'COMPRESSION THERAPY IN HOT WEATHER, HOW I DO IT'

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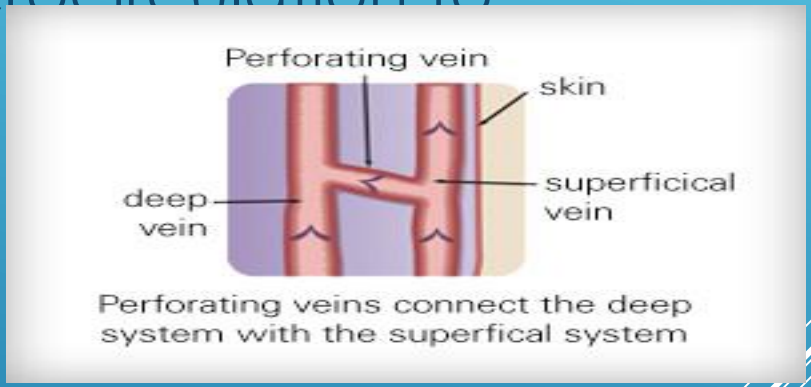
CAUSES OF LEG ULCERS

- 70% chronic venous insufficiency
- Arterial disease (10-15%)
- Mixed arterial and venous disease (10-20)
- Diabetes (5-8%)
- Vasculitis(2-5%)
- Lymphoedema(1%)
- Trauma(2%)
- Malignancy (1%)

PATHOPHYSIOLOGY OF VENOUS ULCERS

- Sustained venous hypertension
- Oedema
- Increase distance from microcirculation to tissue cells
- Tissues ischemic
- Chronic reperfusion
- Edema
- Tissue fibrosis
- A cuff of extracellular matrix proteins around capillaries
- Aching, heaviness of the legs, itching, lipodermatosclerosis, pigmentation, swelling, eczema, and ultimately ulceration



Perforating veins connect the deep system with the superfical system

VENOUS IMPAIRMENT

- Arises in superficial and deep veins
- Poor blood return to heart
- Causing pooling of blood - around ankle
- symptoms - pain/edema e.g. Varicose vein colour
- haemosiderosis (pigmentation)
- Telangiectasis
- Eczema - itchy/ulcer

MANAGEMENT OF VENOUS LEG ULCERS

- Four layer or 2 layer compression bandaging
- Leg elevation
- Improve mobility
- Reduce obesity
- Improve nutrition
- Skin grafting in selected patients
- Venous surgery in selected patients

Venous Dressing

Cleans, removes dead tissue and gently drying the area.

Two-layer; active patients

Four-layer non-adhesive dressing: immobile pt. Compression: constant pressure on the ulcer.

Good Bandaging Technique:

- Each turn of bandage = equal tension
- Spiral form with overlapping by 50%
- Ankle circumference determine type and regime of bandage
- Only use bandage 10cm wide
- Protect all bony prominences

Compression dressing

The four layer bandage (an elastic system)

Standard method in the UK comprises

- **Orthopaedic wool,**
- **Crepe bandage,**
- **Elastic bandage, and**
- **Cohesive retaining layer.**


CE
NDC-0003-6509-47
SurePress
High Compression Bandage
Bandage de Forte Compression
Vendaje de Compresión Alta
Benda Elasto-Compressiva


Rosidal TCS
SAFE-LOC


3M
Coban 2
Lite
2 Layer Compression System
1
2
2794

General Assessment (N=13; median = 0.3)

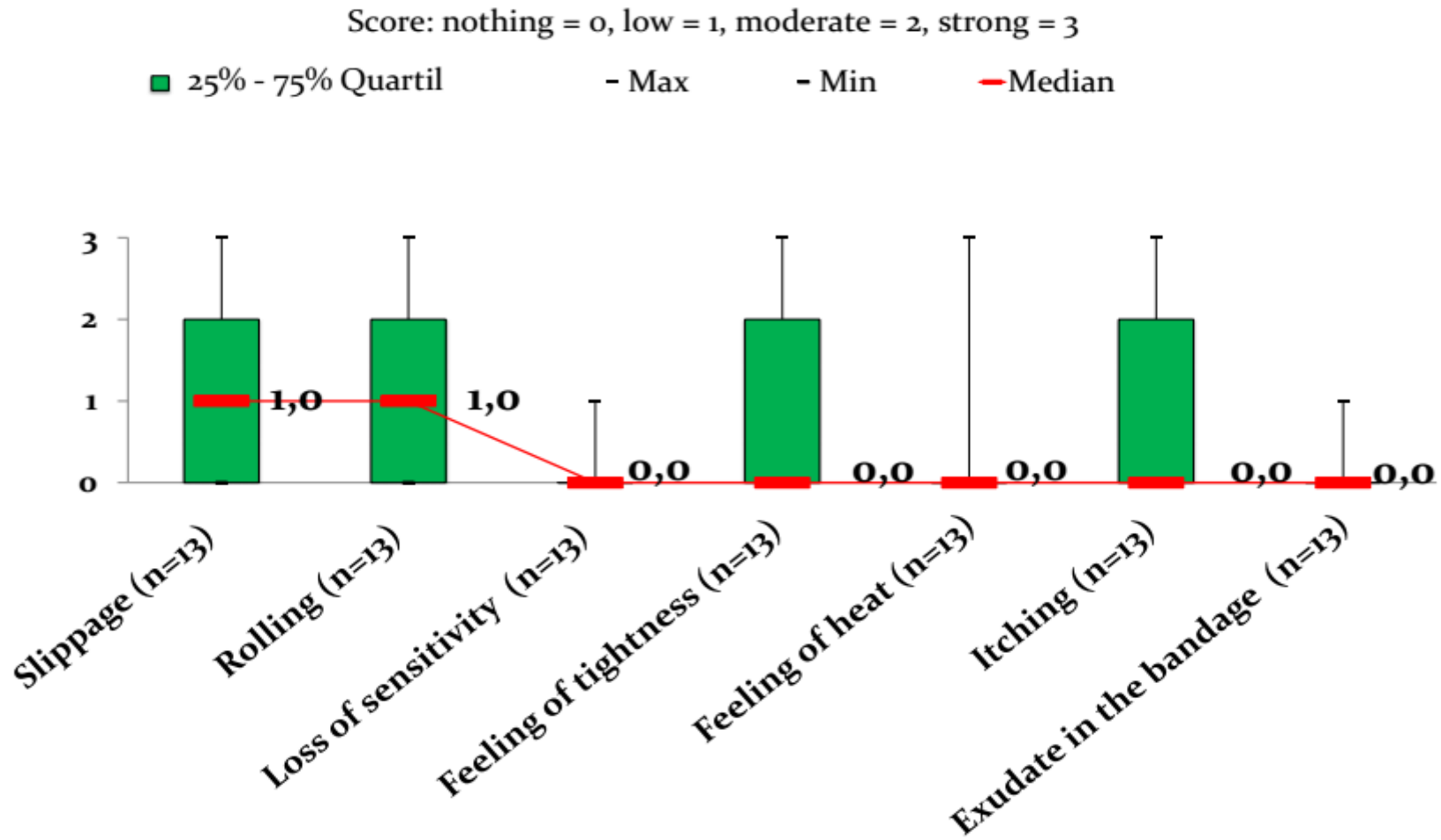


Fig 1: General assessment of the TCS compression system applied in a figure of eight or in a spiral technique with a 50% overlap of the layers (N=13).

RESULTS OF AN OBSERVATION STUDY ON THIRTEEN MIXED OR ARTERIAL LEG ULCER PATIENTS WITH A NEW TWO-COMPONENT-SYSTEM (TCS)*

S. Mazzei[1], G. Mosti[2], A. Collarte[3], V. Dini[4], S. Bahr[5], A. Coulborne[6], C. Hampel-Kalthoff[7], C. Zell[8], R. Brambilla[1], M. Abel[8]

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USABILITY, PATIENT SATISFACTION AND INTERFACE PRESSURE OF A NEW COMPRESSION SYSTEM*

G. Mosti

Private Out-patients Ambulance, Lucca, Italy

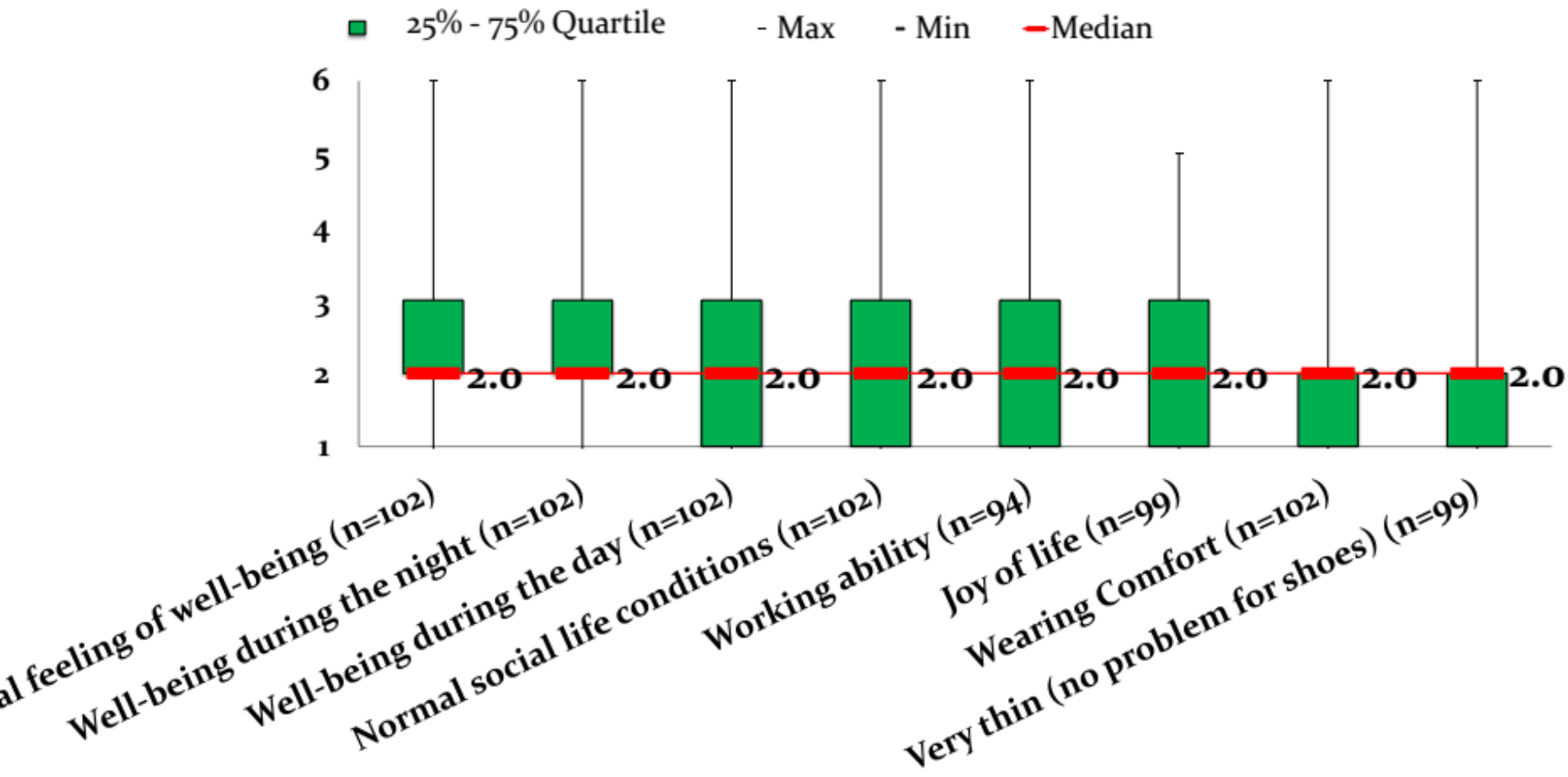
20 patients affected by VLUs had good general assessment and satisfaction

RESULTS OF AN OBSERVATION STUDY IN 102 LEG ULCER PATIENTS WITH A NEW TWO-COMPONENT-SYSTEM (TCS)*

S. Mazzei[1], G. Mosti[2], A. Collarte[3], V. Dini[4], S. Bahr[5], A. Coulborne[6], C. Hampel-Kalthoff[7], C. Zell[8], R. Brambilla[1], M. Abel[8]

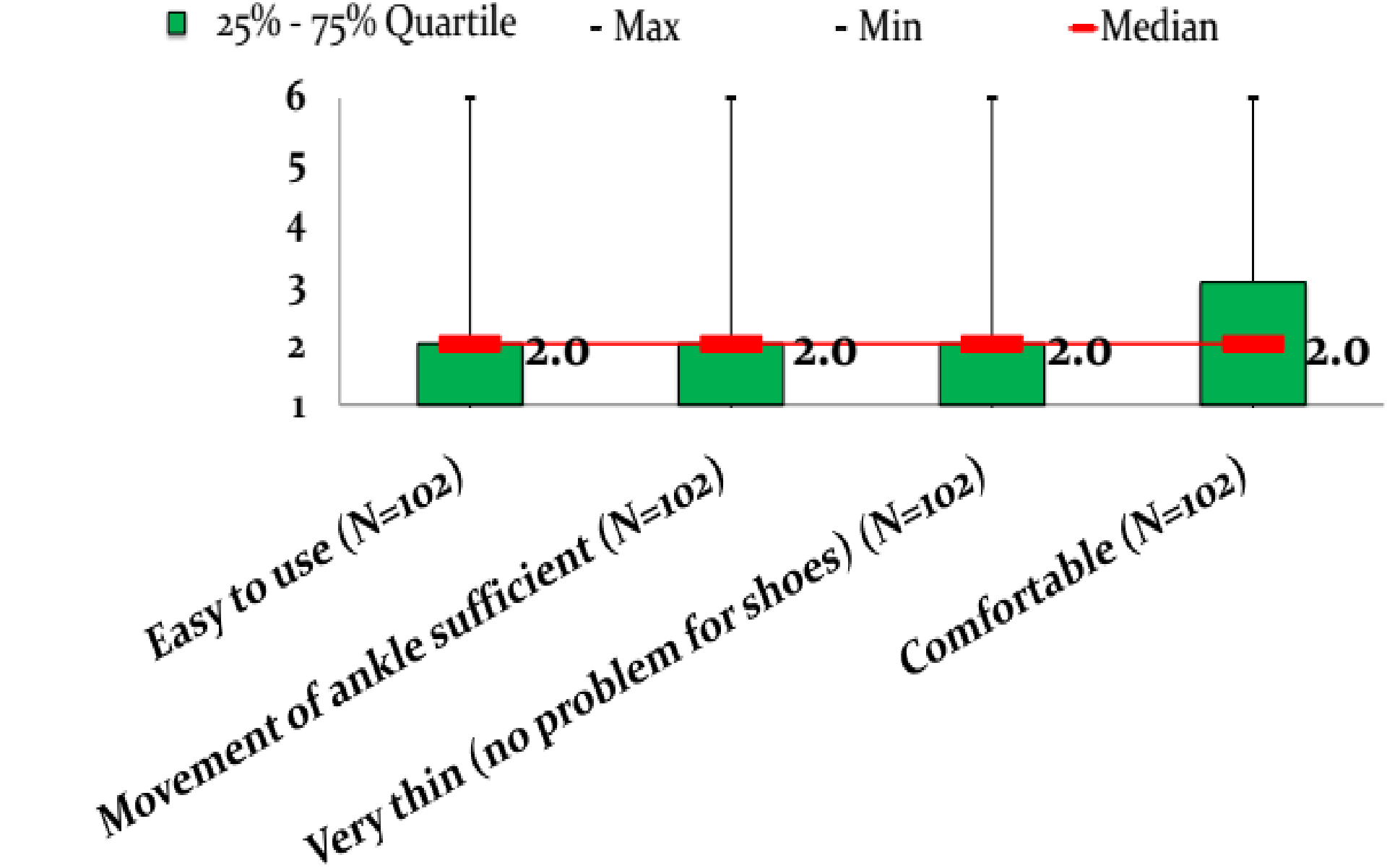
Patient - Quality of life with TCS (N = 102; median = 2.0)

Score: 1 = excellent, 2 = very good, 3 = good, 4 = acceptable, 5 = insufficient, 6 = failed



Technical Assessment (N = 102; median = 2.0)

Score: 1 = excellent, 2 = very good, 3 = good, 4 = acceptable, 5 = insufficient, 6 = failed



Author - Year	Moffatt - 2008	Guest - 2015	Mosti - 2011	Benigni – 2007	Hayes and Day- 2008	Schuren J - 2008
Study Type	RCT (8-week crossover)	Retrospective chart review and economic analysis	RCT	Prospective cohort, Phase III	Case Reports/Series	Pooled data from 3 studies (Collier and Schuren– 2007[7], Schuren and Mohr 2006, 2007)[4,5]
Sample	81	675 (250 intervention)	100 (50 intervention)	42 patients from 12 centers	20 (4 case studies presented)	744 compression bandage applications
Population	Adults with VLU treated with compression for at least 2 weeks prior	Case records of VLU patients in the UK (nationally represented database - THIN) treated with 1 of 3 compression systems	Patients with venous ulcers of the lower limbs were enrolled in three centers. Venous etiology - superficial (74 cases) and/or deep veins (26 cases)	Ulcers with at least 50% granulation tissue, a surface area of 2-20 cm2, an ulcer duration of 1-24 months, an ankle circumference of less than 28 cm, and no history of deep vein thrombosis in the three months before enrolment.	patients featured had previously expressed concern in relation to aesthetic appearance	bandages applied to artificial legs equipped with pressure transducers
Comparator	Profore, 4-layer compression	#1 KTwo (n=250), two layer compression system #2 Profore (n=175), 4-layer compression system	Unna boot multi-layer, multi-component, stiff, high pressure bandage considered gold standard	None	None	• Profore™ (Smith & Nephew Medical Limited, Hull) • Actico (Activa® Healthcare Limited, Staffordshire) • Unna's Boot (Medicopaste®, GF Health Products, Atlanta, USA); covered with a 3M™ Coban™ bandage roll (3M™, St Paul, USA) • Rosidal® K short-stretch (Lohmann & Rauscher International, Rengsdorf, Germany)
Key Results	• Slippage at each bandage change (7 days) Product X = 2.48cm Comparator = 4.17cm • Improvements in Health Related Quality of Life; Physical Symptoms and Daily Living scores were significantly higher over the first 4 weeks of use for Coban 2 Layer System than Profore™ (pooled 2-sample t-test, p=0.046). • 72% of patients preferred Coban 2 Layer Compression System over Profore • Study was not powered to detect differences in wound healing rates	• Product X had an increased healing rate with 44% healing at 6 months compared to 40% (p=0.03) and 28% (p=0.001) for comparators #1 and #2, respectively. • Product X patients experienced better HRQoL over 6 months; 0.974 QALYs versus 0.368 and 0.353 for comparators #1 and #2 respectively. • Product X's mean 6-month cost was £2,413 versus £2,707 and £2,848 for comparators #1 and #2, respectively	• Coban 2 was associated with 100% ulcer healing • 47 out of 50 cases healed within the first 8 months after application of the bandage • Compared with Unna boot there was no statistically significant difference • In both groups pain decreased by 50% within 1–2 weeks and remained low throughout the duration of treatment and overal well being improved significantly	• mean ulcer surface area at inclusion was 7 +/- 6 cm^2 • mean surface reduction after six weeks was 58.5%, with 24% of the treated wounds healing in a mean time of 25.8 +/- 9.46 days • 86% of leg ulcers improved or healed after six weeks • Patient tolerance was considered very good and patient concordance with the new system was excellent • The patients considered that the new compression system had a better effect on quality of life, evaluated by parameters such as pain, heat, itching and general comfort, than the system worn before entry into the study	The reduction in exudate and the overall aesthetic appearance of the system had positive benefits for the patients. An improvement in their ankle movement and subsequent mobility were also reported as positive outcomes.	• The results are compared with theoretical compression forces calculated by a modified Laplace's law equation which predicts graduated compression ranging from 27–72mmHg at the ankle, tapering to 18–8mmHg below the knee. However, the results of the studies show that calculations using this equation do not reliably predict actual measured sub-bandage pressures

Author - Year	Collier and Schuren– 2007	Schuren J - 2010	Walker - 2007	Hayes - 2007	Larson-Lohr V. 2007	McIntosh 2007	Barkauskas 2011
Study Type	Panel	Cohort study	Case Study	Case Reports/Studies	Case series	Case study	Case Study
Sample	32 experts	60 volunteers; 120 legs	3	4	21 patients at Center for Wound Care Warm Springs Rehabilitation Hospital, San Antonio, TX	3 patients	3 patients at Silver Cross Hospital, Joliet, Illinois
Population	N/A	Healthy volunteers, both legs wrapped	Case study from subset of patient enrolled in McIlfatt et al. 2008 RCT	National Study	Patients with edema and venous leg ulcers currently using 4-layer system	Adults with VLU treated with compression for at least 2 weeks prior	Patients with ABPIs between 0.5 and 0.8 verified by an ABPI or arterial doppler study.
Comparator	• Profore™ (Smith & Nephew) • Actico (Activa® Healthcare Ltd) • Unna's Boot (Medicopaste®); covered with a 3M™ Coban™ bandage roll (3M™, St Paul, USA) • Rosidal® K short-stretch (Lohmann & Rauscher International)	• Coban 2 Lite system [3M], • Rosidal sys, Dauerbinde F, and Rosidal K [all from Lohmann & Rauscher]; • ProGuide, Profore Lite, and Profore [all from Smith & Nephew]; • KTwo [Laboratoires Urgo]; and • Actico [Activa Healthcare Ltd.]		None	4 layer system	4 layer compression	None
Key Results	• The reproducibility of provided pressures with Coban 2 Layer Compression System was significantly 'more accurate' when compared with the currently used systems. • Coban 2 Layer Compression System is easy to use and provides more consistent pressure values than the other four compression systems evaluated.	• Most bandages were well tolerated by the volunteers (84/96, 87.5%). • Five (5.2%) bandages were removed by the volunteers on day 1 because of discomfort during the night. • Seven (7.3%) bandages were removed after 24 hours because of serious slippage. The degree of slippage varied among the seven bandage systems tested, and ranged from a mean of 0.8 cm to 4.5 cm after 24 hours of wear and 1.1 cm to 6.6 cm after 48 hours of wear. • Differences also existed in the pressure profiles of the various bandages while at rest, standing, during exercise, and during recovery. Pressure and slippage during 48 hours of compression therapy: a study on healthy volunteers.	• Patient #1: Though patient has a resistant, slow to heal ulcer, he rated his overall quality of life a 9/10 at all 3 time points. He reported that the 2 layer system was more comfortable overall, and he experienced less slippage • Patient #2: QoL attributes reported by patient to have improved while wearing the 2-layer system included less sleep disturbance, less pain from the wound site, and improved ability to perform activities of daily living. • Patient #3: Pt reported that he liked wearing the 2- layer system for its durability and comfort, though he selected the 4-layer as his preferred system for its warmth properties.	• Coban 2 Layer System provided sustained therapeutic levels of compression that patients could tolerate • In all four cases wound dimensions reduced during the six week evaluation period • Coban 2 Layer System enabled patients to wear their choice of clothing/footwear and undertake their normal activities of living • All patients experienced an increase in comfort levels • All four patients were concordant with compression therapy	• Patient satisfaction higher in regard to: Temperature, Mobility and Compliance • Patient perception was that overall the 2 layer system was more effective in controlling their edema. • Staff time for application was markedly reduced; application easier, and less product used in comparison to 4 layer system ((foam, cast padding, etc) • Application of 2 layer system is easier and less product is utilized in comparison to current. • Center was able to maintain healing outcomes of 90% at 5.1 weeks.	• Several benefits were experienced by all 3 subjects while wearing the new 2 layer system, including: "Less slippage. Improved comfort during wear. Less sleep disturbance. Less interference with footwear. • All patients noted that their clinic appointment time decreased due to the easier removal and application of the 2 layer system. • Two patients also acknowledged that the bandage system was "cooler than the 4 layer wrap and not as itchy".	• For these patients with mixed etiology and for our patients with venous stasis ulcers who do not tolerate full compression, the 2 layer lite compression system has proven to be clinically therapeutic without compromising patient comfort, safety and compliance. • For the patients presented, edema was controlled and healing occurred with no adverse effects.

Author - Year	Hampton - 2008	Bain G. - 2008	McGuiness - 2008	Schnobrich	Jünger M 2010	Vanscheidt 2009
Study Type	Case Reports/Studies	Case study	Case study	Pilot study	Single-centre, open label case study	RCT
Sample	5	6	4	10 healthy volunteers	15 patients	234 patients
Population	Elderly patients suffering from venous leg ulcers	Patients whose venous leg ulcers had not responded to conventional compression bandaging	Patients at two wound management clinics	Physically active healthy volunteers	patients with ABPI of 0.5–0.8	patients with ABPI ≥0.8, median duration of ulcer was 16 months; baseline ulcer size was 7.9cm^2 with 23.8% >10cm^2
Comparator	Other multilayer compression systems	Multi-layer compression systems used prior (various)	None	• Profore® Multi-layer Bandaging System on the other leg	None	Short-stretch compression bandage
Key Results	• In no instances were bandages changed due to slippage or loss of compression • The system conformed well to a variety of limb shapes • Wound condition improved in all five cases • The system was found to be aesthetically pleasing and demonstrated seven-day wear time on the majority of patients (minimum wear time four days) • All five patients found the Coban 2 Layer System comfortable and this could be associated with improved adherence levels and requests for continuing therapy in this system	• Coban 2 obtained faster reduction in oedema, pain and exudation than the traditional multi-layer compression systems used previously • A 30-40% reduction in wound surface area was observed in 6 patients over the four-week trial period; one patient's ulcer was healed by the 6th weekly visit, after two years of non-healing • Minimal bandage bulk allowed patients to wear normal shoes	• 3M™ Coban™ 2 was comfortable and well tolerated by all patients • The persistent leg ulcers of two patients healed within the four-week evaluation period • In all cases, considerable oedema reduction was achieved	• Coban 2 Layer System was rated more comfortable than the Profore System • Coban 2 Layer System had an average wear time almost 3 days longer than the Profore System (4.2 days versus 1.5 days) • Coban 2 Layer System took less time to apply and remove than the Profore System • Coban 2 Layer System caused less sleep interference than the Profore System • Coban 2 Layer System had little effect on pant or shoe selection	• Coban 2 Lite was safe and well tolerated by patients with ABPI 0.5-0.8 • Average supine sub-bandage pressure was 28mmHg immediately after bandage application • No pressure-related skin damage occurred and no pain related to tissue hypoxia was reported • Coban 2 Lite demonstrated beneficial effects on the microcirculation	• Efficacy was similar between products • At 12 weeks complete ulcer healing was 36% and 34% for Coban 2 and SSB, respectively • Reduction in wound size was 62% and 49.5% for Coban 2 and SSB, respectively • There was a significant reduction in bandage changes for Coban 2 (12.7 versus 19.1) • There was a significant reduction in unscheduled for Coban 2 (3.7 versus 10.2) • Coban 2 patients were significantly less likely to return for an intermittent bandage change due to slippage (5% versus 44%)

MALDIVES – SOFT ROLL AND CREPE BANDAGE

AUSTRALIA – 3 TUBIGRIP

OTHERS – ORTHOPAEDIC WOOL AND COHESIVE BANDAGE

2 LAYER COMPRESSION SYSTEM- CASES

- DR.HARI, A.M.O. VIJAY, SN. ANGELINE, A.M.O. FAZELAH, A.M.O. SUZILYANIS, SN. HAMIZA,

SN. AZLINDA, SN. RAENAH, SN. AMAR

CLINICAL CASE 1
MRS N

A 56 years old Malay lady. Started with a skin tear on right leg associated with vericose vein. Sought treatment from Dermatalogy Department, HKL. On assessment patient have chronic right leg anterior tibial ulcer with granulating, thick biofilm, moderate yellowish exudate and macerated surrounding ulcer. Patient complaint of localise pain at wound area, pain score 3/10.

1st week

(L) 18cm x (W) 7cm

3rd week

(L) 10cm x (W) 5.5cm

8rd week

(L) 5cm x (W) 2cm

CLINICAL CASE 2 –MR Z

A 63 years old Malay man with Type 2 Diabetes Mellitus on Oral Hypoglycaemic Agent. On examination found wound Right leg medial malleolus.. On assessment wound was sloughy with mild biofilm, heavy yellowish exudate, and mild epithelization tissue surrounding ulcer.

1st week

(L) 1cm x (W) 1cm

3rd week

(L) 2cm x (W) 1.5cm

6th week

Wound healed

CLINICAL CASE 3
MRS VJ

A 64 years old Indian lady with Type 2 Diabetes Mellitus on Oral Hypoglycaemic Agent past 15 years. On examination found wound at venous ulcer at left medial aspect of lower limb. On assessment wound was sloughy with mild biofilm, heavy yellowish exudate, maceration skin surrounding ulcer and mild epithelization tissue surrounding ulcer.

1st week

(L) 4cm x (W) 2.5cm

2nd week

(L) 4cm x (W) 2cm

10rd week

(L) 4cm x (W) 1.5cm

CLINICAL CASE 4
MR AR

A 68 years old Malay man with Type 2 Diabetes Mellitus on Oral Hypoglycaemic Agent. On examination found wound at venous ulcer at left anterior tibial of lower limb. On assessment wound was granulating, mild biofilm, moderate yellowish exudate and epithelization tissue surrounding ulcer.

1st week

(L) 11cm x (W) 9cm

3rd week

(L) 2.5cm x (W) 4cm

6rd week

(L) 0.5cm x (W) 1.5cm

WOUNDS MALAYSIA : KUALA LUMPUR INTERNATIONAL CONFERENCE 2017

ROYALE CHULAN KUALA LUMPUR

29TH SEPTEMBER - 1ST OCTOBER 2017

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kòp kun

thank you