

Scientific Summary – Latest news from science

Safe use of medical compression therapy – Ten important recommendations

Rabe E et al. Risks and contraindications of medical compression treatment –
A critical reappraisal. An international consensus statement.
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The use of medical compression therapy is safe

Medical compression therapy is the basis of conservative, non-invasive treatment of venous and lymphatic diseases.

As with every therapy possible side effects of medical compression therapy, too, have to be considered and documented. Therefore, an international expert panel performed a systematic literature search regarding safety in medical compression therapy. It turned out that medical compression therapy is a safe therapeutic measure if it is used correctly and risks and contraindications are considered.

The result of the systematic literature search is an international consensus document supporting physicians in using medical compression.

In the following you will find a selection of the most important recommendations:

- 1** It is recommended **that every patient receiving compression therapy should be screened for possible contraindications and risks for complications.** Furthermore, every compression device **should be checked for appropriate fit and application.**
(consensus paper, recommendation 1, highest recommendation grade “recommended”)
- 2** The use of **adequate skin care** is recommended **in patients with sensitive skin to prevent skin irritations.**
(consensus paper, recommendation 2, highest recommendation grade “recommended”)
- 3** It is recommended to check **the correct indication, pressure level, material, fitting as well as the correct donning and doffing in patients with discomfort and / or pain below compression garments.**
(consensus paper, recommendation 4, highest recommendation grade “recommended”)
- 4** **In patients with, or in those developing, forefoot or toe oedema, the use of forefoot and toe compression pieces in addition to leg compression is suggested.**
(consensus paper, recommendation 5, high recommendation grade “suggest”)
- 5** According to the Law of Laplace, the **local pressure below the compression material may be higher than expected at bony and tendinous prominences.** To **prevent tissue damage or necrosis and nerve damage** in regions with a small radius, it is suggested to protect these regions by **inserting soft padding, using low overall pressure, and taking appropriate circumference measurements so that the compression devices fit properly.**
(consensus paper, recommendation 8 and 9, high recommendation grade “suggest”)
- 6** **In patients suffering from diabetes mellitus, polyneuropathy or dermatoporosis** specific precaution is suggested regarding **pressure peaks.** Besides the **known precautional measures** (padding, special care of fit, low pressure) it is recommended to perform **close controls especially at the initial stages of compression therapy.**
(consensus paper, recommendation 9 – 11, high recommendation grade “suggest”)
- 7** It is recommended to **check the arterial circulation status before any kind of compression therapy is initiated.** If **foot pulses are not palpable, the Ankle-Brachial-Pressure-Index (ABPI) should be measured.** In every patient with an **ABPI < 0.9, the clinical effect of medical compression on leg blood supply should be carefully monitored.** **Severe peripheral arterial disease (PAD) is a contraindication for medical compression therapy.**^{1,2}
(consensus paper, recommendation 12 – 14, highest recommendation grade “recommended” / “should”)
- 8** The **following contraindications and risks** should be considered when **using medical compression:**^{1,2}

<u>Contraindications:</u>	<u>Risks:</u>
• Severe PAD*	• Markedly weeping dermatoses
• Decompensated heart insufficiency (NYHA III + IV)	• Intolerance to compression material
• Septic phlebitis	• Severe sensitivity disorders of the extremity
• Phlegmasia coerulea dolens	• Severe peripheral neuropathy (e.g. in diabetes mellitus)
	• Primary chronic polyarthritis

(consensus paper, recommendation 21, highest recommendation grade “recommended”, German S2k guideline: Medical compression therapy, recommendation 31, highest recommendation grade “should”)
- 9** **In acute thrombotic events the use of medical compression is recommended.** **Proper compression** leads to an **immediate improvement of pain and oedema.**
(consensus paper, recommendation 18, highest recommendation grade “recommended”)
- 10** **Medical compression** is used for **prolonged sitting** (e.g. long-haul flights) to **prevent deep vein thrombosis.** Therefore, in order to **avoid thromboembolic complications by tourniquet effects and strangulations** it is recommended to pay attention on the **appropriate application of the compression supply.**
(consensus paper, recommendation 16, highest recommendation grade “recommended”)

All recommendations including the list of clinical studies were published in the international, scientific journal Phlebology.¹

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* Severe PAD if one of these parameters applies: ABPI < 0.5, systolic ankle pressure < 60 mmHg, toe pressure < 30 mmHg or TcPO₂ < 20 mmHg on the dorsum of the foot. Using inelastic materials compression treatment can still be applied at a systolic ankle pressure between 50 and 60 mmHg under close clinical monitoring and controls.

Authors' conclusion:¹

"Severe adverse events due to compression treatment, [...] are rarely encountered if compression is correctly used and contraindications are considered.

Discomfort, dry skin and itching are the most frequently reported adverse events related to compression use.

To prevent skin irritations in patients with sensitive skin, we propose the use of applicable skin care."

Medical compression therapy is a **safe, non-invasive** treatment measure for venous and lymphatic diseases.

Several **products** will **support both physicians and patients** regarding the **correct use of medical compression products**.

- **Skin care products** that will prevent dry skin and associated skin irritations
- **Donning aids** that will support the correct donning of the medical compression products
- **Additional compressive components** like toe caps for prevention of forefoot and toe edema
- **Measuring devices** that will be used for easy and fast ABPI* determination

* ABPI: Ankle-Brachial-Pressure-Index

¹ Rabe E et al. Risks and contraindications of medical compression treatment – A critical reappraisal. An international consensus statement. Phlebology 2020;35(7):447-460.

² Rabe E et al. Medical compression therapy of the extremities with medical compression stockings (MCS), phlebological compression bandages (PCB), and medical adaptive compression systems (MAC): S2k guideline of the German Phlebology Society (DGP) in cooperation with the following professional associations: DDG, GDA, DGG, GDL, DGL, BVP. Hautarzt. 2021. doi: 10.1007/s00105-020-04706-z. Online ahead of print.