

# JOBST® OPAQUE AND BELLAVAR READY-TO-WEAR HOSIERY RANGE

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Compression hosiery is an important part of lymphoedema management. However, due to the patient's inability to tolerate use of a garment, it is often under-used. To maximise patient concordance, clinicians should work with the patient to develop a regimen that is effective and comfortable and acceptable to the patient. This product review describes the Jobst® Opaque and Bellavar ready-to-wear range (BSN medical), that provide a comfortable hosiery option for patients with lymphoedema.

## Key words

Compression hosiery  
Compliance  
Ready to wear  
Jobst® Opaque  
Jobst® Bellavar

Long-term management of lymphoedema focuses on enhancing the function of the lymphatics, limiting further deterioration of swelling, and gaining long-term control of the condition (International Society of Lymphology [ISL], 2003). Compression hosiery plays a central role in achieving these objectives (Lymphoedema Framework, 2006; Moffatt et al, 2005).

However, evidence suggests that compression hosiery remains under-used in patients with lymphoedema for a number of reasons, including under-prescribing and issues relating to the patients' ability to tolerate and manage hosiery (Day and Hayes, 2008).

Concordance with the use of hosiery depends upon the clinician working with the patient to develop

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an individualised compression regimen that is comfortable and acceptable to the patient, while being therapeutically effective (Edwards et al, 2002; Lymphoedema Framework, 2006).

In order to make an informed and appropriate selection from the many garments available, the clinician should have a comprehensive understanding of hosiery options available. An appreciation of how the construction of hosiery, especially knitting technique, relates to performance can assist practitioners in selecting the most appropriate hosiery for their patients (Clark and Krimmel, 2006; Moffatt, 2006).

## Construction of compression hosiery

Compression hosiery uses two interwoven yarn systems knitted together to produce the fabric. The body yarn results in the thickness and stiffness of the knitted fabric; the inlay yarn, the amount of compression the garment will deliver. Higher levels of compression are achieved by increasing the thickness of the inlay yarn.

The two main knitting techniques used to produce compression hosiery are flat and circular knit. Both flat and circular knit techniques are used to produce custom-made and ready-to-wear garments.

Circular-knit garments are produced from material that is continuously knitted

on a cylinder, resulting in a seamless product. This technique is mainly used to make ready-to-wear garments. Circular-knit garments are generally thinner and more cosmetically acceptable than flat-knit garments (Clark and Krimmel, 2006). Clinical experience suggests that in the early stages of lymphoedema, or in cases of lymphoedema with 'normal' limb shape, many patients can be treated successfully with circular-knit ready-to-wear garments. The finer finish of circular-knit hosiery may make it more cosmetically acceptable, but more likely to cut into the limb, particularly if worn for extended periods.

In cases with severe shape distortion, the relatively elastic circular-knit garments may not fit properly causing pain, skin damage and a tourniquet effect, thus custom-made flat-knit hosiery are the only solution.

Flat-knit garments are firmer and thicker than their circular-knit counterparts. Garments are knitted as a flat piece of material that is shaped by adding or removing needles. The flat piece is joined with a seam to form the garment. Most custom-made garments are made from flat-knit material, as the knitting technique enables severe shape distortion to be accommodated (Clark and Krimmel, 2006), or varying levels of compression to be delivered in different parts of the garment or special adaption to be made. The thicker yarn produces

stiffer and thicker material that is better at bridging skin folds and is less likely to cut in or cause a tourniquet effect.

**Patient preference and concordance with therapy**

The choice of compression hosiery type for an individual patient is influenced by many patient- and disease-related factors (Table 1). To date, there is no definitive evidence supporting the choice of hosiery of a particular construction (Partsch and Junger, 2006). Emphasis should be placed on providing hosiery following a thorough holistic evaluation of the patient's needs, which helps to maximise patient concordance.

Therapists should consider patient preference for compression garments when determining optimal therapy, while encouraging them to have the most appropriate treatment. Patients may express a preference, e.g. for a particular garment style, for the more open weave of flat-knit garments in hot weather or for the more aesthetically acceptable thinner material of circular-knit garments.

Concordance is enhanced by appropriate patient education about the importance of using compression hosiery and is affected by a number of practical issues (Edwards et al, 2002; Harker, 2000; Rockson, 2002). Garment fit, style and material influence appearance, comfort and the willingness of the patient to comply with treatment in the long term (Lam et al, 2006). Physical, aesthetic, and cosmetic factors are known to influence compliance with compression therapy (Moffatt et al, 2009). Thus, individualised patient care that considers issues relevant to body image will help to optimise care provision (Day and Hayes, 2008).

Patient engagement with, and commitment to their management plan are essential foundations for effective self-management (Barlow et al, 2002).

**Jobst® ready-to-wear compression garments**

Jobst® ready-to-wear compression garments (BSN medical) are indicated for patients with lymphoedema following the intensive therapy phase

of treatment, when oedema reduction has been stabilised. They can be used in cases of mild to severe lymphoedema of the lower and upper limbs.

**Jobst Opaque range**

Jobst Opaque is a range of ready-to-wear, circular-knit compression hosiery. The RAL compression classes 1 (18–21 mmHg) and 2 (23–32 mmHg), deliver effective graduated compression to treat mild to moderate levels of lymphoedema. The garments are produced using circular-knit technology, giving them a seamless and fine finish. Their opacity provides coverage of blemishes and scars helping to improve patient confidence.

The use of Jobst Advanced Comfort technology in the manufacturing process means that the garments are produced using high-quality multi-fibre yarns, with an innovative knit construction that results in a soft fabric to provide comfort during wear time. The use of Nilit® Aquarius fibres also offers effective moisture wicking to enhance further the comfort of the wearer.

Double-covered high-stretch inlay yarns means that the garment is easy to don and fits well to the limb.

High quality yarns and reinforced foot zones make Jobst Opaque stronger and even more durable. The new anatomical panty design, a broader knee welt and a wide, soft toe cap improves the fit from hip to toe.

The JOBST Opaque range of garments is available on Drug Tariff and includes:

- ▶▶ Knee-high
- ▶▶ Thigh-high with closed toe
- ▶▶ Thigh-high with lace top silicone band
- ▶▶ Tights.

Six ready-to-wear sizes of the garments are available in long or short lengths, in black, sand and navy colours. Thigh-high stockings are also available with a choice of silicone band and wider thigh circumference, to ensure maximum comfort and security.

A wide range of other styles and colours are available, although not on prescription.

For those patients who do not fit into the ready-to-wear sizes, Jobst Opaque is now available as a made-to-measure option, although again this is not on prescription.

**Table 1**

**Factors influencing concordance with compression (adapted from Moffatt, 2007)**

|   |   |
|---|---|
| ▶▶ Previous bad experience of compression therapy                             | ▶▶ Social stigma (Fu, 2008)   |
| ▶▶ Knowledge, attitudes and beliefs (Cullum et al, 1999; Edwards et al, 2002) | ▶▶ Social isolation   |
| ▶▶ Increased pain while wearing compression hosiery                           | ▶▶ Poor social support and small social networks                                  |
| ▶▶ Sleep disturbance  | ▶▶ Depression and anxiety (Phillips et al, 1994; Moffatt, 2001)                   |
| ▶▶ Reduced mobility   | ▶▶ Poor relationships with professionals  |
| ▶▶ Embarrassment (Fu, 2008)   | ▶▶ Social pressures such as standing occupation, family responsibility (Fu, 2008) |
| ▶▶ Locus of control (Price and Moffatt, 2007)                                 | ▶▶ Difficulties with personal relationships (Radina et al, 2008)                  |

**Jobst Bellavar**

Jobst Bellavar is a range of ready-to-wear, circular-knit compression hosiery, designed to treat lymphoedema, following oedema reduction.

The garments are manufactured using a firmer fabric to apply a stronger level of compression with stiff resistance ([RAL compression classes 2 [23–32mmHg] and 3 [34–46mmHg]), resulting in a high working pressure that is suitable for treating moderate levels of lymphoedema.

The finely meshed knit construction of the garments is durable, making the garment easy to don, comfortable to wear, skin-friendly and air permeable.

Six ready-to-wear sizes are available on prescription in long or short lengths (thigh-high garments available in standard length only), ensuring optimum fit.

Knee-high or thigh-high garments are available on prescription, catering for individual patient needs and preferences. Thigh-high stockings with choice of top band, to ensure maximum comfort and security, are also available on prescription. Sahara colour is available on prescription.

A wide range of other styles and colours are also available, although these are not on prescription.

**Using the Jobst ready-to-wear range in clinical practice: a case report**

Patient A was a 41-year-old female with a history of cervical cancer that had been treated with radical surgery, including bilateral node clearance, followed by chemotherapy and radiotherapy.

She presented with bilateral lower limb lymphoedema, with her legs maintaining a 'normal' shape. She had been assessed previously at her local lymphoedema clinic and had access to various ready-to-wear circular-knit garments. However, she felt that the treatments she had so far experienced were actually worse than the condition, as the garments felt tight and uncomfortable. This discomfort escalated into intractable pain both day and night.

The service patient A attended had resource constraints and access was limited to assessment and provision of garments only. However, she knew from information obtained on the internet that she could potentially benefit from manual lymphatic drainage (MLD), and so presented at the author's clinic (*Figure 1*).

Patient A stated that her leg oedema was worsening and becoming progressively more uncomfortable as limb volume increased. She had poor circulation and had developed skin problems around her feet and ankles, as a result of the tourniquet effect of the garments she had been wearing. There was noticeable chafing around her ankle and the skin was dry and itchy. Her feet were also suffering from dry skin, even though she was conscientious about moisturising. As the mother of three very young children, patient A was finding their care difficult because of her ever-decreasing mobility and the sheer weight of her legs.

MLD was performed during six visits and the patient was educated in self-lymphatic drainage (SLD) to maintain improvements in limb volume following MLD sessions. At this point, patient A still visited her previous clinic to gain access to garments (Mediven tights).

Gradually, patient A saw some real physical benefits from regular MLD, as the pain and discomfort in her legs which had been exacerbated by the previous garments was relieved. She decided to discontinue her dressing clinic visits, while continuing with the regimen planned. This created a difficulty with obtaining garments that felt comfortable and controlled the oedema at the same time. Whereas patient A's oedema had previously been suitable for circular-knit garments, the garments were now starting to cut in and were not controlling the oedema. She was reluctant to continue wearing them since they made her legs feel worse and she began wearing them less often during the day.

Following advice from BSN medical, it was decided that patient A would find a flat-knit garment both more effective



**Figure 1. Patient A's limbs two years post-treatment for cervical cancer.**



**Figure 2. Patient A following several MLD sessions in which limb volume reduction was achieved, wearing Jobst Bellavar thigh-high stockings.**

and more comfortable. However, she became upset at this suggestion. As a young woman, she did not feel ready to wear this type of garment. Understanding her distress, alternative options were considered. Jobst Bellavar (BSN medical), compression class 2, was selected as a circular-knit garment that was cosmetically acceptable to the patient, but with a stiffer resistance appropriate for controlling moderate levels of oedema. Patient A was subsequently prescribed Jobst Bellavar thigh-high stockings with open toes (*Figure 2*).

Initially, the garments fitted well and patient A was happy with their colour and appearance. However, after a couple of weeks of wear, oedema was

displaced upwards to the top of the thigh and formed 'saddlebags', indicating that the thigh-high garments were now unsuitable for the oedema present. Patient A was extremely disappointed.

Following reassessment, the decision was made to switch to Jobst Bellavar tights, compression class 2 (RAL 23–32mmHg) (Figure 3). Regular MLD and daily SLD were continued. At this stage, limb volume measurements were:

- ▶▶ Right leg = 12390mls
- ▶▶ Left leg = 12440mls.

The compression tights worked well and after eight months limb measurements were repeated showing a fluid reduction in the right leg of 956mls, and in the left leg of 770mls. Both limbs, due to the volume changes, felt softer, less fibrosed and the skin problems had resolved. Her intractable pain had ceased and she now experienced only mild discomfort. Patient A was delighted with the results. She felt and looked a great deal better. Although not measured at the beginning of this study, her mood appeared brighter and more upbeat.

Patient A then revealed that she had been suffering from genital oedema, stemming from the oedema displaced at the top of her legs, but had been too embarrassed to mention it. She assumed

that her cancer had returned. After wearing the compression tights, the genital oedema almost completely resolved and she felt able to share this experience. Patient A also reported that her hip and waist measurements had decreased.

### Conclusion

Choice of compression garments has both a physical and psychological effect on patients and it is important to take account of both equally. In this case report, the use of a flat-knit garment would undoubtedly have resulted in a similarly successful outcome, but only if the patient complied with treatment. In this case, the emotional impact of using such a garment would have been detrimental and was therefore not considered to be a treatment option.

Clinicians should be able to couple an understanding of hosiery construction and availability with the wide-ranging and complex needs of the individual patient. A flexible approach that enables them to provide their patient with clinically and cost-effective hosiery that fits well, is both comfortable to wear and cosmetically acceptable, and encourages long-term use is essential for compliance. The Jobst ready-to-wear range meets all these criteria and is an option in the management of patients with lymphoedema. JL



Figure 3. Patient wearing Jobst Bellavar tights.

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