

Empowering patient self-management through tailored compression garment regimens

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Lymphoedema, or chronic oedema, occurs when fluid accumulates in the body's tissue spaces due to a compromised lymphatic system (Sheer, 2017), and it is usually determined by swelling that has been present for longer than 3 months and no longer reduces with elevation (International Lymphoedema (ILF), 2006). It can be a side effect of cancer or treatment for cancer, or may be due to non-cancer causes, including injury, chronic venous disease, trauma and infection. Primary lymphoedema is a genetic malfunction that affects the development of the lymphatic system (Brown et al, 2019), and lipoedema, which is often confused with lymphoedema, is a genetic fat disorder. All these groups of patients are commonly referred to lymphoedema clinics, and for simplicity, this article will use the term lymphoedema to cover all of these conditions.

ABSTRACT

Over recent years, compression wraps, also known as adjustable compression wrapping devices (ACWDs), have become an increasingly important part of lymphoedema management. Widely used in lymphoedema clinics, they are also now a popular treatment choice within tissue viability, as well as in practice and community nursing, where their cost- and resource-saving advantages are greatly appreciated. Easywrap from Haddenham Healthcare is a popular choice among both health professionals and patients, due to its low profile, making it a comfortable option for wearing beneath normal clothes, and its uncomplicated design, making it easy for patients to put on and take off themselves. This article will evaluate the advantages of using Easywrap for self-management and explore why the Fusion liner, which is now available on drug tariff, can further improve self-care in lymphoedema management.

KEY WORDS

- ◆ Compression wraps ◆ Self-management ◆ Lymphoedema
- ◆ Tailored compression regimen ◆ Easywrap

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Lymphoedema management

The management of lymphoedema is based around the four treatment components of skin care, exercise, lymphatic drainage (massage) and compression. Compression promotes drainage of lymph by increasing interstitial pressure and stimulating lymphatic contractions (Carati et al, 2009), whereby the oedema is removed from the tissues (Board and Anderson, 2018). Traditionally, patients move from an intensive treatment phase through to the maintenance, or self-management phase, where multi-layered lymphoedema bandaging (MLLB) is replaced by compression garments.

The use of wraps

Over recent years, wraps have increasingly been taking the place of time- and labour-intensive bandaging regimes, and their use in the maintenance (self-management) phase of lymphoedema treatment has also increased. This is particularly true for those unable to manage garments; for patients who have difficulty putting on or taking off a stocking or sleeve, a wrap is a simple and straightforward solution.

Williams (2017) stated that wraps are designed to mimic the standard 50% overlap of traditional bandaging systems and are manufactured to work as a short-stretch bandage would. In the case of Haddenham's easywrap, this is due to its unique UK-patented technology; the specific way the bands have been engineered ensures an accurate 50% overlap (Lee and Lawrance, 2017). Furthermore, Damstra and Partsch (2013) stated that wraps provide a low resting and a high working pressure when the patient goes from the supine position to standing, with Elwell (2015) concluding that this consistent lower resting pressure is better tolerated and improves comfort, even for patients who have restricted mobility.

Advantages of easywrap

Easywrap (Figures 1 and 2) is a safe option for patients to use themselves, owing to the consistent graduated compression

achieved without the need for a gauge, as well as the easy-to-feel 'lock-out' or 'end-stretch', which ensures that the correct compression level is easily attained. In addition, because of its high static stiffness, applying low resting and high working pressures, as well as its easily manageable hook and loop fasteners on one side only, easywrap is less complicated than some other wraps for patients to manage themselves (Lee, 2018). Whereas most wraps use traditional non-woven laminated fabrics, easywrap uses a special weave designed to reduce the risk of kinking, which can occur with overlapping straps, further ensuring that an accurate 50% overlap is achievable (Lee, 2018).

It is well-recognised that compression is also integral in the management of cellulitis, with Schingale (2019) suggesting that because of its anti-inflammatory properties,



Figure 1. easywrap LEG compression wrap



Figure 2. easywrap ARM compression wrap

compression should be started as soon as the patient with cellulitis is stabilised with antibiotics. easywrap can play an important part in recovery from acute cellulitis; where skin is tender and tissues may be soft, it can be applied safely and at a comfortable level for the patient. It can then be easily altered as the cellulitis settles and firmer compression is tolerated, negating the need to buy and fit a number of different garments as the size of the limb changes.

For these reasons, community staff are increasingly replacing complex bandaging regimes, for which specialist training is required, with easywrap. Thus, a wider range of staff are able to treat the patient, and this results in fewer, and shorter, visit times (Wounds UK, 2015). Damstra and Partsch (2012) agreed with this adoption of wraps, stating that wraps, which were previously mainly recommended for the maintenance phase of lymphoedema treatment, also have an important place in intensive treatment, and they concluded that, as they are safe for patients to apply themselves, this further confirms the place of wraps in self-management (Damstra and Parsch, 2012).

The cost-savings of using easywrap compared with bandaging have been confirmed in a study by Lee and Lawrance (2019), who also noted that easywrap is re-usable. Furthermore, treatment of one patient with a wrap in a leg ulcer clinic was found to save £3402.96 when compared with treatment with two-layer bandages over a 6-month period, with the patient also enabled to competently self-manage their condition at the end of treatment (Wounds UK, 2015).

Williams (2017) cited many positive outcomes from studies supporting the use of wraps in successfully managing venous leg ulcers. These include reduction in oedema and improvements in wound healing, pain and quality of life. Other positive outcomes that have been reported by patients themselves include: not having to spend so much time in clinic appointments; ability to remove or adjust the wrap themselves if uncomfortable; ability to return to work sooner; ability to spend more time with family and friends; and ability to manage the lymphoedema themselves (Lee, 2018). These findings are confirmed by Kroeger and Dissemond (2019), who maintained that, due to the advantages to clinicians of self-application, re-adjustability and improved self-management, wraps will eventually replace compression bandaging in leg ulcer treatment.

Another important advantage of wraps is that they are less bulky than bandages and, therefore, do not restrict mobility (Ehmann et al, 2016). Furthermore, because of the uniquely patented easywrap KNEE device and the way in which the material bands are cut and shaped, the easywrap knee piece supports, rather than restricts, normal knee movement. An additional removable pad that can be inserted at the popliteal crease for extra comfort, as well as the specifically low profile of easywrap, can greatly improve the patient's mobility and quality of life, with concordance thereby also enhanced (Lee and Lawrance, 2019).

Self-management

Self-management of a long-term condition such as lymphoedema has been recognised as key to its treatment having successful outcome, with the aim of slowing disease progression, improving symptoms and enhancing quality of life (Barley and Lawson, 2016). This has recently been highlighted due to the restrictions placed on clinic activity during the COVID-19 pandemic; unable to attend their usual face-to-face appointments, many patients have been relying instead on phone and online consultations, with lymphoedema professionals offering advice and encouragement. In supporting patients to self-manage, therapists have a responsibility to make available the key information, education and training necessary (Wigg, 2017), with Remnerud and Haag (2015) stating that, where this is the case, as many as 80% of patients can be enabled to self-manage.

More evidence is also emerging to support the use of group education programmes as an effective approach to enabling self-management (McGowan et al, 2013), and the recent increase in the use of virtual patient support offers more opportunities in this area to further enhance self-care for those with lymphoedema.

Chan (2018) agreed that lymphoedema management should focus on self-care due to the chronic, life-long nature of the condition. However, although compression is accepted as a core part of the treatment of lymphoedema (ILF, 2006), patient concordance with wearing compression can vary; for some, it is a key element in their daily routine (Fu, 2010), and they feel the need to adhere to treatment in order to prevent exacerbation of the condition, while for others, compliance can be poor. This may partly be due to the discomfort of wearing compression, with Chan's study (2018) reporting that 'compression garments were often seen by patients as thick, tight and difficult to don', but also due to the resulting sense of the 'loss of normalcy' (Chan, 2018).

New Fusion liner

Although the foot pieces of wrap systems have improved, most are still more bulky than traditional garments. This can greatly affect the patient's choice of footwear and further hamper their sense of feeling normal.

To further aid self-management, Haddenham's new Fusion liner is now available on drug tariff (Figure 3). This is an alternative for patients to wear beneath easywrap. Fusion applies compression to the foot and ankle, but no compression above the ankle, making it easy for patients



Figure 3. easywrap Fusion liner

to don and doff. Fusion liners are designed to be used in combination with the easywrap LEG piece, and in place of the easywrap FOOT piece, with the benefit to the patient of them being able to wear their regular footwear. It is available in two compression classes to complement either a light (20–30mmHg) easywrap LEG or a strong (30–40mmHg) easywrap LEG.

The Fusion liner has obvious benefits: it is less bulky on the foot, enabling patients to wear their usual shoes; mobility and safety are improved; it prevents foot swelling while still allowing reduction of leg swelling; it can be used for treatment where there is a wound, with dressings easily applied beneath it; it is available on drug tariff; and measuring for Fusion is uncomplicated (Table 1).

Case studies

Positive feedback has been received from patients who have worn Fusion liner, as demonstrated in the following three case studies.

Case study 1

Miss H is aged 29 years and was diagnosed with Milroy's disease at age 11 years. However, she received no clinical intervention for her condition, and she struggled through her teenage years with bilateral lower leg oedema and recurrent episodes of cellulitis.

At the initial assessment, she was found to have bilateral below-knee lymphoedema with positive Stemmer's sign

Table 1. Fusion sizing chart

Circumferences	XS	S	M	L	XL
a ¹ mid-foot	19–24	25–29	30–34	35–40	41–46
b ankle	19–24	25–29	30–34	35–40	41–46
c widest calf	≤45	≤50	≤60	≤65	≤70

Note: Measurements should be rounded down if in-between sizes

for both limbs, mild hyperkeratosis, post-cellulitis skin discolouration on the left gaiter area, shape distortion and skin folds around the left ankle. Her left ankle and calf measured 51 and 65 cm, respectively, and the left leg was 30% bigger than the right. The patient found wearing footwear increasingly difficult, and her limb size restricted clothing, as she was only able to wear very loose trousers or long skirts. She also experienced psychological issues around body image and poor self-esteem.

The patient was provided advice on skin care, exercise, elevation when sitting and weight management, and 2 weeks of daily intensive treatment was agreed, including MLD alternating with intermittent compression pump (ICP) with Haddenham Lymphflow Advance, below-knee MLLB, with Bandmousse foam bandage used under Clinistretch bandages (8 and 10 cm), due to the extensive and fibrotic nature of the left leg. She was also provided Haddenham microfine toe caps.

In week 3 of treatment, before she returned to work, Miss H was fitted with easywrap FOOT and easywrap LEG garments and Comfiwave leg garment for night-time compression. This was to enable her to continue treatment independently and maintain optimum compression. After 4 weeks, Miss H was fitted with custom-made, class 3 Haddenham Goldpunkt below-knee stocking on the right leg.

Due to the extent and duration of the lymphoedema in her left leg, there was an excess of skin around the ankle, making easywrap the most appropriate garment to continue to use. The skin fold was lifted by applying Kinesio-tape strips, to reduce skin sagging beneath the easywrap.

At 6 months, both legs were fitted with custom-made, class 3 Haddenham Goldpunkt below-knee hosiery. To maintain optimum reduction, night-time compression with Comfiwave was continued. Understandably, Miss H was concerned about the oedema recurring, having experienced so many problems in the past and finally having gotten a 'normal leg' back.

With the availability of the new Fusion liner, a flexible ongoing plan was developed, which allowed Miss H full autonomy over the management of her legs. On good days, she wears the class 3 custom-made garments, and on 'not such good days' she opts to use easywrap with the new Fusion liner on her left leg (*Figure 4*).

The foot pieces of wraps are still more bulky than traditional garments, which can affect the patient's choice of footwear. The introduction of the Fusion liner to replace the easywrap foot piece has allowed Miss H to confidently wear the leg wrap with a regular shoe. This was important to her and significantly improved her self-confidence and ability to continue a flexible regime alongside a full-time job requiring smart workwear (*Figure 5*).

Miss H is fully independent and has the tools to self-manage using any combination of garments: Goldpunkt, easywrap, Fusion and Comfiwave. The limbs have both maintained well overall; the volume of the left leg has reduced by 2702 ml since September 2018. Miss H is now



Figure 4. easywrap Fusion liner in situ on Miss H's left leg

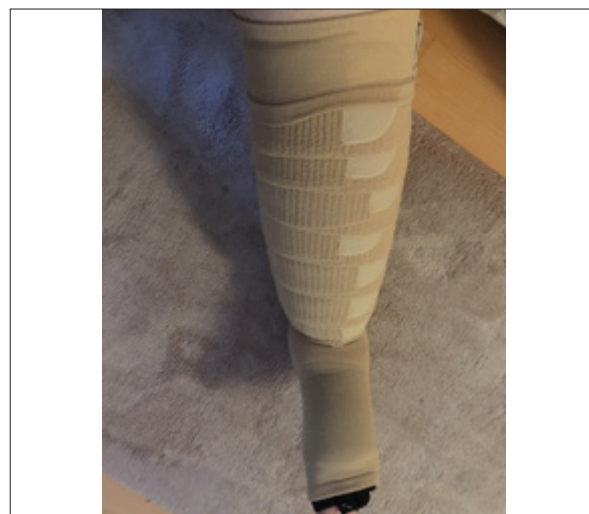


Figure 5. The profile of the Fusion liner is very thin and enables patients to wear their regular footwear

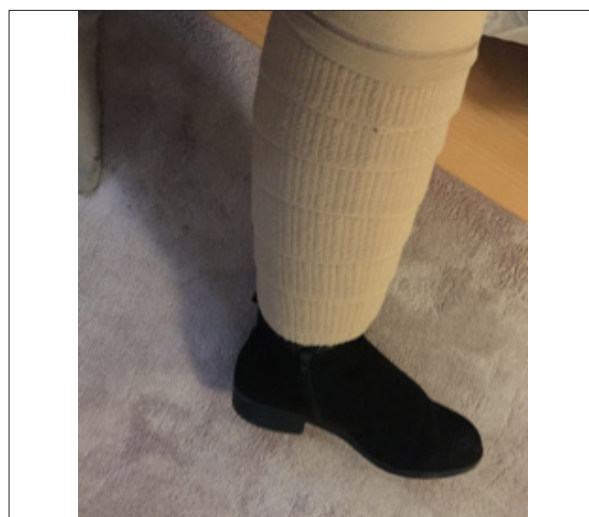


Figure 6. Miss H could wear her regular work shoes with the Fusion liner



Figure 7. Miss H wearing Comfiwave over the Fusion liner at night

much more confident in her physical appearance and back to wearing straight leg jeans and ankle boots (Figure 6).

Miss H commented: 'My foot swelling has remained stable; Fusion is easier and quicker to put on than the easywrap foot piece. I can wear "normal" shoes to work, and no one notices I am also wearing a wrap. I feel much more confident managing my own condition now'.

She has continued to use Comfiwave as a night-time garment, occasionally in combination with easywrap, and Miss H has also had good results by using Fusion liner over Comfiwave at night (Figure 7).

Case study 2

Ruby, a 50-year-old woman had a history of cervical cancer, for which in the year 2000, she underwent hysterectomy and received chemotherapy and pelvic radiotherapy. In 2001, she experienced deep vein thrombosis in the left leg, and was diagnosed with lymphoedema in 2011, for which a self-management regime was implemented. However, recurrent episodes of cellulitis led to the need for prophylactic antibiotics. In 2017, she developed lymphoedema in the right leg also.

Previously, Ruby's lymphoedema had been managed with MLD, ICP therapy, MLLB and custom-made, flat-knit, thigh-length Haddenham Goldpunkt class 3 hosiery.

Ruby is prone to rebound post-cellulitis oedema, and initially, she performed self-bandaging, but she was switched to a wrap when these were originally introduced. The wrap was used day or night as required.

Ruby was fitted with easywrap strong foot, leg, and thigh pieces, when they were launched in 2017, to replace her previous wrap. However, although the easywrap foot piece is relatively low profile in comparison with other footwraps, there are occasions when comfort with regular footwear remains an issue. When Fusion liners became

available, Ruby agreed to trial them to replace the original foot wrap.

Ruby's initial feedback was how quick and straightforward easywrap was to apply, with much less bulk and enhanced movement in comparison with her previous wrap. Having used footwraps for several years, she commented that Fusion liner was much easier to use, and that it was much more comfortable, while still maintaining her foot oedema.

Ruby was extremely pleased with the fact that she was able to go out socially in her normal jeans and shoes, without anyone realising that her leg had been wrapped. She can self-manage with a combination of garment types, adapting their use as required and remaining independent.

Case study 3

Jim is a very active and independent 69-year-old man, with a past medical history of polio, left leg weakness and chronic left lower-limb secondary lymphoedema, exacerbated by a coronary artery bypass graft.

Jim had struggled for several years to maintain his oedema with class 3 garments and was prone to rebound. He had also tried self-bandaging and had used one of the original wraps. He found both options bulky and uncomfortable, and being reluctant to use them, his oedema control worsened.

When the thinner profile easywrap became available, Jim agreed to try it and was fitted with an easywrap strong LEG piece and easywrap strong FOOT piece. Despite the thin profile of the foot piece, he found it restrictive. Therefore, a flat-knit, made-to-measure anklet was provided instead, which he preferred. However, he still had to combine it with a cut-off liner for the rest of the lower leg and, when Fusion liners became available, he agreed to try these.

Jim reported that easywrap was easy to use, conforming well to his limb and much thinner than previously used wraps, which he found were too hot and bulky. He felt that the combination of foot compression provided by the Fusion liner (class 2, equivalent to the custom anklet), rather than the two separate pieces, was much easier to use and a much better fit.

Jim stated that '[using easywrap and the new Fusion liner] has transformed the management of my leg oedema', and, I am able to wear all of my usual clothes and shoes'.

Conclusion

As with any long-term condition, self-care is key to a successful outcome in the management of lymphoedema. Wraps have become an important addition to the available treatment options for this group of patients, their main advantages being improved self-management, due to self-application and self-re-adjustability. Correctly fitting, comfortable compression encourages self-management, with careful choice of garment style and fabric encouraging concordance with treatment. In addition, feedback from patients must be acknowledged, as making patients partners in their own care is central to the concept of self-management (Morgan et al, 2017). The development of

KEY POINTS

- ◆ The cost and resource saving advantages of easywrap has made it a popular choice amongst health care professionals, both to replace intensive bandaging regimes, and as maintenance treatment
- ◆ The low profile of easywrap makes it a comfortable option for patients to wear beneath their normal clothes
- ◆ The addition of the new Fusion Liner, applying compression to the foot and ankle but none above the ankle, means the patient can now also wear their own footwear
- ◆ Used alone, or in combination with the easywrap LEG PIECE, Fusion can enhance self-management for patients with lymphoedema

CPD QUESTIONS

- ◆ What are the main advantages of the new Fusion Liner?
- ◆ Which particular patients do you think would benefit from the addition of the Fusion Liner to their care plan?

the new Fusion liner designed to wear beneath easywrap, responds to the need for less bulky compression on the foot, and the liner enables the patient to wear their normal shoes. Thus, the Fusion liner adds another dimension to patient choice and concordance and further enhances self-management. **BJCN**

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