

Scientific Summary – Latest news from science

German S2k guideline – Medical compression therapy

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, DGA, DGG, GDL, DGL, BVP. Hautarzt 2021. doi: 10.1007/s00105-020-04706-z. Online ahead of print.

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German S2k guideline – Medical compression therapy

The current guideline under the leadership of the German Phlebology Society summarises the aspects regarding the use of compression therapy with medical compression stockings (MCS), phlebological compression bandages (PCB), and medical adaptive compression systems (MAC) on the basis of scientific findings.

The complete English version of the guideline for medical compression therapy can be found on Pubmed (<https://pubmed.ncbi.nlm.nih.gov/33386416/>) or can be downloaded using the following link: <https://link.springer.com/content/pdf/10.1007/s00105-020-04706-z.pdf>. A selection of the most important recommendations is listed below.¹

1 The use of medical compression therapy is indispensable:

*Medical compression therapy **shall** be an integral component of the treatment of phlebological disease. It can be applied by MCS, PCB, or MAC. (see guideline recommendation 1; highest recommendation grade “shall”)*

2 The efficacy of medical compression therapy is scientifically proven:

Clinical studies contain numerous proofs of the effectiveness of compression therapy.²

3 In the context of compression therapy, both pressure and material are decisive.

*When selecting and ordering compression materials, both the required pressure and the most suitable material **should** be considered. The effect of the compression system depends not only on the pressure but also on the properties of the material. (see guideline recommendation 3; high recommendation grade “should”)*

4 While choosing the MCS the stocking type as well as the CCL should be considered:

The stocking type and the intensity of the pressure required, i.e., the CCL, are dependent on the diagnosis, the location of the drainage disturbance, the clinical findings, and the severity of the symptoms and alterations (e.g., severity of the edema). Strict attribution of a CCL to a diagnosis is meaningless. The object of compression therapy is to improve the clinical findings. (see guideline recommendation 13)

*The lowest effective CCL **shall** always be preferred. This supports adherence to compression therapy. (see guideline recommendation 14; highest recommendation grade “shall”)*

5 Flat-knitted MCS are the first choice in the case of large circumferences and offer additives:

Generally, flat-knit quality shall be ordered for limbs with relatively large changes in the circumference, conical shape, or deep folds of tissue [...].

(see guideline recommendation 4; high recommendation grade “should”)

*In treatments with flat-knitted MCS, use **should** be made of the possibilities offered by the auxiliary elements [slanted cuff, insertion pockets for pads, broad cuff] to obtain a better therapeutic outcome.*

(see guideline recommendation 8; high recommendation grade “should”)

6 MAC are an effective alternative compared to bandages:

In the initial decongestion phase with lymphedema and pronounced venous edema, as well as in UCV treatment, MAC can be applied as an alternative to bandaging.

(see guideline recommendation 27)

In contrast to bandages a pressure loss can be prevented by readjustment of the velcro fasteners that effectively supports the edema reduction. Due to the significantly easier use such systems are less time intensive and less error prone regarding application compared to elaborate compression bandages.³

7 Regarding PCB application technique as well as experience of the user are essential:

*The selection of the bandaging technique or bandage system **should** be based on the diagnosis, the symptoms, and the patient's preferences, as well as on the experience and competence of the operator.*

(see guideline recommendation 25; high recommendation grade “should”)

- *When bandage systems are applied, the real pressure applied can only be estimated and depends on the experience and practical abilities of the operator.*
- *Some studies describe better adherence with MCS than PCB.*

8 Patient education increases the adherence:

*To encourage adherence, the patient **shall** be thoroughly educated in the purpose and logic of compression therapy, possible side effects and risks, and the correct use of compression materials and associated measures (e.g., skin care, exercise).*

(see guideline recommendation 35, highest recommendation grade “shall”).

Indications for medical compression therapy

The following indications for medical compression therapy shall be heeded: (see guideline recommendation 28; highest recommendation grade “shall”):

Chronic vein diseases

- Improvement of venous symptoms
- Improvement in quality of life in chronic vein diseases
- Prevention and treatment of venous edema
- Prevention and treatment of venous skin alterations
- Eczema and pigmentation
- Dermatoliposclerosis and atrophie blanche
- Venous leg ulcer treatment
- Mixed (arterial and venous) leg ulcer (respecting contraindications: see recommendation 31)
- Prevention of recurrent venous leg ulcer
- Pain reduction in venous leg ulcer treatment
- Varicose veins
- Initial phase after varicose vein therapy

- Functional venous incompetence (cases of obesity, people who work sitting / standing for extended periods)
- Venous malformations

Thromboembolic venous diseases

- Superficial venous thrombosis
- Deep leg venous thrombosis
- Arm vein thrombosis
- Condition after thrombosis
- Post-thrombotic syndrome
- Thromboprophylaxis in mobile patients

Edema

- Lymphedema
- Edema during pregnancy
- Post-traumatic edema
- Post-surgery edema
- Idiopathic cyclic edema
- Lipedema from stage II

- Congestion following immobility (arthrogenous congestion syndrome, paresis, and partial paresis of the limb)
- Work-induced edema (people who work sitting / standing for extended periods)
- Medication-induced edema, when substitution is impossible

Other indications

- Obesity with functional venous incompetence
- Inflammatory skin diseases on the legs
- Nausea and dizziness in pregnancy
- Symptoms of congestion during pregnancy
- Condition after a burn
- Scar treatment

Contraindications for compression therapy

The following contraindications for medical compression therapy shall be heeded:
(see guideline recommendation 31; highest recommendation grade “shall”):

- **Advanced peripheral arterial occlusive disease**
(if any of these parameters is exceeded: ABPI <0.5, arterial pressure at the ankle <60 mmHg, toe pressure <30 mmHg, or $TcPO_2$ <20 mmHg at the back of the foot). If inelastic materials are used, compression treatment can still be attempted with arterial pressure at the ankle between 50 and 60 mmHg under close clinical supervision.
- **Decompensated heart failure** (NYHA III + IV)
- **Septic phlebitis**
- **Phlegmasia cerulea dolens**

Risks for medical compression therapy

The following risks for medical compression therapy shall be heeded:
(see guideline recommendation 32; highest recommendation grade „shall“):

- **Pronounced weeping skin changes**
- **Intolerance to compression material**
- **Severe sensitivity disturbances of the limb**
- **Advanced peripheral neuropathy** (e.g., with diabetes mellitus)
- **Primary chronic polyarthritis**

In these cases, the decision on treatment should be taken based on a balance of the benefits and risks, and selection of the most suitable compression device.

Further recommendations

Aids can facilitate the donning and doffing of MCS:

*In cases of restricted movement and problems in donning and doffing the MCS, the appropriate aids **should** be ordered.* (see guideline recommendation 18; high recommendation grade “should”)

Indications for ordering donning and doffing aids include:

- Paralysis
- Age-induced loss of strength
- Arthrosis / rheumatism
- Severe obesity
- Extensive stiffness of the spine / hip / knee
- Degenerative diseases in the hands or hand region
- Sequelae from injuries / amputations

Physical activity is an integral part of an effective compression therapy:

Compression therapy is most effective with regular activation of the muscle pump. Patients are encouraged to carry out regular foot exercises and to walk.

Patient education is essential for adherence to therapy:

The patient's adherence to the therapy and acceptance of necessary treatment options and operations are decisive for successful treatment. This includes

- correct use and care of the necessary compression materials
- the patient's ability and willingness to care for his / her skin
- carry out physical activity for diseased veins

*To encourage adherence, the patient **shall** be thoroughly educated in the purpose and logic of compression therapy, possible side effects and risks, and the correct use of compression materials and associated measures (e.g., skin care, exercise).*

(see guideline recommendation 35; highest recommendation grade “shall”)

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²Rabe E et al. Indications for medical compression stockings in venous and lymphatic disorders: An evidence-based consensus statement. Phlebology 2018;33(3):163-184.

³Protz K et al. Compression devices for decongestion therapy : A cross-sectional observational survey of handling, pressure, and comfort. Hautarzt. 2018. doi: 10.1007/s00105-017-4084-3.