Kliiniline küsimus nr 8

Kas kõikidel kroonilise venoosse haavandiga patsientidel rakendada parema ravitulemuse saavutamiseks kompressioonravi erinevaid võimalusi vs mitte rakendada?

- samasuguse tugevusega kompressioonravi
- mitteveniv elastne side vs veniv elastne side vs mitmekihiline (multi-layer system) vs vahelduv kompressioon (intermittent pneumatic compression, IPC)
- kompressioonravi kombinatsioon

Tulemusnäitajad: **ravi tulemuslikkus, haavandi paranemine,** patsiendi elukvaliteet, patsiendi rahulolu, hospitaliseerimine, elulemus, üldsuremuse vähenemine, ravikulu

Süstemaatilised ülevaated

Süstemaatilises ülevaates leitakse, et kompressiooniga ravi on tulemuslikum (haavand paraneb paremini) kui ilma kompressioonita, multikomponentne kompressioon on parem kui ühekomponentne ja elastse komponendiga süsteemid on paremad kui elastse komponendita (Mauck et al 2014).

2012 publitseeritud Cochrane süstemaatilises ülevaates leiti, et optimaalne surve VLU raviks on 40 mmHg (O´Meara et al 2012).

Ravijuhendid

AWMA (2011) lähtub üldreeglist, et tugevam kompressioon on parem kui nõrk ning mingigi kompressioon on parem kui selle puudumine. Valesti rakendatud kompressioonravi ei pruugi olla efektiivne ning võib tekitada koekahjustusi. Klinitsistid ja patsiendid vajavad asjakohast koolitust, et tagada kompressioonravi korrektsus.

Kirjandusest ei leia tõendust, et üks kompressioonimeetod oleks parem kui teised. Olemasolevad RCT viitavad, et ühe komponendiga kompressioon on vähem efektiivne kui 4LB; erinevate variatsioonidega 4LB süsteemid on üksteisega võrdsed; kahekihilised kompressioonsukad on efektiivsemad kui mitte-veniv side; meditsiinilised kompressioonsukad on võrdsed mitmekihiliste kompressioonsüsteemidega; elastne kompressioonikomponent on efektiivsem kui mitte-elastne mitmekihilises kompressioonis; kahekihilised ja 4LB kompressioonisüsteemid on võrdse efektiivsusega; pneumaatiline kompressioon on samaefektiivne kui kompressioonisüsteemid.

Hea tõenduspõhisuse puudumise tõttu soovitatakse kompressioonravi määramisel arvesse võtta jala suurust ja kuju, patsiendi sättumust, klinitsisti kogemust ja oskusi, keskkond (nt temperatuur), kasutusmugavus, ligipääsu ravile, kaasuvaid haigusi, patsiendi aktiivsust, hinda. Puudub tõenduspõhisus konkreetse rõhuvahemiku soovitamiseks VLU raviks. Soovitatakse kasutada elastiksideme aluseid rõhuandureid monitoorimaks survet jalale. Patsient vajab 2-3 paari sukkasid aastas. Kompressioontooteid tuleb regulaarselt vahetada.

Kuna uuringud on tehtud valdavalt patsientidel, kellel pole diabeeti, kardiovaskulaarseid

haigusi, pahaloomulisi kasvajaid või segatüüpi haavandeid, tuleks mainitud kaasuvate haigustega patsientidel kompressioonraviga olla ettevaatlik. Vastunäidustused kõrge riskiga patsientidel on: südamepuudulikkus, perifeersete arterite haigus, ABI alla 0,8 või üle 1,2 mmHg, perifeerne neuropaatia, vaskuliidi haavandid. Ühtlasi soovitatakse, et patsient peab olema võimeline valu tundma ning vajadusel suuteline kompressiooni eemaldama kas iseseisvalt või kellegi teise poolt.

AWMA soovitab vastunäidustuste puudumisel kasutada kompressioonravi VLU ravimiseks (Grade B).

MoCVD (2015) leiab samuti, et kompressioonravi on tulemuslikum kui standardravi (ilma kompressioonita). Suures osas kattub AWMA (2011) seisukohtadega.
MoCVD soovitab kompressiooni vähemalt 40 mmHg hüppeliigese tasandil aitamaks kaasa haavandi paranemisele. (Class IIA, Level B).
MoCVD soovitab kompressioonravi elaste või mitte-elastse või mõne muu kompressioonisüsteemiga venoosse haavandi esmaseks raviks ning soovitab kaaluda interventsiooni võimalust (Class I, Level B).
Kirjanduse andmetel pole uuringud suutnud tõestada IPC tõhusust, kui seda kasutati koos teiste kompressioonimeetoditega. IPC soovitatakse kasutada refraktoorse turse ja tulemusteta 6-kuuse kompressioonravi järel. ESVS MoCVD soovitab alustada kompressioonravist, millega ollakse kursis või harjunud. Otsest järjestust erinevatele modaliteetidele ei anta.

SIGN (2010) viitab Cochrane ülevaatele, kus võrreldi VLU ravi kompressiooniga ja ilma ning leiti, et kompressioonravi on tulemuslikum. Lisaks näitasid neli uuringut, et VLU paranesid paremini spetsialiseerunud kliinikutes kui perearsti või õe poolt ravituna. Enim kasutatakse kompressiooniks Grade 3 elastiksidemeid. UK on enimkasutatud 4LB (ortopeediline pehme side, õhuke side eelmise tasandamiseks, kaks kihti elastik Grade 3 sidet), mida vahetatakse kord nädalas. Euroopas ja Austraalias on levinud SSB (short strech inelastic bandage), mis tekitab kõrge surve patsiendi liikumisel, rahuoleks madalamat survet. Cochrane uuringus (O´Meara et al 2012) leiti, et 4LB ja SSB pole paranemise osas vahet. VenUS uuringus leiti, et 4LB on odavam võrreldes SSB, sest viimane vajas sagedasemaid vahetusi. Samas polnud personali koolituskulusid arvestatud 4LB grupis. Ühtlasi leiti, et haavandid paranesid paremini 4LB grupis. Uuring viidi läbi UK, kus on 4LB kogemus suur 4LB vs kompressioonsukad uuringuid ei leitud. Eelpool viidatud Cochrane analüüsis võrreldi SSB ja kahekomponentseid kompressioonsukkasid – sukkadega paranemine parem.
Kirjanduse ülevaates (Van Hecke et al 2008) leiti, et patsientide ravisoostumus on CCl 3 sukkadega parem kui SSB.
SIGN soovitab kasutada mitmekihilist sidet VLU raviks. Soovitab pakkuda võimalikult kõrget kompressiooni, millega patsient on nõus. Kompressioonraviga alustades tuleb jälgida esimese 48 tunniga nahakahjustuse osas. Kompressiooni võib patsiendile asetada vaid selleks väljaõppe saanud inimene.

SVS (2014) uut infot ei anna. **Eelistab mitme komponendiga kompressioonravi ühe komponendiga kompressioonravile (Grade 2, Level B).**
SVS ravijuhend viitab Hollandi ja Austria kogemusele, kus leiti, et 4LB polnud parem kui SSB, kuna sealsed meedikud olid SSB osas kogenud.

Lisaks eelpool mainitud kirjandusele on ilmunud mitmeid väiksemaid uuringuid, mis seavad kahtluse alla traditsioonilise lähenemise VLU ravi osas. Klassikaliselt alustatakse VLU korral turse vähendamist sidemega ning minnakse siis võimalusel üle kompressioonsukkadele. Mosti et al (Mosti ja Partsch 2013) võrdlesid VLU ravi alguses turse reduktsiooni SSB vs *double stockings* (20 + 20 mmHg) raviga, kus ravi alguses kanti 20 mmHg sukka, nädal hiljem lisati veel 20 mmHg sukk (kokku 40 mmHg) – turse reduktsioon ei näi sõltuvat kompressiooni tugevusest. Mõlemas rühmas saavutati võrdväärne turse reduktsioon. Seega lubavad kahekihilised kompressioonsukad võrdväärset turse reduktsiooni, hoides samal ajal märgatavalt kokku personalikuludelt. Uuringu autorid leiavad, et patsientidele võiks väljastada komplekti, mis on kas number väiksem, või pärast turse reduktsiooni mõõta uus sukk. Mõlemal juhul oleks kulude osas märgatav kokkuhoid. Jätkates sama komplektiga oleks kokkuhoid veelgi suurem.

Ashby et al 2014 poolt läbiviidud VenUS IV (457 patsienti) leiti, et kahekihiline sukk on võrreldes 4LB kulutõhusam, suka grupis on patsientide QALY mõnevõrra kõrgem. Mediaan aeg haavandi paranemiseks kompressioonsuka grupis oli 99 päeva, sidemegrupis 98 päeva. Uuring viidi läbi UKs, kus seni põhiliseks kompressioonimeetodiks on 4LB. VenUS IV uuringus kandsid patsiendid mõlemat kompressioonsukka korraga. VLU paranemises statistilist erinevust 4LB vs kahekihiline kompressioonsukk polnud.

Enamik > 65 aastaseid patsiente on võimelised endale 40 mmHg sukad vastava abivahendiga jalga saama (Sippel et al 2015). Sippel et al poolt läbiviidud uuringus kasvas eduka suka jalgasaamine 73% -> 93% pärast abivahendi kasutusele võtmist.

Seega võiks viimaste uuringute valguses eelistada VLU raviks pigem kahekihilist kompressioonsukka kui mitmekihilist sidet. Viimase kasutamine eeldab väljakoolitatud personali olemasolu, kuivõrd 4LB või SSB asetamine nõuab vastava ekspertiisi olemasolu. Lisaks toob sidemete kasutamine kaasa ka personalikulu, iganädalane sidumine õe või arsti kabinetis. Kahekihilised kompressioonsukad pakuvad patsiendile vähemalt sama tõhusat ravi vähema kuluga. Lisaks on kompressioonsukkade kasutamine mugavam, võimaldades kanda tavapäraseid jalatseid.

Peamised kompressioonklassid:

British standard:
Klass I – 14-17 mmHg
Klass II – 18-24 mmHg
Klass III – 25-35 mmHg

European classification
KlassI – 18-21 mmHg
Klass II – 23-32 mmHg
Klass III – 34-46 mmHg
Klass IV – 49-70 mmHg
Klass V – 60 – 90 mmHg

RAL (saksa, 1955)

Klass I – 18-21 mmHg
Klass II – 23-32 mmHg
Klass III – 33-46 mmHg
Klass IV > 49 mmHg

Viited

Kokkuvõtte (abstract või kokkuvõtlikum info)	**Viide kirjandusallikale**
Objective: This was a systematic review of the literature to determine which compression method is superior in promoting ulcer healing and reducing recurrence in patients with lower extremity venous ulcer disease. Methods: We conducted a comprehensive search of multiple databases for randomized and nonrandomized comparative studies from 1990 to December 2013. Results: We identified 36 studies and two Cochrane systematic reviews. Many studies had moderate risk of bias. We found no overall difference between compression stockings vs compression bandages with respect to ulcer healing, time to ulcer healing, or ulcer recurrence outcomes. When we compared stockings vs short stretch bandages, stockings were superior with respect to ulcer healing. However, stockings compared with four-layer systems showed no difference in ulcer healing outcomes. When four-layer systems were compared with compression with less than four layers, there was also no significant difference in ulcer healing outcomes. Similarly, short stretch bandages were not superior to long stretch bandages with respect to ulcer healing, time to ulcer healing, or ulcer recurrence. One Cochrane review presented many additional comparisons and reported increased wound healing with compression compared with no compression, with multicomponent systems over single component systems, and compression systems with an elastic component over no elastic component. Another Cochrane review demonstrated a reduction in recurrence with compression in patients with healed ulcers. Conclusions: At least moderate-quality evidence supports compression over no compression, multicomponent systems over	Mauck, K.F.; Asi, N.; Elraiyah, T.A.; Nabhan, M.; Altayar; O.; Sonbol, M.B.; Prokop, L.J.; Murad, M.H. Comparative systematic review and meta-analysis of compression modalities for the promotion of venous ulcer healing and reducing ulcer recurrence. J Vasc Surg 2014;60:71S-90S

single component systems, and systems with an elastic component over those without. We did not find significant differences with respect to ulcer healing outcomes for other comparisons. Low-quality evidence supports the effect of compression on ulcer recurrence.	
Background Up to one percent of people in industrialised countries will suffer from a leg ulcer at some time. The majority of these leg ulcers are due to problems in the veins, resulting in an accumulation of blood in the legs. Leg ulcers arising from venous problems are called venous (or varicose or stasis) ulcers. The main treatment is the application of a firm compression garment (bandage or stocking) in order to aid venous return. There is a large number of compression garments available and it was unclear whether they are effective in treating venous ulcers and, if so, which method of compression is the most effective. **Objectives** To undertake a systematic review of all randomised controlled trials (RCTs) evaluating the effects on venous ulcer healing of compression bandages and stockings. Specific questions addressed by the review are: 1. Does the application of compression bandages or stockings aid venous ulcer healing? 2. Which compression bandage or stocking system is the most effective? **Search methods** For this second update we searched: the CochraneWounds Group Specialised Register (31May 2012); theCochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library* Issue 5, 2012); OvidMEDLINE (1950 toMayWeek 4 2012); OvidMEDLINE (In-Process & Other Non-Indexed Citations 30 May 2012); Ovid EMBASE (1980 to 2012 Week 21); and EBSCO CINAHL (1982 to 30 May 2012). No date or language restrictions were applied. **Selection criteria.** RCTs recruiting people with venous leg ulceration that evaluated any type of compression bandage system or compression stockings were eligible for inclusion. Eligible comparators included no compression (e.g. primary dressing alone, non-compressive bandage) or an alternative type of compression. RCTs had to report an objective measure of ulcer healing in order to be included (primary	O'Meara S, CullumN,Nelson EA,Dumville JC. Compression for venous leg ulcers. *Cochrane Database of Systematic Reviews* 2012, Issue 11. Art. No.: CD000265. DOI: 10.1002/14651858.CD000265.pub3.

outcome for the review). Secondary outcomes of the review included ulcer recurrence, costs, quality of life, pain, adverse events and withdrawals. There was no restriction on date, language or publication status of RCTs. **Data collection and analysis** Details of eligible studies were extracted and summarised using a data extraction table. Data extraction was performed by one review author and verified independently by a second review author. **Main results** Forty-eight RCTs reporting 59 comparisons were included (4321 participants in total).Most RCTs were small, and most were at unclear or high risk of bias. Duration of follow-up varied across RCTs. Risk ratio (RR) and other estimates are shown below where RCTs were pooled; otherwise findings refer to a single RCT. There was evidence from eight RCTs (unpooled) that healing outcomes (including time to healing) are better when patients receive compression compared with no compression. Single-component compression bandage systems are less effective than multi-component compression for complete healing at six months (one large RCT). A two-component system containing an elastic bandage healed more ulcers at one year than one without an elastic component (one small RCT). Three-component systems containing an elastic component healed more ulcers than those without elastic at three to four months (two RCTs pooled), RR 1.83 (95% CI 1.26 to 2.67), but another RCT showed no difference between groups at six months. An individual patient data meta-analysis of five RCTs suggested significantly faster healing with the four-layer bandage (4LB) than the short stretch bandage (SSB): median days to healing estimated at 90 and 99 respectively; hazard ratio 1.31 (95% CI 1.09 to 1.58). High-compression stockings are associated with better healing outcomes than SSB at two to four months: RR 1.62 (95% CI 1.26 to 2.10), estimate from four pooled RCTs. One RCT suggested better healing outcomes at 16 months with the addition of a tubular device plus single elastic bandage to a base system of gauze and crepe bandages when compared with two added elastic bandages. Another RCT had three arms; when one or two elastic bandages were added to a base three-component system that included an outer tubular layer,	

healing outcomes were better at six months for the two groups receiving elastic bandages. There is currently no evidence of a statistically significant difference for the following comparisons: -alternative single-component compression bandages (two RCTs, unpooled); -two-component bandages compared with the 4LB at three months (three RCTs pooled); -alternative versions of the 4LB for complete healing at times up to and including six months (three RCTs, unpooled); -4LB compared with paste bandage for complete healing at three months (two RCTs, pooled), six months or one year (one RCT for each time point); -adjustable compression boots compared with paste bandages for the outcome of change in ulcer area at threemonths (one small RCT); -adjustable compression boots compared with the 4LB with respect to complete healing at three months (one small RCT); -single-layer compression stocking compared with paste bandages for outcome of complete healing at four months (one small RCT) and 18 months (another small RCT); -low compression stocking compared with SSB for complete healing at three and six months (one small RCT); -compression stockings compared with a two-component bandage system and the 4LB for the outcome of complete healing at three months (one small, three-armed RCT); and, -tubular compression compared with SSB (one small RCT) for complete healing at three months. Secondary outcomes: 4LB was more cost-effective than SSB. It was not possible to draw firm conclusions regarding other secondary outcomes including recurrence, adverse events and health-related quality of life. **Authors' conclusions.** Compression increases ulcer healing rates compared with no compression. Multi-component systems are more effective than singlecomponent systems. Multi-component systems containing an elastic bandage appear to be more effective than those composed mainly of inelastic constituents. Two-component bandage systems appear to perform as well as the 4LB. Patients receiving the 4LB heal faster than those allocated the SSB. More patients heal on high-compression stocking systems than with the SSB. Further data are required before the difference between	

high-compression stockings and the 4LB can be established.	
BACKGROUND AND AIMS: Non-compliance with compression therapy and with leg exercises and leg elevation is a common problem, often reported in patients with venous leg ulceration. Studies on compliance-enhancing interventions and the effectiveness of these interventions in patients with venous leg ulceration were reviewed. **METHODS:** MEDLINE, Cochrane, Embase and CINAHL were explored up to April 2005. Reference lists, wound care journals and conference proceedings were searched. Experts and manufacturers of compression systems were contacted. Studies were eligible if they included patients with venous or mixed leg ulcers and reported patient compliance outcome. Twenty studies were included. **RESULTS:** Most studies describe patient compliance as the extent to which the compression system was worn and/or the extent to which treatment regimen was followed. Self-reporting was the most commonly used method of compliance assessment. There are indications that class III stockings for patients with venous ulcers enhance compliance compared with short stretch compression bandages. No real evidence is found that intermittent pneumatic compression systems improved compliance. There is no well-documented evidence that healthcare system interventions increase compliance. Educational programmes combining cognitive, behavioural and affective components were shown to have a positive effect on leg elevation, but not on compliance with compression therapy. **CONCLUSION:** The included studies have a lack of consistency in defining the standard and operationalization of compliance. Patient compliance plays an ancillary role in research. No study has been able to offer an acceptable and well-documented solution to the non-compliance problem. **RELEVANCE TO CLINICAL PRACTICE:** Research might focus on the development of comprehensive compliance-enhancing strategies. A stronger commitment of healthcare providers and society is needed to make progress in this area. The scope of nursing must be expanded to also include the problems experienced by patients with leg ulcers and the improvement of patient compliance.	Van Hecke A, Grypdonck M, Defloor T. Interventions to enhance patient compliance with leg ulcer treatment: a review of the literature. J Clin Nurs. 2008 Jan;17(1):29-39..

Objective/background: Treatment for leg oedema conventionally starts with compression bandaging followed by elastic stockings once swelling is reduced. The aim was to investigate if a kit consisting of a liner and ohter stocking, each exerting 20 mmHg of pressure, would be equally effective in achieving and maintaining volume reduction compared with short-stretch bandaging (2 weeks) followed by a class II (23e33 mmHg) stocking (2 weeks). **Methods:** Forty legs (28 patients) with chronic venous oedema were randomised to either short-stretch bandages applied weekly for 2 weeks, followed by an elastic stocking for 2 weeks (group A) or a light stocking ("liner") for 1 week followed by superimposing a second stocking for 3 weeks (group B). Interface pressures and leg volumes were measured weekly. **Results:** Despite differences in the pressure (median ! interquartile range) applied (bandage: 67 mmHg [55.7e 73.0] vs. liner 24.5 mmHg [21.2e26.5]) volume reduction after 1 week was equal (12.8% [8.7e16.5] and 13.0% [10.4e20.6]). After 2 weeks (group A: 17.8% [10.6e20.0] vs. group B 16.2% [13.0e25.4]) and 4 weeks (group A:17.3% [9.6e22.8] vs. group B: 17.0% [13.1e24.1]) volume reductions remained identical. **Conclusions:** The initial improvement in leg volume (1 week) was independent of the pressure applied and the reduction was maintained by superimposing a second stocking. This offers a simple alternative for managing leg oedema with reduced staffing costs.	Mosti, G. & Partsch, H. Bandages or Double Stockings for the Initial Therapy of Venous Oedema? A Randomized, Controlled Pilot Study. European Journal of Vascular and Endovascular Surgery Volume 46 Issue 1 July/2013
Background. Drawbacks exist with the standard treatment (four-layer compression bandages) for venous leg ulcers. We have therefore compared the clinical eff ectiveness and cost-eff ectiveness of two-layer compression hosiery with the four-layer bandage for the treatment of such ulcers. **Methods**. We undertook this pragmatic, open, randomised controlled trial with two parallel groups in 34 centres in England and Northern Ireland. The centres were community nurse teams or services, family doctor practices, leg ulcer clinics, tissue viability clinics or services, and wound clinics. Participants were aged 18 years or older with a venous leg ulcer and an ankle brachial pressure index of at least 0·8, and were tolerant of high compression. We randomly allocated participants (1:1) to receive two-layer compression hosiery or a four-layer bandage, using a remonte randomisation service and prevalidated computer randomisation program.	Ashby,R.L.; Gabe, R.; Ali,S.; Adderley,U.; Bland,J.M.; Cullum,N.A.; Dumville,J.C.; Iglesias,C.P.; Kang'ombe,A.R. Soares,M.A.; Stubbs,N.C.; Torgerson, D.J. Clinical and cost-eff ectiveness of compression hosiery versus compression bandages in treatment of venous leg ulcers (Venous leg Ulcer Study IV, VenUS IV): a randomised controlled trial. Lancet 2014; 383: 871–79

Participants were stratifi ed by ulcer duration and ulcer area with permuted blocks (block sizes four and six). The primary endpoint was time to ulcer healing, with a maximum follow-up of 12 months. Although participants and health-care providers were not masked to treatment allocation, the primary endpoint was measured by masked assessment of photographs. Primary analysis was intention to treat with Cox regression, with adjustment for ulcer area, ulcer duration, physical mobility, and centre. This trial is registered with the ISRCTN register, number ISRCTN49373072. **Findings**. We randomly allocated 457 participants to the two treatment groups: 230 to two-layer hosiery and 227 to the four-layer bandage, of whom 453 (230 hosiery and 223 bandage) contributed data for analysis. Median time to ulcer healing was 99 days (95% CI 84–126) in the hosiery group and 98 days (85–112) in the bandage group, and the proportion of ulcers healing was much the same in the two groups (70·9% hosiery and 70·4% bandage). More hosiery participants changed their allocated treatment (38·3% hosiery *vs* 27·0% bandage; p=0·02). 300 participants had 895 adverse events, of which 85 (9·5%) were classed as serious but unrelated to trial treatment. Interpretation Two-layer compression hosiery is a viable alternative to the four-layer bandage—it is equally as eff ective at healing venous leg ulcers. However, a higher rate of treatment changes in participants in the hosiery group than in the bandage group suggests that hosiery might not be suitable for all patients.	
Objective/background: Compression therapy is highly effective in the treatment of post-thrombotic syndrome and venous leg ulcer. On average, 50-60% of the patients cooperate with compression therapy. Therefore, it is necessary to improve the user-friendliness. This prospective study investigated whether the use of donning devices can contribute to improving user-friendliness. **Methods:** Forty patients aged >65 years with severe chronic venous insufficiency (CVI; C4-C6) successively donned compression stockings in a randomized order: one 40 mmHg (CS40) or two superimposed 20 mmHg (CS2+20), each with open toe (CS-o-t) and closed toe (CS-c-t), using donning devices (three foot slips for CS-o-t; two foot slips and three frames for CS-c-t). The study endpoint was that the stocking was completely donned and correctly positioned on the patient's leg. The success rate and its	Sippel, K.; Seifert, B.; Hafner, J. Donning Devices (Foot Slips and Frames) Enable Elderly People with Severe Chronic Venous Insufficiency to put on Compression Stockings. Eur J Vasc Endovasc Surg (2015) 49, 221e229

association with age, sex, first time versus second time user, body mass index, abdominal circumference, ability to reach the forefoot with the hand, and hand grip strength were analyzed. Additionally, subjective evaluation by the patients was performed. **Results:** Without donning devices, success with CS40-c-t was 60% (24/40 patients) and with CS20+20-c-t 70% (28/40 patients) (p = .220). Using donning devices increased success rates significantly. With CS40-o-t the success rate was 88% (35/40 patients; p ¼ .001) and with CS40-c-t it was 90% (36/40 patients; p ¼ .002). With CS20+20-o-t and CS20+20-c-t, the success rate was 88% (35/40 patients; p = .016). The proportion of patients who successfully used either CS40 or CS20+20 increased from 73% to 93%. Relevant for the patients' success was the ability to reach the forefoot with the hand, and hand grip strength. Subjectively, donning with a device was rated significantly better than without. **Conclusion:** Donning devices significantly improve the ability of elderly patients with CVI to don compression stockings successfully. However, there are differences in user-friendliness among the devices.,	

(chronic[All Fields] AND ("varicose ulcer"[MeSH Terms] OR ("varicose"[All Fields] AND "ulcer"[All Fields]) OR "varicose ulcer"[All Fields] OR ("venous"[All Fields] AND "leg"[All Fields] AND "ulcer"[All Fields]) OR "venous leg ulcer"[All Fields])) AND compression[All Fields] AND ((Randomized Controlled Trial[ptyp] OR Meta-Analysis[ptyp] OR systematic[sb]) AND ("2005/01/01"[PDAT] : "2016/04/30"[PDAT]))
Leitud 106