

Compression hosiery choices for managing chronic oedema

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The range of compression hosiery has improved vastly since nursing pioneers started seeing patients with lymphoedema in the mid 1980s (Thiadens, 2011). Initially, there was very little choice of colour for patients, and the fabrics were not cosmetically pleasing to the patients. Fortunately, compression hosiery manufacturers have taken the views of patients and practitioners into account in their endeavour to improve the range and quality of garments.

Compression is the cornerstone in the long-term management of chronic oedema, and this often lifelong regimen needs to be both clinically effective and cosmetically pleasing to the patient if compliance is to be achieved.

Compression hosiery

Circular vs flat knit hosiery

Compression garments can be constructed in two ways: circular (or round) and flat knit. Circular knit hosiery is seamless, and because finer yarns are used, they are more cosmetically pleasing to patients. They are suitable in the management of mild swelling where there is no shape distortion and the skin is intact.

Flat knit hosiery is knitted using heavier and more robust yarns and the material is sown together creating a seam. These garments are indicated in the management of patients with more severe swelling and distortion in shape, and they are also useful for bridging skin folds and fatty limbs where circular knit garments would gather and cause a tourniquet effect.

Hosiery strength

Hosiery can be prescribed in different strengths, which relate to the degree of pressure delivered by the garment and are measured in millimetres of mercury (*Table 1*). Nurses should

be aware of the different compression classes and ensure the correct pressure is being applied. To avoid confusion, nurses can include the pressure in mmHg along with the compression class when filling in the prescription detail. There is now a wide range of flat knit and round knit hosiery available and most of these products can be prescribed (*Table 2*).

Styles of hosiery

There are various styles of hosiery available depending on the individual needs of the patient.

Leg and toe swelling

Toe caps can be used when there is swelling or risk of swelling in the toes and closed-toe stockings do not prevent this. Below-knee stockings are useful when there is swelling that is limited to the lower leg or if application of thigh-length stocking is not possible. Thigh-length stockings should be prescribed when there is swelling extending into the knee and thigh area. Tights are indicated for the management of swelling that extends onto the lower trunk or genitalia. Some female patients who have bilateral leg swelling prefer tights, as the slight indentation from the top of thigh-length stockings may be seen through clothing. Tights are also useful if there are problems with slippage in stockings. In the management of lipoedema, footless tights are often preferred (Wigg and Lee, 2014). To support genital and/or lower truncal swelling where there is no swelling of the legs, cycling short style garments are indicated.

Most stockings and tights are available in open- and closed-toe styles. Open-toe garments may be slightly easier to apply and can be, to some extent, cooler in the hot weather but are more likely to ride up the foot and cause toe swelling. In the author's experience, open-toe stockings can also exacerbate painful joints in the distal foot, for example, hallux valgus or inflammation at the fifth metatarsal base (*Figure 1*).

Hand and arm swelling

For hand and arm swelling, there is a choice of gloves, gauntlets, and sleeves. Custom-made garments can be made to combine sleeves and gloves if there is swelling that extends into the hand and fingers. Depending on the patient's need or choice, the finish at the top of the arm can vary from having a shaped top, an extending piece of fabric to secure the sleeve under the bra strap, or a securing band across the chest.

Table 1. Differences in compression standards

Class	British standard	French standard	German (RAL) standard
I	14–17 mmHg	10–15 mmHg	18–21 mmHg
II	18–24 mmHg	15–20 mmHg	23–32 mmHg
III	25–35 mmHg	20–36 mmHg	34–46 mmHg
IV	N/A	>36 mmHg	>49 mmHg

Table 2. Examples of compression hosiery products available*

Product name	Company
Altiform	AltiMed Ltd
Jobst Elvarex, Bellavar Jobst	BSN Medical Ltd
Venex, Veni, Pertex,	Haddenham Healthcare
Mediven, Esprit, Juxta-Fit	medi UK Ltd
Advance, Magic, Ulcer X	Sigvaris Britain Ltd

*Complete list available on Part IXA of the Drug Tariff

Preventing slippage

When compression hosiery is too slack or short, or if excessive moisturising creams are applied to the patient's skin, there may be problems with slippage. Silicone bands are often available in garments to help prevent slippage, but a small number of patients report that these can cause skin irritation (Todd, 2012). Some patients may develop skin sensitivity and allergy to the fabric components of the garments; in this case, it may be necessary to change the style of fabric or add a cotton liner under the garment.

Patients with dexterity issues

Some patients (or carers) may have dexterity or strength issues, or may have difficulty bending to reach the feet. Flat knit garments may be indicated in this patient group as they are easier to apply. There are some aids available to help in the application of hosiery, such as, ActiGlide (by Activa Healthcare) or medi 2in1 (by medi UK). However, there is still some degree of manual dexterity and bending required to use these when putting on compression hosiery.

Zips could be used in some custom-made garments to ease application, but the wearer/carer would still need manual dexterity to hold both sides of the garment together and pull the zip up without catching the skin. Wearing rubber gloves can



Figure 1. Open-toe stockings can sometimes exacerbate painful joints in the distal foot.

also improve the grip when applying and pulling up the stocking (Todd, 2012). Patients and carers should be taught how and when to apply and remove the garments, how to care for the garments, and when to have them replaced.

Skin integrity

Skin integrity may be compromised by the application of stockings, especially if the skin is vulnerable or the person applying the stocking is inexperienced or rushed. Mild skin problems, such as varicose eczema or lymphorrhoea, can be managed under carefully applied stockings and with the use of appropriate wound care products. Nonetheless, if there are moderate-to-severe skin problems, a course of compression bandaging may be required until the condition is resolved. Regular basic skin care is important to maintain the skin's integrity and should entail washing, drying, and moisturising the skin with lanolin-free moisturisers; long-term use of lanolin-based moisturisers may eventually induce skin irritation or allergy (Mortimer, 1995).

If concordance is to be achieved, patients must be included in their treatment plan. It is possible for young women to prefer to wear circular knit hosiery that is a finer fabric rather than class II or III flat knit hosiery, even when the latter is the most appropriate form of treatment. In such instances, it is better to have less adequate compression than none at all. By engaging the patient in the treatment plan, it may be possible to reach a compromise by getting the patient to wear more appropriate compression hosiery at times when it is less likely to cause image problems.

Conclusion

While there is currently no empirical evidence supporting the choice of hosiery, there is an array of literature to guide prescribers (Lymphoedema Framework, 2006; Hopkins, 2008a; Timmons and Bianchi, 2008). When prescribing hosiery, nurses should have appropriate skills and knowledge regarding the indications for use and fitting of compression hosiery, the choice of style, and construction of garments available and how to correctly measure the limb(s) (Lee and Wigg, 2013). Many lymphoedema specialists are keen to work in collaboration with local community nurses and provide training and support in measuring, selecting, and fitting hosiery (Hopkins, 2008b). If community nurses recognise that there are gaps in their skill and knowledge in the management of their patients' disease progress, they have a duty to ensure they source appropriate training.

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