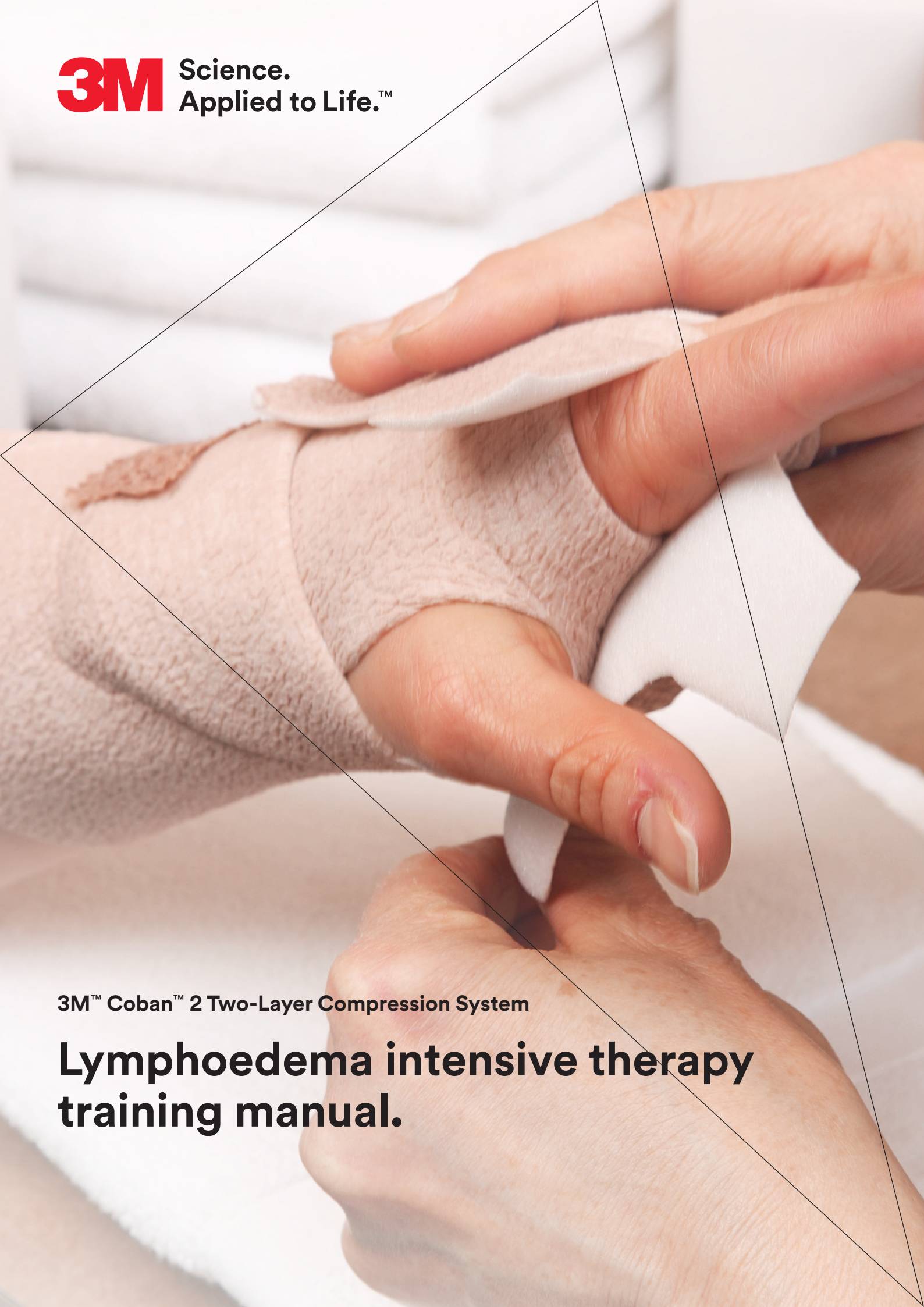

3M Science. Applied to Life.™

3M™ Coban™ 2 Two-Layer Compression System

Lymphoedema intensive therapy training manual.

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Section two

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Overview of lymphoedema

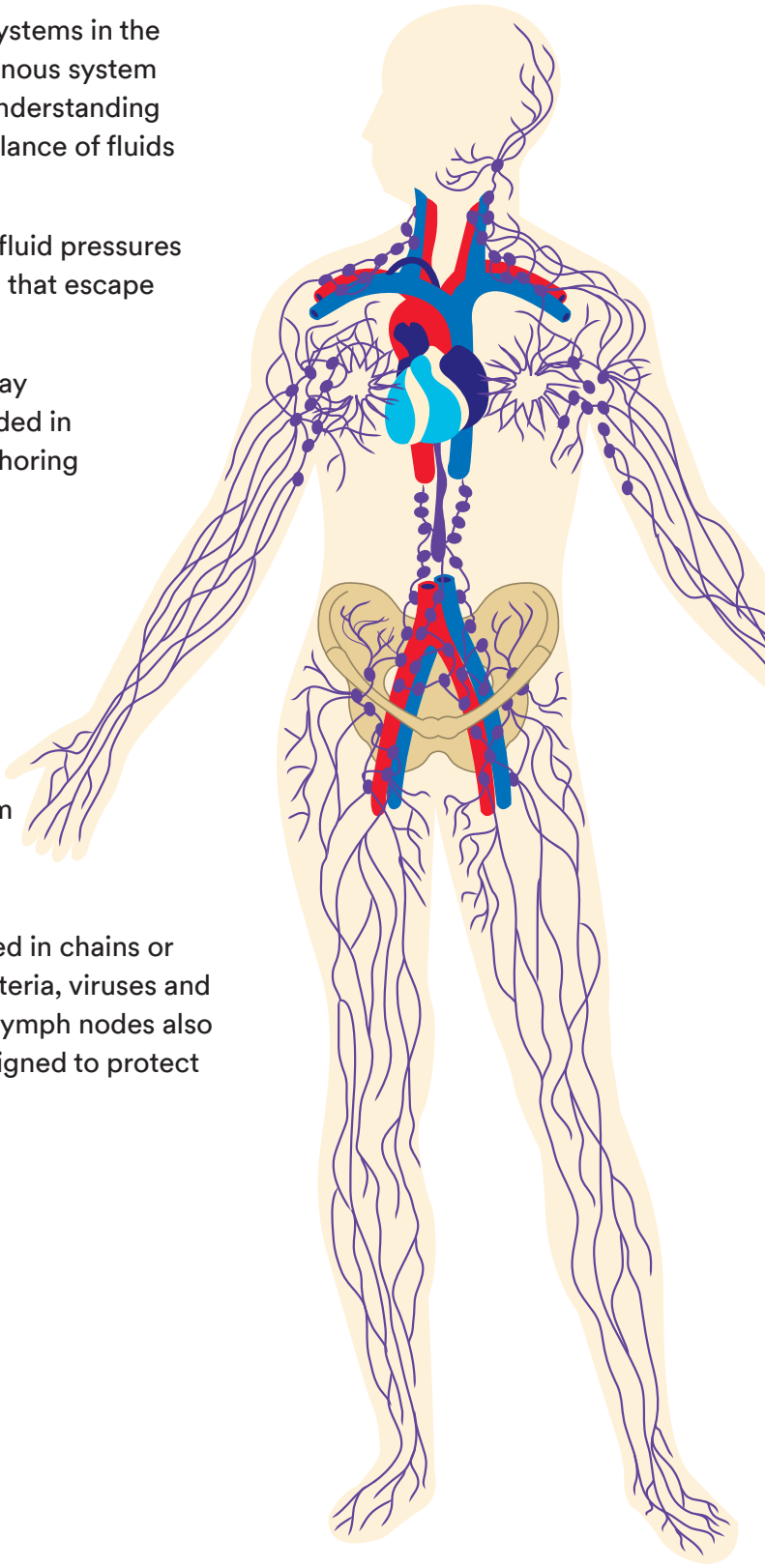
Lymphoedema is a chronic condition resulting from congenital defects or secondary damage due to surgical disruption, radiation, or trauma to the lymphatic system. Lymphoedema is characterised by swelling (oedema) due to the build-up of lymph fluid in the tissues just under your skin. The swelling, seen most often in the arms or legs, may involve the face, neck, abdomen (belly) and genitals.

Lymphatic anatomy and function

The lymphatic system is one of the three circulatory systems in the human body. Much is known about the arterial and venous system and only recently has more attention been spent on understanding the lymphatic system which plays a vital role in the balance of fluids in our body.

The lymphatic system functions to balance our tissue fluid pressures by reabsorbing protein-rich fluids and waste products that escape from the bloodstream into the interstitial space.

The normal lymphatic system is described as a one-way system where tiny lymphatic capillaries start blind-ended in the tissues where they are attached to the skin by anchoring filaments. These capillaries unite to form a network of wider vessels that act as a regional drainage system. As these vessels become larger, they follow a path similar to veins ultimately emptying into the venous system through two large lymph-collecting vessels. 75% of lymph fluid is collected from the left side of the body and the right leg and lower abdomen and passes into the thoracic duct. The remaining 25% of the lymph fluid is collected from the right side of the head, neck, arm and chest and is passed into the lymphatic duct.[1]



This vast lymph network contains lymph nodes, located in chains or clusters that filter and remove potentially harmful bacteria, viruses and cancer cells prior to entering the venous system. The lymph nodes also produce lymphocytes, white blood cells specially designed to protect us from disease.

Overview of lymphoedema

Fluid balance

Fluids in the body tissues are normally kept in balance via complex interactions between the blood circulation mechanisms and the lymphatic system. Arterial blood flow brings nutrients and oxygen to the tissues and during this process fluids will pass through the capillary walls (filtration) into the tissue (interstitial) spaces. Waste products and fluids that have collected within the tissue spaces are then primarily reabsorbed back into the small, collecting veins that return the blood back to the heart.

The job of the lymphatic system is to remove any excess fluid, waste products, viruses and bacteria still trapped in the interstitial spaces (reabsorption) where it is ultimately returned to the venous circulation.

If an imbalance occurs between the fluids that accumulate in the tissue space and the rate of reabsorption, then oedema occurs. There are many causes that contribute to this tissue fluid imbalance but if the lymphatic reabsorption is compromised, proteins are also trapped in the tissues increasing the concentration of the interstitial fluid. This accumulation of high protein fluids in the interstitial space is called lymphoedema.

Lymph flow

Under normal conditions, healthy lymphatic flow is supported by rhythmic contractions of the lymphangions. These are the functional segments of lymph vessels with walls of smooth muscle and with one-way valves that prevent back flow. These contractions generate enough pressures to move the fluid towards the heart. All other forces, such as muscular contractions, respiratory movements and arterial pulsations are secondary to the normal lymphatic contractions.[2]

However, Olszewski[3] has shown that when spontaneous lymph flow mechanisms are damaged, limb muscle contractions take over the job to stimulate lymphatic contractions, subsequently increasing lymph flow, or generating intralymphatic pressures that propel the lymph.

In this study, the benefit of compression bandaging was illustrated to support the limb muscle dynamics that supported lymph flow.

Overview of lymphoedema treatment

The ultimate goal of lymphoedema management is to stimulate lymphatic flow via alternative pathways so that lymph fluid is moved from the lymphoedematous regions, circumventing the damaged or obliterated normal pathways.

The traditional treatment methods will vary depending on the patient's physical status and stage of condition. It is widely accepted that compression therapy is an effective component of lymphoedema treatment.

Lymphoedema is treated by a physical or occupational therapist or other health care professional with specialised training. Treatment may be accomplished in specialised clinics, hospital or community settings. The treatment, may be called complex decongestive therapy (CDT), or decongestive lymphatic therapy (DLT) or complete decongestive physiotherapy (CDP) and includes skin care, education, movement/ breathing exercises, manual lymphatic drainage (MLD) and compression therapy.

Effects of bandaging as one component of intensive care

Lymphoedema specialists have long recognised that inelastic bandages with low extensibility produce high working pressures and lower resting pressures creating peak pressures that produce a massaging effect to stimulate lymph flow.[4]

Different mechanisms may explain the efficacy of compression therapy:

- Reduction in capillary filtration
- Shift of fluid into non-compressed parts of the body
- Increase in lymphatic reabsorption and stimulation of lymphatic transport
- Improvement in the venous pump in patients with venolymphatic dysfunction and breakdown of fibrosclerotic tissue

These beneficial effects have been further supported by Partsch[5] who identified that compression is the most critical aspect of treatment and is most effective when inelastic materials are used.

Mayrovitz[6] further describes the effects of short stretch bandaging to provide the required resistance to support and distribute the dynamic working pressures created by functional, muscle activities to move interstitial fluids, soften fibrotic tissues and stimulate lymphatic contractility.

How 3M™ Coban™ 2 Two-Layer Compression System provides short stretch benefits

The Coban 2 Compression System has been designed with innovative new materials that work together to create a comfortable inelastic sleeve and have been proven to support the muscle functional dynamics that support normal venous and lymphatic return and reduce edema.[7]

Results of a multi-centre, prospective, open label, randomised controlled study[8] showed that Coban 2 Compression System renewed twice weekly is effective to reduce lymphoedema.

3M materials science and lymphoedema bandaging

Up until now, traditional lymphoedema bandaging has incorporated short stretch, inelastic bandages with a variety of padding materials to normalise the limb shape believed to provide a pressure gradient according to Laplace's Law.

The resultant bandage creates the rigid sleeve that supports intermittent peak pressures of muscle activity to achieve the massaging effect that stimulates lymph flow.[4] Though effective in reducing edema, these bandages create a number of distressing problems for the patient.

Traditional bandages are thick, stiff and bulky so that wearing normal clothing and footwear is difficult. Qualitative studies[8] have reported that current bandaging methods restrict mobility, reduce flexibility and function required for the normal activities of daily living. In addition, patients have reported that the standard multi-layer lymphoedema bandage (MLLB) treatment is time consuming and tiring.

3M materials

3M™ Coban™ 2 Two-Layer Compression Systems were invented to provide many of the ideal properties described in literature of an effective compression system. Coban 2 Compression Systems incorporate innovative methods and patented materials to provide comfortable, sustained compression that improves lymphatic flow to reduce lymphoedema. When applied to the limb, the resulting bandage creates an inelastic sleeve with the ideal stiffness to support all the muscular movements of the patient within the bandage. These intermittent muscle contraction/relaxation forces are proven to move lymphatic flow to reduce oedema.

Coban 2 Compression Systems design properties are unique. The system is latex-free and composed of two specially designed layers:

- **Layer 1**
  3M™ Coban™ 2 Comfort Foam Layer, a laminate of medical grade polyurethane foam with cohesive, non-woven backing

- **Layer 2**
  3M™ Coban™ 2 Compression Layer, a cohesive bandage with spandex filaments modified to be short stretch and with specific numbers and denier to provide lite or high compression

3M materials science and lymphoedema bandaging

The 3M™ Coban™ 2 Comfort Foam Layer is applied with the foam side towards the skin to provide comfortable cushion, protection and mechanical grip when compressed against the skin to reduce slippage during wear. 3M™ Coban™ 2 Two-Layer Compression Systems have been proven to be patient preferred and to provide reduced slippage.

The 3M™ Coban™ 2 Compression Layer, with short stretch properties was specifically designed to be applied at full stretch to eliminate the guesswork of applying the bandage at varying extension. This method has been shown to reduce application variability and proven to be easy to learn and easy to teach.

After application, the two layers cohere together creating a comfortable inelastic sleeve that conforms to the anatomy and grips the skin to reduce potential for uncomfortable slipping and bunching. The thin profile allows use of more normal footwear so the patient can remain as active as possible. Maintaining activity will promote reduction of oedema and lymphatic return.

Evidence to support use of new materials in lymphoedema treatment

To expand the evidence to support use of Coban 2 Compression Systems for lymphoedema treatment, 3M has recently completed a number of clinical and economic studies in partnership with leading clinicians. The body of work includes:

- Randomised, multi-centre, open-label controlled study on 82 patients with arm and leg lymphoedema from which application frequency, clinical outcomes and cost of total treatment were captured

  A preliminary randomized controlled study to determine the application frequency of a new lymphoedema bandaging system, Moffatt, C., Franks, P., Hardy, D., Lewis, M., Parker, V. and Feldman, J. (2012), British Journal of Dermatology, 166: 624–632. doi: 10.1111/j.1365–2133.2011.10731.x

- A prospective cohort study on use of the new materials on 24 patients and report of clinician and patient experiences to determine the effectiveness of a new bandaging system

  Evaluation of the performance of a new compression system in patients with lymphoedema., Franks, P. J., Moffatt, C. J., Murray, S., Reddick, M., Tilley, A. and Schreiber, A. (2012), International Wound Journal. doi: 10.1111/j.1742–481X.2012.00958.x

- Proof of concept study of effective volume reduction over 24 hours on 30 leg lymphoedema patients

  Prospective, randomised, controlled trial comparing a new two-component compression system with inelastic multi-component compression bandages in the treatment of leg lymphedema, Lamprou, D-A, Damstra, R. J. and Partsch, H. (2011) Dermatologic Surgery, 37: 985–991. doi: 10.1111/j.1524–4725.2011.02002.x

- A qualitative study using focus groups in Canada and the UK exploring the professional challenges of treating patients with complex/severe forms of chronic oedema/lymphoedema with compression therapy

  The challenges of managing complex lymphoedema/chronic oedema in the UK and Canada, Morgan, P. A., Murray, S., Moffatt, C. J. and Honnor, A. (2011), International Wound Journal, 9: 54–69. doi: 10.1111/j.1742–481X.2011.00845.x

- A descriptive qualitative study reporting the experiences of patients undergoing a period of compression bandaging as part of complete decongestive therapy

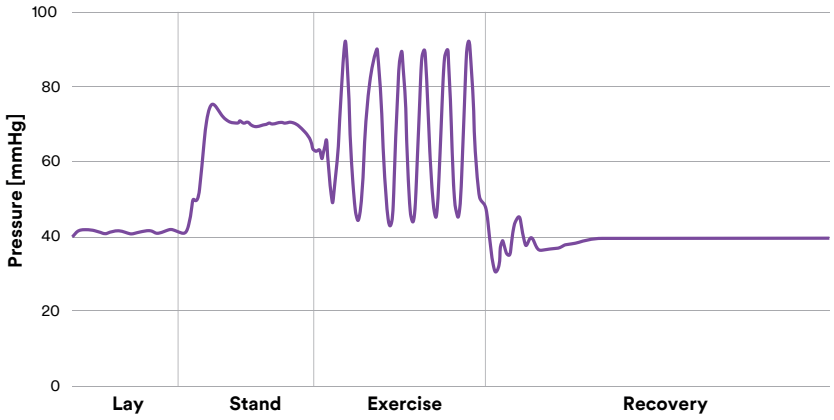
  The experience of patients with lymphoedema undergoing a period of compression bandaging in the UK and Canada using the 3M™ Coban™ 2 Compression System. Morgan, P. A., Murray, S., Moffatt, C. J. and Young, H. (2011), International Wound Journal, 8: 586–598. doi: 10.1111/j.1742–481X.2011.00832.x

3M materials science and lymphoedema bandaging

Effective compression

Breakthrough research[7] has shown that the dynamics of effective compression therapy are better explained by Pascal's Law, which states that when pressure is applied (functional activity) on a fluid (a muscle or muscle group) in a closed container (fascia muscular and compression layer), there is an equal increase at every other point in the bandage.

In compression, dynamics refers to the difference between high and low working pressures reflecting intermittent changes in pressure caused by the patient's own muscle movement within the bandage.



Inelastic or rigid compression systems generate larger dynamics, or amplitudes, and therefore, more effective compression. Mayrovitz[6] showed that an inelastic external covering facilitates the lymph movement by the dynamic peak pressures generated through muscle contractions.

3M™ Coban™ 2 Two-Layer Compression Systems are engineered to create a conformable, inelastic sleeve that stays in place, is comfortable to wear and proven to support the patient's functional activities to reduce lymphoedema. Efficacy has been demonstrated by a randomised, multi-centre, prospective, open label study[8] comparing Coban 2 Compression System to standard bandages showed excellent volume reduction with twice weekly applications.

Conformability without additional padding

In traditional lymphoedema bandaging, a variety of foam and fluff padding materials have been used to protect vulnerable skin folds and normalise the shape of the limb to create a bandage with even compression that provides a pressure gradient according to Laplace's Law. The various densities of these materials require application of multiple layers of short stretch bandages to create a certain level of 'stiffness' required to support lymphatic flow.

3M™ Coban™ 2 Two-Layer Compression System materials were designed to provide the required 'stiffness' with only two thin layers that conform directly to the patient's limb contours. Clinical effectiveness has been proven as seen by volume and skin fibrosis reduction. If additional protection is needed, the comfort foam layer can be adapted to protect skin folds and bony prominences without adding additional bulk that would interfere with clothing and footwear.

3M materials science and lymphoedema bandaging

Mobility and function

The thin, low profile of the 3M™ Coban™ 2 Two-Layer Compression System materials has been proven in a randomised controlled study[9] to significantly improve patients' health related quality of life physical symptoms and daily living scores. Patients with lymphoedema[8] also reported an extremely positive experience wearing Coban 2 Compression Systems with the key advantages of lightness, neatness and flexibility enabling mobility and improving quality of life.

Lightness and comfort

Qualitative studies[8] have reported that current multi-layer compression bandages are bulky, uncomfortable and restrictive with a cumulative negative impact on patients' self-esteem and self-confidence. After wearing Coban 2 Compression Systems, these same patients had a renewed sense of self resulting from the reduced swelling and lighter, less intrusive, flexible bandage.

Less slippage

Coban 2 Compression Systems have been proven to stay in place with less slippage.[9] The inner comfort foam layer consists of latex-free medical grade polyurethane foam laminated to a cohesive non-woven backing. When compressed, the foam grips the skin, and the non-woven backing provides a cohesive surface for the attachment of the compression layer. The patented interlocking materials cohere to each other, creating a rigid sleeve that conforms to the limb.

Clinical experience[8] using Coban 2 Compression System for lymphoedema intensive treatment demonstrated that the bandages stayed in place even with clinically relevant volume reduction and that the low slippage allowed effective treatment for up to four days wear.

Proven safe for skin[8]

For patients with lymphoedema, maintenance of skin integrity with careful management of skin problems is important to minimise the risk of infection.[4] 3M™ Coban™ 2 Comfort Foam Layer is a laminate of medical grade foam with a latex-free cohesive backing. The hypoallergenic foam side is applied to the skin and has been proven to be safe, non irritating, non sensitizing and can be left in place up to 7 days when clinically appropriate.[8]

Clinical experience[8] using 3M™ Coban™ 2 Two-Layer Compression System for patients with lymphoedema has demonstrated effective compression for up to four days with high skin tolerance. During this same study, a wide array of skin products were used in conjunction with the Coban 2 Compression System and were found to be well tolerated and did not promote bandage slippage.

3M product offering

A variety of sizes are offered along with recommended application techniques to fit the variety of body and limb contours. There are two offerings and each has clear, differentiating labelling and colouration.

Product line

1 The white comfort foam layer is applied first

2 The tan compression layer is applied second

Patient icon

Roll icon

Comfort foam and compression layers clearly marked

The comfort foam layer and compression layer are packaged separately so clinicians can select and customize materials to meet the size and contour challenges of every patient with lymphoedema. Each individual roll is clearly marked with either a 1 or a 2, to indicate the order of application.

Easy-access boxes include symbols and icons

The easy-access boxes also include a white or coloured roll icon with a 1 or a 2 indicating the order of application. The roll icon identifies the contents as comfort or compression layer materials. The patient icon indicates the correct body part for each product.

3M™ Coban™ 2 Comfort Foam Layer and 3M™ Coban™ 2 Compression Layer are provided in a wide variety of sizes for clinician choice and convenience to meet the size and contour challenges of the patient with lymphoedema.

Original 3M™ Coban™ 2 Two-Layer Compression System materials are provided for the lower extremities as they have been proven to provide sub-bandage pressures for comfortable, effective venous and lymphatic edema reduction.

3M™ Coban™ 2 Lite Lite Two-Layer Compression System materials are designed to provide short stretch inelasticity with reduced sub-bandage resting pressures. They are recommended for upper extremities, fingers and toes – all with smaller diameters. Laplace's Law, which states that pressure is proportional to the tension of the material stretch divided by the radius (P α T/R) helps us understand that limbs with smaller radii require lower sub-bandage pressure for comfort and safety. For arm lymphoedema, Damstra[10] has reported that low-pressure bandages are as effective as high-pressure bandages with improved patient comfort.

3M product offering

Typical products used for arm, hand, finger and toe applications

For the upper limbs, fingers and toes with smaller circumferences use 3M™ Coban™ 2 Lite Compression System identified by bright green package colour and icon.

Typical arm bandage

- 1 roll of 2.5cm compression layer (2) – for fingers
- 1 roll each of 10cm comfort foam layer (1) and compression layer (2)

Large arm

- 1 roll of 2.5cm compression layer (2) – for fingers
- 1 roll each of 10cm comfort foam layer (1) and compression layer (2) – for hand and wrist area
- 1 roll each of 15cm comfort foam layer (1) and compression layer (2) – for arm

Foot bandage, individual toe technique

- 1 roll of 2.5cm compression layer (2)

Typical products used for leg and foot applications

For the lower extremities use 3M™ Coban™ 2 Lite Two-Layer Compression System identified by bright purple package colour and icon.

Foot bandage, toe boot technique

- 1 roll each of 5cm comfort foam layer (1) and compression layer (2)

Typical leg bandage

- 1 roll each of 10cm comfort foam layer (1) and compression layer (2) – for foot up to below knee
- 1 roll each of 15cm comfort foam layer (1) and compression layer (2) to cover knee and thigh

Large leg

- 1 roll each of 10cm comfort foam layer (1) and compression layer (2) – for foot up to below knee
- 1 roll of 15cm comfort foam layer (1) to cover knee
- 2 rolls of 15cm compression layer (2) to cover knee and thigh

Typical products used for advanced applications

For typical product recommendations for advanced application techniques, see the Materials and Positioning section for each specific application details sheet in Section 2.

3M product offering

Easy-to-remember reference numbers

The product numbering system has been designed to help you when ordering 3M™ Coban™ 2 Compression System. The 5-digit reference numbers are set up as follows:

20713

7 = Coban 2 Lite

1 = Comfort foam layer

Roll width in inches

20024

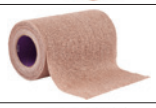
0 = Original Coban 2

2 = Compression layer

Roll width in inches

Ordering information

Main application	3M reference	Content	Roll dimensions and packaging
3M™ Coban™ 2 Lite Two-Layer Compression System For legs, arms, shoulders, fingers and toes	20713 	Comfort Foam Layer	7.5cm x 2.7m 18 rolls per box, 4 boxes per case
	20714 	Comfort Foam Layer	10cm x 2.7m 18 rolls per box, 2 boxes per case
	20716 	Comfort Foam Layer	15cm x 2.7m 10 rolls per box, 4 boxes per case
	20721 	Compression Layer	2.5cm x 3.5m 36 rolls per box, 4 boxes per case
	20723 	Compression Layer	7.5cm x 3.5m 32 rolls per box, 4 boxes per case
	20724 	Compression Layer	10cm x 3.5m 32 rolls per box, 2 boxes per case
	20726 	Compression Layer	15cm x 3.5m 15 rolls per box, 4 boxes per case

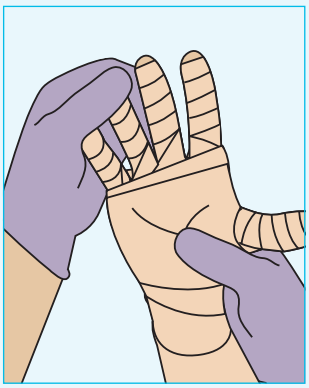
Main application	3M reference	Content	Roll dimensions and packaging
3M™ Coban™ 2 Two-Layer Compression System For legs, hips and torso	20012 	Comfort Foam Layer	5cm x 1.2m 32 rolls per box, 4 boxes per case
	20014 	Comfort Foam Layer	10cm x 3.5m 18 rolls per box, 2 boxes per case
	20016 	Comfort Foam Layer	15cm x 3.5m 10 rolls per box, 4 boxes per case
	20022 	Compression Layer	5cm x 2.7m 32 rolls per box, 4 boxes per case
	20024 	Compression Layer	10cm x 4.5m 32 rolls per box, 2 boxes per case
	20026 	Compression Layer	15cm x 4.5m 15 rolls per box, 4 boxes per case

Application details – basic techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the hand and arm

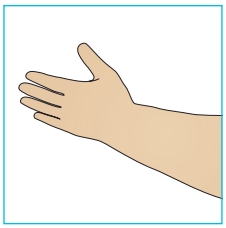
Materials and positioning

- Select the 10cm 3M™ Coban™ 2 Lite Comfort Foam Layer and 3M™ Coban™ 2 Lite Compression Layer for most hands and arms. **Note: Always ensure, when bandaging limbs, that the bandage is applied with the muscles relaxed. This helps the system to work better when the muscles flex after application**
- If the arm is large, a roll each of 7.5cm or 10cm Coban 2 Lite Comfort Foam Layer and 3M Coban 2 Lite Compression Layer can be used for the hand and 15cm should be used to cover the arm
- When the fingers are going to be bandaged, apply the comfort foam layer only on hand and wrist, rather than to apply it to the entire arm. After the finger application, bandage the remainder of the arm. This results in a smooth and wrinkle-free application of the comfort foam layer on the entire arm, especially in the elbow region

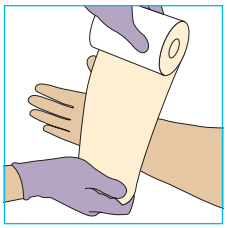


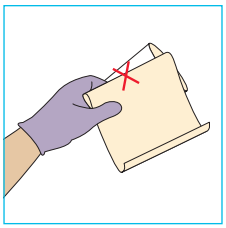
Application of comfort foam layer to hand and arm: layer 1

- Apply this layer with the foam side against the skin, using just enough tension to conform to the shape of the arm with minimal overlap
- Cover the skin with as thin a layer as possible with no gaps

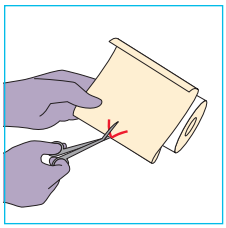


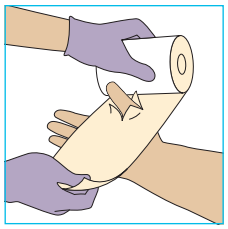
Step 1: Position the hand and arm in a neutral position (neither pronated nor supinated) with the thumb pointing upward.



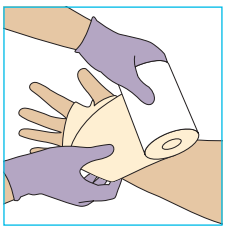


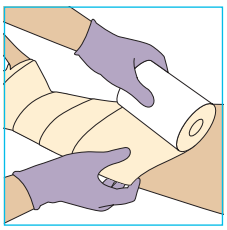
Step 2: To create a thumb opening, measure the bandage from the lateral edge to the thumb. Fold the bandage at the measured length and cut an X-shaped slit in the middle of the bandage.



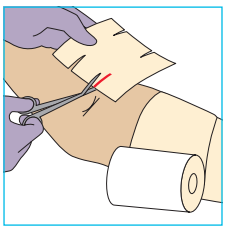


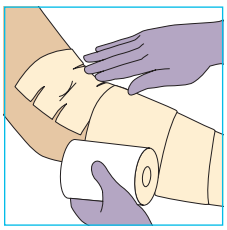
Step 3: Apply the comfort layer from the lateral dorsum of the hand with the thumb positioned through the slit.



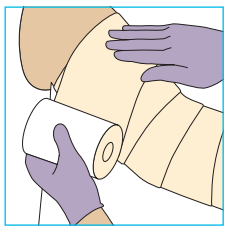


Step 4: Wind the roll under the palm ensuring the top of the bandage is placed at the base of the 5th finger. Bring the next winding over the dorsum of the hand to the base of the thumb and continue with circular windings up the arm with minimal overlap, moulding to the anatomy.

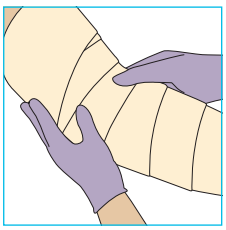




Step 5: An additional piece of comfort layer prepared with edge slits for conformability, may be used for comfort in the antecubital fossa area. Ensure the arm is in a flexed position and make sure that no bandage edge lies along the elbow crease.



Step 6: Continue with circular windings and minimal overlap. Finish with a second circular winding at the top of the arm for additional stability.

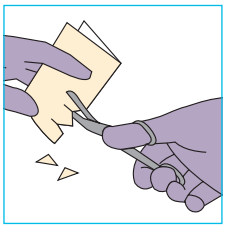


Step 7: Mould the bandage to conform to the anatomy.

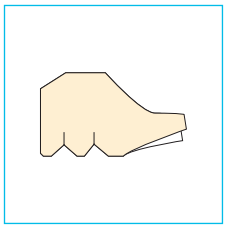
3M™ Coban™ 2 Lite Two-Layer Compression System application for the hand and arm continued

Application of comfort foam layer and compression layer to fingers

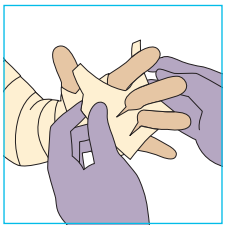
- Select a 2.5cm Coban 2 Lite Compression Layer
- For additional inter-digital comfort, a web spacer may be used prior to finger bandaging (see optional steps 1–4). If not needed, proceed to step 5



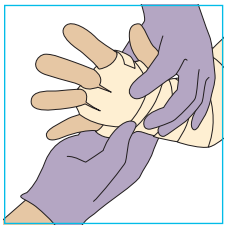
Step 1: Prepare a web spacer to protect the finger web spaces. Fold a piece of 10 x 25cm comfort foam layer in half. On fold, make two triangle cuts with top slits to create openings for fingers. Trim outer edges to follow thumb and hand contours.



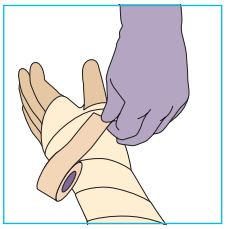
Step 2: Apply the web space protector with the third and fourth finger through the openings.



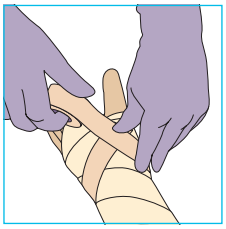
Step 3: Overlap and mould the edges in the thumb web space.

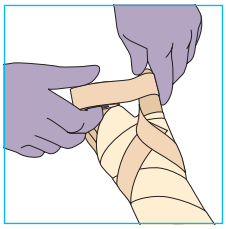


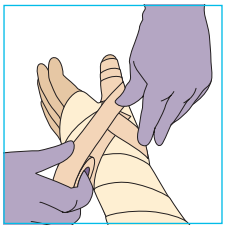
Step 4: Mould the layers together to conform to the shape of the hand.



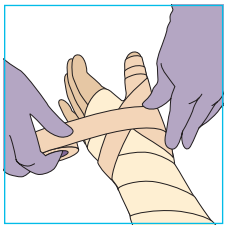
Step 5: Begin with an anchor turn at the base of the thumb, just above the wrist and make a circular winding with no tension.

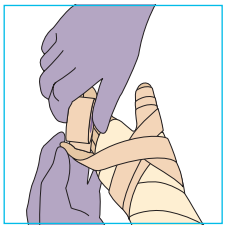


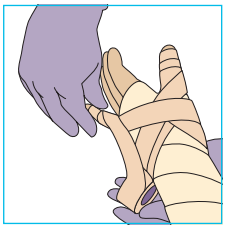




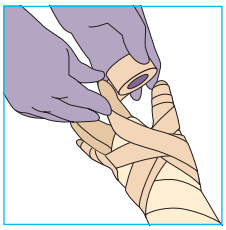
Step 6: Bring the bandage along the thumb to the base of the nail bed with no tension. Slightly bend the digit and proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.



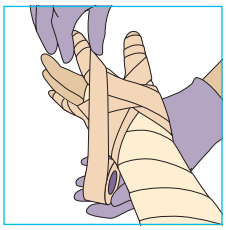


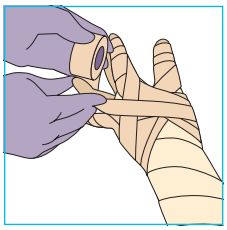


Step 7: At the base of the thumb, bring the bandage across the dorsum of the hand with no tension to the base of the 5th finger nail bed. Slightly bend the digit and proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.

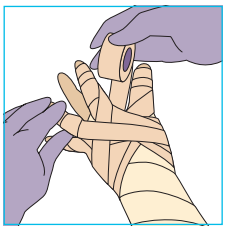


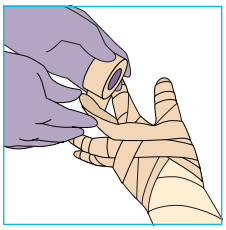
Step 8: Take the bandage over the lateral border of the hand and across the palm to the base of the thumb and up the dorsum of the second finger to the base of the nail bed. Slightly bend the digit and proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.



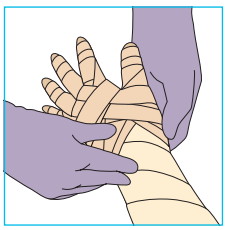


Step 9: At the base of the second finger, proceed to the lateral side of the hand and across the palm to the base of the thumb. Bring the bandage over the dorsum of the hand to the fourth finger up to the base of the nail bed. Slightly bend the digit and proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.

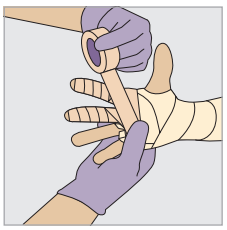


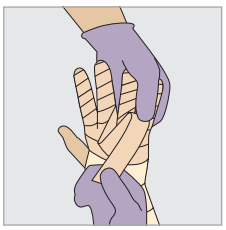


Step 10: At the base of the fourth finger, bring the bandage with no tension over the lateral border and make a circular winding through the 1st webspace. Proceed with another winding coming around to the base of the thumb and on to dorsum of the third finger up to the base of the nail bed. Slightly bend the digit and proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.



Step 11: To secure the bandage, complete a circular winding following the metacarpal line and through first web space. Cut and mould to the anatomy.





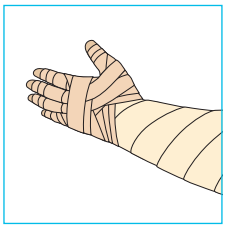
Inter-digital Oedema
When inter-digital oedema is present, you may cover the proximal finger areas by fan folding the bandage with no tension, moulding it in place continuously. Once all of the inter-digital spaces are covered and moulded, finish with a circular turn of the bandage with no tension and press into place.

Application details – basic techniques

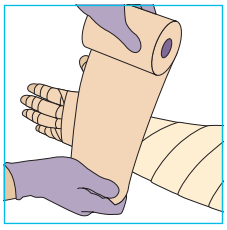
3M™ Coban™ 2 Lite Two-Layer Compression System application for the hand and arm continued

Application of compression layer to hand and arm

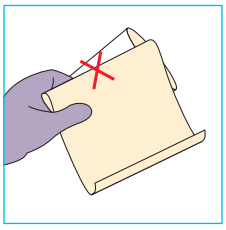
- Apply even compression with at least two layers. Even compression is best achieved when the material is applied at full stretch
- It is recommended that you hold the roll close to the hand and limb throughout the application for controlled, even compression
- If 'bulges' are noted after the application, apply additional compression layer until the limb appears smooth



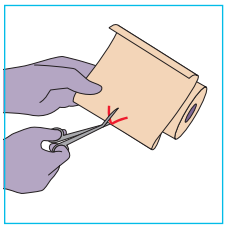
Step 1: Position the hand and arm in a neutral position (neither pronated nor supinated) with the thumb pointing upward.



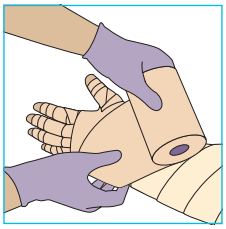
Step 2: Measure the bandage from the lateral edge of the hand to the thumb.



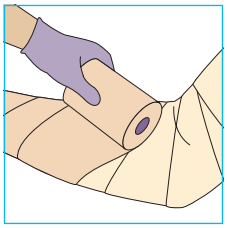
Step 3: Fold the material and cut an X-shaped slit in the middle of the bandage.



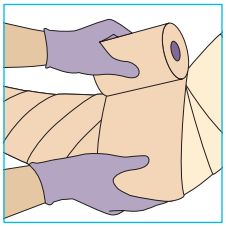
Step 4: Apply the compression layer from the lateral dorsum of the hand with the thumb positioned through the slit. Apply full stretch to both ends of the bandage to ensure even compression.



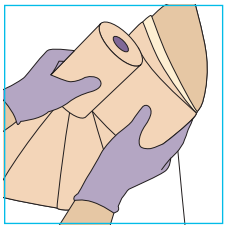
Step 5: Wind the bandage around the hand to the base of the thumb at full stretch and proceed up the arm, medial to lateral, with circular windings and 50% overlapping layers.



Step 6: When crossing the elbow, ensure that it is slightly flexed and that the elbow crease is centered in the middle of the bandage.

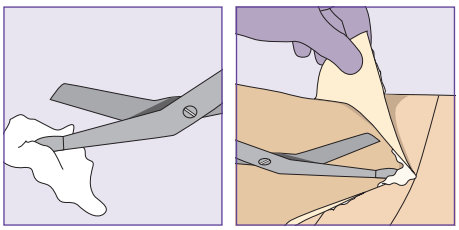


Step 7: Continue to apply at full stretch with 50% overlaps to the top of the arm.



Step 8: Mould the bandage to conform to the anatomy.

Bandage removal



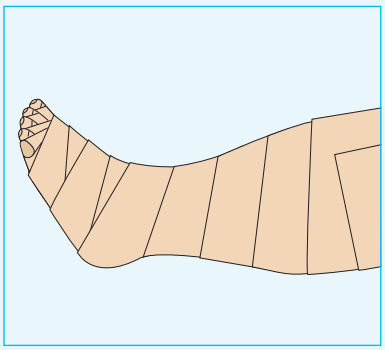
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – basic techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the leg and foot

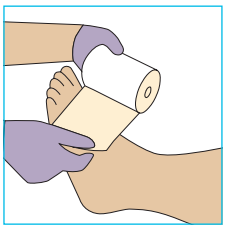
Materials and positioning

- For many patients, it is necessary to apply the full leg application in two stages
- Apply the lower limb bandage with the patient sitting or lying comfortable and then have the patient stand to apply the upper leg bandaging
- For full benefit of compression therapy, it is important that the leg is supported in a relaxed position throughout the entire application
- If a wound is present, foam dressings are most effective to manage exudate
- Select the 10cm 3M™ Coban™ 2 Comfort Foam Layer and 3M™ Coban™ 2 Compression Layer for most lower legs
- 15cm or 20cm Coban 2 Comfort Foam Layer and Coban 2 Compression Layer should be used to cover the knee and thigh

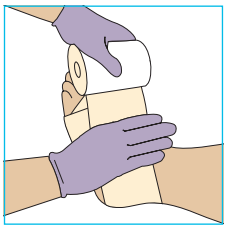


Application of comfort foam layer for below the knee: layer 1

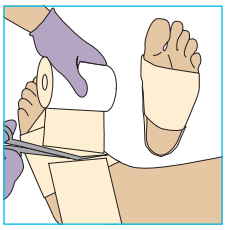
- Apply layer with the foam side against the skin, using enough tension to conform to the shape of the leg with **minimal overlap**
- Cover the skin with as thin of a layer as possible with no gaps
- When skin folds (aprons) are present, use pieces of comfort foam layer folded with foam side out to separate them



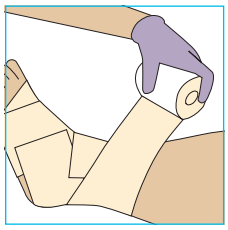
Step 1: With the foot in a 90˚ dorsiflexed position, start the application with a circular winding at the base of the toes, beginning at the fifth metatarsal head. Beginning at the fifth toe provides neutral, comfortable foot alignment.



Step 2: The second circular winding should come across the top of the foot so that the middle of the bandage width approximately covers the articulating aspect of the ankle joint. Bring this winding around the back of the heel and lay it over the top of the foot where it overlaps the underlying material.

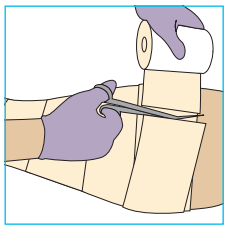


Step 3: Cut the wrap and gently press into place. The posterior plantar surface of the foot is not completely covered.

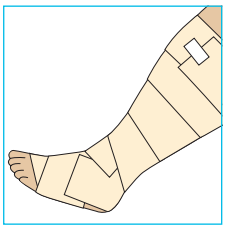


Step 4: With **minimal overlap**, proceed up the leg in a spiral technique with just enough tension to conform smoothly along the contours. If the bandage spiral does not conform with minimal overlaps, the bandage may be cut to redirect the application. Continue up the leg to cover all skin with as thin of a layer as possible.

Note: individual windings may be used for highly contoured legs.



Step 5: The top of the bandage should end just below the fibular head, or two fingers width below the crease at the back of the knee.

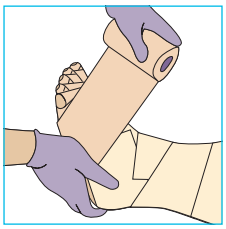


Step 6: Apply light pressure to the comfort layer with your hands. This helps to mould the bandage to the patient. The end of the comfort foam layer may be secured with tape.

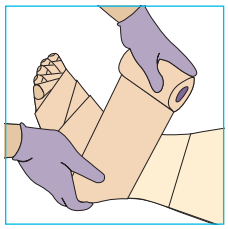
Note: if the toes are going to be included, apply compression layer after the toe application (see 'Application for toes'). When toes are not bandaged, an additional piece of comfort layer can be placed at the distal edge of the bandage for comfort at the base of the toes.

Application of compression layer for below the knee: layer 2

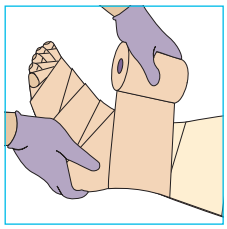
- Apply even compression with at least two layers. Even compression is best achieved when the material is applied at full stretch
- It is recommended that you hold the roll close to the foot and limb throughout the application for controlled, even compression
- If 'bulges' are noted after the application, apply additional compression layer until the limb appears smooth



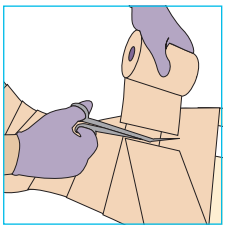
Step 1: With the foot in a 90˚ dorsiflexed position, start the application with a circular winding at the base of the toes, beginning at the fifth metatarsal head.



Step 2: Complete two or three figures of eight around the ankle ensuring that the entire heel is covered.



Step 3: Proceed up the leg with 50% overlaps at 100% stretch, ending the application approximately 7.5–10cm below the ending of the comfort layer. This will allow the comfort layer for the knee and thigh to overlap with the lower leg comfort layer for secure cohesion.



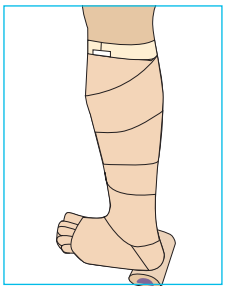
Step 3: As you end the application, apply light pressure and cut off the excess material.

Application details – basic techniques

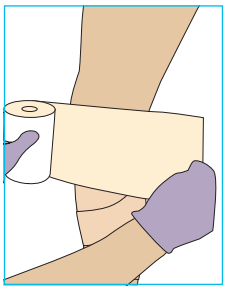
3M™ Coban™ 2 Lite Two-Layer Compression System application for the leg and foot continued

Application of comfort foam layer for knee and above the knee: layer 1

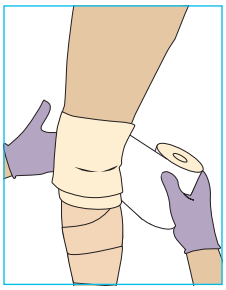
- Apply layer with the foam side against the skin, using enough tension to conform to the shape of the leg with **minimal overlap**
- Cover the skin with as thin of a layer as possible with no gaps
- When skin folds (aprons) are present, use pieces of comfort foam layer folded with foam side out to separate them



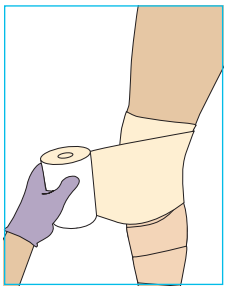
Step 1: Reposition the patient to a standing position and flex the knee by placing a roll of bandage under the heel.



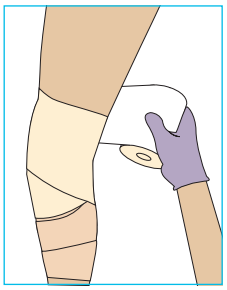
Step 2: Select a 15cm or 20cm comfort foam layer, depending on the size of the limb.



Step 3: Apply the comfort layer by minimally overlapping with the comfort layer below the knee. Cover the knee with a spiral or figure of eight technique to ensure that the middle of the bandage is positioned over the articulating surface and crease of knee.



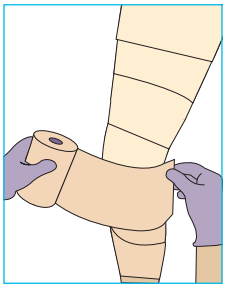
Step 4: Proceed to the top of the leg. Keep the overlaps as minimal as possible.

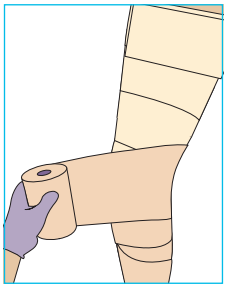


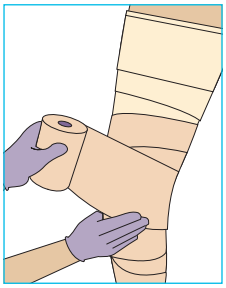
Step 5: Apply two full circular windings of comfort foam layer at the top of the leg to prevent edge roll. As you end the application, apply light pressure and cut off the excess material.

Application of compression layer for knee and above the knee: layer 2

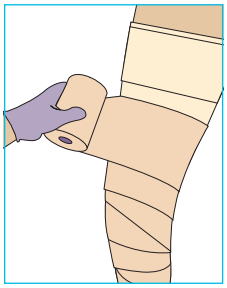
- Apply even compression with at least two layers. Even compression is best achieved when the material is applied at full stretch
- It is recommended that you hold the roll close to the limb throughout the application for controlled, even compression
- If 'bulges' are noted after the application, apply additional compression layer until the limb appears smooth

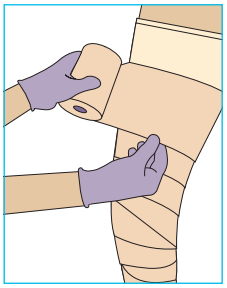




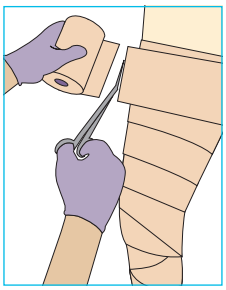


Step 1: Begin the 15cm compression layer application with a 50% overlap of the below knee bandage. Cover the knee using spiral windings or figures of eight as needed to conform. Ensure that the center of the bandage is in the center of the popliteal crease and centered over the patella.

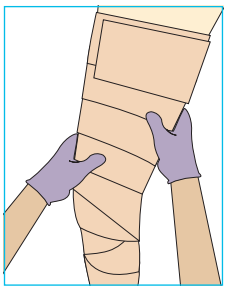




Step 2: Proceed up the leg with spiral windings with 50% overlap at 100% stretch. Ensure at least two layers of compression material with a smooth application.

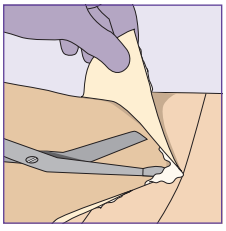


Step 3: Stop the compression layer application at top of leg. Apply light pressure and cut off the excess material.



Step 4: Mould the entire application to conform to the anatomy.

Bandage removal



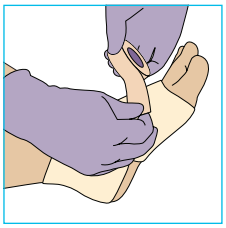
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – basic techniques

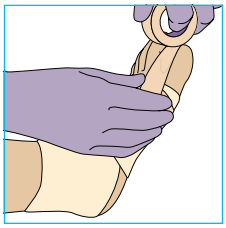
3M™ Coban™ 2 Lite Two-Layer Compression System application for the leg and foot continued

Application for toes. Option A: individual toe wrapping

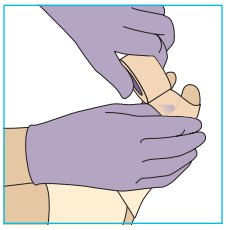
- Apply layer with the foam side against the skin, using enough tension to conform to the shape of the leg with **minimal overlap**
- Cover the skin with as thin of a layer as possible with no gaps
- When skin folds (aprons) are present, use pieces of comfort foam layer folded with foam side out to separate them



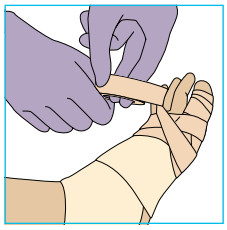
Step 1: Begin the toe bandaging with one circular winding, beginning at the base of the toes with no tension.

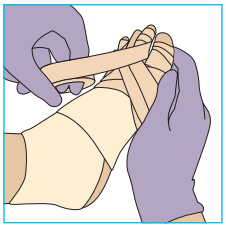


Step 2: Bring the bandage along the great toe to the base of the nail bed with no tension. With the toe slightly flexed, proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.

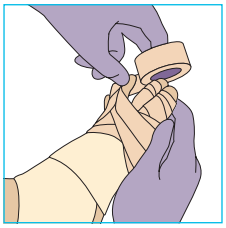


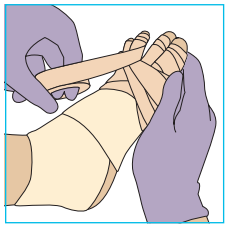
Step 3: At the base of the great toe, take the bandage over the lateral border and across the plantar foot and onto the dorsum of the fourth toe up to the base of the nail bed (the fifth toe is left unbandaged). With the toe slightly flexed, proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.



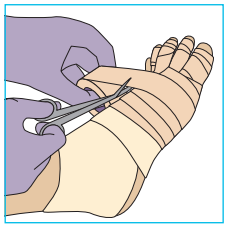


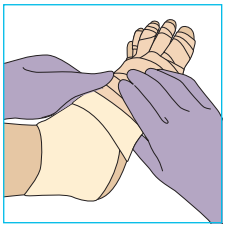
Step 4: At the base of the fourth toe, make a circular winding around the foot bringing the bandage onto the dorsum of the second toe up to the base of the nail bed. With the toe slightly flexed, proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.





Step 5: At the base of the second toe, make a circular winding around the foot bringing the bandage onto the dorsum of the third toe up to the base of the nail bed. With the toe slightly flexed, proceed with circular windings, distal to proximal, with minimum stretch and 50% overlapping layers. Mould the bandage to conform to the anatomy.

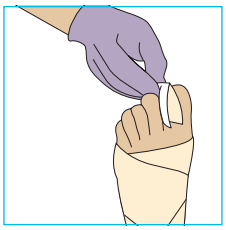


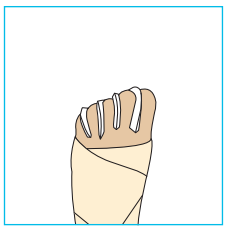


Step 6: To secure the bandage, make one final circular winding around the foot. Cut, press into place and mould to the anatomy. After toe wrapping, continue with the compression layer for the leg (see steps 1–4 in 'Application compression layer for below the knee').

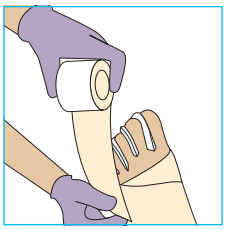
Application for toes. Option B: toe boot

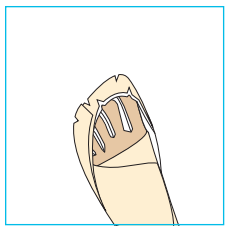
- If the toes are very swollen, it may be more comfortable to wrap the toes as a unit



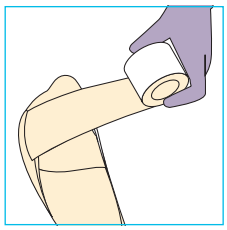


Step 1: Fill each web space with pieces of double-folded comfort foam layer, foam side out and trimmed to shape.

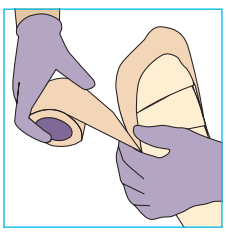


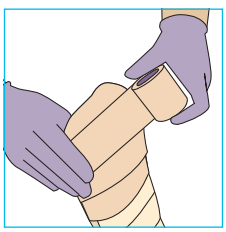


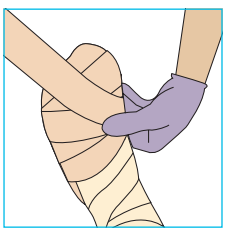
Step 2: With a 5cm wide comfort foam layer, make a circular turn without tension over the toes and the heel with the overlap over the fifth toe. Make a few slits to ease conformance over the toes.



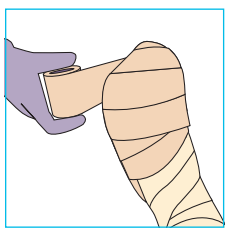
Step 3: Cover the open areas over and under the toes. Trim to fit and mould to conform.



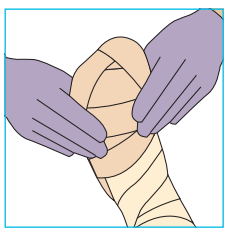


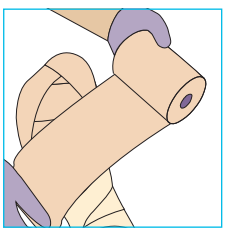


Step 4: Using a 5cm compression layer roll, without tension apply a circular winding from toes to heel. Cover the dorsal and plantar toe areas with compression layer applied at full stretch in a fan fold technique with semi-circular windings. Avoid circular windings around toes.



Step 5: Mould the application to the anatomy of the forefoot.





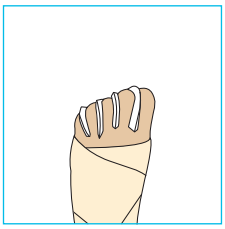
Step 6: After toe wrapping, continue with the compression layer for the leg (see steps 1–4 in 'Application compression layer for below the knee').

Application details – basic techniques

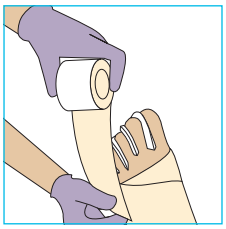
3M™ Coban™ 2 Lite Two-Layer Compression System application for the leg and foot continued

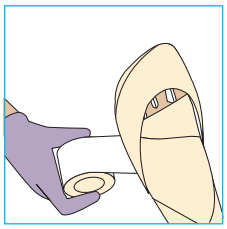
Application for toes. Option C: alternative toe boot

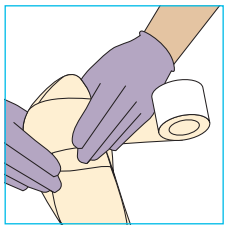
- If the toes are very swollen, it may be more comfortable to wrap the toes as a unit
- Select the 5cm 3M™ Coban™ 2 Comfort Foam Layer and the 3M™ Coban™ 2 Compression Layer

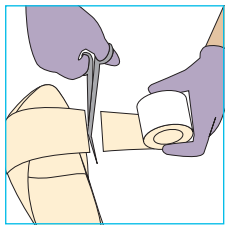


Step 1: Fill each web space with pieces of double-folded comfort foam layer, foam side out and trimmed to shape.

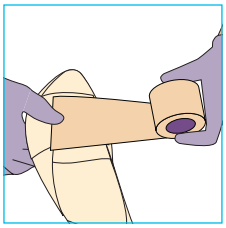


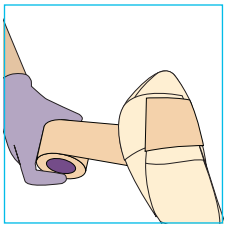


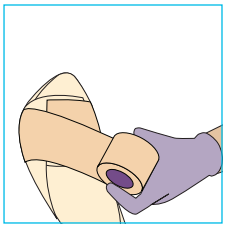




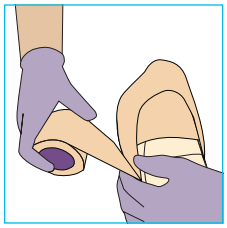
Step 2: With a 5cm wide comfort foam layer, make a circular winding without tension around the toes and the heel with the overlap over the fifth toe. Bring the roll across to cover the open areas over and under the toes. Conform and mould. End roll on top of the foot.

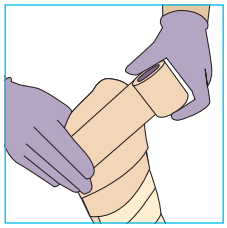


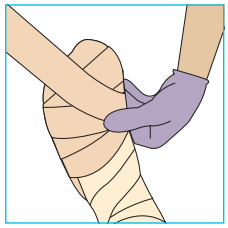




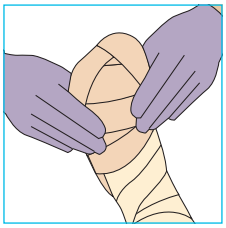
Step 3: Using a 5cm compression layer roll, without tension apply a circular winding around the base of the toes to secure comfort layer.



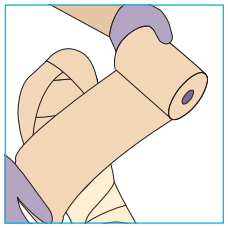




Step 4: Continue winding around the heel and toes. Mould to conform. Cover the dorsal area with compression layer applied at full stretch in a fan fold technique with semi-circular windings. Enclose the toes using the Stretch-Press-Mould-Technique.

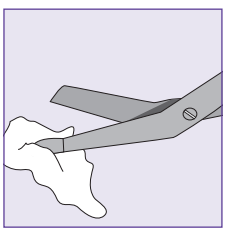


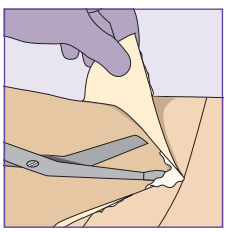
Step 5: Mould the application to the anatomy of the forefoot.



Step 6: After toe wrapping, continue with the compression layer for the leg.

Bandage removal





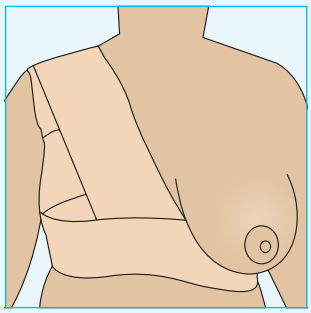
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the breast – method A

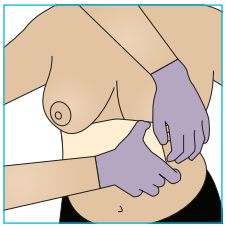
Materials and positioning

- Select the 10cm or 15cm 3M™ Coban™ 2 Lite Comfort Foam and 3M™ Coban™ 2 Lite Compression Layers depending on the size of the patient
- It is useful to prepare strips of tape before starting the application of the comfort foam layer

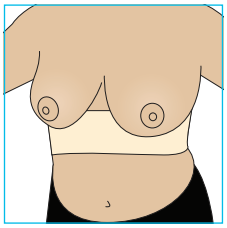


Application of comfort foam layer to breast

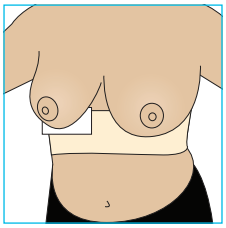
- Apply this layer with the foam side towards the skin with just enough tension to conform



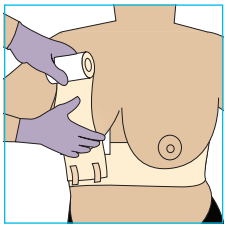
Step 1: Begin the application with a circular winding around the chest, positioned under the breasts.



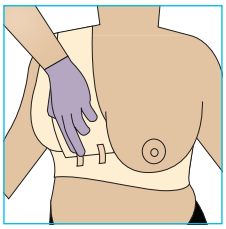
Step 2: Cut the material leaving a 3cm overlap onto the underlying material. This cut edge will be secured with tape but before fixation, ask the patient to take a deep breath.

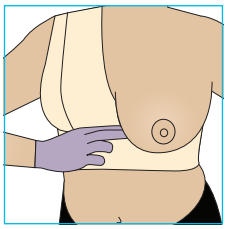


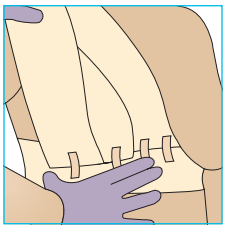
Step 3: For additional comfort, a piece of comfort foam layer can be placed under the breast with foam side up.

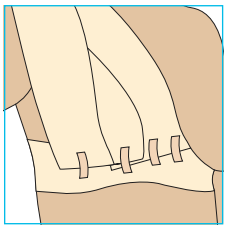


Step 4: Apply the comfort layer from the lateral dorsum of the hand with the thumb positioned through the slit.

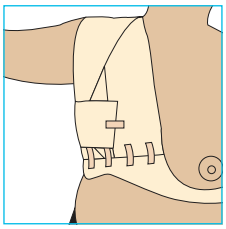


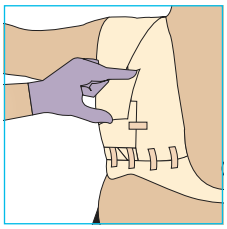


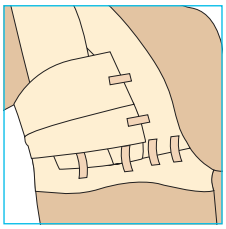




Step 5: Secure each strip with a piece of tape as needed. Be sure that the tape is positioned on the middle third of the circular chest winding. Avoid taping to skin.







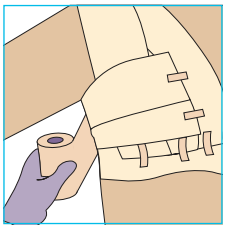
Step 6: Cover the lateral side of the breast with strips of comfort foam layer so that the entire breast is enclosed. Secure each strip with tape.

Application details – advanced techniques

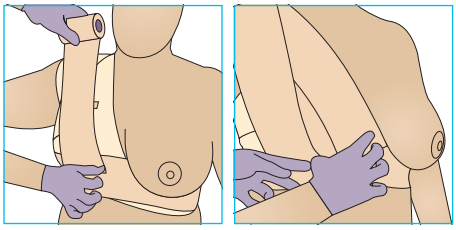
3M™ Coban™ 2 Lite Two-Layer Compression System application for the breast – method A

Application of compression layer to breast

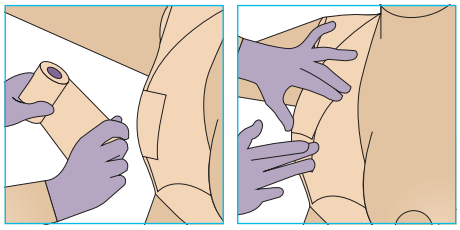
- The compression layer should be applied with relaxed tension when covering the breast
- Full stretch application may be used for the lateral strips and for resistant areas of oedema as needed
- It is recommended that you hold the roll close to the body throughout the application for controlled, even compression
- Strips of tape should not be necessary for individual strips of compression layer. Press and mould the cut edges to the underlying layer



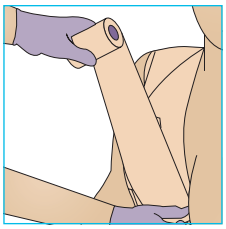
Step 1: Begin the compression layer starting with a circular winding around the chest. Before fixation ask patient to take a deep breath. Cut and mould the end to secure to the underlying layer.



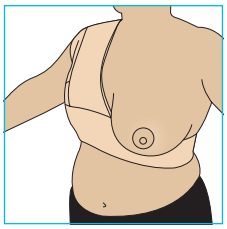
Step 2: Cover the breast longitudinally with strips of compression layer applied with relaxed stretch from front to back. The first strip should be positioned over the center and anchored to the circular winding (anterior and posterior). Gently mould into place.



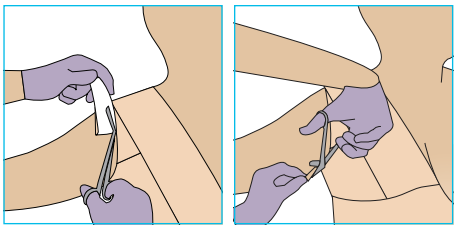
Step 3: Cover the lateral side of the breast with strips of compression layer, applied at full stretch, using Stretch-Press/Mould-Relax Technique until entire breast is enclosed.



Step 4: Apply an additional longitudinal strip to cover the previous endings to guarantee that the application stays in place.

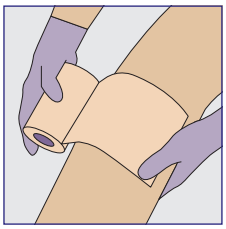


Step 5: As needed, a final circular winding around the chest completes the application and secures the edges.

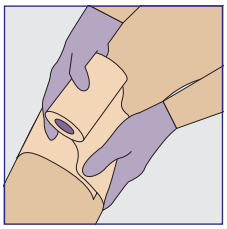


Step 6: Trim any areas that may hinder arm movement to allow maximum range of motion.

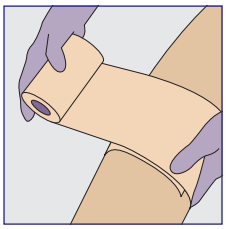
Stretch-Press/Mould-Relax Technique



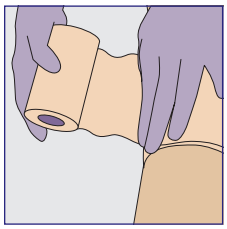
Step 1: Make first circumferential winding with relaxed tension.



Step 2: With one hand, press and hold to underlying layer. Relax tension.



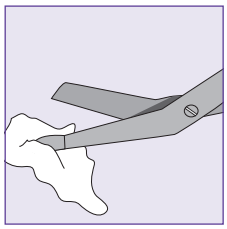
Step 3: Apply the next semicircular winding at full stretch.

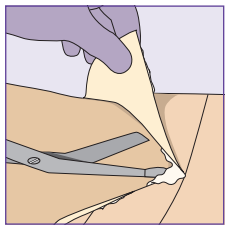


Step 4: Press and hold to underlying layer and mould to the anatomy. Relax tension. Repeat steps 3–4.

To apply full-stretch application for comfortable circumferential windings, apply the compression layer at full stretch with 'relax-breaks' where, after each semi-circular winding, that piece is moulded to the underlying layer.

Bandage removal





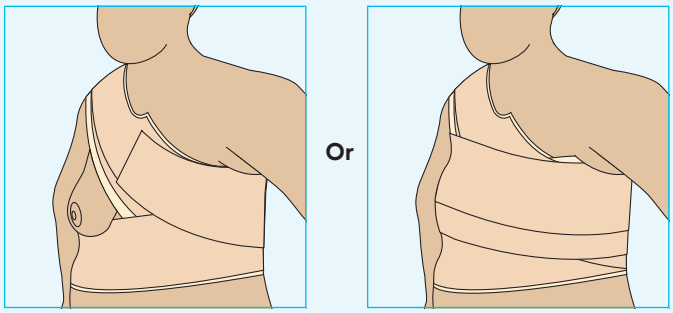
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the breast – method B

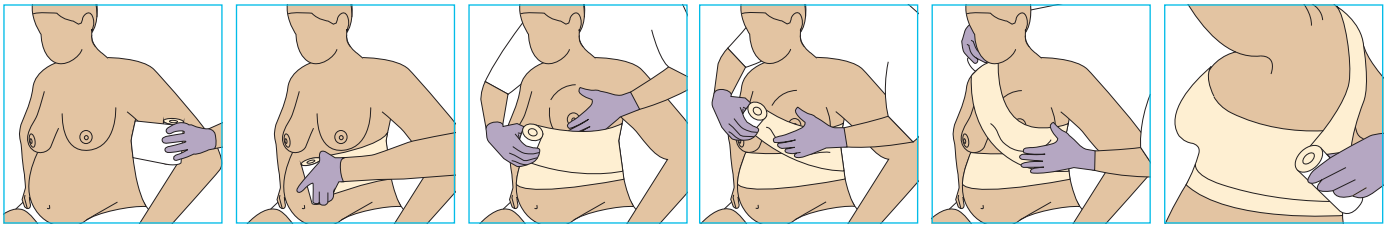
Materials and positioning

- Select the 10cm or 15cm 3M™ Coban™ 2 Lite Comfort Foam and 3M™ Coban™ 2 Lite Compression Layers depending on the size of the patient
- It is useful to prepare strips of tape before starting the application of the comfort foam layer



Application of comfort foam layer to breast

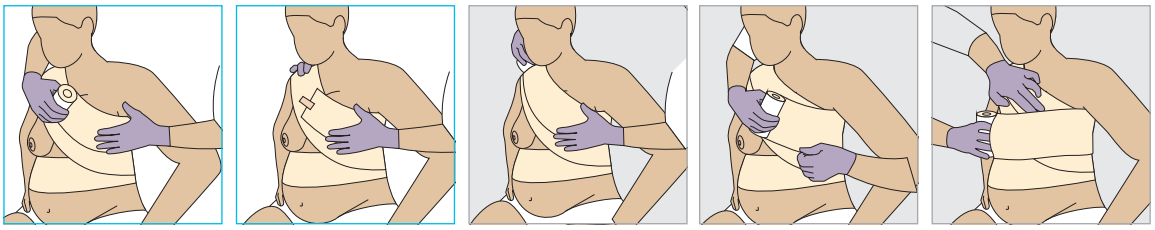
- Apply this layer with the foam side towards the skin with just enough tension to conform



Step 1: Ask patient to take a deep breath and begin the comfort foam layer application with a circular winding around the chest, positioned under the breasts.

Step 2: Carefully lift breast and continue wrap upward towards opposite shoulder. Gently mould to breast anatomy.

Step 3: Bring roll down and across patient's back.



Step 4: Continue with additional winding(s) around chest, over opposite shoulder until breast is covered. Cut and mould to anatomy. Secure with tape.

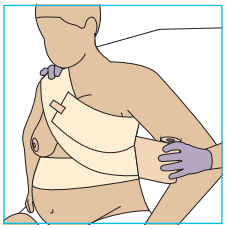
Step 5 (optional – for bilateral breast support): Carefully lift breast and continue wrap upward towards opposite shoulder. Gently mould to breast anatomy.

Application details – advanced techniques

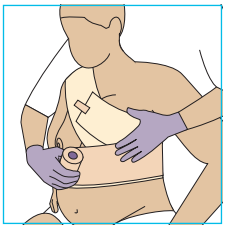
3M™ Coban™ 2 Lite Two-Layer Compression System application for the breast – method B

Application of compression layer to breast

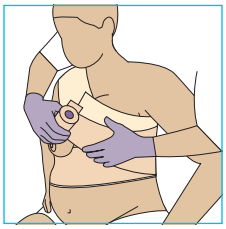
- The compression layer should be applied with relaxed tension when covering the breast
- Full stretch application may be used for the lateral winding and for resistant areas of oedema using the Stretch-Press/Mould-Relax Technique
- It is recommended that you hold the roll close to the body throughout the application for controlled, even compression
- Press and mould the cut edges to the underlying layer



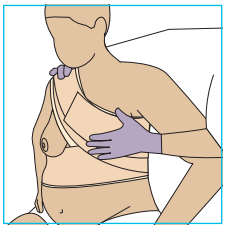
Step 1: Ask patient to take a deep breath and begin the compression layer application with a circular winding around the chest, positioned under the breasts.



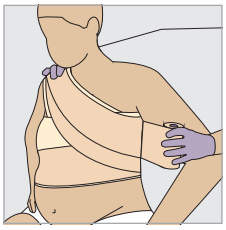
Step 2: Carefully lift breast and continue the application with relaxed stretch upward towards opposite shoulder. Gently mould to breast anatomy. When coming across the shoulder avoid putting tension on top of the shoulder.

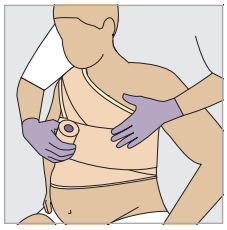


Step 3: Bring roll down and across patient's back. At lateral sides, apply at full stretch using the Stretch-Press/Mould-Relax Technique.

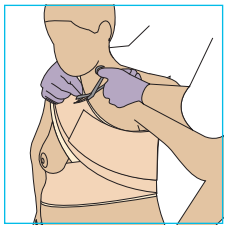


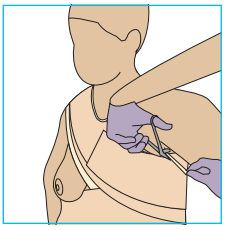
Step 4: Continue with additional winding(s) around chest, over opposite shoulder until breast is covered. Mould to anatomy while wrapping. Cut and mould to anatomy.

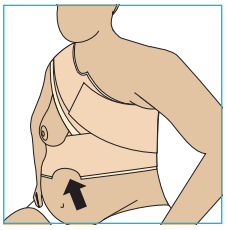




Step 5 (optional – for bilateral breast support): Instead of cutting wrap, bring across chest to support and cover contralateral breast. Cut and mould to anatomy. Continue to Step 6.

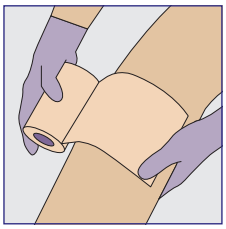




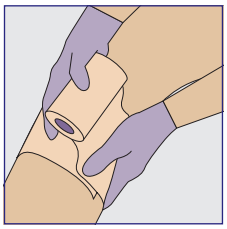


Step 6: Trim any areas that may hinder neck, arm or axillary movement to allow maximum range of motion. For additional comfort, bandage may be trimmed at the xiphoid process (see arrow).

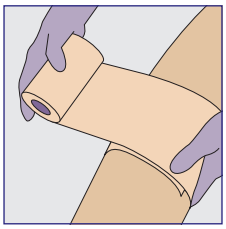
Stretch-Press/Mould-Relax Technique



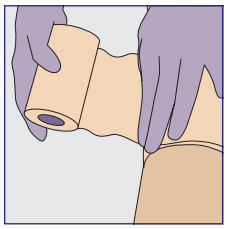
Step 1: Make first circumferential winding with relaxed tension.



Step 2: With one hand, press and hold to underlying layer. Relax tension.



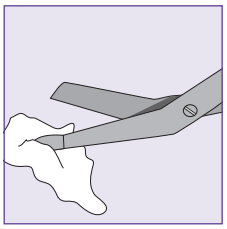
Step 3: Apply the next semicircular winding at full stretch.

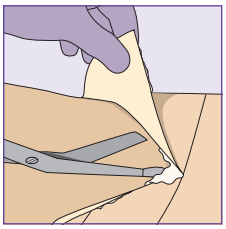


Step 4: Press and hold to underlying layer and mould to the anatomy. Relax tension. Repeat steps 3–4.

To apply full-stretch application for comfortable circumferential windings, apply the compression layer at full stretch with 'relax-breaks' where, after each semi-circular winding, that piece is moulded to the underlying layer.

Bandage removal





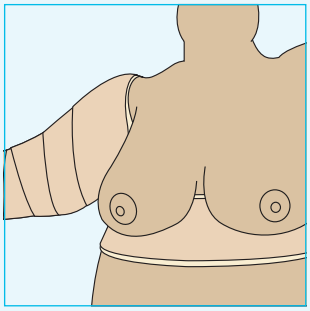
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the shoulder spica

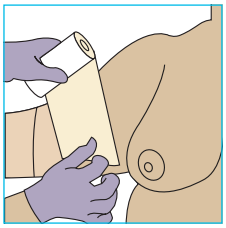
Materials and positioning

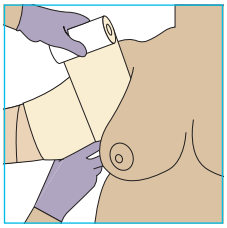
- The spica application is useful if the top edge of the bandage frequently rolls, to avoid slippage when there is extreme oedema at root of the limb or to control oedema at the posterior ipsilateral quadrant
- Select the 10cm or 15cm 3M™ Coban™ 2 Lite Comfort Foam and 3M™ Coban™ 2 Lite Compression Layers depending on the size of the patient

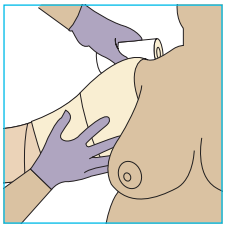


Application of comfort foam layer to shoulder spica

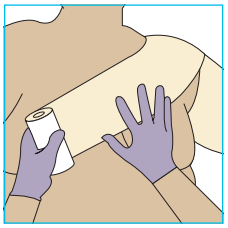
- Apply this layer with the foam side against the skin with just enough tension to conform
- Cover the skin with as thin of a layer as possible with no gaps

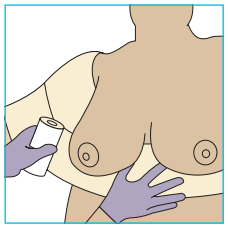




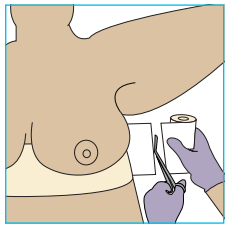


Step 1: Select the 10cm or 15cm comfort foam layer and begin the application with a minimal overlap of the upper arm bandage. Make a couple of circular windings and bring the bandage over the shoulder, centering the acromioclavicular joint in the middle of the bandage.

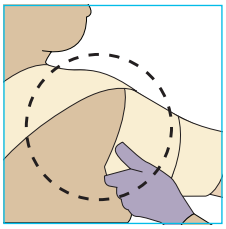


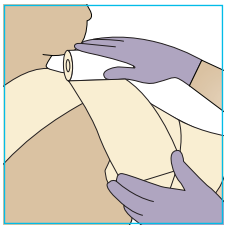


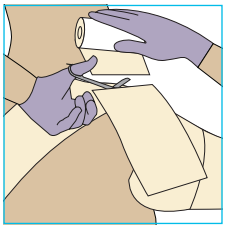
Step 2: Bring bandage across the back and under the opposite arm. Ask the patient to take a deep breath and continue around the front of the torso. Bring the material beneath the breasts while moulding the application to the anatomy.

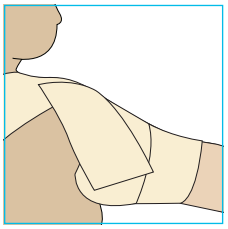


Step 3: After making a complete circular winding around the torso, ask the patient to take a deep breath. Cut the material and mould to the underlying layer.









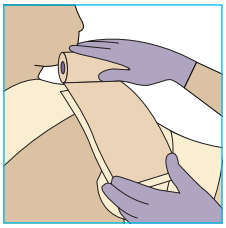
Step 4: To complete the application over the exposed skin on back of shoulder (see dashed line), apply pieces of comfort foam layer as needed to cover the area. Cut and mould application to the anatomy.

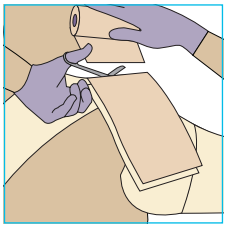
Application details – advanced techniques

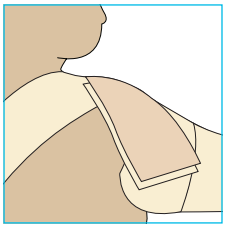
3M™ Coban™ 2 Lite Two-Layer Compression System application for the shoulder spica continued

Application of compression layer to shoulder spica

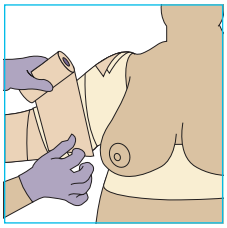
- Apply even compression with at least two layers. Even compression is best achieved when the material is applied at full stretch
- It is recommended that you hold the roll close to the body throughout the application for controlled, even compression
- If 'bulges' are noted after the application, apply additional compression material until the application appears smooth

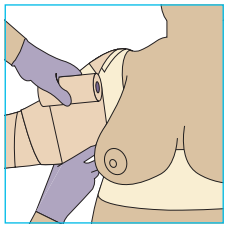


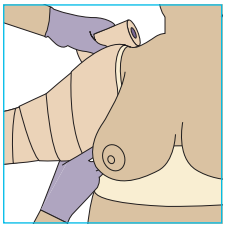




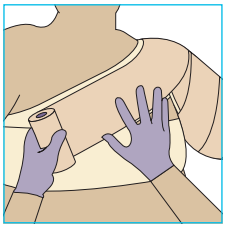
Step 1: Select the 10cm or 15cm compression layer and apply pieces large enough to cover the shoulder (see Step 4). Cut and mould application to the anatomy.

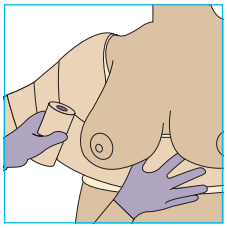


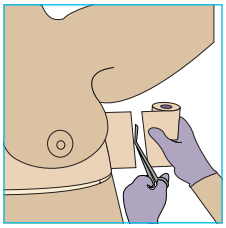




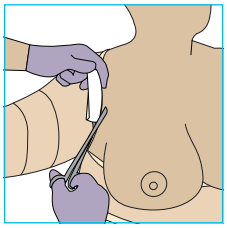
Step 2: Apply compression layer with a 50% overlap to the upper arm bandage. Cover the upper arm with a few circular windings and bring the bandage over the shoulder.

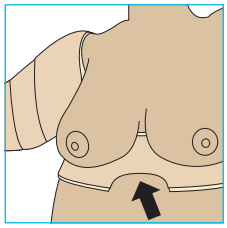






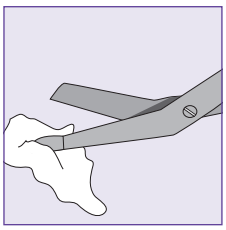
Step 5 (optional – for bilateral breast support): Instead of cutting wrap, bring across chest to support and cover contralateral breast. Cut and mould to anatomy. Continue to Step 6.

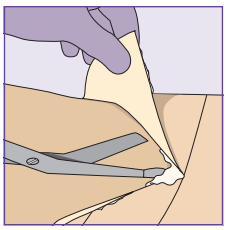




Step 6: Trim any areas that may hinder neck, arm or axillary movement to allow maximum range of motion. For additional comfort, bandage may be trimmed at the xiphoid process (see arrow).

Bandage removal





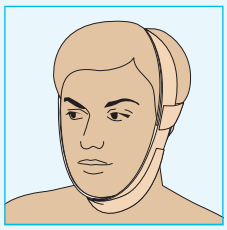
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the head and neck

Materials and positioning

- Select the 5cm 3M™ Coban™ 2 Comfort Foam Layer, and select the 5cm 3M™ Coban™ 2 Compression Layer for the head and neck application

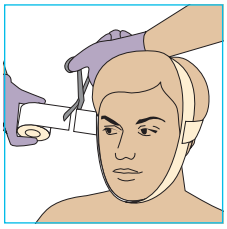


Or

Application of comfort foam layer for head and neck

- Apply this layer with the foam side against the skin with just enough tension to conform
- Cover the skin with as thin of a layer as possible with no gaps

Step 1: Using the 5cm comfort foam layer, begin the application laterally with the bandage positioned in front of the ears. Make a circular winding with enough tension as you come across the sub mandibular region to provide lift of the oedema. End the winding with a 2.5cm overlap. When the circular winding is completed, cut and mould the ends together.



Step 2: To stabilise the bandage, apply a piece of comfort foam layer around back of the head, placed above the ears. Cut and mould to the underlying layer.

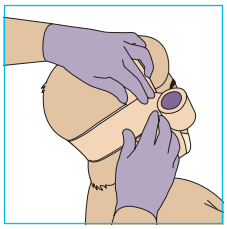
Step 3: Apply an additional strip of comfort foam layer to cover the remaining submandibular area.

Step 4 (Optional – for chin oedema): If needed, strips of comfort foam layer can be used for chin oedema.

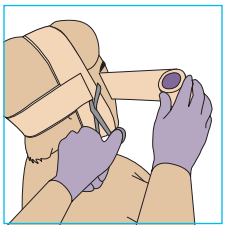
Application of compression layer for head and neck

- Apply even compression with at least two layers using just enough tension to conform for comfortable support.

Step 1: Using the 5cm compression layer, begin the application laterally with the bandage positioned in front of the ears. Make a circular winding with enough tension as you come across the sub mandibular region to provide lift of the oedema. End the winding with a 2.5cm overlap. Cut and mould.



Step 2: Apply a piece of compression layer over the posterior comfort layer strip using enough tension to conform. Cut and mould.



Step 3: Apply additional strips of compression layer to cover the submandibular area with at least 2 layers. Apply with enough tension to provide sufficient but comfortable lift. Cut and mould to anatomy.

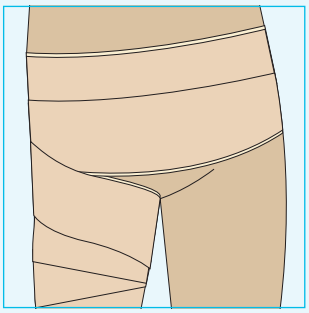
Step 4: Cover the comfort layer strips over the chin with two layers of compression layer.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for simple hip spica

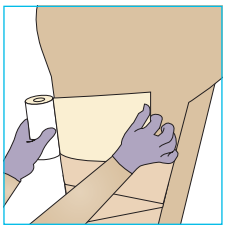
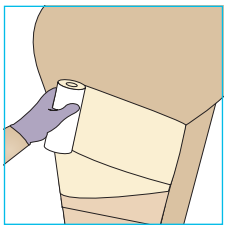
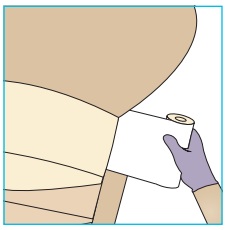
Materials and positioning

- If the proximal edge of the leg bandage curls or if the bandage slips prematurely, an easy and comfortable way to stabilise the bandage is to apply a hip spica
- Select the 15cm or 20cm 3M™ Coban™ 2 Comfort Foam Layer, depending on the girth, and select the 15cm 3M™ Coban™ 2 Compression Layer for the proximal thigh and spica application

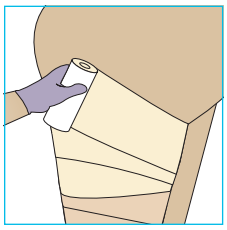
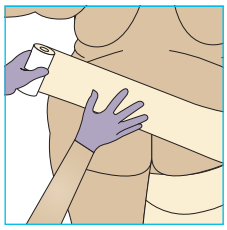
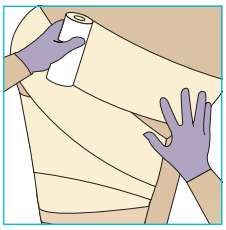


Application of comfort foam layer for hip spica

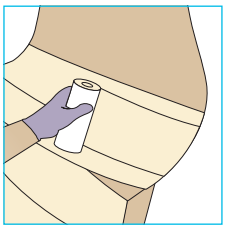
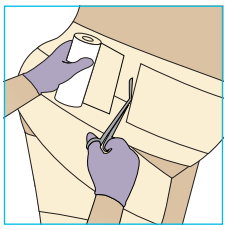
- Apply this layer with the foam side against the skin with just enough tension to conform
- Cover the skin with as thin of a layer as possible with no gaps

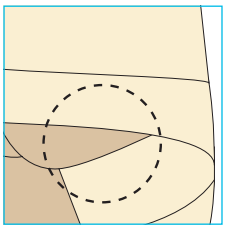
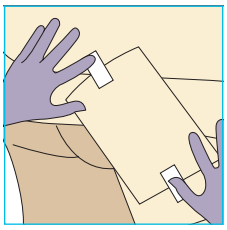
Step 1: Using the 15cm (or 20cm) comfort foam layer, continue with circular windings to cover the thigh as proximal as possible at the inner side of the leg, until thigh is covered.

Step 2: Continue by bringing a circular turn around the waist to position the material so the opposite hip is covered. When coming back across the abdomen, mould the application to the anatomy. If needed, apply additional winding(s) for support.

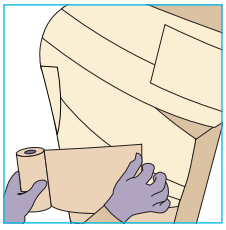
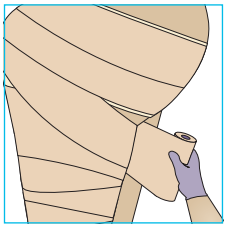
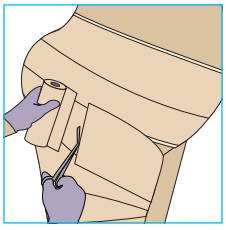
Step 3: End the comfort foam layer with a circular winding around the abdomen. Cut and mould to underlying layer.

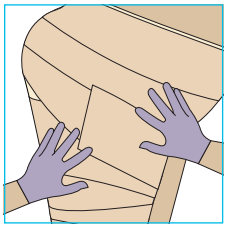
Step 4: To complete the application over the exposed skin on back of thigh (see dashed line), apply a piece of comfort foam layer large enough to cover the area. Cut and mould application to the anatomy and secure with tape.

Application of compression layer for hip spica

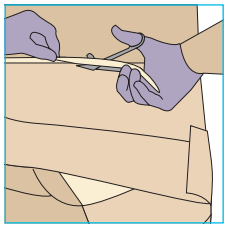
- Apply even compression with at least two layers. Even compression is best achieved when the material is applied at full stretch
- It is recommended that you hold the roll close to the limb throughout the application for controlled, even compression
- If 'bulges' are noted after the application, apply additional compression layer until the limb appears smooth

Step 1: Apply the 15cm compression layer at full stretch, following the same windings as the comfort foam layer. Apply at least two circular windings around the waist. When coming back across the abdomen, mould the application to the anatomy. If needed, apply additional winding(s) for support. End with a circular winding around the upper thigh.



Step 2: Mould the entire application to the anatomy.



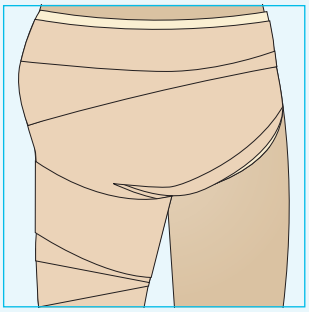
Step 2: Trim the application as needed for comfort.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for hip spica with abdominal apron

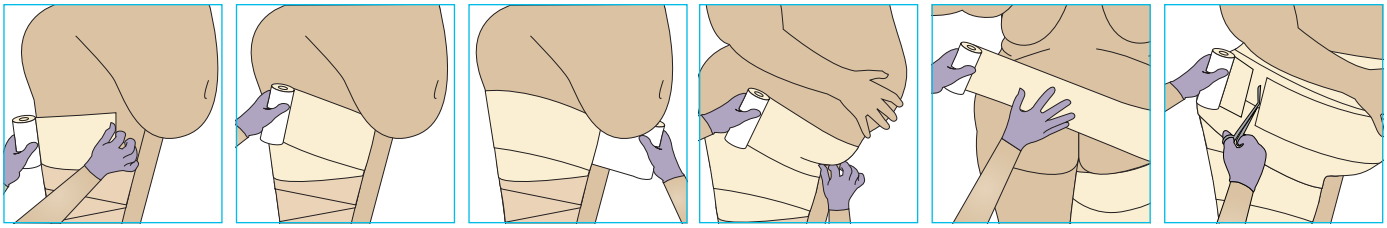
Materials and positioning

- If the proximal edge of the leg bandage curls or if the bandage slips prematurely, an easy and comfortable way to stabilise the bandage is to apply a hip spica
- Select the 15cm (or 20cm depending on the girth) 3M™ Coban™ 2 Comfort Foam Layer, and select the 15cm 3M™ Coban™ 2 Compression Layer for the proximal thigh and spica application



Application of comfort foam layer for hip spica

- Apply this layer with the foam side against the skin with just enough tension to conform
- Cover the skin with as thin of a layer as possible with no gaps

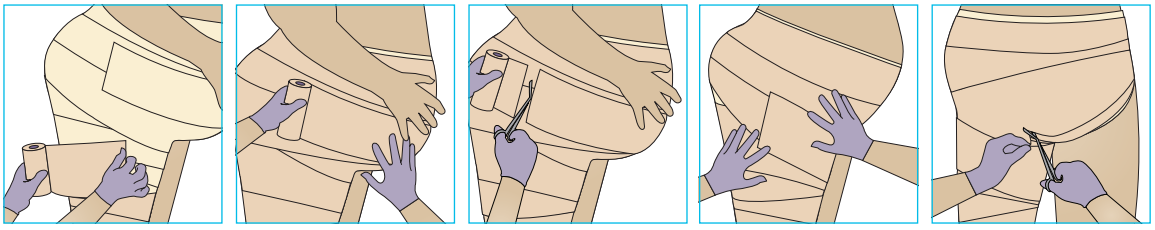


Step 1: Using the 15cm (or 20cm) comfort foam layer, continue with circular windings to cover the thigh as proximal as possible at the inner side of the leg, until thigh is covered.

Step 2: Continue by bringing a circular turn around the waist to position the material so the opposite hip is covered. When coming back across the abdomen, mould the application to the anatomy. If needed, apply additional winding(s) for support.

Application of compression layer for hip spica

- Apply even compression with at least two layers. Even compression is best achieved when the material is applied at full stretch
- It is recommended that you hold the roll close to the limb throughout the application for controlled, even compression
- If 'bulges' are noted after the application, apply additional compression layer until the limb appears smooth

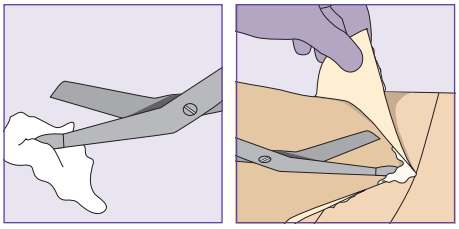


Step 1: Apply the 15cm compression layer at full stretch, following the same windings as the comfort foam layer. Apply at least two circular windings around the waist. When coming back across the abdomen, mould the application to the anatomy. If needed, apply additional winding(s) for support. End with a circular winding around the upper thigh.

Step 2: Mould the entire application to the anatomy.

Step 3: Trim the application as needed for comfort.

Bandage removal



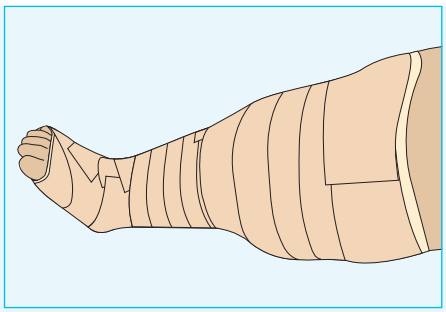
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the leg with apron/lobules/skin folds

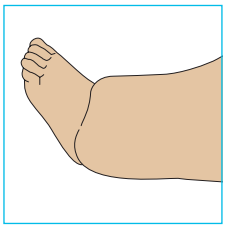
Materials and positioning

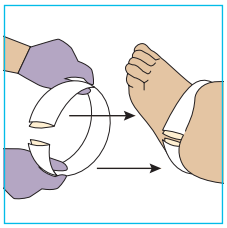
- Select the width of comfort and compression layers that best covers the area to be bandaged and conforms smoothly
- For many patients, it is necessary to apply the materials using cutting technique
- Apply the bandage with the patient sitting, lying or standing comfortable with muscles relaxed
- When skin folds are deep, comfort foam layer material can be used to avoid skin-to-skin contact. The comfort foam layer is folded with foam side out and positioned without tension underneath the fold



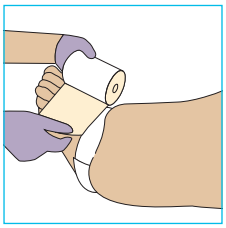
Application of comfort foam layer to apron/lobules/skin folds on lower leg

- Apply layer with the foam side against the skin, using enough tension to conform to the shape of the leg with **minimal overlap**
- Cover the skin with as thin of a layer as possible with no gaps
- When skin folds (aprons) are present, use pieces of comfort foam layer folded with foam side out to separate them

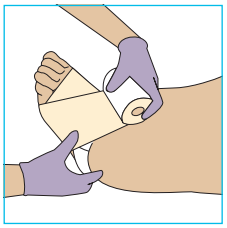


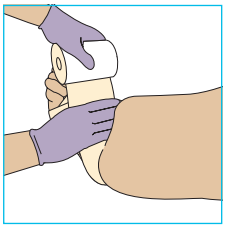


Step 1: When skin folds (aprons) are present, use pieces of comfort foam layer folded with foam side out to separate them.

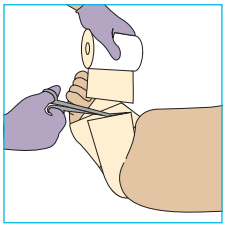


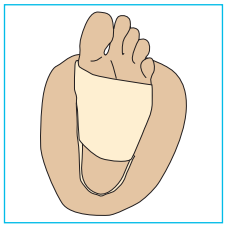
Step 2: With the foot in a 90° dorsiflexed position, start the application with a circular winding at the base of the toes, beginning at the fifth metatarsal head. Beginning at the fifth toe provides neutral, comfortable foot alignment.



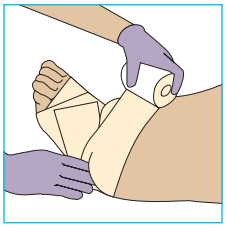


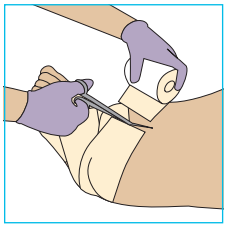
Step 3: The second circular winding should come across the top of the foot so that the middle of the bandage width approximately covers the articulating aspect of the ankle joint. If necessary, gently lift apron and take the material beneath the apron while moulding the application to the anatomy. Bring this winding around the back of the heel and lay it over the top of the foot where it overlaps the underlying material.

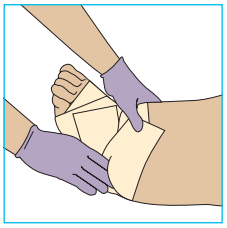


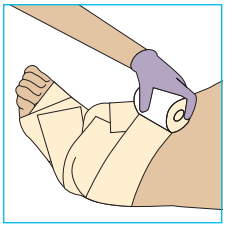


Step 4: Cut the wrap and gently press into place. The posterior plantar surface of the foot is not completely covered.

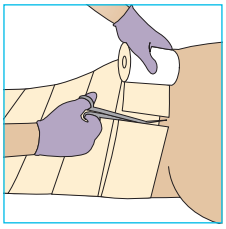




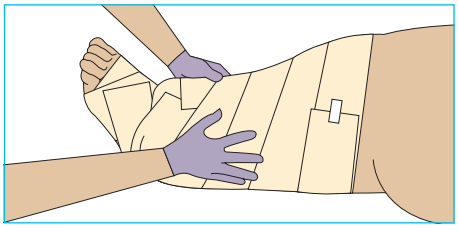




Step 5: With **minimal overlap**, proceed up the leg in a spiral technique with just enough tension to conform smoothly along the contours. If the bandage spiral does not conform with minimal overlaps, the bandage may be cut to redirect the application. Continue up the leg to cover all skin with as thin of a layer as possible. **Note: Individual windings may be used for highly contoured legs.**



Step 6: The top of the bandage should end just below the fibular head, or two fingers width below the crease at the back of the knee.

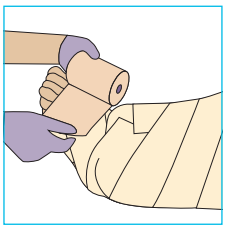


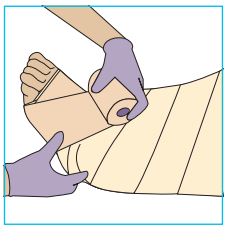
Step 7: Apply light pressure to the comfort layer with your hands. This helps to mould the bandage to the patient. The end of the comfort foam layer may be secured with tape. **Note: If the toes are going to be included, apply compression layer after the toe application (see Application for toes on 3M™ Coban™ 2 Compression System Application for the Leg and Foot).so the opposite hip is covered.**

3M™ Coban™ 2 Lite Two-Layer Compression System application for the leg with apron/lobules/skin folds continued

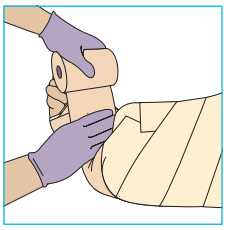
Application of compression layer to apron/lobules/skin folds on lower leg

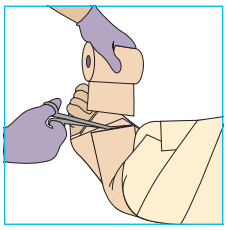
- Apply even compression with at least two layers. Even compression is best achieved when the material is applied at full stretch
- It is recommended that you hold the roll close to the foot and limb throughout the application for controlled, even compression
- If 'bulges' are noted after the application, apply additional compression layer until the limb appears smooth



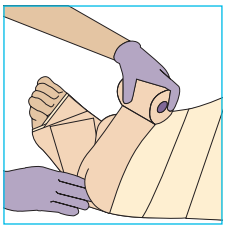


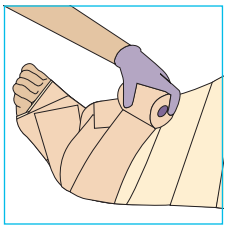
Step 1: With the foot in a 90˚ dorsiflexed position, start the application with a circular winding at the base of the toes, beginning at the fifth metatarsal head.



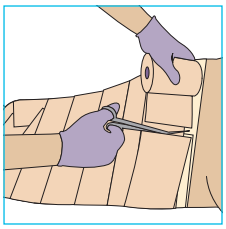


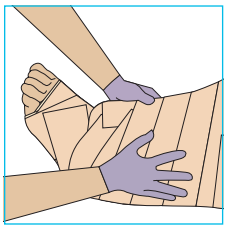
Step 2: Complete two or three figures of eight around the ankle ensuring that the entire heel is covered.





Step 3: Proceed up the leg with 50% overlaps at 100% stretch, ending the application approximately 7.5-10cm below the ending of the comfort layer. This will allow the comfort layer for the knee and thigh to overlap with the lower leg comfort layer for secure cohesion. If the bandage spiral does not conform with minimal overlaps, the bandage may be cut to redirect the application.





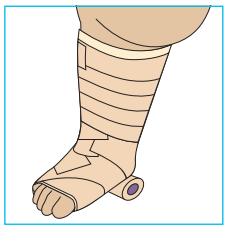
Step 4: Mould the entire application to conform to the anatomy.

Application details – advanced techniques

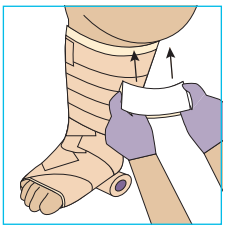
3M™ Coban™ 2 Lite Two-Layer Compression System application for the leg with apron/lobules/skin folds continued

Application of comfort foam layer to apron/lobules/skin folds at knee and above

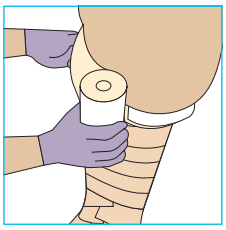
- Apply layer with the foam side against the skin, using enough tension to conform to the shape of the leg with **minimal overlap**
- Cover the skin with as thin of a layer as possible with no gaps
- When skin folds (aprons) are present, use pieces of comfort foam layer folded with foam side out to separate them



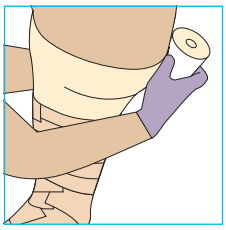
Step 1: Reposition the patient to a standing position and flex the knee by placing a roll of bandage under the heel.



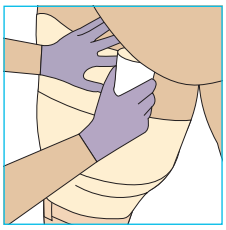
Step 2: When skin folds (aprons) are present, use pieces of comfort foam layer folded with foam side out to separate them.



Step 3: Select a 15cm or 20cm comfort foam layer, depending on the size of the limb. Apply by minimally overlapping with the comfort layer below the knee. Cover the knee with a spiral or figure of eight technique to ensure that the middle of the bandage is positioned over the articulating surface and crease of knee.



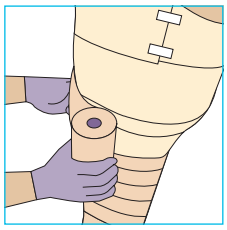
Step 4: Proceed to the top of the leg. Keep the overlaps as minimal as possible. When coming under the apron, lift apron (patient can assist) and take the material beneath the apron while moulding the application to the anatomy.



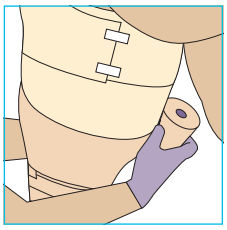
Step 5: Apply two full circular windings of comfort foam layer at the top of the leg to prevent edge roll. As you end the application, apply light pressure and cut off the excess material.

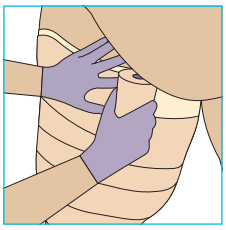
Application of compression layer to apron/lobules/skin folds at knee and above

- Apply even compression with at least two layers. Even compression is best achieved when the material is applied at full stretch
- It is recommended that you hold the roll close to the limb throughout the application for controlled, even compression
- If 'bulges' are noted after the application, apply additional compression layer until the limb appears smooth

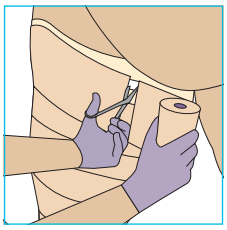


Step 1: Begin the 15cm compression layer application with a 50% overlap of the below knee bandage. Cover the knee using spiral windings or figures of eight as needed to conform. Ensure that the center of the bandage is in the center of the popliteal crease and centered over the patella.

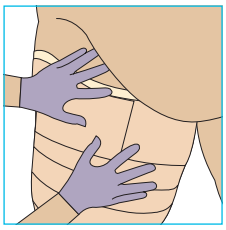




Step 2: Proceed up the leg with spiral windings with 50% overlap at 100% stretch. Ensure at least two layers of compression material with a smooth application.

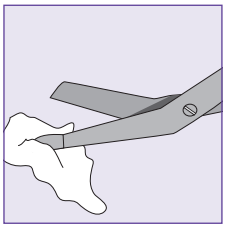


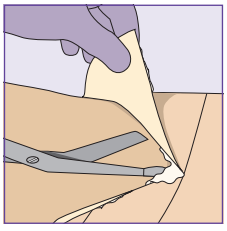
Step 3: Stop the compression layer application at top of leg. Apply light pressure and cut off the excess material.



Step 4: Mould the entire application to conform to the anatomy.

Bandage removal





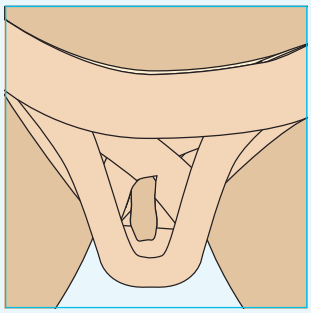
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the scrotum

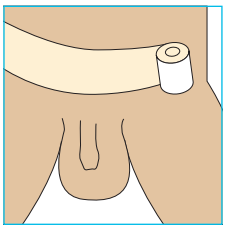
Materials and positioning

- Select the 7.5cm or 10cm 3M™ Coban™ 2 Lite Comfort Foam Layer, and select the 7.5cm or 10cm 3M™ Coban™ 2 Lite Compression Layer for the scrotal application depending on the size of the patient

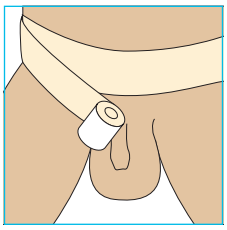


Application of comfort foam layer for scrotum

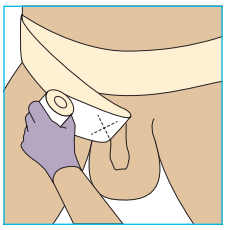
- Apply this layer with the foam side against the skin with just enough tension to conform
- Cover the skin with as thin of a layer as possible with no gaps



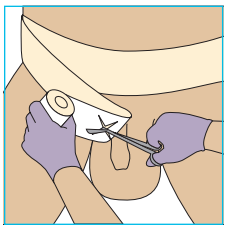
Step 1: Begin the application with a circular winding around the hips centering over the mons pubis.



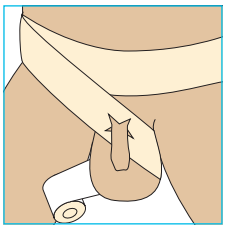
Step 2: Bring the winding distally toward the base of the penis.

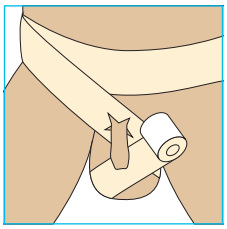


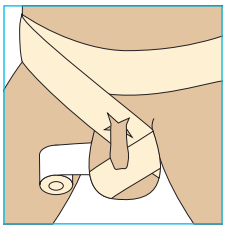
Step 3: To make the penile opening, fold the comfort foam layer back at the base of the penis. Make two cuts in an X pattern at the pinched fold. **Note: In case of penectomy or short penis the fold and cut slits should be made at the area of the external meatus.**

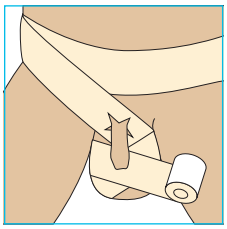


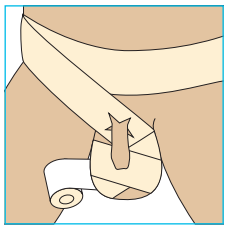
Step 4: Guide the penis through the hole in the comfort foam layer. If required, extend the cut slits for comfort.

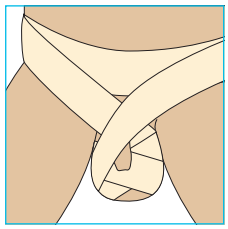






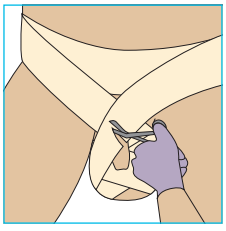




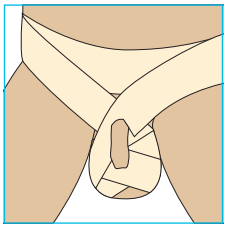


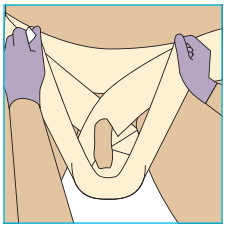
Step 5: Proceed with bandage distally and bring the winding under the scrotum. Come across the top in an upward direction. Continue windings to cover all exposed areas in as thin of a layer as possible.

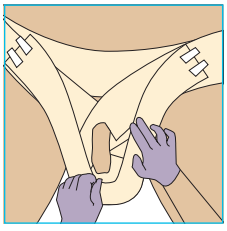
Step 6: Once scrotum is covered, bring the bandage laterally towards the opposite hip. At the lateral side, press, mould and cut the bandage.

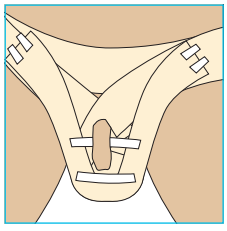


Step 7: Trim the comfort foam layer as needed to accommodate the penis.









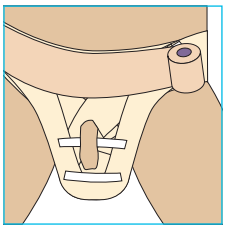
Step 8: If needed, apply a strip of comfort foam layer to provide additional lift and support of the scrotum. Press, mould and cut at lateral sides. Secure ends with tape. Gently mould and conform the comfort layer. Tape may be used to maintain the bandage contours.

Application details – advanced techniques

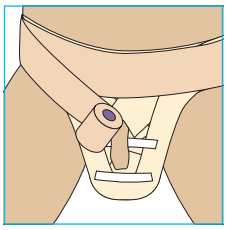
3M™ Coban™ 2 Lite Two-Layer Compression System application for the scrotum

Application of compression layer for scrotum

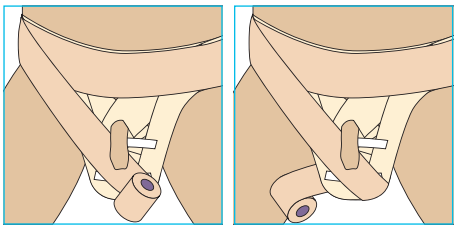
- Apply compression material with at least 2 layers with enough tension to provide support and lift of oedema
- It is recommended that you hold the roll close to the body throughout the application for controlled, even compression



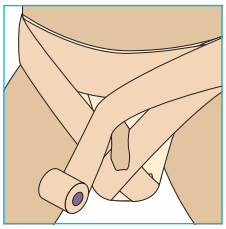
Step 1: Begin the application following the same circular winding around the hips centering over the mons pubis.



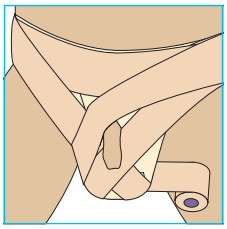
Step 2: Bring the winding distally just beneath the penis. Proceed under the scrotum and come across the top in an upward direction. Continue windings to cover all of comfort foam layer with at least two layers applied with just enough tension to conform. Press and mould to the anatomy.



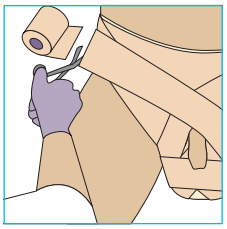
Step 3: Once scrotum is covered, bring the bandage beneath the penis laterally towards the opposite hip. At the lateral side, press, mould and cut the bandage.



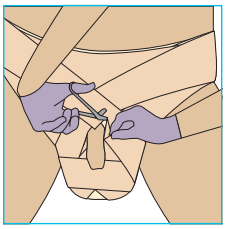
Step 4: For complete coverage of the proximal scrotum, beginning at the lateral side, apply a strip of compression layer coming over the mons pubis ensuring that the bandage lays above the base of the penis.



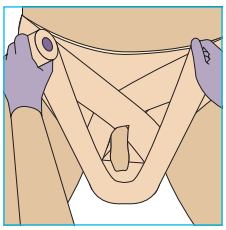
Step 5: Proceed with the bandage distally and bring the winding under the scrotum. Lift the penis and continue windings to cover the scrotum with at least two compression layers with enough tension for comfort.



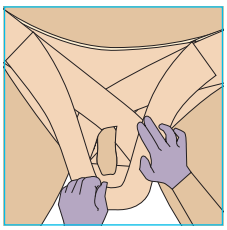
Step 6: Once scrotum is covered, bring the bandage laterally above the base of the penis, towards the opposite hip. At the lateral side, press, mould and cut the bandage.



Step 7: Trim the compression layer as needed to accommodate the penis.

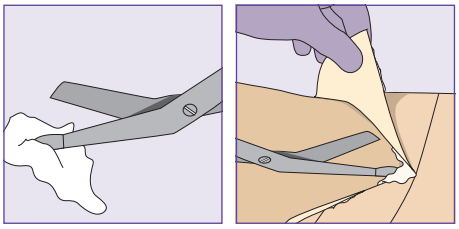


Step 8: Apply a strip of compression layer to provide additional lift and support of the scrotum. Press and cut at lateral sides. Mould the material to conform to the scrotal contours.



Step 9: A circular winding of compression layer can be applied to secure the cut edges.

Bandage removal



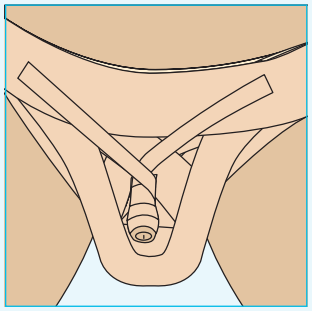
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the penis – method A

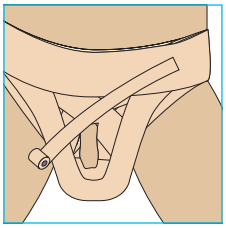
Materials and positioning

- Select the 2.5cm 3M™ Coban™ 2 Lite Compression Layer

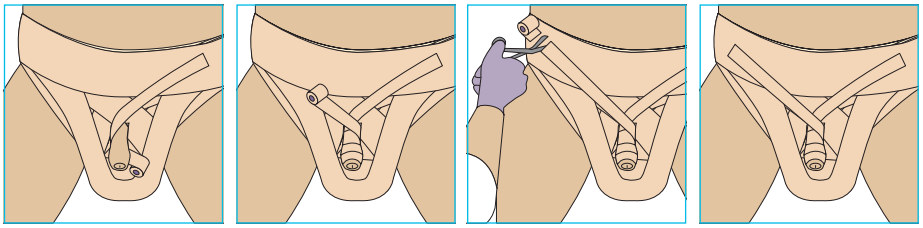


Application of compression layer for the penis

- Apply compression material with at least 2 layers with enough tension to conform
- It is recommended that you hold the roll close to the body throughout the application for controlled, even compression

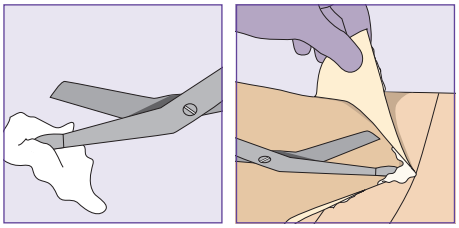


Step 1: Without tension, anchor the bandage by beginning the application with the material positioned at the lateral side of the abdominal bandage. Direct the roll across the base of the penis and under towards the distal penis.



Step 2: Proceed proximally with circular windings and 50% overlap towards to base of penis. Anchor application by bringing the material to opposite side. Cut, press and mould to conform.

Bandage removal



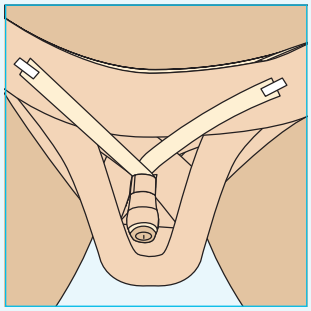
Bandage removal
Dipping the scissor tips into cream allows comfortable and easy bandage removal.

Application details – advanced techniques

3M™ Coban™ 2 Lite Two-Layer Compression System application for the penis – method B

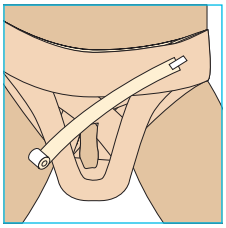
Materials and positioning

- For extreme oedema or when additional comfort is needed, select the 5cm 3M™ Coban™ 2 Comfort Foam Layer and 5cm 3M™ Coban™ 2 Compression Layer

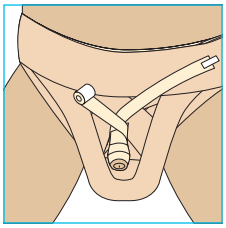


Application of comfort foam layer for the penis

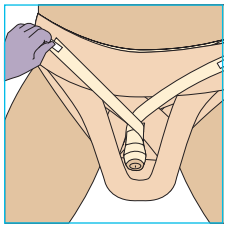
- Apply this layer with the foam side against the skin with just enough tension to conform
- Cover the skin with as thin of a layer as possible with no gaps



Step 1: Begin the comfort foam layer application with the material positioned at the lateral side of the abdominal bandage. Direct the roll across the base of the penis and under towards the distal penis.



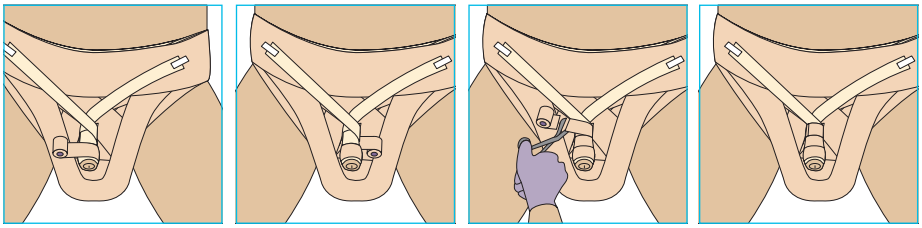
Step 2: Proceed proximally with circular windings and minimal overlap towards the base of the penis. End the application by bringing the material to the opposite side of the abdominal bandage.



Step 3: Press, cut and mould to conform. Secure the ends with tape.

Application of compression layer for the penis

- Apply compression material with at least 2 layers with just enough tension to conform
- It is recommended that you hold the roll close to the body throughout the application for controlled, even compression



Step 1: Begin the application at the distal end of the penis and proceed proximally with circular windings at minimal stretch and 50% overlap towards the base of the penis. End the application at the base of the penis. Press, cut and mould.

Frequently asked questions

Q What is the scientific explanation for why 3M™ Coban™ 2 Two-Layer Compression System works for lymphoedema?

A Coban 2 Compression Systems are engineered with Intelligent Compression Dynamics to create a conformable, inelastic sleeve that generates the working dynamics needed for effective venous and lymphatic return. The compression layer has been modified to be a short stretch bandage and is applied at full stretch to reduce application variability. Mayrovitz[6] describes the effects of short stretch bandaging as providing the required resistance to support and distribute the dynamic working pressures created by functional, muscle activities to move interstitial fluids, soften fibrotic tissues and stimulate lymphatic contractility.

Q Why don't I need to pad and reshape the limbs when using Coban 2 Compression System for Lymphoedema?

A The ideal compression system has been defined as an inelastic sleeve with an anatomical fit around the patient's limb which stays in place and provides a well tolerated pressure in rest.[7] Coban 2 Compression System materials are easily adapted to conform to most contours so that the inelastic sleeve provides the resistance to effectively support the muscle activities within the bandage. The end result is a thin system that enhances function and mobility. A controlled, multi-centre, prospective, open label study showed that Coban 2 Compression Systems (with twice weekly applications) were as effective as standard multi-layer short stretch bandages applied five times per week. Limb contours normalise with resolution of lymphoedema.

Q How can you be sure that there is equal pressure throughout and no pressure points are created due to not reshaping?

A 3M™ Coban™ 2 Compression Layer is applied at full stretch with at least two layers. This results in a compression system that is thin and evenly applied. Studies[8] have demonstrated that the inelastic sleeve created by Coban 2 Compression Systems was effective at reducing limb volume without extra padding and was comfortable to wear and well tolerated by patients who took part in the studies. There were no reported cases of skin damage on any of the 40 patients taking part in the study.

Q What is the recommended method to apply Coban 2 Compression System?

A 3M has designed new methods for the application of Coban 2 Compression System for lymphoedema. Training workshops, videos and handouts are available from your local 3M representative.

Q What evidence do we have regarding safety and efficacy of the Coban 2 Compression System for lymphoedema?

A Several studies[8] have proven that lymphoedema is effectively managed by Coban 2 Compression Systems with the added benefits of improving patients' quality of life, function and mobility.

Frequently asked questions

Q How do 3M™ Coban™ 2 Two-Layer Compression Systems compare to the current reusable bandaging systems?

A In a descriptive, qualitative study,[8] Coban 2 Compression Systems, with its conformable, thin, low profile was rated by patients to be more comfortable than their traditional bandages which can be restrictive and reduce function. Patients reported that the bandage was lighter, less obtrusive and improved their overall mobility throughout their treatment period.

Q How can a product so thin possibly treat lymphoedema?

A Coban 2 Compression System materials have been proven[7] to provide the required stiffness to distribute muscle contraction forces equally beneath the bandage, thus supporting the muscle dynamics to reduce oedema. Additionally, the comfortable resting pressure and low profile construction provided improved function and mobility supporting the normal muscle pump.

Q How does the cost of a disposable system compare to a reusable system?

A Coban 2 Compression System required fewer number of intensive therapy treatments that off sets the increased cost for single use bandages. Coban 2 Compression System applied twice weekly was as effective as traditional short stretch bandages applied five times per week. This resulted in a significantly lower total cost for treatment.

Q What pressures does the system deliver?

A The original Coban 2 Compression System was designed to provide sub-bandage resting pressures of about 35–40mmHg on application at B1. This material is recommended for lower limb applications. 3M™ Coban™ 2 Lite Compression System provides 25% less sub-bandage pressures at application and this material is used for upper extremity applications. These pressures have been proven to be well tolerated8. Recent studies[7,9] have shown that the stiffness of a system is more important than sub-bandage pressures in predicting the efficacy of a bandage. For arms, Damstra[10] reported that low-pressure bandages are as effective as high-pressure bandages and with less discomfort.

Q Why are there so many different SKU's?

A 3M™ Coban™ 2 Comfort Foam Layer and 3M™ Coban™ 2 Compression Layer are provided separately (not in a kit) in a wide variety of sizes for clinician choice and convenience to meet the size and contour challenges of the patient with lymphoedema.

Q How long does Coban 2 Compression System stay on for?

A The randomised, controlled, multi-centre, open labelled, prospective study[8] demonstrated that Coban 2 Compression Systems with twice-weekly change were as effective and well tolerated as traditional short stretch bandage changes five times per week with a significant improvement of skin fibrosis and effective reduction of lymphorrhea.

Frequently asked questions

Q What if the legs are weeping? Will the foam layer absorb exudate?

A The comfort foam layer will absorb exudate and 'wick' usual skin moisture and evaporate it through the bandage. More frequent bandage changes may be required depending on drainage and as limb volume decreases.

Q Can 3M™ Coban™ 2 Two-Layer Compression System adhere to other materials or to itself?

A Patients wearing Coban 2 Compression System have reported that it can 'stick' to itself and to sheets. This can be easily remedied by applying a thin cotton sleeve/liner over the system or thin, stretchable stockings to facilitate normal footwear application and removal.

Q How long does Coban 2 Compression System stay on for?

A The randomised, controlled, multi-centre, open labelled, prospective study[8] demonstrated that Coban 2 Compression Systems with twice-weekly change were as effective and well tolerated as traditional short stretch bandage changes five times per week with a significant improvement of skin fibrosis and effective reduction of lymphorrhea.

Q When do I need to change the compression system? How will I know?

A In a controlled study[8] it was demonstrated that 2/week changing Coban 2 Compression System is sufficient. Coban 2 Compression System should be changed if it becomes loose fitting, and when it no longer conforms to the leg.

Q Are lymphoedema clinicians concerned about pressures?

A Traditional lymphoedema bandages incorporate multiple short stretch, inelastic bandages with a variety of padding materials to create a rigid bandage believed to provide graduated pressures according to Laplace's Law. Though effective in reducing edema, these bandages create a number of problems for the patient. The overall bandages are stiff and bulky so that normal clothing and footwear is prohibited. Mobility is restricted, reducing flexibility and function required for the normal activities of daily living.[8] Research[7] has shown that Pascal's Law better predicts the efficacy of a bandage. When an inelastic sleeve conforms to the limb and allows functional activities and movement, the intermittent contraction/relaxation forces are effective to move venous and lymphatic flow.

Q What evidence do you have for benefits you are promising? Why should I change current practice?

A Results of a randomised, multi-centre, prospective, open label study[8] comparing Coban 2 Compression System to standard bandages showed equal volume reduction with twice weekly applications compared to traditional short stretch bandages applied 5 times per week. In addition, patients reported an improvement in their quality of life scores and mobility with the MYMOP (Measure Yourself Medical Outcome Profile). Patients rated their overall and limb mobility as good as their unbandaged limb. This system could, therefore, help patients exercise and mobilise more effectively as part of their intensive therapy.

Frequently asked questions

Q Can I teach my patients to apply it themselves?

A 3M™ Coban™ 2 Two-Layer Compression System is used under the supervision of a healthcare provider. 3M has not studied nor provided self application methods.

Q Can I use the compression system in conjunction with other bandages/padding material?

A Several application techniques have been provided to help the clinician apply Coban 2 Compression System in such a way to create a thin, low profile, inelastic sleeve that conforms to the contours of the limb. This bandage will provide the correct support effective to move venous and lymphatic flow. It is recommended that Coban 2 Compression System be applied according to the application instructions by 3M.

Q Is application easy to learn/teach?

A Clinicians participating in the clinical studies to evaluate the safety and efficacy of Coban 2 Compression System for lymphoedema reported that the methods are fast and easy once they become familiar and confident with the materials. The dominant observation of patients participating in the studies was that the application was much quicker, easier, less time consuming and less taxing physically and emotionally.[8]

Appendix

Best practice for the management of lymphoedema – second edition

Compression therapy: A position document on compression bandaging

Q What is this document?

A In every therapy area, from leg ulcers to pressure ulcers, clinicians look for a set of guidelines to follow and disseminate as best practice. These guidelines collate all of the latest research and give recommendations for practice on compression for lymphoedema management. The Global Position Document from the International Lymphoedema Framework is a global reference providing current evidence-based understanding. This document can also be used when referring to venous leg ulcers, as the principles of compression remain the same for both venous insufficiency and lymphoedema, commonly referred to as chronic oedema.

Q Who authored the best practice document?

A Christine Moffatt CBE, FRCN, PhD, MA, RGN, DN, Chair, International Lymphoedema Framework, worked with Hugo Partsch MD and an international, multidisciplinary team to update the understanding of the role that compression bandaging provides for the treatment of lymphoedema. This will be the first of 12 separate documents supporting all aspects of decongestive lymphatic therapy (DLT).

Q Who contributed to this document?

A This document contains a series of best practice statements derived from a systematic review of current published studies. It addresses the science behind compression bandaging, ways to optimise and adapt compression for different patient groups, and discusses dermatological issues and principles of skin care.

Q Who will use this document?

A Lymphoedema and wound care specialists managing chronic oedema, including lymphoedema and venous leg ulcers, will use this document to guide their practice.

Q Is 3M™ Coban™ 2 Two-Layer Compression System included in this document?

A Much of the science supporting the efficacy of Coban 2 Layer Compression System is reflected in this best practice document. Jan Schuren, co-developer of Coban 2 Layer Compression System, has a chapter on compression, Coban 2 Layer Compression System and how padding reduces the effectiveness of bandages.

Appendix

Compression therapy: A position document on compression bandaging (continued)

Q How does this document support Coban Layer 2 Compression System for lymphoedema treatment?

A For the first time since multi-layer bandages have been in use, the authors recognise that Laplace's Law and the predicted compression gradient (40mmHg at the ankle and 17mmHg at the calf) is seldom achieved and that Pascal's law better explains the dynamics of compression therapy. The document validates the new science and research findings that support the principles 3M has been teaching on compression bandaging for chronic oedema, including lymphoedema and venous leg ulcers.

It states clearly that padding limbs to create a cylinder decreases pressure and efficacy. Excessive padding also results in bulky applications that interfere with comfort and mobility.

> *"...Traditional methods of application involving extensive padding are also being reconsidered with the focus on increasing patient function and overall mobility. Underpinning principles such as the use of Laplace's law in compression bandaging are being challenged, as methods of application show that appropriate gradients of pressure are rarely achieved and extensive padding reduces the overall effectiveness."*

The document states that compression bandages should not impede function. Patient challenges of daily bandage applications are discussed, and includes the results of the Coban 2 Compression System randomised controlled trial showing twice weekly application being the most clinical and cost effective outcome for patients.

The document recognises that Coban 2 Compression System is patient-preferred for comfort and mobility compared to other multi-layer bandaging. Professor Partsch discusses optimum sub-bandage pressures, which when exceeded may interfere with lymphatic flow. This guideline recommends that for arms, sub-bandage pressures should not exceed 30mmHg (Coban 2 Layer Lite Compression System provides 28mmHg) and for legs, the upper limit for resting pressure is 50–60mmHg (Coban 2 Layer Compression System provides 35–40mmHg).

The ideal bandage is defined as one that has a low, well tolerated resting pressure with high working pressures to support venous and lymphatic flow and that will not interfere with mobility. Coban 2 Layer Compression System fits the definition of the ideal bandage.

Appendix

Compression therapy: A position document on compression bandaging

Q Are other bandaging materials included?

A There is a section on the use of traditional inelastic compression and the use of foams, etc. on fibrotic areas. However, there is also an underlying theme throughout that there is a lack of evidence regarding the frequency of change of the traditional bandages, the pressures achieved and the length of time patients should receive therapy.

Q Are there bandaging recommendations for patients with mixed arterial disease?

A The document reports that in a group of patients with ABPIs between 0.42–0.8 with mixed arterial-venous ulcers, inelastic compression bandages with a pressure up to 40mmHg did not reduce arterial flow, but increased venous function. This supports the use of Coban 2 Lite Compression System for ABPI > 0.5 for patients with mixed aetiology.

In summary:

The Global Position Document from the International Lymphoedema Framework recognises Coban 2 Compression System as an ideal bandage based on clinical evidence (evidence-based) and incorporation of new compression science (Pascal's Law).

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3M United Kingdom PLC
Charnwood Campus
10 Bakewell Road
Loughborough
Leicestershire
LE11 5RB

01509 611611

3M Ireland
The Iveagh Building
The Park
Carrickmines
Dublin 18
Ireland

00 353 (01) 280 3555

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