | Very rare |
| Discomfort and pain             | Common    |
| Forefoot oedema and lymphedema  | Rare      |
| Bacterial and fungal infections | Very rare |
| <b>Severe</b>                   |           |
| Soft tissue damage or necrosis  | Very rare |
| Nerve damage                    | Very rare |
| Arterial impairment             | Very rare |
| Venous thromboembolism          | Very rare |
| Cardiac decompensation          | Very rare |

Frequency: very common (>1/10), common (<1/100 to <1/10), uncommon (<1/1000 to <1/100), rare (>1/10,000 to <1/1000), very rare (<1/10,000)

Rabe E, Partsch H, Morrison N, et al. Risk and contraindications of medical compression treatment – a critical reappraisal. An international consensus statement. Phlebology 2020; 35: 447-460

Rabe E, Partsch H, Morrison N, Meissner MH, Mosti G, Lattimer CR, Carpentier PH, Gaillard S, Jünger M, Urbaneck T, Hafner J, Patel M, Wu S, Caprini J, Lurie F, Hirsch T.:

**Risk and contraindications of medical compression treatment – a critical reappraisal. An international consensus statement.**

Phlebology. 2020; 35: 447-460.

**Recommendation 1.** We recommend that every patient receiving compression therapy should be screened for conditions that increase the risk of complications, and every compression device should be checked for appropriate fit and application.

Contraindications for compression treatment must be considered to limit the risk of side effects.


**Medical Compression (common) adverse events: Discomfort and pain**

Often on the first days after application

Can influence compliance

Often around ankle and foot

Can be related to incorrect sizing as well as to incorrect pressure level



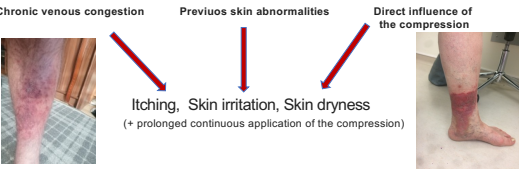
**Recommendation:** In patients with discomfort and/or pain below compression garments, we recommend checking the correct indication, pressure level, material, fitting or bandage techniques as well as the correct donning and doffing.

Rabe E, Partsch H, Morrison N, et al. Risk and contraindications of medical compression treatment – a critical reappraisal. An international consensus statement. Phlebology 2020; 35: 447-460



**Medical Compression (common) adverse events: Skin irritation**

Chronic venous congestion      Previous skin abnormalities      Direct influence of the compression



Itching, Skin irritation, Skin dryness  
(+ prolonged continuous application of the compression)


**Recommendation:** Adequate skin care to prevent skin irritation in patients with sensitive skin

**Recommendation:** Avoiding potentially allergenic substances and dyes in compression materials.

**Skin inflammatory reactions:** allergic reaction based (observed rather in the rubber based compression products as well as in the products containing the para-phenylenediamine) or (more commonly) non allergic based (skin irritation and desiccation due to occlusive barrier effect).

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**Skin/Soft tissue damage/necrosis – special precautions**

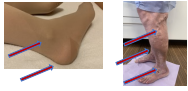


**Recommendation 10**

**We suggest specific precaution (padding, special care of fit, low pressure) and close controls at the initial stages of compression therapy in patients with polyneuropathy and elderly patients with frail, atrophic skin (dermatoporosis).**

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**Skin, soft tissue injury or necrosis as well as nerve paresis related to compression pressure and/or improper adjustment**




**KEY POINTS**

**Bony or tendinous prominences** (e.g. above ankles, the tibia, the fibular head or above tendons including Achilles tendon) **are subject to higher local pressure than flat areas.**

**Additional risk factors for tissue necrosis known:** severe PAOD, severe microangiopathy, neuropathy, previous skin injury

**Recommendation 9**  
To prevent tissue damage or necrosis and nerve damage in regions with a small radius, we suggest protecting these regions (tendons, nerves and bones) from inappropriate high pressure, particularly in patients with sensitive skin, by:

- Decreasing the local pressure by inserting soft padding material
- Using low overall pressure
- Taking appropriate circumference measurements so that the compression devices fit properly



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**Absolute contraindications to Medical Compression in 2024:**

- In patients with severe PAOD with any of the following: ABPI <0.6; ankle pressure <60 mmHg; toe


**Some of the previous contraindications become now indications for the medical compression ...**

- Severe diabetic neuropathy with sensory loss or microangiopathy with the risk of skin necrosis\*

**„borderline indications“**  
**Individual benefit - risk assesment required**

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**Peripheral arterial occlusive disease in patients requiring compression treatment**




**Recommendation 13**  
Severe PAOD (systolic ankle pressure <60mmHg, toe pressure <30mmHg) is a **contraindication against compression therapy with Medical Compression Stocking.**

[\*This contraindication does not apply to IPC and to patients with non-critical leg ischaemia treated with inelastic material applied with low resting pressure]


**Recommendation 14:**  
In every patient with impaired perfusion of the lower limb (ABI <0.9), the clinical effect of the MCS on leg blood supply should be carefully monitored.  
If the situation is not recognised, there is a possibility of developing non-healing skin breaks even under low pressure MCS

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**„Borderline“ indications in PAOD patients**




- Oedema and/or **venous ulcers in mixed pathology** CVI or lymphoedema and/or PAOD
- Oedema after leg vein harvesting in bypass surgery
- Oedema and/or venous ulcers in patients after arterial bypass surgery or stenting



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**ABI: >0.5 ---- <0.8**  
**/modified inelastic compression possible!**

Compression therapy in mixed ulcers increases venous output and arterial perfusion



**What about the use of the medical compression stocking?**


**Conclusions:** In patients with mixed ulceration, an ankle-brachial pressure index>0.5 and an absolute ankle pressure of>60 mm Hg, inelastic compression of up to 40 mm Hg does not impede arterial perfusion but may lead to normalization of the highly reduced venous pumping function.

Objective: This study was conducted to define bandage pressures that are safe and effective in treating leg ulcers of mixed venous aetiology. Methods: In 24 patients with mixed ulcers leg ulcers were treated with inelastic bandages (MCS) at ankle level 20, 30, 40, 50, 60, 70, 80, 90, 100 mmHg. Results: In 24 patients with mixed ulceration ABPI between 0.5 and 0.8; systolic pressure at ankle level ≥ 60 mmHg; systolic toe pressures <30 mmHg. Conclusions: In patients with mixed ulceration, an ankle-brachial pressure index > 0.5 and an absolute ankle pressure of > 60 mmHg, inelastic compression of up to 40 mmHg does not impede arterial perfusion but may lead to normalization of the highly reduced venous pumping function.

**Stucker M. et al. Safety of a compression stocking for patients with chronic venous insufficiency (CVI) and peripheral artery disease (PAD). J Dtsch Dermatol Ges. 2020; 16: 207-213**

50 PAD pts. [ABI < 0.9 and > 0.5; Absolute ankle systolic pressure > 60 mmHg],  
Fountainaine IIA 15 pts. Fountainaine IIB 15 pts. Fountainaine I 20 pts

Class C3- C5 (CEAP)  
class I compression /VenoTrain® angioflow, Bauerfeind/.



**No skin damage**

**An increase of the big toe systolic arterial pressure immediately after doning the medical compression stocking /from 83.3 mmHg ± 27.6 mmHg to 90.8 mmHg ± 24.1 mmHg) (p = 0.026/)**

**High tolerance of progressive elastic stockings (18 ± 2 mmHg at calf and 8 ± 2 mmHg at ankle level) in symptomatic PAD (ABI > 0.60 < 0.75)**  
Couzan S et al. High tolerance of progressive elastic compression in peripheral arterial disease. Vasa. 2019; 48: 413-417

**Can we use MCS after by-pass procedure or other kind of vascular reconstruction?**



**Recommendation 15**

After bypass surgery with improved peripheral arterial pressures, MC treatment may be performed **if there is no direct compression effect on the bypass itself**. We suggest avoiding the compression of epifascial bypass conduits.

**The higher risk of the by pass occlusion by the compression:**

- if superficial by - pass location (supra-fascial) is present eg.: in situ venous femoro – popliteal or femoro – crural by-pass
- if the very distal lower leg by-pass anastomosis was performed Eg. at the distal crural or ankle level
- In case of the unproper application or to strong pressure there is the possible tourniquet effect along the by - pass course or in the anastomosis region



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Aorto - femoral bifurcated prosthesis  
ABI 0,65  
Class I MCS

**Proper dosage of the compression (pressure) adjusted to the leg anatomy, by-pass anatomy, but also to the severity of ischemia**

Axillary – femoral extra-anatomic by pass ABI 0,6  
Short stretch bandage

**Compression after vein harvesting**

**Borderline indications**

**Leg oedema in diabetic patients**

**Pathogenesis of leg swelling in DM:**

- Endothelial dysfunction/microcirculation injury/vessel wall permeability increase
- Congestive heart failure
- Kidney failure
- Antihyperglycemic medication (thiazolidinediones: pioglitazone, rosiglitazone especially if in combination with insulin; plasma volume increase)
- Lymphatic system dysfunction
- Obesity
- Increase in interstitial tissue pressure in diabetic foot syndrome and infective complications

Wu S, et al.: Control of Lower Extremity Edema in Patients with Diabetes: Double Blind Randomized Controlled Trial Assessing the Efficacy of Mild Compression Diabetic Socks. Diabetes Res Clin Pract. 2017; 127: 35–43.

Mild compression knee high diabetic socks (18–25mmHg) vs non-compression knee high diabetic socks.

**Toe-brachial index  $\geq 0.9$**

No SAE

*No diminishing of the lower extremity circulation*

*Significant decreases in calf and ankle circumferences in mild compression group*


**DM + Chronic Heart Failure + Microalbuminuria**

DM + CLI

DM + Foot infection

### Borderline indications

**Leg oedema in chronic heart failure patients**



Key points to note regarding case reports and experimental studies on cardiac insufficiency and compression therapy:

1. Cardiac insufficiency in itself does not constitute always a contraindication for compression therapy
2. **In the disease stages NYHA I and NYHA II, appropriate compression is possible**  
 [compression of both legs may lead to a short asymptomatic increase in cardiac preload - in those patients, mild compression should start in the lower legs before it may be extended to the thigh region]

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### Chronic Heart Failure and compression /NYHA class IV and III/



**Recommendation 17**

*We recommend against applying compression in severe cases of cardiac insufficiency (NYHA IV).*

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*We also suggest against routinely applying MCS in NYHA III cases. When needed, careful use of compression therapy in this patient group may be considered if there is a strict indication, with clinical and haemodynamic monitoring. In less severe cases, cautious increase of compression pressure only leads to very short phases of increased cardiac load and may lead to a substantial reduction of peripheral oedema.*

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### Oedema induced skin/soft tissue disease



### Oedema induced skin/soft tissue disease



Courtesy A. Sauba, Poland


### Oedema induced skin/soft tissue diseases



Courtesy W. Mikozek, Poland

### Borderline indications

**Inflammatory diseases and infections**



**Erysipelas  
Dermatolymphangiodenitis /DLA/  
Leucocytoclastic vasculitis**

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**Recommendation 19.**  
*We suggest additional compression, in purpura due to leucocytoclastic vasculitis and in leg erysipelas or cellulitis, to reduce inflammation, pain and oedema.*

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*In infectious inflammation, we suggest compression only in combination with antibacterial treatment*

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**European Venous Forum in Cracov/Poland (26-28.06.2025)**



**25<sup>th</sup>**  
Annual Meeting of the  
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**26-28 June 2025**  
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**Save the Date**

For more information, visit: [europeanvenousforum.org](http://europeanvenousforum.org)

**Call for abstract – deadline 14th February 2025**