When To Use Inelastic Compression

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I do not anticipate discussing the unapproved/investigative use of a commercial product/device during this presentation.

Disclosures

Janssen R&D - Steering Committee
Pfizer - Bleeding Advisory Board
BMS - Advisory Board
Recovery Force - Consultant
Alexion Pharmaceuticals – advisory board

Edema Management

The Use Of Elastic Bandages, Kerlex, Stockinette, TED Hose, Or Tube Gauze For Leg Swelling, Venous Stasis Ulcers, Or Venous Insufficiency-induced Lymphedema Is Suboptimal At Best

Compression bandages

Illustration of the difference in stretch between elastic and inelastic bandages. The more stretch that is present, the weaker the effect on reduction of leg edema.

Elastic (Long Stretch) Compression

- High resting pressure
  - Uncomfortable over time
- Low ambulatory pressure
  - Bandage "gives way" walking
  - Edema increases
- SSI <10mmHg*

Static stiffness index (SSI)
Most people are unaware that giraffes have venous pressures of more than 250 mmHg at their ankles. That is three times more than humans. However, giraffes do not suffer from lymphedema or venous disorders. Physiologists have discovered the answer is in the skin. Giraffe skin is inelastic, so it does not stretch. As their leg muscles contract the veins in the legs are squeezed forcing the blood toward the heart. Thus, giraffes are not susceptible to problems like lymphedema and venous disease, even though they may be on their feet 24 hours a day.

**Inelastic (Short-Stretch) Compression**

- Low resting pressure
  - Comfortable at rest
- High walking pressure
  - Edema decreases
  - SSI > 10 mmHg*
- Modalities include Unna’s boot, short stretch bandages, and velcro devices

*Standing stiffness index

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**Velcro Compression**

- Ready to Wear & Made to Measure options
- Inelastic properties SSI > 10
- Laminated fabric construction
- Adjustable compression levels
  - 20-30 mmHg
  - 30-40
  - 40-50
  - 50+

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**Velcro Appliance System**

Note the marked difference between resting and ambulatory pressure. Dramatic edema reduction will result. This device can be used as a wound compression dressing, can be changed daily, and shortens healing time.

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**Velcro Compression**

- Short-stretch
  - Low resting pressure: comfortable
  - High working pressure
  - Decreases venous volume and edema
  - Adjustable as edema decreases
  - Ideal for those unable to don/doff stockings
  - Stocking failures
  - Postoperative leg swelling
  - Lymphedema
Venous Insufficiency Induced Lymphedema

Mixed Arterial & Venous Insufficiency

- Patients with reduced ankle pressures and swollen legs
  - Low compression pressure
  - Safe as long as less than leg perfusion pressure
  - High walking pressure (decreases edema)
  - Adjustable in case pain, numbness occur
  - Ideal for reperfusion limbs
- Arterial inflow may increase as blood is pumped out of the leg temporarily improving leg perfusion