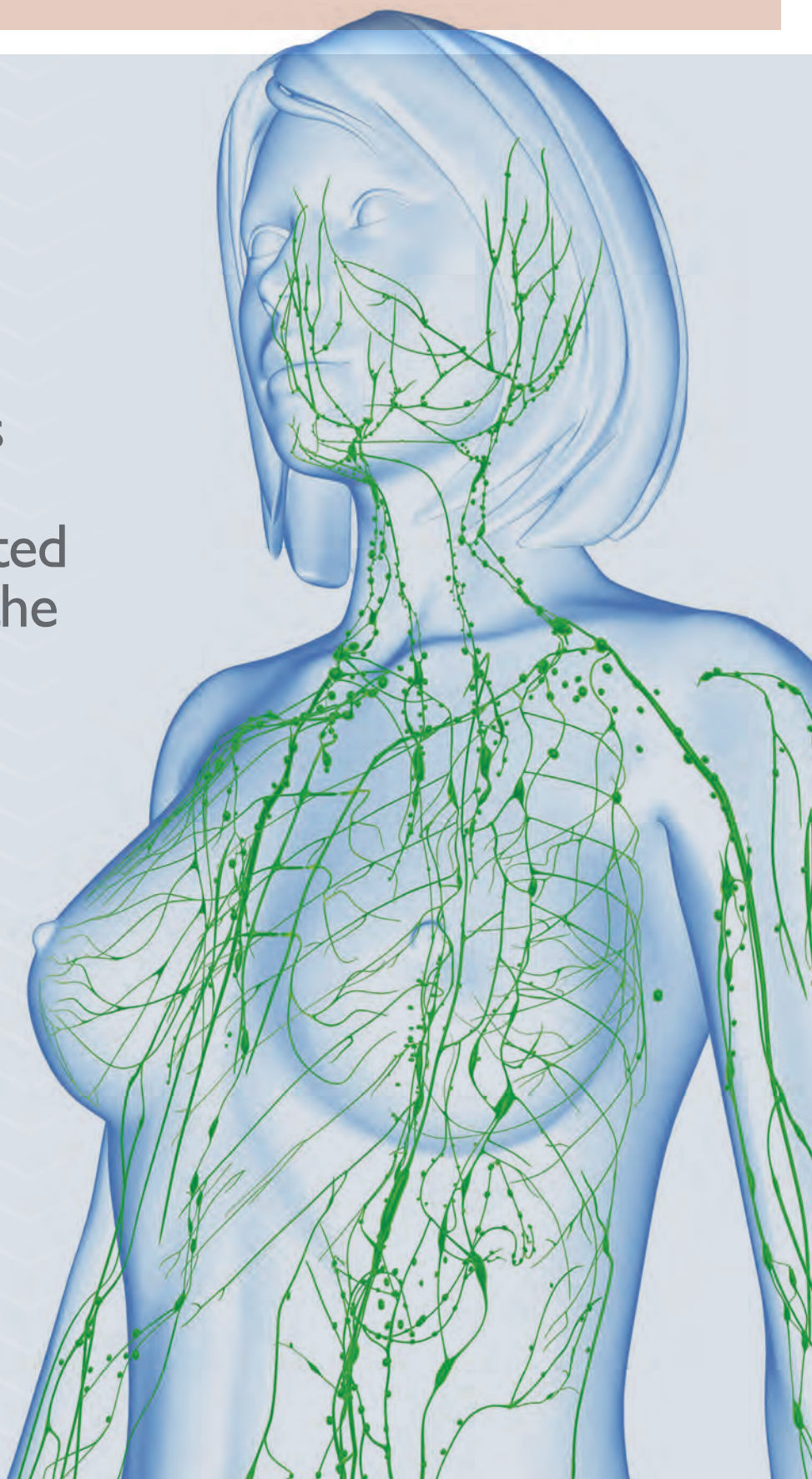


SOLIDEA® SILVER WAVE BRA RANGE:

meeting the needs
of women with
breast cancer-related
lymphoedema of the
breast and trunk



Solidea® Silver Wave Bra



Micro-massaging comfort. Transform patient care.



**SILVER
WAVE** **BRA**

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SILVER WAVE

Skin

**MICRO-MASSAGING
Compression Bra**



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This medical device supports the management of breast oedema and other lymphatic circulation disorders.

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- **Adaptive elastic cups** – conform to individual breast shape and volume for even compression.
- **Micro-massaging wave fabric** – facilitates lymphatic drainage in the breast and axilla, improving tissue fluid balance.
- **Bacteriostatic silver yarn** – reduces bacterial proliferation and odour.
- **Day and night wear** – continuous low-level compression shown to improve symptoms, range of motion, and patient comfort.

Gentle compression. Proven results.

Patient feedback reports reduced swelling, pain and tenderness, improved mobility, and higher compliance compared to standard garments (Davies, S – Poster presentation TVS 2025).

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- + Breast cancer is the most commonly diagnosed cancer in females worldwide.
- + Advances in breast cancer treatments, including surgery and radiotherapy, have led to improved outcomes and survivorship.
- + However, women who are treated for breast cancer are at risk of developing breast cancer-related lymphoedema (BCRL).
- + BCRL arises when the underlying lymphatic system is damaged by treatment, so swelling occurs in the affected area(s), including the arm, axilla, chest wall, breast and trunk.
- + BCRL is a chronic, progressive condition characterised by swelling, chronic inflammation and tissue changes.
- + Symptoms can be debilitating and severe, worsening in severity and negatively impacting upon every aspect of the patient's life.
- + BCRL can develop immediately after surgery or at any point up to 11 years post-treatment.
- + The number of women affected by BCRL is not fully understood, in part due to a lack of a standardised definition used in research.
- + The term BCRL is most commonly used in the literature to refer to lymphoedema of the arm, while other areas affected by BCRL, such as the breast and trunk, are less well studied and understood.
- + Compression therapy is the gold standard treatment for BCRL.
- + As a result of published evidence, women with BCRL of the arm have standardised treatment pathways and access to compression garments on prescription.
- + Breast lymphoedema, while also a common consequence of BCRL, is less well studied and understood. The number of women thought to be affected ranges from 10–90% of those treated for breast cancer.
- + Breast lymphoedema is often not recognised and diagnosed early in clinical practice; it is often dismissed as a treatment side effect.
- + When it is diagnosed, there is limited availability of suitable compression garments via prescription.

- + For women with axilla, breast and trunk lymphoedema it can be difficult to access an appropriate garment that physically contains swelling, decongests tissue and is comfortable to wear.
- + Women with breast lymphoedema frequently have to self fund their compression solution. They report discomfort from wearing regular bras, and having to resort to wearing sports bras, which are not medical devices and not designed for lymphoedema management.
- + When compared with the prescription compression garments available for women with BCRL of the arm, this represents an inequity of care.
- + Solidea® Silver Wave Skin is a range of medical compression garments designed to provide therapeutic solutions for women with breast and trunk lymphoedema, to alleviate symptoms and provide long-term management of their condition.
- + The Solidea Silver Wave Skin range includes a crop top, vest and body suit, all of which are designed to be worn by a wide range of women with breast and truncal lymphoedema, including those with larger cup sizes.
- + The Solidea Silver Wave Skin range uses unique 3D Wave technology, an embossed wave fabric that gently stimulates lymphatic flow, helping to drain tissues in the chest and armpit area.
- + The garments are made from breathable fabric incorporating bacteriostatic silver yarn to reduce odour and promote longer wear.
- + The garments are seamless and hook-free, to promote comfort and avoid skin trauma.
- + Williams and Muldoon (2025) carried out an audit of the effectiveness, comfort and overall patient experience of the Solidea Silver Wave Skin bra for 20 women with BCRL of the breast and trunk.
- + The audit demonstrated that Solidea Silver Wave Skin bra provided effective symptom relief, while being considered to be comfortable and wearable with a high degree of patient acceptability.
- + Both clinician and patient feedback suggested that the garment supported improved quality of life and self care for women with breast and trunk lymphoedema.

Introduction

Breast cancer is the most commonly diagnosed cancer in females worldwide (Abouelazayem et al, 2021; Barclay et al, 2024). In the UK, one in seven women will be diagnosed in their lifetime, with approximately 56,900 new cases occurring annually (Cancer Research UK, 2025).

Advancements in treatment options, including breast-conserving surgery and radiotherapy, have led to improved outcomes and survival rates for this patient group (Sharifi and Ahmad, 2024).

Unfortunately, a consequence of some of the treatments for breast cancer is damage to, or removal of sections of, the lymphatic system, putting survivors at risk of developing breast cancer-related lymphoedema (BCRL) (Sharifi and Ahmad, 2024). Disruption to lymphatic structures impedes the flow of lymph, with it becoming motionless in the breast tissue where it leads to swelling, known as lymphoedema (Hutton, 2024).

Lymphoedema is not only characterised by swelling, but by chronic inflammation that promotes tissue changes and increases the risk of infection (Riches et al, 2023). It is a progressive, chronic condition that is accompanied by distressing symptoms such as pain, heat, heaviness, and reduced mobility in the affected region (Kim et al, 2024). It has a profound emotional and physical impact on women in all domains of their life, and serves as a reminder of their illness (Ulman et al, 2024).

BCRL is a umbrella term used to describe numerous presentations of lymphoedema including in the arm, axilla, breast, and trunk following breast cancer treatment, making it difficult to fully understand the scale and numbers affected. It is estimated that 1 in 5 women will develop BCRL after treatment for breast cancer (Gillespie et al, 2018).

The term BCRL is most commonly used to refer to lymphoedema of the arm, and there is a body of published evidence to support the early recognition, diagnosis and treatment of this cohort of women.

Unfortunately for patients with breast and truncal lymphoedema, there is a dearth of similar studies (Abouelazayem et al, 2021; Riches et al, 2023). This is attributed in part to difficulties with standardised definitions, assessment and measuring of swelling in these regions (Abouelazayem et al, 2021).

As a consequence, there is a wide variation in the estimated incidence of breast lymphoedema ranging from 24.8–90.4% (Abouelazayem et al, 2021).

Awareness and recognition of breast and truncal lymphoedema is low among healthcare professionals, with symptoms commonly attributed to treatment side effects (Fearn et al, 2022), while patients reporting their concerns being dismissed by clinicians (Ulman et al, 2024). Under-recognition of these not-uncommon complications of breast treatment means there is inequity of care for women with BCRL affecting sites other than the arm.

Women with BCRL of the arm have standardised treatment pathways based on research evidence, and prescription pathways to access the compression garments they need to prevent their condition from worsening. Unfortunately for women with breast and trunk lymphoedema, there are no clear standardised treatment plans to guide their care, or prescription pathways to access appropriate compression garments that address their underlying condition and debilitating symptoms (Abouelazayem et al, 2021; Riches et al, 2023). This is an inequality which needs to be addressed.

For all women with BCRL, early recognition of symptoms and prompt intervention with appropriate treatment including gold standard compression therapy is the key to optimising outcomes (Davis et al, 2025).

The beneficial effects of compression therapy are understood to be the same regardless of the area affected by swelling; whether the breast, trunk or arm, compression therapy promotes fluid movement and exerts mechanical force to diminish cellular inflammatory processes. This alleviates inflammation and helps to soften fibrotic tissue (Davis et al, 2025).

In spite of these known benefits, it can be difficult for women with breast lymphoedema to access an appropriate garment that contains, manages and relieves their symptoms while being comfortable to wear (Hutton, 2024; Williams and Muldoon, 2025). There is a limited range of products available, some of which can be considered too firm and uncomfortable to wear, with pain restricting movement (Hutton, 2024). The design features of a standard bra can result in digging in of straps and fabric cutting across swollen areas, leading to discomfort and unresolved lymphoedema (Hutton, 2024).

Patients report being advised to purchase non-medical compression garments such as sports bras that do not therapeutically manage their condition, leading to pain, discomfort and worsening of symptoms (Hutton, 2024; Williams and Muldoon, 2025). All of these practical issues can be compounded for

“The Solidea® Silver Wave Skin range was developed to meet the compression needs of women with breast and truncal lymphoedema, and address some of the problems they experience. ”

women with larger breast sizes (Hutton, 2024).

Solidea® Silver Wave Skin range

The Solidea® Silver Wave Skin range was developed to meet the compression needs of women with breast and truncal lymphoedema, and address some of the problems they experience.

The range features a family of garments to allow containment of breast and truncal lymphoedema, regardless of location. The availability of multiple garments enables patients to take a hybrid approach to their compression therapy, with options available for different situations, giving this under-recognised patient group choice.

All garments in the Solidea Silver Wave Skin range can be worn day and night and are made from unique 3D Wave fabric to micro-massage affected areas. This promotes lymphatic drainage and breaks down fibrotic tissue during wear.

A real-world evaluation of the Solidea Silver Wave Skin bra in patients with axilla, breast and trunk lymphoedema demonstrated clinical efficacy in volume and symptom reduction, while being found comfortable and easy to apply and remove by patients (Williams and Muldoon, 2025).

This document will further discuss these points, and detail how the Solidea Silver Wave Skin range can be used for patients with breast and trunk lymphoedema so that their needs do not go unmet while recognition of this distressing complication of breast cancer treatment increases.

Breast cancer treatment and the risk of breast cancer-related lymphoedema

Breast cancer-related lymphoedema (BCRL) is a common complication of breast cancer treatment (Gillespie et al, 2018). It may involve the axilla, arm, trunk, conserved breast or chest wall (Aboulazayem et al, 2021).

Lymphoedema is not just fluid retention that leads to swelling but a long-term condition that is also associated with chronic inflammation, tissue changes such as adipose deposition and fibrosis, and a predisposition to cellulitis (skin infection) (Gillespie et al, 2018; Riches et al, 2023; Hing et al, 2024).

As a chronic, progressive condition, BCRL needs ongoing, lifelong management (Breast Cancer Now, 2024). Without intervention, irreversible tissue changes and damage to the lymphatic system can occur. These can put the individual at risk of recurrent episodes of cellulitis presenting a significant, ongoing burden to healthcare services. BCRL can also result in a range of debilitating symptoms for patients and negatively impacts on every domain of life. This is discussed in more detail on p.12.

Difficulties with defining the number of women affected by BCRL

BCRL is an umbrella term that is used interchangeably in the literature. It is used to refer to lymphoedema that affects the arm, axilla, breast, trunk and/or back.

“Breast cancer-related lymphoedema is a common complication of breast cancer treatment.”

There is no consensus or standardised definition of the term BCRL that is used consistently, but it is most commonly used to refer to arm lymphoedema arising in women following breast cancer treatment (Aboulazayem et al, 2021; Riches et al, 2023).

Upper limb lymphoedema is considered a common complication following breast and axillary surgery and is well studied and reported, possibly as it is easier to measure and define than lymphoedema in other upper body sites (Riches et al, 2023). Studies into upper limb lymphoedema have more standardised definitions and assessment approaches when compared to those used for other regions affected by BCRL (Riches et al, 2023; Torrisi et al, 2023).

While research into women with arm lymphoedema has led to improved recognition, diagnosis, treatment options and prescribing pathways for compression garments, this is not the case for women with lymphoedema affecting the breast and trunk (Riches et al, 2023; Torrisi et al, 2023).

Breast and trunk lymphoedema

There is a gap in the literature to address and evaluate lymphoedema occurrence in sites other than the arm (Torrisi et al, 2023). While breast lymphoedema is also considered to be a common occurrence following breast cancer

treatment, it is not well studied and therefore is less understood and reported (Aboulazayem et al, 2021; Ibrahim et al, 2023; Riches et al, 2023; Torrisi et al, 2023). The paucity of studies means that breast lymphoedema is under-recognised in clinical practice (Riches et al, 2023).

“The paucity of studies means that breast lymphoedema is under-recognised in clinical practice.”

Early identification in particular can be problematic as symptoms are often attributed to post-surgical or post-irradiation inflammation (Aboulazayem et al, 2021; Riches et al, 2023). This means patients lack early diagnosis and prompt intervention, both of which are needed to optimise outcomes (Hutton, 2024).

Incidence of BCRL

BCRL can present almost immediately after treatment or up to 11 years afterwards without any precipitating events (Armer and Stewart, 2010; Hing, 2024), which can also make it difficult to capture the true number of women affected.

The incidence of arm lymphoedema has been reported as affecting 21.4% of women treated for breast cancer (Aboulazayem et al, 2021). Few studies have estimated the incidence of truncal lymphoedema. Bosompra et al (2002) detailed a 10% incidence of women affected by swelling located in the back,

and 14% at the side of the chest wall (Bosompra et al, 2002).

The incidence of women with BCRL affecting the breast is estimated to range from 24.8% to 90.4%, which is a wide variation (Aboulazayem et al, 2021). This is thought to be a consequence of follow-up time frames for development of lymphoedema

which vary from three months to ten years in studies (Aboulazayem et al, 2021).

Other issues such as a lack of clear consensus on the definition of breast lymphoedema, a lack of standardised diagnostic criteria, and a lack of established assessment methods make breast and trunk lymphoedema the least understood of the types of upper body BCRL (Verbelen et al, 2014; Ibrahim et al, 2023).

It is clear that more research into diagnosis, assessment, treatment and long-term management of women with lymphoedema of the breast and trunk is needed so that women who develop the condition following breast cancer treatment can receive appropriate and timely treatment equal to that received by women with BCRL of the arm.

Lymphoedema of the breast, chest and trunk can present a range of challenges to these patients, not least the development of symptoms that impact on every aspect of their life. These are discussed on p12.

How breast lymphoedema develops following breast cancer treatment

Lymphoedema is swelling that happens when the lymphatic system (which consists of lymph vessels and nodes) is damaged, blocked or overloaded (Davis et al, 2025).

When the lymphatic system is compromised, lymph — the fluid that is transported around the body via the lymph vessels and filtered by the lymph nodes — cannot drain from the tissues of the body effectively and accumulates in the tissues of the affected area, leading to swelling (Gillespie et al, 2018; Sharifi and Ahmad, 2024).

Breast cancer surgery can involve removal of the axillary lymph nodes, while radiotherapy can lead to scarring and blockages of the lymphatics, all of which can affect the flow and drainage of lymph from the affected area. These and other risk factors can put women at risk of developing breast cancer-related lymphoedema (BCRL) (Box 1).

As breast cancer treatment is tailored to the individual patient's disease, different parts of the lymphatic system can be affected. The location of tumours and/or lymph node involvement means that surgical intervention and radiotherapy treatment will affect different anatomical regions for each individual. While the arm is commonly known to be affected with BCRL following treatment, so too are other areas of the upper body.

Depending on the anatomical location(s) treated and the site of lymphatic damage, lymphoedema can arise in one or more sites including the arm, axilla, breast,



Box 1. Risk factors for BCRL

Known risk factors for the development of breast and trunk lymphoedema include:

- Breast-conserving surgery
- Axillary surgery
- Radiotherapy
- Larger breast size
- Higher body mass index (Riches et al, 2023).

chest wall, and/or back (Riches et al, 2023).

Lymphatic flow and drainage

Despite a dearth of studies into breast and trunk lymphoedema, the use of cutting edge technology has enabled greater understanding of dynamic lymphatic flow and drainage in the upper limbs, trunk and breast (Davis et al, 2025).

This has highlighted that lymphatic drainage of the breast and trunk is more complex than that of the arms, and more intricate and interconnected than previously understood, with each quadrant of the trunk draining into a distinct lymph node (Davis et al, 2025).

Understanding these flow and drainage patterns, and the implications for both surgical intervention and compression therapy for people with BCRL, is important so that appropriate intervention can be made to improve outcomes (Gillespie et al, 2018; Davis et al, 2025).

The existence of distinct drainage routes also helps to explain why different areas of the torso can be affected by swelling, including the arm, breast, armpit, chest wall or back, depending on the individual, their treatment and the lymphatic pathways affected (Royal Marsden NHS Foundation Trust, 2023; Breast Cancer Now, 2024). Appreciation

“Lymphatic drainage of the breast and trunk is more complex than that of the arms, and more intricate and interconnected than previously understood...”

of the differing lymphatic pathways can guide garment design and help avoid over-compression of newly recruited drainage routes, particularly in patients with risk factors for breast or upper-limb lymphoedema (Davis et al, 2025).

Chronic inflammation

Disrupted lymphatic flow causes a collection of lymph in the tissues. This activates the immune system, particularly T-cells, which in turn release pro-inflammatory cytokines (Brown et al, 2023). This ongoing inflammatory response drives tissue changes including fibrosis and adipose tissue deposition (Bowman and Rockson, 2024; Davis et al, 2025).

Both chronic inflammation and accompanying tissue changes can further obstruct lymph flow leading to a cycle of swelling and skin fragility that increases the risk of skin infection. In combination, these processes further diminish lymphatic function and lead to overwhelm. This exacerbates lymphoedema and with time may cause structural damage to the lymphatics (Lee and Kim, 2024; Davis et al, 2025).

The damage to the lymphatic system will vary according to treatment received and the individual's response to it, meaning that symptoms experienced may also vary from patient to patient.

Patient experience of lymphoedema: symptoms and impact on quality of life

As a chronic, progressive condition breast cancer-related lymphoedema (BCRL) can have a significant impact on the quality of life of women following breast cancer treatment (Hing et al, 2024; Kim et al, 2024).

The onset of lymphoedema and associated symptoms can occur almost immediately following intervention or can be more insidious, developing up to a decade after treatment without warning (Armer and Stewart, 2010; Sharifi and Ahmad, 2024).

BCRL can also serve as a distressing reminder of previous illness (Gillespie et al, 2018). For women with BCRL, the symptoms experienced can vary between individuals, and for the same individual in the long term. Symptoms may be mild, increasing in severity with time if left unaddressed, or severe at onset.

Under the umbrella of BCRL, there are common symptoms experienced by women with lymphoedema affecting different anatomical locations (Box 2) but also some reported differences owing to the site of swelling.

Women with breast lymphoedema, for example, specifically report breast heaviness, pain, tenderness, skin changes, swelling, and nocturnal discomfort (Riches et al, 2023).

The severity of symptoms and impact on quality of life is not linear; quality of life for women with breast lymphoedema can be negatively impacted even with mild symptoms (Riches et al, 2023).

Box 2. Typical signs and symptoms associated with BCRL, including breast and trunk

- Feelings of heaviness, hardness and tightness in the affected area(s)
- Visible swelling
- Tissue hardening (fibrosis)
- Pain
- Heat or burning sensation
- Skin redness
- 'Peau d'orange' (orange peel-like texture to the skin)
- Discomfort, particularly at night
- Recurrent bacterial skin infection (cellulitis) (Todd, 2017; Hutton, 2024).

Impact on quality of life

Symptoms can arise alone or in combination, and can impact every aspect of the patient's life (Sharifi and Ahmad, 2024). Women with BCRL of the breast have reported being unprepared for the risk of developing lymphoedema following treatment due to lack of information their healthcare professionals (Ulman et al, 2024). They described it as having a profound emotional and practical impact which were often dismissed by clinicians (Ulman et al, 2024).

Breast lymphoedema symptoms can affect the clothes that the patient feels comfortable wearing and the activities they are able to undertake (Riches et al, 2023). Women describe being unable to wear regular underwear, finding it

uncomfortable. All this has detrimental effects on self-confidence and body image (Box 3). Psychological distress can be experienced by women with BCRL, with elevated rates of depression and anxiety when compared to women without BCRL (Gillespie et al, 2018). BCRL symptoms can also result in functional impairment, chronic disability, and inability to work and carry out daily activities (Gillespie et al, 2018; Breast Cancer Now, 2024; Ulman et al, 2024).

The treatment and self-management of lymphoedema can impose a significant physical, psychosocial and economic burden on patients (Armer et al, 2020). In particular, women with breast lymphoedema can experience difficulty accessing a variety of compression garments on prescription unlike those with arm lymphoedema. This further burdens those with breast lymphoedema with ongoing costs of compression garments across their lifetime (De Vrieze et al, 2020).

Box 3. Patient experience

'In January 2024 I was diagnosed with breast cancer and in February 2024 I had a mastectomy of my left breast. I did have a very good recovery, but unfortunately after nine months I started developing symptoms of lymphoedema. It started with fluid-filled swelling in my axilla, which gradually increased over time. This made wearing any sort of bra very difficult as they would cut into the skin and my axilla looked deformed. My self-confidence hit rock bottom as it was very noticeable when wearing certain clothes... (continued on p.26)'

Patient A

'I had a partial mastectomy and lymph node removal in September 2024. One week after the surgery, I developed a seroma; an infected, fluid-filled swelling in my axilla wound the size of an orange. This led to sepsis and a hospital stay. It also made wearing any bra very difficult, as they all cut in under the arm and rubbed on the swelling. I subsequently developed lymphoedema in the breast and chest wall, which was very painful and felt heavy. I also developed cording (an unpleasant feeling like a tight cord running beneath the skin) under the breast... (continued on p.27).'

Patient B

Treatment and the importance of compression therapy

Compression therapy is a well-recognised cornerstone of lymphoedema treatment (Moffatt, 2025). For optimal results, it should be used in combination with skin care, gentle exercise, and massage to optimise swelling reduction and maintenance, breakdown of fibrotic tissue, symptom relief, and quality of life (Davis et al, 2025).

Compression therapy for lymphoedema affecting the upper body remains under-represented in research and clinical guidance, compared to the lower limb (Davis et al, 2025). There is also disparity with understanding of upper body lymphoedema affecting different sites of the body, especially in relation to compression therapy for breast cancer-related lymphoedema (BCRL) (Davis et al, 2025).

How compression therapy works

Despite this general knowledge gap, it is understood that compression therapy has similar physiological effects whether it is used on the lower limb, upper limb, breast or trunk (Davis et al, 2025).

It works by creating a physical container around the affected area, which provides external pressure and provides resistance to the muscles on movement and at rest, known as working and resting pressures, respectively (Davis et al, 2025).

This pressure enhances the vascular and lymphatic pumping that occurs when muscles contract. This promotes movement and reabsorption of lymphatic fluid, which is seen as reduced swelling and softening fibrosclerotic tissue (Davis et al, 2025).

Additionally, compression exerts mechanical forces within the affected region. This in turn can affect cellular activity, reducing inflammatory signalling and promote healing, particularly in fibrosclerotic and/or irradiated tissues. These mechanobiological effects can contribute to improved tissue pliability and texture, and restoration of lymphatic architecture (Davis et al, 2025).

Compression for women with BCRL of the breast and trunk

Unfortunately, for women with BCRL affecting areas other than the arm, it can be difficult to find an appropriate garment to manage their condition that is comfortable to wear (Todd, 2017; Hutton, 2024; Williams and Muldoon, 2025).

Commonly, patients are placed into firm compression garments (Hutton, 2024). However, this can cause increased pain for women which can deter compression use. Garments that are too tight, especially around the shoulder, chest and below the breast, can also impede lymphatic flow (Hutton, 2024).

Similarly, women may encounter issues with their compression garment not containing areas of swelling in some contours of the body such as the axilla, or if swelling occurs in different pockets of the chest and trunk (Williams and Muldoon, 2025).

Discomfort and pain resulting from the discomfort of tight and/or ill-fitting garments can also impact upon activities of daily living and the ability to exercise

(Gho et al, 2010). Both diminished lymph flow and an inability to exercise the affected area can prevent symptom relief for the patient.

For women with breast lymphoedema, swelling, heaviness, hardness, heat, and discomfort (particularly at night) are reported as distressing (Todd, 2017; Hutton, 2024).

Studies into compression dose have shown that firm compression is not always more therapeutically effective than lower pressures, but it can be prohibitive to use if the wearer finds the garment uncomfortable, showing the important balance needed between patient comfort and efficacy of compression delivered (Davis et al, 2025).

Without appropriate compression therapy, BCRL will progress, requiring increased intervention from healthcare services and diminishing quality of life for patients (National Lymphoedema Partnership, 2019; Royal Marsden NHS Foundation Trust, 2023).

Assessment and compression selection

Individual, patient-centred care should be central to all care provision, as there is no 'one size fits all' approach (McKeown and Ehmann, 2025). In people with BCRL, for example, there will be variations in medical history, oedema location, body size and contours, and tissue texture (McKeown and Ehmann, 2025).

Considering that many factors can influence the experience and therapeutic

Box 4. Points to consider when selecting a compression garment for women with BCRL

- Textile properties
- Stiffness
- Containment
- Graduation
- Fatigue
- Anatomical variations in oedema distribution
- Tissue texture
- Body shape relative to oedema presentation (McKeown and Ehmann, 2025).

needs of women with BCRL, holistic assessment should be carried out for every patient to establish the area(s) affected by lymphoedema, the skin and tissue texture, and the symptoms of priority for the patient, plus any other preferences, including willingness to self-manage, so that a suitable compression garment can be selected (McKeown and Ehmann, 2025). The latest guidance recommends that properties of the compression garment itself should then be considered when determining suitability for the individual patient (Box 4).

The Solidea Silver Wave Skin range was developed and designed with these points in mind, to address the difficulties faced by patients with BCRL and to offer effective choice for their individual, lifelong management.

Introducing the Solidea® Silver Wave Skin range

The Solidea® Silver Wave Skin range has been developed as a family of compression garments that can be worn day and night to support the management of:

- **Breast and/or trunk lymphoedema following cancer treatment**
- **Post-surgical or post-radiotherapy swelling.**



The Silver Wave Skin range moves away from a single 'one bra fits all' solution, allowing choice to meet patient priorities: a bra for daytime support, a top for night-time comfort, or a range of garments for different situations.

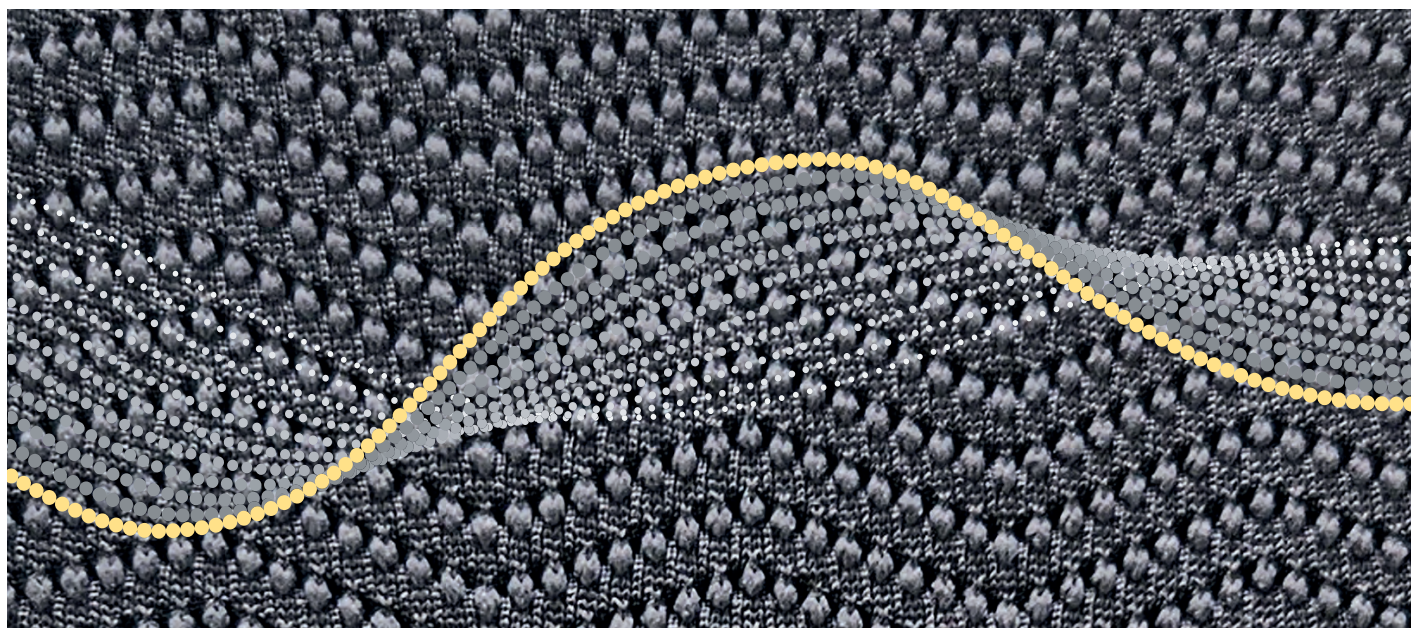
Women with larger cup sizes (D or above) are at increased risk of BCRL. If present, this can increase cup size further, exacerbating symptoms such as heaviness, pain, tissue congestion and nocturnal discomfort.

The range was developed with women of all shapes and sizes in mind. It works by dispersing the weight of the breast across a broad surface area, including the trunk, back and shoulders, rather than through narrow straps or under-bust bands. This reduces focal pressure and improves comfort, especially for women with larger breast sizes.



The range, which consists of different styles of compression garments including a bra, crop top, vest and bodysuit, has been developed to give women with breast-cancer related lymphoedema (BCRL) of the axilla, breast and trunk individualised solutions to manage their condition and symptoms.

Solidea® Silver Wave Skin range uses micro-massaging 3D Wave Knit



The Solidea® Silver Wave Skin range are medical grade compression garments made from a unique, embossed, micro-massaging 3D Wave Knit that promotes lymphatic drainage.

The garments deliver 7–15 mmHg compression to promote lymphatic fluid movement across the breast, axilla and trunk, while remaining soft and breathable.

The inclusion of bacteriostatic silver yarn within the fabric reduces bacterial proliferation helping to control odour. The features of 3D Wave Knit are detailed in Box 5.

Table 1 details the commonly encountered needs of patients with breast and trunk lymphoedema, the treatment goals and how Solidea Silver Wave Skin bra can help to achieve the desired outcome.

Box 5. The patent-pending 3D Wave Knit provides:

- ✓ A contour-adaptive, anatomical fit for complex upper-body shapes
- ✓ Targeted three-dimensional micro-massage to stimulate drainage
- ✓ Dynamic stiffness and natural pressure differentials
- ✓ Responsive containment without high compression classes
- ✓ High degree of comfort and wearability, essential for day/night self-management.

Table 1. Patient need, clinical goal and how Solidea® Silver Wave Skin bra can help

Patient need	Clinical goal	How the Solidea® Silver Wave Skin bra supports this
Breast or trunk swelling following breast cancer treatment	Promote lymphatic drainage and reduce oedema	Micro-massaging 3D Wave fabric may help stimulate superficial lymphatic flow and support fluid movement from the breast and axillary regions
Pain, heaviness or tissue discomfort	Reduce symptoms and improve daily comfort	Gentle medical compression helps reduce tissue pressure and heaviness commonly reported in breast lymphoedema
Fibrotic or firm breast tissue	Improve tissue softness and tissue mobility	Continuous low-level pressure and micro-massage may support tissue softening and lymphatic fluid movement
Night-time swelling or discomfort	Maintain lymphatic support during rest	Comfortable, breathable garments allow extended wear and continuous symptom management
Need for long-term self-management	Support adherence to compression therapy	Comfortable and cosmetically acceptable garments improve patient concordance with compression therapy
Skin sensitivity or post-radiotherapy skin changes	Protect fragile skin and reduce irritation	Seam-free construction and breathable fabrics minimise friction and support skin integrity
Breast asymmetry or post-surgical changes	Provide adaptive support and anatomical fit	Elastic knit fabric adapts to breast shape and post-surgical anatomical changes

Table 1 (continued). Patient need, clinical goal and how Solidea® Silver Wave Skin bra can help

Patient need	Clinical goal	How the Solidea® Silver Wave Skin bra supports this
Larger breast or higher cup size requiring additional support	Provide effective support and maintain compression during daily activity	The Solidea range includes bras, crop tops and bodysuits which distribute support across the chest and torso. 3D shaping provides structural support while the micro-massaging 3D Wave Knit fabric supports lymphatic stimulation in oedematous areas
Patients requiring prosthesis support	Maintain compression while supporting prosthesis	Pocketed bra designs allow use of breast forms while maintaining therapeutic compression

Box 6. Patient experience

‘In 2021 I had breast cancer and developed lymphoedema...I first looked at the Solidea Silver Wave Skin bra and thought ‘this won’t be any good, there’s no support, the wavy lines are too thin...’. I couldn’t have been more wrong! Hands down it is the most comfortable I have been since being diagnosed. It provides support, but is like a second skin that continually massages the areas of lymph collection. The massaging effect and the fact it is high under my arm gives me relief all day long – it’s something I now can’t imagine living without. I have tried all sorts before this including most available products which in comparison have left me feeling like I’m in a strait jacket.’

Patient C

Key features of Solidea® Silver Wave Skin range for wearer comfort



1 3D Wave micro-massaging wave fabric: facilitates lymphatic drainage in the breast and axilla, improving tissue fluid balance and soft tissue mobility.

2 Seamless and hook-free, high coverage design: seamless garment construction reduces the risk of pressure point damage, while hook-free design helps to avoid skin trauma. The high coverage design of the range promotes effective containment of swelling in hard-to-manage locations such as the axilla. Solidea garments can be used post-operatively.

3 Adaptive elastic cups: a 3D knitted design conforms to the individual shape and volume of the breast(s), arms and trunk to allow even distribution of compression dose, making the range suitable for use post surgery and post radiotherapy.

4 Wide straps and underband: supports posture and prevent shoulder strain. For women with larger cup sizes, the garments work by dispersing weight across the breast across a broader surface area, including the upper trunk, back, and shoulders, rather

than concentrating load through narrow straps or under-bust bands. This reduces focal pressure, improves comfort and supports lymphatic drainage across the breast, axilla and trunk.

5 Bacteriostatic silver yarn: reduces bacterial proliferation and odour, promoting longer wear.

6 Breathable, moisture-wicking fabric: prevents the garment from feeling hot and uncomfortable, helping to promote wear day and night

7 A choice of colours: champagne (pale nude), natur (darker nude), nero (black), ribes (pink), blu tonic (blue).



Solidea® Silver Wave Skin bra: proven efficacy in real-world clinical practice

An audit was conducted by Williams and Muldoon (2025) which aimed to evaluate the effectiveness, comfort, and overall patient experience of the Solidea® Silver Wave Skin bra for women with breast and trunk lymphoedema following breast cancer treatment.

Patient population

Twenty women participated in this pilot audit. The mean age was 57 years; half of the participants (50%, n=10) were affected on the right side, while 10% (n=2) presented with bilateral lymphoedema. The duration of symptoms varied, with 50% experiencing breast and trunk oedema for more than six months.

Bra sizes ranged from 32–34 (50%, n=10), 36–38 (35%, n=7), to over 38 (15%, n=3), with the majority having a cup size larger than D (80%, n=16). Most women (85%, n=17) had undergone local excision surgery, 15% (n=3) had a full mastectomy, and half (50%, n=10) had axillary sampling or clearance.

Radiotherapy was common following surgery (95%), and many patients experienced postoperative complications such as seroma (40%), wound infection (20%), and radiotherapy reactions (45%). More than half (55%, n=11) had previously used other compression garments.

Methods

Each participant was fitted with two Solidea

“Moderate to severe swelling improved in 70% of participants... breast hardness decreased from 90% to 65% and night-time discomfort fell from 85% to 45%.”

Silver Wave Skin bras and instructed to wear them as much as possible, continuing with standard lymphoedema management routines such as skin care, gentle exercise, and self-massage.

Outcomes were measured using a Breast Symptom Assessment Score and a Self-Report Symptom Rating Scale, collected at baseline, week 4, and week 11. Symptoms assessed

included swelling, pain, hardness, heat, itchiness, and night-time discomfort, rated as mild (1), moderate (2), severe (3), or not applicable (0).

Results

At baseline, the mean Breast Symptom Assessment Score was 5.8/18, reducing to 2.3 at follow-up which was an overall 60% improvement. The Self-Report Symptom Rating Scale Score decreased from 6.85/18 to 3.4, representing a 50% reduction in perceived symptoms. Notably, moderate to severe swelling improved in 70% of participants (n=11), breast hardness decreased from 90% (n=18) to 65% (n=13), and night-time discomfort fell from 85% (n=17) to 45% (n=9).

Wearer feedback

Patient evaluations play a vital role in assessing new treatments and products by providing real-world, patient-centred insights (Benson and Benson, 2023). They help determine practical effectiveness,

capture patient-reported outcomes, and identify potential safety issues that may not appear in clinical trials (Rand et al, 2019; Benson and Benson, 2023). This feedback informs product design, regulatory decisions, and ongoing improvements while ensuring that innovations truly meet patient needs and enhance quality of life (Rand et al, 2019; Benson and Benson, 2023).

To gain insight into the wearers' experience of the bra, specifically regarding comfort, application, and removal, participants were invited to complete a semi-structured questionnaire covering ten parameters. They were also encouraged to provide any additional comments they felt were relevant. The questionnaire was completed at the follow-up stage, during week 11 of the audit, and included ten of the patients from the audit.

Most patients were self-caring and wore the garment daily for periods ranging from three weeks to six months. Overall, patient and clinician feedback was highly positive, with consistent reports of improved comfort, reduction in swelling, and enhanced range of motion and ease of applying and removing the garment.

Key themes identified

1. Symptom improvement and comfort

Most participants noted improvements in swelling and skin condition, softening

"Solidea Silver Wave Skin bra is 'the correct garment to address lymphoedema. It works!' "

of breast tissue, and increased range of movement and mobility. Several also reported reductions in pain scores. User comments included:

- "Reduction of swelling to breast."
- "Less reddening."

- "Swelling decreased."
- "Greater comfort when wearing the bra compared to a regular bra."
- "I used this garment more than previous garments"

One participant felt the bra was "the correct garment to address lymphoedema: it works!"

Clinicians confirmed these benefits, frequently scoring 8–10/10 for overall effectiveness, quality of life, and ease of use.

2. Fit, design, and usability

The bra was consistently rated excellent for comfort, texture, ease of application, and staying in place. Many patients found it "comfortable and easy to wear" and appreciated the softness and breathability of the fabric. Women with larger breasts did feel that the bra did not provide enough support for larger breasts. Additionally, some noted minor design limitations such as:

- "The bottom band of elastic is already very stretchy and may stretch too much with regular daily wear."

- “Not suitable to wear under summer dresses/tops.”

3. Compliance and daily use

All patients wore the garment regularly, with several stating they would continue to use it or had requested additional bras. This reflects high satisfaction and likely long-term use.

Clinical observations

Clinician assessments supported patient-reported outcomes, noting reduced swelling, improved mobility, and good skin tolerance. Compression doses were generally deemed effective, though a few clinicians suggested adjustments for optimal support in larger-breasted patients.

Strengths and limitations

Williams and Muldoon (2025) provide small-scale, real-world evidence on the Solidea Silver Wave Skin bra that is relevant to clinical practice. Although described as a clinical audit, the study more closely resembles a product evaluation, as it did not measure practice against an established evidence-based standard, as currently one does not exist.

A key strength is its focus on patient-reported outcomes and lived experience, particularly highlighting the perceived usability issues for larger-breasted women, which is highly relevant for clinical decision-making and patient acceptability.

“The evaluation demonstrated that the Solidea Silver Wave bra provides effective symptom relief, comfort, and wearability, supporting its suitability for ongoing use in breast cancer-related lymphoedema management.”

The findings offer practical insight into how the garment may benefit or limit individuals in routine care, supporting clinicians in judging whether continued use is appropriate.

Limitations include the small sample size, reliance on self-reported questionnaires and clinical assessment, and potential confounding from adjunctive therapies received by 65% of participants. While the use of a validated breast

symptom assessment tool strengthens internal validity, more objective measures of oedema (e.g. ultrasound or tissue tonometry) would have enhanced rigor. Overall, despite methodological limitations, the study contributes meaningful contextual evidence to inform clinical judgment and individualised patient care. Further large-scale studies are needed to evaluate the clinical effectiveness, symptom reduction, quality-of-life benefits, and cost-effectiveness of the product in the management of breast and trunk oedema following breast cancer treatment.

Outcome measures – what is the relevance to clinical practice?

The outcome measures used to evaluate the Solidea Silver Wave Skin bra are relevant to clinical practice, demonstrating clear improvements in breast symptom assessment score and self-reported symptoms. These outcomes translate into meaningful day-to-day benefits for

patients, including reduced night-time discomfort, improved comfort when wearing clothing and bras, and softening of breast tissue with reduced tenderness.

Linking outcomes to wear time, adherence, and patient confidence in self-management further strengthens clinical relevance, as it helps clinicians



understand how consistent use may influence symptom control and empowers patients to take an active role in their care. Importantly, framing results in these practical terms enables clinicians to explain not just that change occurred, but why those changes matter for patients' lives.

Conclusion

The evaluation demonstrated that the Solidea Silver Wave Bra provides effective symptom relief, comfort, and wearability, supporting its suitability for ongoing use in breast cancer-related lymphoedema management. Both patient and clinician feedback suggest that the garment supports improved quality of life and self-care. Minor design enhancements such as more size options, colour variety, and a front-opening version could further improve accessibility and satisfaction among patients and clinicians alike.

A pilot audit (Williams and Muldoon, 2025) to assess the effectiveness, comfort and overall experience of the Solidea Silver Wave Skin bra for women with breast and /or trunk lymphoedema found that:

- ✓ All participants rated comfort of the bra as excellent or good.
- ✓ Ninety per cent of participants rated ease of application and removal of the bra as excellent or good.
- ✓ Symptom scores reduced by approximately half within four weeks.
- ✓ Mean Breast Symptom Assessment Score reduced by 60%.
- ✓ Mean Self-Report Symptom Rating Scale Score reduced by 50%.

Patient experience

Patient A (continued from p..13)

'...Standard post-op bras were uncomfortable both around the axilla and under the breast. The Solidea comes up higher, and is made of soft fabric, so it doesn't irritate the scar. The underband is quite supportive, but also soft, so it is very comfortable to wear, and I wear it most days, alternating with another compression garment. Even though I have cording in the chest wall, it doesn't chafe or cause pain. Since wearing it most days, in addition to massage and exercise, the breast swelling and cording have reduced, and is becoming gradually more comfortable over the past 4-6 weeks'.

Patient B (continued from p..13)

'...Recently, I began to see a lymphoedema nurse who advised I should wear a sports bra with good support which come up high under the axilla to support the area of lymphoedema. I looked everywhere and I could not find anything suitable. I also had the added complication of having a prosthetic breast...

I eventually came across the Solidea Silver Wave bra and, after wearing it for a few weeks, I have seen a massive difference in my lymphoedema. The bra comes up high under the axilla and provides support to my problem area. It is made of soft fabric, which is extremely comfortable to wear, and it is easy to put on... The inside of the bra is slightly ribbed which massages the skin when moving and does provide relief all day. The under-band of the bra is also very supportive and comfortable. I feel that the lymphoedema in my axilla area has reduced in size and my skin feels less fluid filled.'

Overall, I am extremely happy with this bra as it has given me my confidence back when choosing what to wear. I can now wear vest tops etc because the bra comes up high and holds the lymphoedema in. It has changed my life, and I would recommend it to anyone with lymphoedema around the axilla area post mastectomy.'

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