

ESSENTIAL FEATURES OF A MEDICAL COMPRESSION GARMENT &
ITS ROLE IN POSTSURGICAL HEALING



DESIGN VERONIQUE®

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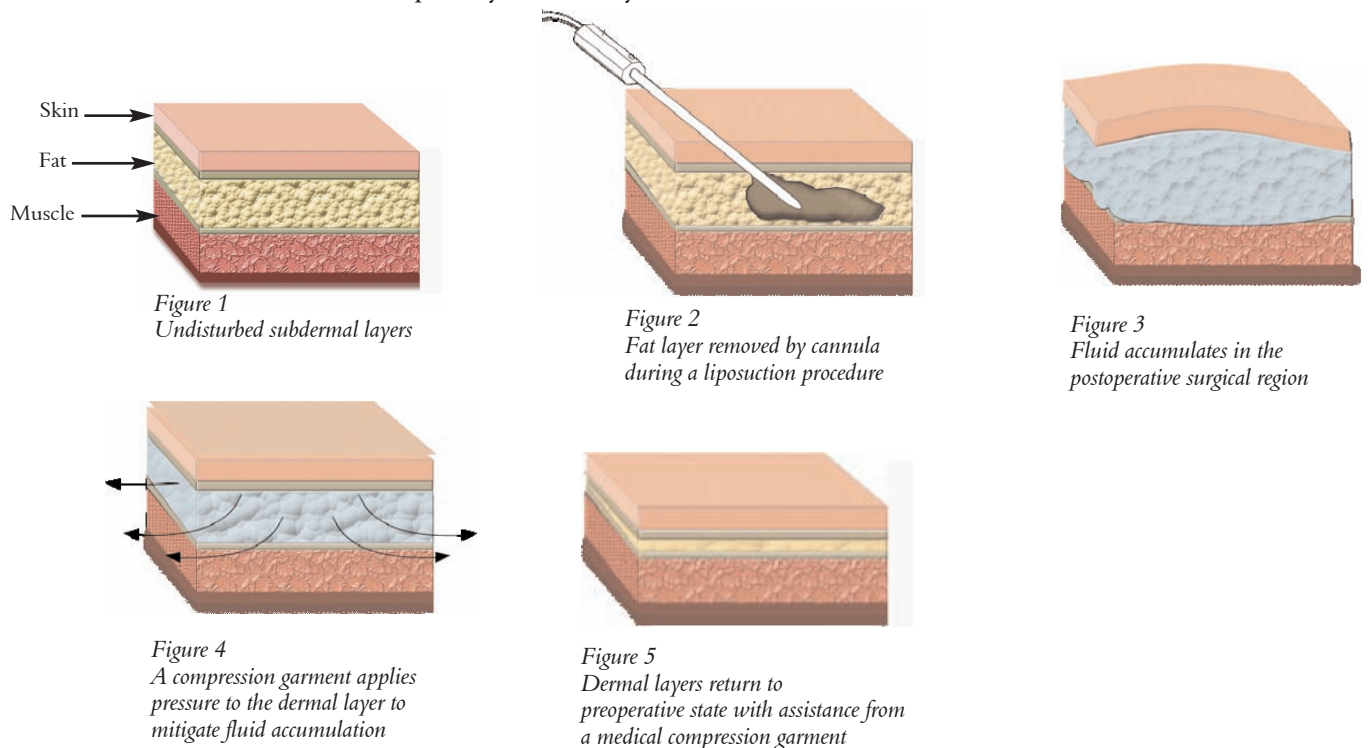
EXECUTIVE SUMMARY

A medical compression garment can assist in the body's healing process and improve procedure results, postoperatively. However, accurate compression and patient compliance in wearing a medical compression garment can affect the outcome. For the most part, patients who comply with their Doctor's recommendation to wear a compression garment have reported a greater sense of overall satisfaction associated with their procedure results. Additionally, greater procedure satisfaction has been linked to patients who reported 100% compliance versus patients who wore a compression garment less than the recommended time. Patient compliance has been directly linked to selecting a garment that properly fits a patient's body, is designed for good hygiene, and is attractive and comfortable while providing accurate compression.

PROCEDURE BACKGROUND

During a reconstructive or an aesthetic procedure such as liposuction, dermal, subcutaneous fat, and muscle layer cohesion is disturbed. More specifically, these procedures can cause trauma to blood vessels and capillaries, the lymphatic system, and connective tissues. Trauma in the surgical area causes leakage of blood and serum from capillaries into adjacent tissues. Blood that leaks into tissues will later lead to inflammation, which slows the healing process.

Postsurgical compression of a surgical site is desirable to mitigate inflammation and stretching of dermal tissue due to fluid accumulating in the surgical region after subdermal intervention, especially where fatty tissues have been removed.



BENEFITS AND RISKS ASSOCIATED WITH PATIENT COMPLIANCE

The benefits of proper compression on the subdermal layers can reduce the risk of seromas, lymphedema, hematomas, and skin unevenness.

Accurate Compression

- Reduces fluid build up in subdermal surgical lipectomy area
- Increases blood circulation
- Promotes proper skin adhesion to newly contoured areas
- Holds surgical dressings in place until removed

Alternately, an ill fitting or ill designed compression garment may cause increased risk of seromas, lymphedema, lumpy or uneven skin composition, exaggerated or red scars, or necrosis.

Inconsistent Compression

- Increases the possibility of fluid accumulation under the dermal layer
- Allows fluid build-up that may stretch the skin causing improper reattachment of the dermal layer to the body's new contours
- Promotes swelling that can cause tapes, sutures, staples, or other fastenings that close a surgical site to break or dislocate

Excessive Compression

- May cut off vital blood circulation to the surgical site



Figure 6
Seroma: A pocket of clear serous fluid that sometimes develops in the body after surgery



Figure 7
Lymphedema: A condition of localized fluid retention caused by a compromised lymphatic system



Figure 8
Hematoma: A collection of blood outside the blood vessels

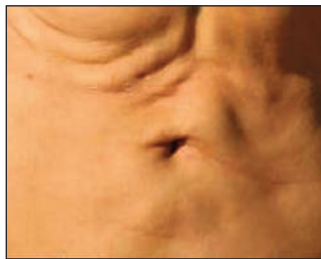


Figure 9
Skin that did not properly adhere to a newly contoured midsection



Figure 10
Necrosis: The unnatural death of cells and living tissue



Figure 11
Exaggerated scars

THE ESSENTIAL FEATURES OF A MEDICAL COMPRESSION GARMENT

A quality compression garment will apply constant and consistent compression from all angles over a prolonged period of time to provide support to the entire surgical region without sacrificing a patient's comfort. Although fabric selection and quality construction are important in producing the proper level of compression in a garment, garment design plays an even greater role. A garment's design pattern should mold the body into the ideal hourglass or V-shape. Since most aesthetic and reconstructive procedures are developed to give a patient these ideal body shapes, a garment should be designed and constructed to support the procedure and align the garment to the body's new contours. Additionally, with a recommended wear schedule of up to 23 hours a day, it is imperative that a compression garment be designed with comfort and durability in mind. Patient compliance can be directly tied to the comfort and proper fit of a compression garment.

PATTERN AND DESIGN

Garment Design Structured to Encourage an Hourglass or V-shape Body

The pattern developed for a compression garment is perhaps the single most important element of a garment. Each fabric panel and every seam should be carefully considered to correctly mold a body into an hourglass or V-shape and provide accurate physiological compression to explicit surgical areas. Furthermore, seams, zippers, sensitivity guards, tags, and closures need to be placed in effective locations while catering to the comfort of the patient.

Computer Aided Design (CAD) Technology and Precision

Creating a two-dimensional pattern to fit a three-dimensional body, while providing proper compression to reshape body contours, can be a tricky problem. Once a garment pattern is perfected, Computer Aided Design technology can assure that every garment cut from a unique pattern, throughout the size chart, will retain the precise compressive properties of the original garment design.



Figure 12
Garment patterns should encourage an hourglass or V-shape

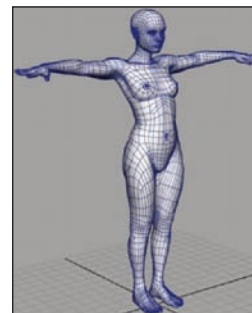


Figure 13
CAD technology ensures precise measurements

ACCURATE COMPRESSION

The standard measure of pressure, or manometric unit, used to calculate compression in a garment is mmHg (millimeter of mercury) and is equivalent to the amount of pressure exerted at the base of a column of liquid mercury of the given height. It is widely accepted that garments with an mmHg of 15 to 20 are considered “high pressure” and are suitable for use as medical compression garments.

Although it is possible to test fabric for the ability to apply an mmHg of 15 to 20, it is more difficult to ascertain the exact level of mmHg a garment will exert on a body given the uniqueness of personal physiques. For this reason, patients should be counseled by their physician or a garment specialist to obtain the proper garment style and fit to ensure accurate compression from a medical garment.

Gradient Compression Technology (GCT)

GCT is compression, targeted to a surgical site associated with an aesthetic or reconstructive procedure, which grades the compressive area from a higher tension at the surgical site to a lower tension moving away, in all directions, from the surgical site. GCT disperses fluid accumulation, associated with the body’s natural healing process, away from the surgical site to allow the dermal layer to adhere to the body’s new contours and assist in skin retraction.

Inner Compression Panels

Additional panels of targeted compression, located at the surgical site where fluid accumulation may add additional stress to the garment, keeps the garment’s compressive properties intact and assists in body contouring and skin retraction.

Gradient Compression Technology

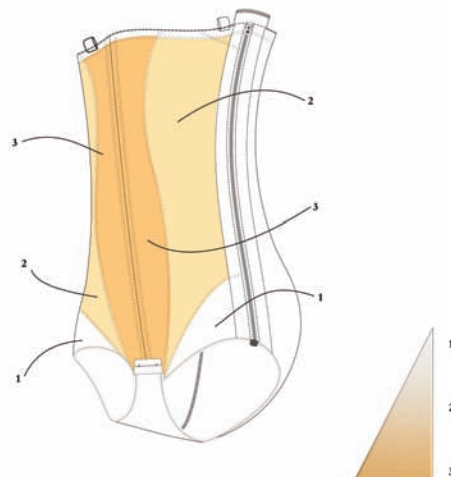


Figure 14
GCT: Gradient Compression Technology



Figure 15
Inner compression panels demonstrated by a
Design Veronique medical compression garment

FABRIC QUALITY

Fabric selected for a compression garment should be strong and durable with the ability to allocate pressure to the body in all directions. Additionally, it should easily recover to its original shape after periods of extreme stress caused by constant wear. Because a compression garment is worn for the better part of 24 hours each day, the fabric needs the ability to breathe. Furthermore, the fabric should not contain agents that can cause an allergic response. For these reasons, a textile called PowerNet has been the accepted industry standard for over 30 years.

Characteristics of PowerNet

PowerNet consists of a flexible, open hexagonal, net construction, which is specifically developed for strength and to apply pressure both vertically and horizontally resulting in four-way, even compression. Because compression is exerted at the points of the hexagon in the knit, pressure distributes evenly throughout a garment made from PowerNet.

PowerNet fabric achieves “Modulus in Motion” defined as multi-directional stretch, administered by the hexagon unit, and modulus (tension strength at a given elongation), which provides continuous compression while contouring to the body and providing freedom of movement.

PowerNet Durability

Due to its construction, PowerNet can withstand a great deal of stress over a long period of time without losing its original shape, a concept known as memory. Memory is vital to a compression garment’s ability to retain its consistent and constant compressive properties.

The hexagonal unit provides PowerNet with the ability to retain a garment’s integrity after being cut or pierced, a necessary feature as holes are often made in a garment to accommodate drain or intravenous tubes. Additionally, PowerNet is a wash and wear fabric that makes laundering at home an easy task.



Figure 16
PowerNet fabric consists of a flexible and breathable open hexagon construction



Figure 17
PowerNet resists runs and provides accurate compression even after its structure has been compromised

PowerNet Hygienic Properties

PowerNet is made of a proprietary blend of spandex and nylon that makes for a lightweight, breathable garment that wicks moisture away from the body, and is inherently microbe resistant. The hexagon unit in PowerNet, when stretched over a body, will open to accommodate airflow making the fabric breathable.

Of particular importance is that PowerNet fabric is 100% latex and rubber free, assuring doctors and patients alike that there is no risk of deadly allergic reactions. Design Veronique has taken additional steps to keep their garments hypoallergenic by rejecting PowerNet fabric that contains formaldehyde.



*Figure 18
PowerNet is Latex &
formaldehyde free*

PROPER FIT

How a Garment Should Feel on the Body

A compression garment should feel snug on a body, literally as if the garment is compressing the dermal layer onto the muscle wall. Because a garment compresses a body's fibers and tissues, it is normal to stress the garment when it is placed on a patient. A garment that is designed to be worn immediately post procedure contains special features to help apply the garment, such as hook & eye closures underneath zippers. These construction features allow for easier application of the garment and a proper, snug fit. Once on, a garment should not constrict a patient's movement in any way and should feel comfortable enough for normal breathing.

A Note of Caution

A garment that feels like athletic wear, yoga wear, or a lingerie shaper will not provide the level of constant and sustained compression required after a surgical procedure. A compression garment is a medical garment with a specific purpose, to encourage the healing and recovery process after a reconstructive or aesthetic procedure, and help the skin conform to its new contours.

GARMENT POSITIONING

Adjustable Shoulder Straps

During healing, it is common for the body to fluctuate in size based upon changes in fluid accumulation. A quality compression garment will include shoulder straps that are adjustable and removable to allow the garment to be raised or lowered, increasing comfort and providing accurate compression to the affected parts of the body.

Wide Waistbands

Compression garments designed specifically for the lower portion of the body, and therefore do not include shoulder straps, should have at least a 2” wide waistband. This size waistband will stabilize the garment position and keep it from rolling up or sliding down when putting on everyday clothing.

Lace Trim that Grips

In compression garments, even accent lace has a purpose. Lace trim should be lined with hypoallergenic, non-irritating silicone to keep the garment in contact with arms and legs, even as the body size fluctuates due to changes in fluid accumulation. Keeping the garment in contact with the skin reduces the potential for rolling or bunching during wear.



Figure 19
Adjustable and detachable
shoulder strap



Figure 20
Silicone lined lace trim



Figure 21
Wide waistband

INTERIOR GARMENT COMFORT

Seams

The best choice of seam stitch for a compression garment is a flat-lock stitch. A flat-lock stitch creates an extraordinarily strong seam designed to lie flat to the body. A garment that is exerting accurate compression is subject to high levels of stress. Seams are natural areas of weakness in a garment and can separate if not executed properly, diminishing the garment's purpose. A flat-lock stitch seam provides a strong durable bond and ensures that a garment will not be compromised by weak seams.

The use of a flat-lock stitch virtually eliminates skin tissue marking, itching, and irritation. Also, a flat-lock stitch seam is nearly undetectable when wearing the garment under clothing. Incidentally, a seam should never be located at an incision site where it could cause undue stress on the body resulting in severe discomfort.

Zippers and Hook & Eye Closures

Hook & eye closures should be placed underneath the zipper hardware, with the closure clasps spaced apart. The purpose of this construction is to allow the hook & eye to assist in holding the zipper in place for ease of operation. Unfinished zippers or hook & eye closures can scratch and irritate already sensitive skin, postoperatively. Using Zipper Guard Tape under zippers and hook & eye clasps assures an extra-wide, soft cotton guard, which can shield skin and prevent the possibility of catching skin in the zipper while putting on the garment.

Labels

A quality compression garment will always locate garment care tags on the outside of the garment to prevent undue discomfort to the patient.



Figure 22
Flat-lock stitch seam is strong, lays flat against the body, and is undetectable under clothing



Figure 23
Zipper with hook & eye closure assists in applying the garment



Figure 24
Exterior labels reduce skin irritation

HYGIENE

Accommodating Necessary Body Functions

Since a compression garment must be worn constantly, it is imperative that the garment accommodate body elimination. Therefore, a reinforced, anatomically correct open crotch is essential to a compression garment. The opening should be properly constructed and solidly reinforced to avoid tearing the garment while using the facilities. Furthermore, because accumulated fluid will naturally flow downward due to gravity, the garment opening should be small enough to offer some compressive support to the pubic bone to reduce the possibility of edema in the genitals.

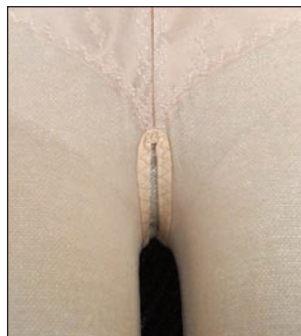
Natural Fiber Fabric

Fabrics made from natural fibers, such as 100% cotton, should be used minimally in compression garments. Cotton should never fully line a medical compression garment. However, cotton can provide soft, soothing comfort during the healing process.

After a liposuction procedure, it is common to have open incisions that release excess fluid, commonly referred to as drainage. Cotton will absorb excess drainage fluid and can harbor bacteria, so there is a possibility that infection may occur. When using cotton in a medical compression garment, it is ideal to locate the fabric only around incision sites that are not exposed to open drainage from the body.

Anti-Microbial

The anti-microbial garment properties of PowerNet preserve sanitation around wound sites to prevent bacteria growth from interfering with the healing process.



*Figure 25
Anatomically correct open crotch
accommodates body eliminations*



*Figure 26
Anti-Microbial properties reduce
the risk of incision infections*

OPTIONS WHEN SELECTING A COMPRESSION GARMENT

Length of Wear

Physicians who recommend compression garments vary in their opinions regarding the length of time a patient should wear a garment. However, on average, the recommended duration is from three weeks to three months. During the first three to four weeks, a compression garment should be worn at all times and only removed to shower or bathe. When a patient removes their garment, their body will begin to expand from fluid entering the surgical area. Because of this swelling, it is recommended to immediately put on a compression garment after bathing. Since garments require hand laundering and air drying, a second garment is a good investment.

Second Stage Garments

In the weeks following an aesthetic or reconstructive procedure, a compression garment commonly referred to as a Second Stage garment may be selected. Since the body is now accumulating less fluid, a Second Stage garment is worn for less time during each 24-hour period. Furthermore, a Second Stage garment, due to the insertion of additional inner compression panels, provides greater compression to ensure proper skin retraction and tissue adherence. Additional alterations to the Second Stage garment may include a closed crotch and the removal of zippers and/or hook & eye closures.

Style Options

Medical compression garments are designed for a specific purpose based upon a surgical procedure. An aesthetic or reconstructive procedure may target one or several areas of the body. The areas of the body that require compression are dictated by the procedure(s) performed and the corresponding surgical site(s). A patient needs compression directly at the surgical site(s) and corresponding area, and possibly below the affected area, since fluid will naturally flow downward with gravity.

Although different style options are designed for specific procedures, they can also accommodate a patient's pre surgical form. For instance, a patient with a voluptuous leg may feel more comfortable in a garment with a longer leg panel that may reduce the possibility of the garment digging uncomfortably into the thigh. In another example, a patient whose surgical area was limited to the upper body might prefer a garment with a full leg panel. Because fluid naturally flows downward with gravity, a garment that provides compression along the length of the legs can reduce the possibility of fluid accumulation in the lower legs or feet.

Due to unique body compositions, varying procedures, and personal preferences, compression garments come in all shapes and sizes. It is recommended that a patient work either with their physician or with a compression garment specialist, trained in garment fitting and selection, to choose the garment that will produce the best results for their procedure recovery.



Figure 27
Among the many Design Veronique
style options are four standard leg lengths

Custom Alterations and Fitting

Occasionally, patients with unique body types have a difficult time finding compression garments that provide a proper fit and accurate compression. When faced with body measurements outside a standard size chart, a patient can opt for a custom made compression garment. A genuine custom garment is made from a pattern crafted using a patient's unique measurements taken within the surgical area associated with the patient's specific procedure. Although many companies offer custom garment services and alterations, only a few can construct a custom garment based on a patient's unique measurements. Design Veronique is currently the only company that can construct a genuine custom garment within 48 hours.



Figure 28
Genuine custom garments are made for individual
patients based upon their unique measurements and needs

CONCLUSION

Complying with the orders of a Doctor to wear a medical compression garment can improve the success of an aesthetic or reconstructive procedure. When selecting a compression garment, choose one that provides accurate, consistent, and constant compression but also has the essential features to ensure a comfortable fit. Accurate compression and 100% compliance do make a difference in the healing process.



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