**Design** Non-randomised, controlled trial.

**Setting** University teaching hospital.

**Patients and methods** Two groups of patients with IC were studied. Seventy patients were sequentially recruited before and after the establishment of a Supervised Exercise Programme at our unit. Thirty-seven patients (median age 69 years, 26 men) received conservative medical therapy (CMT) and 33 patients (median age 67 years, 22 men) received CMT plus a 3 month SEP of graduated physical exercise for sixty minutes, three times each week. Patients were assessed prior to and at 6 months following treatment. At each assessment patient reported walking distances (PRWD), treadmill claudication and maximal distances (ICD and MWD), ankle brachial pressure indices (ABPI) pre & post exercise and patient reported QoL using the SF36 questionnaire were assessed.

**Results** Prior to intervention the two groups were well matched. Following treatment, CMT patients demonstrated no significant change in PRWD or ICD but did record a small but significant improvement in MWD. CMT was also associated with a negative effect size in the SF36 index and in 7 of the 8 SF36 QoL domains, effect size $>-0.5$ for the domains of Physical Function and Emotional Role. SEP patients demonstrated significant improvement in PRWD, ICD and MWD. SEP was associated with a positive effect size in the SF36 index and in 2 SF36 QoL domains but a negative effect size in a further 2 domains. However, all QoL effect sizes following SEP were $< \pm 0.5$. Intergroup differences in effect sizes were $>0.5$ for the SF36 domains of Physical Function, Physical Role, Emotion Role and SF36 index. SEP resulted in a 0.027 quality adjusted life year (QALY) gain over CMT in the first year post-treatment thus the cost/QALY gained of SEP is £1780 at 1 year.

**Conclusions** Compared to CMT, SEP increases walking distances, improves QoL and is a highly cost-effective treatment for IC.

### A New Vascular Anastomosis Model: Relation Between Outcome and Experience

Wilasrusmee C., Phromsopha N., Lertsitichai P., Kittur D.S. Eur J Vasc Endovasc Surg 33:208-13.

**Background** Vascular anastomosis is a complex task that requires multiple skills. Existing training methods lack the ability to objectively quantify surgical skill. In this study we tested a new vascular anastomosis model for bench training.

**Materials and methods** Surgical performance was assessed based on the new vascular anastomosis training model. Thirty-eight subjects were asked to (1) close the end of a 6-mm polytetrafluoroethylene (PTFE) graft, using a continuous suturing technique with 6-0 polypropylene; (2) perform end-to-end and (3) end-to-side anastomosis using the same materials and techniques.

**Results** The mean age (sd) of all participants was 28.3 (2.1) years. More surgically experienced trainees did better in all measures of technical skill. Although there was a tendency for those with previous experience with the training model to do better in terms of the technical outcomes, these differences were not statistically significant. Multivariable analysis revealed that level of surgical training and type of anastomosis were the only significant factors related to completion time.

**Conclusions** Our study confirmed the impact of increasing surgical experience on the technical skills of surgical trainees. Trainees with higher levels of training made fewer errors and completed the procedures faster than those with lower levels of training.

### A Painless Method of Ultrasonically Assisted Debridement of Chronic Leg Ulcers: A Pilot Study

Tan J., Abisi S., Smih A., Burnand K.G. Eur J Vasc Endovasc Surg 33:234-8.

**Objectives** Devitalized tissue in a recalcitrant leg ulcer is common and may impede healing. The aim of this study was to evaluate the use of a non-invasive low frequency ultrasound device to debride chronic leg ulcers as an adjunct to compression bandages therapy.

**Methods** 19 patients with leg ulceration of at least 6 months were recruited. Low frequency ultrasound at 25 kHz was delivered by a portable Sonaca® – 180 via a handheld probe, using normal saline as the irrigation/coupling medium. The ultrasound was applied for 10-20 seconds per probe head area onto the ulcer. Each leg underwent treatment at an interval of 2-3 weeks with compression bandages reapplied at the end of the treatment. Serial colour photographs were taken to evaluate the response at each visit.

**Results** Each patient received on average 5.7 treatments each ranged from 5-20 minutes depending on the ulcer size. Symptomatic relief (pain and odour reduction) was achieved in 6 patients. 7 patients achieved complete ulcer healing (mean ulcer size=4.72±SD 1.872 $cm^2$) but no response was observed in 8 patients. There were no major complications of the treatment which was relatively painless.

**Conclusions** The application of low frequency ultrasound debridement may heal some recalcitrant ulcers when standard compression regimens have failed. It is cheap and does not require admission. The role of simple wound cleansing requires further investigation.

### Alterations in Purinoceptor Expression in Human Long Saphenous Vein during Varicose Disease

Metcalfe M.J., Baker D.M., Turmaine M., Burnstock G. Eur J Vasc Endovasc Surg 33:239-50.

**Objectives** Varicose veins are dilated tortuous veins of varying tone. Purinergic signalling is important in the control of tone and in mediating trophic changes in blood vessels. The expression of P2 receptors in control and varicose veins will be examined.

**Methods** Purinergic signalling in circular and longitudinal smooth muscle of the human long saphenous vein was studied in control and varicose tissues using immunohistochemistry, organ bath pharmacology and electron microscopy.

**Results** $P2X_1$, $P2Y_1$, $P2Y_2$, $P2Y_4$ and $P2Y_6$ receptors were present on circular and longitudinal smooth muscle. Purine-mediated circular and longitudinal muscle contractions were weaker in varicose veins. Electron microscopy and immunohistochemistry findings support the view that smooth muscle cells change from the contractile to synthetic phenotype in varicose veins, associated with an upregulation of $P2Y_1$ and $P2Y_2$ receptors and a down regulation of $P2X_1$ receptors.

**Conclusions** Down regulation of $P2X_1$ receptors on the smooth muscle of varicose veins is associated with loss of contractile activity. Up-regulation of $P2Y_1$ and $P2Y_2$ receptors is associated with a shift from contractile to synthetic and/or proliferative roles. The phenotype change in smooth muscle is associated with weakening of vein walls and may be a causal factor in the development of varicose veins.